Volksbanken Raiffeisenbanken
cooperative financial network

2020
Annual Report

DZ BANK Group

Key figures

DZ BANK GROUP

€ million	2020	2019
FINANCIAL PERFORMANCE		
Income [1, 2]	6,169	7,061
Loss allowances	-678	-329
Profit before taxes [2]	1,455	2,658
Net profit [2]	980	1,880
Cost/income ratio (percent) [2]	65.4	57.7

	Dec. 31, 2020	Dec. 31, 2019
FINANCIAL POSITION		
Assets		
Loans and advances to banks	103,020	97,544
Loans and advances to customers	190,294	186,224
Financial assets held for trading [2]	42,846	44,771
Investments	60,232	56,927
Investments held by insurance companies	121,668	113,549
Remaining assets [2]	76,513	60,457
Equity and liabilities		
Deposits from banks	177,852	141,121
Deposits from customers	133,925	131,516
Debt certificates issued including bonds	70,500	85,123
Financial liabilities held for trading [2]	50,404	51,050
Insurance liabilities	111,213	104,346
Remaining liabilities [2]	21,520	18,520
Equity	29,159	27,796
Total assets/total equity and liabilities [2]	**594,573**	**559,472**
Volume of business [2]	**1,059,874**	**994,235**

	Dec. 31, 2020	Dec. 31, 2019
RISK POSITION		
LIQUIDITY ADEQUACY		
DZ BANK Group		
Economic liquidity adequacy (€ billion) [3]	15.3	12.5
DZ BANK banking group		
Liquidity coverage ratio – LCR (percent)	146.3	144.6
CAPITAL ADEQUACY		
DZ BANK Group		
Economic capital adequacy (percent)	163.1	160.2
DZ BANK financial conglomerate		
Coverage ratio (percent) [4]	142.2	127.6
DZ BANK banking group		
Common equity Tier 1 capital ratio (percent) [4]	15.2	14.4
Tier 1 capital ratio (percent) [4]	16.6	15.9
Total capital ratio (percent) [4]	19.4	17.9
Leverage ratio (percent) [4]	5.6	4.9
MREL ratio (percent) [5]	12.2	11.0
AVERAGE NUMBER OF EMPLOYEES DURING THE YEAR	**31,410**	**30,825**
LONG-TERM RATING		
Standard & Poor's	AA-	AA-
Moody's Investors Service	Aa1	Aa1
Fitch Ratings	AA-	AA-

1 Total of net interest income, net fee and commission income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, gains and losses from the derecognition of financial assets measured at amortized cost, net income from insurance business, and other net operating income.
2 Prior-year figure restated.
3 The value relates to the stress scenario with the lowest minimum liquidity surplus. The internal threshold value relates to the observation threshold.
4 Values based on full application of CRR I.
5 The value as at December 31, 2020 was not available by the publishing deadline. The value measured as at September 30, 2020 is therefore shown.

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Uwe Fröhlich (left) and Dr. Cornelius Riese, Co-Chief Executive Officers

Dear Shareholders,

We are looking back on a year that was shaped to a large degree by the COVID-19 pandemic. Despite a turbulent and challenging twelve months, we are delighted that the DZ BANK Group was able to emerge from the year with a very satisfactory profit before taxes of €1.46 billion. We are thereby in line with the target we set ourselves prior to the pandemic.

The markets proved to be very volatile in 2020. The brief respite and economic rebound over the summer came to an abrupt end toward the end of the year as the rate of infection soared again. Thanks to the robust German economy, the predicted resulting slump in gross domestic product was kept within reasonable limits, the contraction amounting to 5 percent. The financial sector made every effort to help stabilize economic activity under these circumstances. This is well illustrated by the approximately 48,000 applications with a total volume of over €12 billion that the cooperative financial network alone, as a channel for development loans from Germany's KfW development bank and other development banks, quickly processed so that the loans could be disbursed to companies.

While earnings were severely squeezed in the first quarter, the situation changed in the middle of the year as a result of the encouraging performance in nearly all segments of the banking group. Earnings have risen continually since then. Notable positive contributions came from Union Investment and DZ HYP. Union Investment benefited from the buoyant equity markets and recorded high levels of inflows. It also strengthened its portfolio in the important and fast-growing residential real estate market by acquiring a majority stake in the ZBI Group. DZ HYP's operating business performed very well, its government bond portfolio benefiting from reversals of impairment losses, although the impact was much less than in the previous year. DZ BANK – central institution and corporate bank was able to cater to corporate and

institutional customers' greater need for liquidity in the crisis and further strengthened its leading position in the capital markets, corporate banking, and transaction banking businesses. Some of the rise in loss allowances at DZ BANK was also due to the current uncertainties, particularly surrounding future economic conditions. In addition, the downturn in the global economy took a particularly heavy toll on DVB Bank's shipping finance portfolio. At the same time, the speed with which the remaining volume of customer loans was reduced in 2020, from €7.4 billion to €3.9 billion, exceeded expectations. We are currently in the midst of an open-ended review to establish whether DVB's remaining activities can be integrated into DZ BANK.

The key results from the DZ BANK Group in detail:

Net interest income came to €2.80 billion (2019: €2.74 billion). Whereas DZ BANK – central institution and corporate bank and DZ HYP saw significant increases due to their encouraging operating performance, Bausparkasse Schwäbisch Hall had to recognize further provisions for interest-rate bonuses as a consequence of the persistently low interest rates. **Net fee and commission income** rose to €2.12 billion (2019: €1.98 billion). The main factors in this increase were sustained high demand, especially for mutual funds at Union Investment, and the sound performance of the central institution and corporate bank. **Gains and losses on trading activities** jumped from a net gain of €472 million in 2019 to a net gain of €552 million in the year under review thanks to very satisfying capital markets business at the central institution and corporate bank. A particularly special and successful transaction was the second bond under the European Union's SURE program (Support to mitigate Unemployment Risk in an Emergency). **Gains and losses on investments** fell to a net gain of €166 million (2019: €182 million) due to the absence of the positive one-off items that had arisen in the previous year in connection with the sale of parts of the business. **Other gains and losses on valuation of financial instruments** amounted to a net loss of €22 million (2019: net gain of €255 million). Although there were positive valuation effects in the government bond portfolio of DZ HYP, albeit to a lesser extent than in 2019, they were offset by changes in the valuation of guarantee commitments at Union Investment and by IFRS 9-related effects at DVB Bank. The insurance business reflected a significant rise in premiums earned from all activities. The decline in **net income from insurance business** to €347 million (2019: €1.17 billion) was primarily attributable to greater losses, particularly in the reinsurance business, and a lower net gain on investments held by R+V Versicherung as a consequence of capital market trends. **Loss allowances** rose to €678 million (2019: €329 million). Besides the increased allowances required at DVB Bank, there was also an addition of €220 million arising from the incorporation under IFRS 9 of the macroeconomic trends projected as a result of the COVID-19 pandemic. Despite investment in infrastructure and growth, **administrative expenses** held steady at €4.04 billion (2019: €4.07 billion) thanks to the disciplined management of costs.

The commitment and hard work of our employees was a significant factor in enabling us to generate positive earnings in what was an extraordinary year. We would like to express our great appreciation and thanks to them for being so dedicated and flexible over the last months.

The DZ BANK Group continued to strengthen its capital base in 2020. The common equity Tier 1 capital ratio stood at 15.2 percent as at December 31, 2020 (December 31, 2019: 14.4 percent), the first time the ratio has exceeded 15 percent. The leverage ratio came to 5.6 percent (December 31, 2019: 4.9 percent). This reflects our circumspect approach to managing risk assets and our ability to retain profits. The bank's capital structure also continued to improve, due to the successful placement of Tier 2 bonds with a total volume of €1.5 billion. This provides solid foundations for further capital expenditure aimed at securing our future market success and will enable us to repay all outstanding Tier 1 issues in 2021.

Given its very good level of capital adequacy, the bank has constantly argued that it should be permitted to distribute a reasonable share of the profits achieved in 2019 and 2020 to its shareholders. We welcome the initial leeway that has now been granted by the supervisory authority and will make full use of this opportunity as far as possible.

The first few weeks of the new year have seen continued brisk demand in the capital markets business, whereas the intensive activity in the lending business – that was partly fueled by government subsidy programs – has settled at a moderate level. Across Europe, the increase in pandemic-related restrictions in late 2020 and early 2021 has weakened the economy over the winter. Nevertheless, the vaccination programs that have begun worldwide are providing hope that day-to-day life and economic activity can return to normal, resulting in an economic recovery in the second half of the year. Our economists predict growth of 2.7 percent for the German economy in 2021. We expect our profit before taxes for 2021 to be slightly lower than in 2020 due to the unpredictability of the economic fallout from the pandemic.

Looking ahead, we can see significant opportunities for growth in our banking group. Despite the challenges in 2020, we still devoted a great deal of energy to finding even better ways of exploiting the potential business available in collaboration with the cooperative banks. These included digital solutions to support sales and simplify settlement processes. We also made good progress throughout the group with joint activities to expand platform business. For example, Bausparkasse Schwäbisch Hall is systematically investing in progressive business strategies with the development of a digital ecosystem based on homes and house-building and the establishment of BAUFINEX, a digital home finance platform. The payments processing business will also continue to enjoy dynamic growth. The crisis has given a significant boost to the use of digital, contactless payments. With the future in mind, our concern over the next few months will be to continue to reinforce this area of our business from a strategic perspective. To this end, we are leading players in key initiatives such as the European Payments Initiative (EPI) and the German #DK digital banking project and we are stepping up our efforts to turn groundbreaking solutions, such as the Request to Pay service, into market-ready systems.

Not least, during the pandemic sustainability has also taken on a new dimension and urgency in the economy, society, and politics alike. Over the next few years, sustainability will increasingly become a kind of operating license for the players in the financial industry. Building on the system of cooperative values and equipped with a good ISS ESG rating (C+), the DZ BANK Group is well positioned and working hard to further enhance its sustainability credentials. A classification framework for our lending business and the establishment of an even more comprehensive reporting system are important steps on that path. Furthermore, we are already enjoying great success in leveraging the potential available from sustainable finance business, for example with socially responsible funds and investments and the placement of green bonds as part of the capital markets business. In 2020, DZ BANK issued its second green bond, which generated a huge amount of investor interest.

At the same time, we are pursuing and accelerating a broad range of digitalization projects. Under the umbrella of our 'Verbund First 4.0' strategy, we have created an overarching program known as 'Digital Readiness'. It encompasses strategic initiatives related to the provision of software solutions and the use of new technologies, notably cloud technology. We are also working on blockchain-based solutions in the capital markets and payments processing businesses. One of the benefits is that these solutions could enable us to develop new services in the future. These and other initiatives are the foundation stones that will enable our banking group to remain innovative and competitive.

In addition to the strategic measures we have implemented and the progress we have made, it is above all thanks to the inner strength and flexibility of our organization that we have been able to maintain our stability as we emerge from this crisis year 2020. It is on this basis that we will deal with the challenges ahead with confidence and optimism.

Kind regards,

Uwe Fröhlich
Co-Chief Executive Officer

Dr. Cornelius Riese
Co-Chief Executive Officer

Group management report

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Note

The figures in this report are rounded to the nearest whole number. This may give rise to small discrepancies between the totals shown in the tables and diagrams and totals calculated from the individual values shown.

I DZ BANK Group fundamentals

1 Business model and strategic focus

The strategic focus in the DZ BANK Group follows the guiding principle of fulfilling the role of a network-oriented central institution and financial services group. Business activities are centered on the local cooperative banks and their customers. The objective of this strategic approach is to consolidate the positioning of the cooperative financial network as one of the leading financial services providers in Germany on a long-term basis. The partnership between the cooperative banks and the entities in the DZ BANK Group is built on the principles of subsidiarity, decentralization, and regional market responsibility.

The DZ BANK Group drives forward strategic initiatives and programs at three different levels. Firstly, the entities in the DZ BANK Group work with the cooperative banks and Fiducia & GAD IT AG, Karlsruhe and Münster, (Fiducia & GAD) under the leadership of the Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V., Berlin, (BVR) [National Association of German Cooperative Banks] on strategic projects and initiatives. The strategy agenda entitled 'Shaping the future cooperatively' provides a framework within which the entities of the cooperative financial network are implementing the initiatives in the BVR's strategic KundenFokus (customer focus) project with the aim of establishing an omnichannel model to strengthen their competitiveness. Secondly, the entities in the DZ BANK Group have jointly identified key areas of collaboration that offer the potential for reinforcing the future viability and profitability of all the members of the cooperative financial network. These areas include measures to streamline the business model. At the third level, each individual entity in the DZ BANK Group pursues its own strategic initiatives, such as the 'Verbund First 4.0' strategic program at DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK), the 'Wachstum durch Wandel' (growth through change) program at R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V), and the Fokus 2020 program at DZ HYP AG, Hamburg and Münster, (DZ HYP).

The DZ BANK Group did not need to significantly adjust its strategic focus as a result of the COVID-19 pandemic. Nevertheless, the entities in the DZ BANK Group responded to the changed market conditions by taking various measures and adapting their product ranges. Nearly all sales activities were moved to digital channels owing to the social distancing requirements introduced in connection with the crisis. Within the DZ BANK Group, precautionary measures were coordinated and implemented to ensure operational stability. The technical options for working from home were extended across the group. During the crisis, DZ BANK's committees were kept up to date on the latest situation and were able to make decisions at all times by holding virtual meetings, including extra meetings added to the usual schedule. Changes that have been initiated, such as the accelerated digitalization of sales and back-office processes, and the introduction of different ways of collaborating, will continue to have an effect on the DZ BANK Group's business activities even when the COVID-19 pandemic has passed.

1.1 DZ BANK – central institution and corporate bank

The strategic focus of DZ BANK, as described below, essentially relates to the activities of DZ BANK – central institution and corporate bank. DZ BANK – central institution and corporate bank comprises both the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function, which is presented separately in this report in line with the internal reporting structure, is used to pool a range of responsibilities, notably tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision. It does not therefore constitute a separate operating segment within the meaning of IFRS 8.5 and is not analyzed separately in this chapter.

At DZ BANK, the strategic initiatives designed to ensure the bank's resilience for the future are brought together in 'Verbund First 4.0', a strategic program launched in 2018. The program is aimed at improvements in three key areas: market offering, control and production processes, and corporate culture. Under the program, DZ BANK is working on various measures based on defined action areas. A positive impact on employee satisfaction from the changes instigated under the 'Verbund First 4.0' strategy was already evident in the reporting year. Results from a staff survey in the middle of 2020 showed that satisfaction had risen and that employees strongly identified with DZ BANK's current corporate strategy and values.

The following sections describe how DZ BANK is implementing its strategy in the various business lines.

1.1.1 Cooperative Banks/Verbund

The cooperative banks are DZ BANK's most important customer group and its partners in joint activities covering sales and the provision of advisory services, as well as being shareholders. The focus of the Cooperative Banks/Verbund division is to meet the needs of this relationship and provide comprehensive, optimum support for the cooperative banks. The Regionaldirektoren [regional directors] of DZ BANK are the first port of call and customer relationship manager for the cooperative banks, with the aim of assisting them with their business activities in the regional markets. DZ BANK's presence in all regions ensures that it can be close to the banks it supports, in terms of both physical proximity and emotional connection.

DZ BANK offers the cooperative banks consultancy and other services at every stage of strategic bank management and regulatory processes. In addition, DZ BANK assists the local cooperative banks with treasury and controlling aspects of bank management, such as planning and risk management, as well as with optimization for strategic bank management purposes and with own-account investing activities. DZ BANK offers the cooperative banks systems such as GENO-SAVE and EGon that help them to meet requirements in the areas of own-account investing, reporting, and accounting. As part of the 'Verbund First 4.0' program, DZ BANK has updated its advisory and sales processes relating to own-account investing activities and upgraded its platform for cooperative banks, which is closely integrated into their system landscape.

Key network committees ensure that the cooperative banks are closely involved in DZ BANK's strategic considerations and initiatives. The Central Advisory Council enables important strategic matters in the DZ BANK Group to be discussed in depth and connects the various players and levels in the cooperative financial network. DZ BANK also has five regional Banking Advisory Councils that carry out an advisory and multiplier function.

1.1.2 Corporate Banking

In the corporate banking market, DZ BANK supports the cooperative banks. This support concept is geared to the needs of corporate customers and the individual market situation, and is closely integrated with the activities of the cooperative financial network. DZ BANK has four regional customer care centers that look after both its direct customers and customers in the joint business with the cooperative banks. Customer relationship management for multinationals, the agricultural and healthcare sectors, and cooperative financial network customers has been grouped together in the Central Corporate Banking division. This division is also responsible for corporate banking development activities.

Support is also provided for the international business of the cooperative financial network's corporate customers, where required. DZ BANK offers a range of solutions geared to Germany's export-oriented economy, including foreign payments processing, export credit guarantees and financing, and currency hedging. It frequently makes use of its contacts with well-established partner banks in the countries concerned to help corporate customers open local accounts or obtain financing in the relevant currency. DZ BANK has four branches and six representative offices outside Germany. They are located in key financial markets and in certain countries outside the European Economic Area (EEA) that are important trading partners for Germany. The VR International information and communications platform has been specially developed to help large and medium-sized companies conduct international business.

In September 2020, DZ BANK took over the former VR Factorem GmbH from VR Smart Finanz AG, Eschborn, (VR Smart Finanz). The company now has the name VR Factoring GmbH and rounds off the range of products in the receivables management business. It is a specialty financing provider and offers a platform that facilitates the sale of unsettled trade receivables.

In 2020, DZ BANK continued the process of digitalizing the business line with the launch of the DZdigital360 platform, which covers the corporate customer lending process. Combined with the link to VR GeschäftsNavigator (VR business navigator), which provides digital sales process support for corporate customer relationship managers in cooperative banks and was completely revised and upgraded in 2020, the introduction of DZdigital360 is intended to further enhance process efficiency in the corporate customer lending business operated jointly with the cooperative banks.

Since the reporting year, DZ BANK has been focusing particularly on support lending in order to meet the requirements associated with the implementation of the different government assistance programs in response to the COVID-19 pandemic. It offers the cooperative banks, their corporate customers, and group entities various advisory, process, and digitalization services in connection with public-sector support loans. In this context, it primarily works with Kreditanstalt für Wiederaufbau (KfW) [Germany's KfW development bank], the federal states' own development banks, and Landwirtschaftliche Rentenbank. The coronavirus support programs were integrated into the sales platform, VR Bankenportal (VR banking portal), and the Foerder-Welt.de website right at the beginning of the COVID-19 pandemic. In addition, VR Smart Finanz and DZ BANK quickly combined their digital production processes to create 'VR Smart flexibel support loan', a completely new product offering.

1.1.3 Retail Banking

In retail banking, one of the primary areas of DZ BANK's marketing is the securities business with retail customers. In this business, DZ BANK offers services in the form of products, processes, and platforms, which are predominantly made available to the cooperative banks and cooperation banks. DZ BANK's aim is to help these banks with their marketing and strategic planning in relation to securities business with retail customers. As well as securities and savings plans, this includes liability products, advisory services, market data, research, and trading/advisory/e-business platforms.

DZ BANK makes available individual analyses and data tools to support the cooperative banks with their planning, implementation, and review of strategy throughout the management cycle. It thereby helps the cooperative banks to meet their regulatory obligations. This support is being accompanied by the accelerated expansion of a range of sustainable products aimed at satisfying regulatory requirements as part of DZ BANK's approach to sustainability in its advisory services.

In the context of the digitalization strategy, DZ BANK is developing solutions that can be used to provide customers of the cooperative banks and cooperation banks with digital access to their bank in addition to conventional branch visits. Alongside online banking applications, this has also included, since 2019, a facility whereby retail customers are able to quickly open an investment account themselves online, thereby cutting the administrative burden, both for themselves and the bank.

Within the scope of the 'Verbund First 4.0' strategic program, DZ BANK is aiming to broaden its sales activities and step up the market penetration of its B2B and B2B4C platform solutions, in particular in collaboration with the cooperative banks. These activities include the meinGIS web-based market data platform for advisors, the Meine Anlagezertifikate (my investment certificates) digital world, and the DZ BANK derivatives portal for retail customers. The meinGIS platform provides advisors with access to the latest market information, such as share prices, bond prices, charts, and corporate news. Retail customers can access the Meine Anlagezertifikate digital world at any time and from any device to obtain detailed information on investment products in their investment accounts. The DZ BANK derivatives portal also offers a broad range of investment products for independent retail investors.

1.1.4 Capital Markets

DZ BANK offers advisory and sales services in relation to investment and risk management products covering the interest-rate, credit, equities, and currency asset classes for the benefit of its institutional customers in Germany and abroad, the cooperative banks in their own-account investing activities, and its corporate customers. Its offering also encompasses advisory and sales services in connection with equities and fixed-income products in both primary and secondary markets, as well as research services.

On behalf of the cooperative financial network, the Group Treasury division at DZ BANK carries out the cash-pooling function and ensures access to money markets and capital markets as well as to liquidity provided by central banks. In addition, Treasury acts as the product portfolio manager for secured and unsecured money market business, currency swaps and forwards, and the issue of short-term commercial paper.

As part of the 'Verbund First 4.0' strategic program, DZ BANK is focusing its capital markets activities on consolidating its market position and on expanding its services and digital platforms. For example, the SalesCockpit developed by DZ BANK's InnovationLAB went live in 2020. This application supports sales employees with product ideas and information about customer needs and brings together a large amount of previously fragmented data covering trades, limits, and contact names. The EGon own-account investing platform is being steadily expanded into an integrated trading and treasury platform for the benefit of cooperative banks. Since the first quarter of 2021, it has been possible to use EGon to pick stocks across the range of products and to directly enter into standard bond transactions.

DZ BANK is constantly working on expanding its expertise and business in sustainable capital market products, and on positioning itself as a leader in the structuring and placement of new issues in the ESG (environmental, social, governance) market segment. After placing the first issue of its own green bond in 2018, DZ BANK placed a second such bond with a volume of €250 million in December 2020. The bond is primarily focused on green financing for wind power generation projects. DZ BANK is active in the segment covering social bonds aimed at dealing with the consequences of the pandemic, for example with support for a bond issued under the European Union's SURE program (Support to mitigate Unemployment Risk in an Emergency). The ESGlocate database created in 2020 enables issuers to ensure that their sustainable bonds are consistently allocated to socially responsible investors. These activities underline the importance that DZ BANK attaches to sustainability.

1.1.5 Transaction Banking

In the Transaction Banking business line, DZ BANK provides its customers with payments processing, card processing, and capital markets services. It also offers depositary and advisory services. In addition, DZ BANK makes platforms available in order to improve the competitiveness of the companies within the cooperative financial network with regard to transaction banking.

Based on the corporate strategy of the cooperative financial network, DZ BANK is intending to handle all payments processing itself again going forward so that it can offer payments processing solutions more efficiently and independently of third-party involvement. In a process of gradual migration, the plan is to carry out further pooling of resources, functions, and services.

In view of changes to the regulatory environment for banking infrastructure and payments processing infrastructure, as well as the arrival of new competitors in the market, DZ BANK is playing an active role in initiatives to create cross-channel, independent payments solutions. For example, in the European market, it is participating in the European Payments Initiative (EPI) and the German #DK digital banking project, which is closely integrated with the EPI. DZ BANK is also involved in activities organized by Deutsche Bundesbank and the Bundesministerium der Finanzen (BMF) [German Federal Ministry of Finance] concerning the design and introduction of the digital euro.

In April 2020, DZ BANK introduced ApplePay for customers of the cooperative financial network, thereby complementing its mobile payments offering. Currently, it is also working on the design of the Request to

Pay service, the future pan-European standard for exchanging real-time messages securely and simply, either with or without an accompanying payment transaction. In this regard, DZ BANK is planning to offer the first solutions to its corporate customers in the near future.

In the capital markets services business, DZ BANK processed a further completely digital promissory note transaction based on blockchain technology in 2020 in collaboration with other banking partners. The type of digital execution established to do this, referred to as Finledger, streamlines the approach, cutting out more than half of the steps previously required by the process. This activity is an example of the complex measures needed to digitalize the processes involved in capital markets services. DZ BANK is also offering a central transaction-based reporting system that strengthens the ability of the entities in the cooperative financial network to satisfy regulatory requirements.

As part of the growth strategy in the depositary business, DZ BANK increased the volume of its assets under custody in 2020 through both organic growth and growth by acquisition.

1.2 BSH

Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (Bausparkasse Schwäbisch Hall; subgroup abbreviated to BSH) is the consumer home finance provider in the DZ BANK Group and offers solutions that enable customers to build up private retirement or other savings, own their own home, or obtain home finance. The strategic objective is to safeguard BSH's position as market leader with its profitable building society operations, working in close collaboration with the cooperative banks on a decentralized basis.

In its core home finance business, BSH positions itself as a partner of the cooperative banks. It focuses on traditional home savings loans, its own instant finance options backed by home savings, building loans, and the brokering of cooperative bank real estate loans. In the core home savings business, BSH is continuously developing the range of products to improve the return on the products.

To expand its own funding base, BSH has begun to issue Pfandbriefe as a source of funding. In 2020, for the first time, it issued a bearer Pfandbrief in benchmark format with a value of €500 million and a term of ten years.

BSH also remains active in its international business, focusing on maintaining the existing approach to business through investee companies in Slovakia, Hungary, and China.

In response to new market requirements, the persistently low interest rates, and changes in customer needs, BSH is keeping costs tightly controlled over the long term while at the same time investing in the future, as dictated by its corporate strategy. This investment is primarily concentrated on upgrading IT infrastructure and implementing digitalization initiatives, such as the development of a digital ecosystem for finance products based on homes and house-building, and BAUFINEX, a digital home finance marketplace for independent brokers, established in 2018.

1.3 R+V

R+V is the cooperative provider of insurance and pension products and operates in the non-life, life, health, and reinsurance sectors.

R+V has established a strategic program known as 'Wachstum durch Wandel' (growth through change) to guide its overall development going forward. This program aims to consolidate R+V's market position, enhance value creation for the cooperative financial network, and support the focus of future activities. Action to safeguard lasting profitable growth, a focus on customers, the refinement of sales operations, and digitalization are the cornerstones of the program. 'Wachstum durch Wandel' is accompanied by an evolution of corporate culture.

Within this framework, R+V is continuing to develop its range of products. In response to the consequences of the COVID-19 pandemic, R+V participated in a German government initiative in 2020 aimed at maintaining credit insurance and ensuring the movement of goods, and supported the VR-ExtraPlus Hilft voucher portal set up by the cooperative financial network.

To add a further dimension to its sustainability profile, R+V signed the Principles for Responsible Investment in the reporting year, thus becoming the second entity within the DZ BANK Group to support these principles after Union Asset Management Holding AG, Frankfurt am Main, (Union Asset Management Holding; subgroup abbreviated to UMH). From now on, customers can include sustainability aspects in their R+V unit-linked policies by selecting an institutional fund that invests the money in the equities of sustainability-oriented companies in the equities phase.

1.4 TeamBank

TeamBank AG Nürnberg, Nuremberg, (TeamBank) is the provider of liquidity management products in the cooperative financial network. In Germany, it offers its easyCredit family of consumer finance products. The products offered also include easyCredit-Finanzreserve, which customers can use to obtain additional cash of up to €15,000 at any time and via instant payments, and 'Ratenkauf by easyCredit', which is an installment purchase solution that can be used both online and in-store. In Austria, it collaborates with the cooperative banks to offer 'Der faire Credit', a consumer finance product.

TeamBank's strategic activities are focused on generating long-term profitable growth for the cooperative financial network. The company aims to be customers' first choice for liquidity management. In this context, TeamBank is continuing to upgrade its technical infrastructure in order to establish the necessary foundations for further growth. In 2020, it introduced a legal, qualified electronic signature for finalizing transactions with customers in branches of cooperative banks. Contract documents were then also issued digitally in conjunction with the new signing procedure.

1.5 UMH

UMH is the asset manager in the cooperative financial network and offers investment solutions for retail and institutional clients. In both areas of business, it is aiming for further expansion of the volume of assets under management.

In the retail business, the products and services for UMH's customers are aimed at building up savings, investing and optimizing assets, and providing for old age. UMH is striving to generate growth in this business by expanding its range of solutions for partner banks. In this context, it is offering the cooperative banks and their customers fund solutions, platforms such as the MeinInvest digital investment tool, and the VermögenPlus product in which investments in funds are actively managed; it is also constantly expanding its digital marketing activities.

In the institutional client business, UMH is the central asset manager for the cooperative financial network. It also provides asset management for German and international institutional clients outside the cooperative sector. It offers special funds, institutional mutual funds, asset management, advisory services, capital preservation strategies, and quantitative asset management strategies. UMH's objective in its institutional client business is to consolidate its positioning as an active risks/returns manager and sustainability manager using a range of sustainability solutions developed as part of the enhancement of its product offering.

1.6 DZ HYP

DZ HYP, the cooperative specialist for real estate finance and local authority funding, supports the local cooperative banks in their regional markets. The bank serves corporate, retail, and public-sector customers. DZ HYP's sales activities in its business lines are based on long-term customer relationships in its direct and cooperative network business and on products and services that are defined with a view to their risk and reward.

DZ HYP has two headquarters, in Hamburg and Münster, plus twelve further offices across Germany. It also supports (primarily institutional) clients from Germany in the French, Dutch, UK, and Austrian markets.

DZ HYP's strategic development is now focused on systematic regional marketing in collaboration with the cooperative banks in order to consolidate its market position in Germany. It is also working steadily on upgrading and digitalizing its processes for new business and existing portfolios.

DZ HYP has moved the non-strategic part of its governments/banks securities portfolio to a wind-down portfolio with the primary aim of running off these securities while preserving value.

1.7 DZ PRIVATBANK

DZ PRIVATBANK S.A., Luxembourg, with its eight branches in Germany, the two subsidiaries DZ PRIVATBANK (Schweiz) AG, Zurich, (DZ PRIVATBANK Schweiz) and IPConcept (Luxemburg) S.A. (IPC LU), and IPConcept (Schweiz) AG (IPC CH), is the international provider for private banking/wealth management, fund services, and lending in all currencies within the cooperative financial network.

DZ PRIVATBANK's products and services encompass not only investment and financing solutions for high-net-worth individuals, business people, foundations, and semi-institutional customers but also bespoke service packages for professional fund initiators and flexible loan products denominated in euros and other currencies for retail and corporate customers.

It has also specified targeted areas for sales growth in its sectors of the market. These include financial portfolio management (asset management), for example for Switzerland-oriented client accounts, that facilitates asset diversification for European customers outside the eurozone, and further expansion of the investment solutions managed according to strict sustainability criteria that have been offered for many years. Other key growth areas are third-party fund business relating to liquid and alternative investment funds, for example in close collaboration with DZ BANK AG (Fondshafen (fund havens) sales initiative), and flexible euro-denominated LuxCredit financing to cover customers' variable borrowing needs in the retail and business financing sector.

1.8 VR Smart Finanz

In the cooperative financial network, VR Smart Finanz is the digital provider of finance for the self-employed and small businesses and operates as a subsidiary partner of the local cooperative banks. Since its strategic transformation process was initiated in 2017, VR Smart Finanz has been focusing on lending, hire purchase, and leasing solutions up to €750,000, and on digital services for customers in the small business, self-employed, and lower SME segments. In addition, VR Smart Finanz has been divesting non-strategic operations, most recently in September 2020 with the transfer of its subsidiary VR Factorem to DZ BANK.

As part of its corporate strategy, VR Smart Finanz is focusing on further expansion of its automated financing solutions. In addition, it offers its small-business and self-employed customers digital services relating to day-to-day financial requirements, such as the VR Smart Guide accounting software introduced at the end of 2018 and Bonitätsmanager (credit status manager), an application for optimizing the credit quality of a business. The digitally supported financing solutions and digital services aim to offer target customers needs-based and omnichannel access with less administrative effort for bank and customer alike.

In response to the COVID-19 pandemic, VR Smart Finanz extended its range of solutions and, from the end of March 2020, offered the 'VR Smart flexibel support loan', a loan for small and medium-sized businesses that can be taken out digitally or in person through the local cooperative banks and is subsidized through KfW. VR Smart Finanz thus enables customers of the cooperative banks to submit an automated application for loans, hire purchase, or leasing and is supporting the growing digital sales trend, which has gathered pace during the COVID-19 pandemic.

1.9 DVB

DVB Bank SE, Frankfurt am Main, (DVB Bank; subgroup abbreviated to DVB) is a specialist niche provider in the area of international transport finance, focusing on shipping finance.

The restructuring of DVB began in 2017 and its business activities have been scaled back markedly over the last few years. DVB's remaining business, shipping finance, is being run off while preserving as much value as possible. An open-ended review is currently being carried out to establish whether the remaining activities of DVB can be integrated into DZ BANK.

2 Management of the DZ BANK Group

2.1 Management units

The DZ BANK Group comprises DZ BANK as the parent company, the DZ BANK Group's fully consolidated subsidiaries in which DZ BANK directly or indirectly exercises control, and other long-term equity investments that are not fully consolidated.

All entities in the DZ BANK Group are integrated into groupwide management. In the case of subgroups, the disclosures in the group management report on management units relate to the entire subgroup comprising the parent company of the subgroup plus its subsidiaries and second-tier subsidiaries. The management units are managed by the parent company in the subgroup, which is responsible for compliance with management directions in the subsidiaries and second-tier subsidiaries. The following management units form the core of the financial services group:

- BSH
- R+V
- UMH
- TeamBank
- DZ BANK – central institution and corporate bank (DZ BANK – CICB)
- DZ HYP
- DZ PRIVATBANK
- VR Smart Finanz
- DVB

The management units are each managed as a separate operating segment. DZ BANK – holding function is also presented separately, although it does not constitute an operating segment within the meaning of IFRS 8.5.

The DZ BANK – CICB operating segment comprises both the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is used to pool a range of responsibilities, notably tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision.

All risks at DZ BANK, and therefore arising in connection with the CICB segment and the holding function, are determined, reported, and managed for DZ BANK on an integrated basis. The aim of this approach is to satisfy the regulatory requirements under Basel Pillar 1 and Pillar 2 whereby DZ BANK must be treated as one bank overall. This also meets the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA), which is a generally accepted framework for risk management that DZ BANK is under an obligation to apply. The operating segments presented in the risk report (chapter VII) are consistent with the operating segments in the consolidated financial statements, because the CICB segment accounts for the main risks at DZ BANK. These risks are credit risk, market risk, equity investment risk, and most of the business risk, reputational risk, and operational risk.

The terms DZ BANK Group and DZ BANK financial conglomerate are synonymous and refer to all the management units together. The context dictates the choice of term. For example, in the case of disclosures relating to economic management, the focus is on the DZ BANK Group, whereas in the case of regulatory issues relating to all the management units in the DZ BANK Group, the term DZ BANK financial conglomerate is used.

The DZ BANK financial conglomerate largely comprises the DZ BANK banking group and R+V. DZ BANK acts as the financial conglomerate's parent company.

2.2 Governance

Governance in the DZ BANK Group is characterized by the general management approach of the DZ BANK Group, appointments to key posts in the subsidiaries, and the committee structure.

2.2.1 General management approach

The general management approach consists of a combination of centralized and decentralized management tools. It is aligned with the business model and risks of the DZ BANK Group as a diversified financial services group that is integrated into the Volksbanken Raiffeisenbanken cooperative financial network and that provides this network with a comprehensive range of financial products.

The DZ BANK Group is a financial services group comprising entities whose task as product specialists is to supply the Volksbanken Raiffeisenbanken cooperative financial network with an entire range of financial services. Because of the particular nature of the DZ BANK Group, it is managed both centrally and locally with clearly defined interfaces and taking into account business policy requirements.

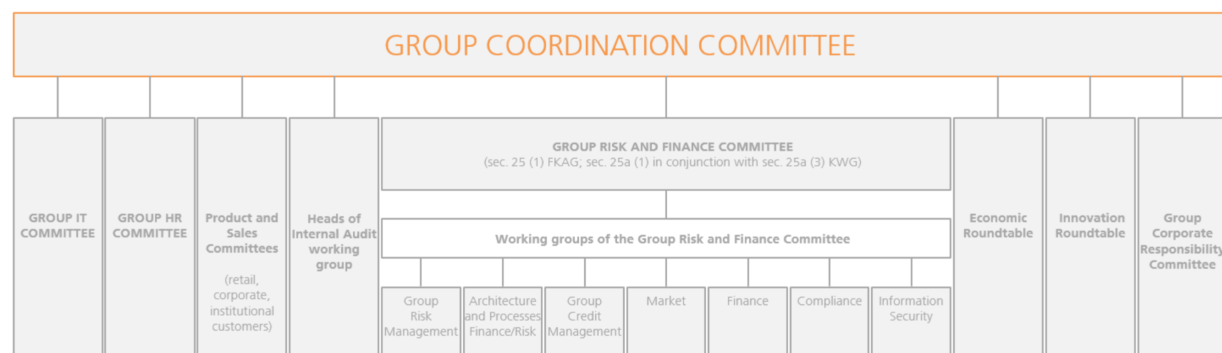
2.2.2 Appointments to key posts in the subsidiaries

For the purposes of managing the subsidiaries through appointments to key posts, a representative of DZ BANK is appointed in each case as the chairman of the supervisory body and generally also as the chairman of any associated committees (risk and investment committee, audit committee, human resources committee).

2.2.3 Corporate management committees

Figure 1 provides an overview of the committees of particular importance in the management of the DZ BANK Group.

FIG. 1 – MANAGEMENT COMMITTEES IN THE DZ BANK GROUP



The **Group Coordination Committee** is the highest-level management and coordination committee in the DZ BANK Group. The objectives of this committee are to strengthen the competitiveness of the DZ BANK Group and to coordinate fundamental product and sales issues. The committee also aims to ensure coordination between the key entities in the DZ BANK Group to achieve consistent management of opportunities and risks, allocate capital, deal with strategic issues, and leverage synergies. The members of this committee comprise the Board of Managing Directors of DZ BANK and the chief executive officers of BSH, DZ HYP, DZ PRIVATBANK, R+V, TeamBank, UMH, and VR Smart Finanz.

Various committees consisting of representatives from all strategic business lines and group functions assist the Group Coordination Committee's decision-making by preparing proposals. These are the following committees: the Group Risk and Finance Committee, the Group IT Committee, the Group HR Committee, the product and sales committees for retail customers, corporate customers, and institutional customers, the Heads of Internal Audit working group, the Economic Roundtable, the Innovation Roundtable, and the Group Corporate Responsibility Committee.

The **Group Risk and Finance Committee** is the central committee in the DZ BANK Group responsible for proper operational organization and, in particular, risk management in accordance with section 25 of the German Supervision of Financial Conglomerates Act (FKAG) and section 25a of the German Banking Act (KWG). It assists DZ BANK with groupwide financial and liquidity management and provides support for risk capital management throughout the group. The Group Risk and Finance Committee also assists the Group Coordination Committee in matters of principle. The members of this committee include the relevant executives at DZ BANK responsible for finance, risk, and treasury. The committee members also include representatives of the executives of various group companies. The Group Risk and Finance Committee has set up the following working groups to prepare proposals for decision-making and to implement management action plans relating to financial and risk management at group level:

– The **Group Risk Management working group** supports the Group Risk and Finance Committee in all matters concerning risk and the management of risk capital and market risk in the DZ BANK Group, and in matters relating to risk reporting.

– The **Architecture and Processes Finance/Risk working group** assists the Group Risk and Finance Committee with the further development of the integrated finance and risk architecture in the DZ BANK Group. In terms of the corporate management of the DZ BANK Group, this committee works on refining the blueprint for the business, process, and data architecture, ensuring a coordinated roadmap and a transparent project portfolio, and further development of data governance.

– The management of credit risk throughout the group is the responsibility of the **Group Credit Management working group** of the Group Risk and Finance Committee. This working group monitors compliance with the rules in the group credit risk policy in connection with its involvement in drawing up group credit standards and related monitoring processes as the basis for groupwide management of counterparty risk. In particular, this covers all measures relating to the monitoring and management of the limit allocation at individual counterparty level. The working group also participates in the further development and harmonization of the credit management organization and processes, and it discusses and continually develops the group credit risk strategy, group credit risk management, and group credit standards. It thus assists the Group Risk and Finance Committee with the groupwide harmonization of credit-related processes with due regard to their economic necessity.

– The Group Risk and Finance Committee's **Market working group** is responsible for providing implementation support throughout the group in the following areas: liquidity management, funding activities, balance sheet structure management, and capital management. This body also focuses on coordinating and dovetailing funding strategies and liquidity reserve policies, as well as on planning the funding within the DZ BANK Group. In addition, the Market working group is responsible for refining the management of centrally measured market risk.

– The **Finance working group** advises the Group Risk and Finance Committee on matters concerning the consolidated financial statements, tax law at group level, regulatory law at group level, group controlling, and the management of financial resources. It discusses new statutory requirements and works out possible implementation options. The objective of the Finance working group is to continually update the uniform management framework used throughout the group (definitions, nomenclature, methodologies), particularly taking into account requests made by the supervisory authorities.

– The **Compliance working group**, whose members comprise the heads of the management units and of ReiseBank AG, Frankfurt am Main, (ReiseBank), assists DZ BANK with compliance management across the group if this is legally required. It also advises the DZ BANK Group's Group Risk and Finance Committee on fundamental compliance-related issues. One of the primary tasks of the Compliance working group is to draw up common compliance standards for the DZ BANK Group; in addition, it serves as a platform enabling specialists to share information and agree on requirements across the group. When fulfilling its responsibilities, the Compliance working group must respect the individual responsibility of the heads of

compliance in the group entities and ensure specific regulatory requirements are observed. The Heads of Compliance working group reports to the Group Risk and Finance Committee, headed by the member of the DZ BANK Board of Managing Directors responsible for compliance and finance, and by the member of the DZ BANK Board of Managing Directors responsible for risk control.

- The **Information Security working group** of the Group Risk and Finance Committee and of the Group IT Committee is the central body responsible for managing information security and information security risk in the DZ BANK Group. It advises the Group Coordination Committee, the Group Risk and Finance Committee, and the Group IT Committee on matters relating to specifying and adjusting information security targets and on the Group's corporate strategy in this regard. The working group encourages information and experience relating to information security issues to be shared throughout the group, is responsible for the design of the risk management system for information security in the DZ BANK Group, and signs off the documentation forming part of the rules and regulations for the groupwide information security management system before this documentation is presented, where required, to the Boards of Managing Directors in the DZ BANK Group for approval.

The **Group IT Committee**, comprising the members of the Boards of Managing Directors of the main group entities with responsibility for IT, supports the Group Coordination Committee in matters relating to IT strategy in the DZ BANK Group. This committee manages the DZ BANK Group's IT activities that are relevant throughout the group. In particular, the Group IT Committee makes decisions on collaboration issues between IT units, identifies and realizes synergies, specifies common IT standards, and initiates joint IT projects.

The **Group HR Committee** comprises the members of the Boards of Managing Directors with responsibility for HR and the HR directors from the main entities in the DZ BANK Group. This committee helps the Group Coordination Committee address HR issues of strategic relevance. The Group HR Committee initiates and coordinates activities relating to overarching HR issues while at the same time exploiting potential synergies. It also coordinates the groupwide implementation of regulatory requirements concerning HR systems and facilitates the sharing of HR policy information within the DZ BANK Group.

The **product and sales committees** perform insight, coordination, and bundling functions relating to the range of products and services provided by the DZ BANK Group.

- The **retail customers** product and sales committee coordinates products and services, and the marketing activities of its members where there are overarching interests affecting the whole of the group. The common objective is to generate profitable growth in market share for the cooperative banks and the entities in the DZ BANK Group with a focus on customer loyalty and customer acquisition by providing needs-based solutions (products and processes) as part of a holistic advisory approach across all sales channels (omnichannel approach).

- The **corporate customers** product and sales committee is responsible for coordinating the strategies, planning, projects, and sales activities in the DZ BANK Group's corporate banking business if overarching interests are involved. The objective is closer integration in both the joint lending business with the cooperative banks and the direct corporate customer business of the entities in the DZ BANK Group.

- The aim of the **institutional clients** product and sales committee is to help strengthen the position of the DZ BANK Group in the institutional clients market.

The DZ BANK Group **Heads of Internal Audit working group**, which is led by DZ BANK, coordinates group-relevant audit issues and the planning of cross-company audits and activities based on a jointly developed framework approved by the relevant members of the Board of Managing Directors. This working group also serves as a platform for sharing specialist information across the group – especially information on current trends in internal audit – and for refining group audit activities. On behalf of this working group, the Head of

Group Audit reports to the member of the Board of Managing Directors responsible for group audit and, where appropriate, to the Group Coordination Committee.

The **Economic Roundtable**, the members of which comprise the economists from the main group companies, helps the Group Coordination Committee to assess economic and capital market trends, providing a uniform basis for consistent planning scenarios throughout the group, and to prepare risk scenarios required by regulators.

The members of the **Innovation Roundtable** comprise specialists, executive managers, and innovation managers from the various divisions of DZ BANK and the group companies. The Innovation Roundtable is therefore the Group Coordination Committee's key point of contact for information on innovations and trends relevant to the group. The objectives of the Innovation Roundtable are to systematically examine innovative topics with group relevance on an ongoing basis, to bring together the divisions involved in innovation projects and to ensure that innovation activities in the DZ BANK Group are transparent.

The **Group Corporate Responsibility Committee**, which is coordinated by DZ BANK and whose members include the sustainability coordinators in the management units and at ReiseBank, is a platform for sharing specialist information throughout the group about the latest sustainability-related trends and activities. The committee identifies key issues relevant to the whole of the group and initiates joint projects. The head of the Group Corporate Responsibility Committee reports to the DZ BANK Co-Chief Executive Officer responsible for sustainability. He or she also reports annually and on an ad hoc basis to the Group Coordination Committee.

2.3 Key performance indicators

The DZ BANK Group's KPIs for profitability, volume, productivity, liquidity adequacy, and capital adequacy, as well as the regulatory return on risk-adjusted capital (RORAC), are presented below.

- **Profitability figures in accordance with International Financial Reporting Standards (IFRS):**
  The profitability figures (primarily loss allowances for loans and advances, profit/loss before taxes, net profit/loss) are presented in chapters II.3.1 and II.3.2 of this group management report as well as in note 33 of the notes to the consolidated financial statements.

- **IFRS volume figures:**
  The main volume-related KPIs include equity and total assets. These are set out in chapters II.3.2 (figure 3) and II.4 of the group management report, in the consolidated financial statements (balance sheet as at December 31, 2020), and in note 33 of the notes to the consolidated financial statements.

- **Productivity:**
  The KPI for productivity is the cost/income ratio. This KPI is described in chapters II.3.1 and II.3.2 of this group management report and in note 33 of the notes to the consolidated financial statements.

- **Liquidity adequacy:**
  Appropriate levels of liquidity reserves in relation to the risks associated with future payment obligations are demonstrated using the ratios for economic and normative internal liquidity adequacy presented in chapters VII.4.2 and VII.4.3 of this group management report. The minimum liquidity surplus reflects economic liquidity adequacy. Normative internal liquidity adequacy is expressed in terms of the liquidity coverage ratio (LCR).

- **Capital adequacy:**
  The KPIs and the calculation method for economic capital adequacy are described in chapter VII.5.2 of this group management report. The KPIs for normative internal capital adequacy (coverage ratio for the financial conglomerate, total capital ratio, Tier 1 capital ratio, common equity Tier 1 capital ratio, leverage ratio, and the minimum requirement for own funds and eligible liabilities (MREL)) are included in chapter VII.5.3.

- **Regulatory RORAC:**
  Regulatory RORAC is a risk-adjusted performance measure. In the year under review, it reflected the relationship between profit before taxes and the average own funds for the year (calculated as an average of the figure for the four quarters) in accordance with the own funds/solvency capital requirement. It therefore shows the return on the regulatory risk capital employed. This is described in chapter II.3.2 of this group management report and in note 33 of the notes to the consolidated financial statements.

Forecasts for core KPIs in the DZ BANK Group are set out in the outlook in the group management report.

2.4 Management process

In the annual strategic planning process, the entities in the DZ BANK Group produce a business strategy (objectives, strategic direction, and action plan), a strategic finance and capital plan, and risk strategies derived from the business strategy.

The planning by the management units is then validated and the plans are also discussed in strategy meetings. When the individual entity planning has been completed, the process then moves on to consolidated group planning, which aims to facilitate active management of the DZ BANK Group’s economic and regulatory capital adequacy.

The action plans to attain the targets are discussed in a number of ways, notably in quarterly meetings with the subsidiaries.

At DZ BANK level, the main divisions involved in the strategic planning process are Strategy & Group Development, Group Risk Controlling, Group Finance, Bank Finance, and Research and Economics. The planning coordinators in the front-office divisions of DZ BANK and the subsidiaries are also incorporated into the process. The Strategy & Group Development division is responsible for overall coordination of the strategic planning process.

II Business report

1 Economic conditions

The COVID-19 pandemic and the associated restrictions on economic activity dominated the entire year in 2020. Adjusted for inflation, average overall economic output in Germany for the year slumped by 5.0 percent compared with 2019. This contrasted with corresponding year-on-year growth of 0.6 percent in 2019.

German economic output in the first quarter of 2020 was down by 2.0 percent compared with the preceding quarter. In the second quarter of the year, it contracted by 9.7 percent before a recovery in the third quarter brought a gain in gross domestic product (GDP) of 8.5 percent. The final quarter saw a further small increase of 0.1 percent.

Both in the spring and toward the end of 2020, many shops and factories had to shut because of the COVID-19 pandemic, thereby restricting economic activity. This led to a reduction in consumer spending, and companies scaled back their capital expenditure. The pandemic also resulted in a fall in demand from other countries. The aforementioned restrictions began to be eased in May 2020, ushering in a temporary economic rebound over the summer months.

The pandemic also caused an economic slump in the eurozone in 2020. Following a 1.3 percent year-on-year rise in GDP in 2019, the eurozone's economic output shrank by 6.8 percent in the reporting period. GDP decreased by 3.7 percent in the first quarter of 2020. In the second quarter, it fell by 11.7 percent compared with the previous quarter. This gave way to growth of 12.4 percent in the third quarter, before economic output contracted again in the final quarter of 2020, by 0.7 percent.

In the US presidential elections on November 3, 2020, the challenger Joe Biden emerged victorious in the race against the incumbent US President Donald Trump. The policy of 'America first', which had been pursued by the US government for some years, remained unchanged in 2020 and was reflected particularly in the trade negotiations between the United States and China. The reporting year saw a continuation of the trade dispute between the United States and EU concerning the potential introduction of further US tariffs on selected goods from the EU with the aim of reducing the US trade deficit.

The US economy was not hit quite as badly as its European counterpart by the pandemic in 2020. During the months of spring, employment declined at an even faster rate than in the eurozone but also rose again more quickly when the lockdown was eased. The restrictions imposed to contain the COVID-19 pandemic in the United States also resulted in lower levels of consumer spending, capital spending on plant and equipment, and foreign trade.

China was affected by the pandemic earlier than Europe and the United States. The adverse impact on the Chinese economy was primarily felt in the first quarter of 2020 but the economy quickly began to recover again in the second quarter. The rebound was sustained in the second half of the year as China escaped a second wave of infection. The economic problems caused by the pandemic and efforts to contain it also dominated conditions in other emerging markets during the reporting period. Brazil and Russia were particularly hard hit, as was India.

2 The banking industry amid continued efforts to stabilize the economy of the eurozone

The main focus in 2020 was on dealing with the economic impact – and the resulting recession – arising from the action taken to contain the spread of the COVID-19 pandemic. In Europe, EU member states responded to the economic crash with fiscal packages at national level and negotiated a European recovery fund (Next Generation EU, NGEU) as a way of providing economic support. The European Central Bank (ECB) stepped up its already expansionary monetary policy by launching the pandemic emergency purchase program (PEPP).

The COVID-19 virus, which first emerged in China at the end of 2019 and developed into a worldwide pandemic from January 2020 onward, necessitated international efforts to contain the outbreak. Although these efforts did counter the uncontrolled spread of the disease, they also had a significant negative impact on the global economy. In the first half of 2020, prices fell in the international equity markets and spreads widened in the bond markets. Following a decrease in the number of new cases and in conjunction with steps taken to prevent the spread of infection, some of the safeguards were eased in the summer of 2020 in order to mitigate the economic fallout. Financial markets rallied in response. The safeguards were progressively tightened again in the autumn of 2020 as the number of new cases rose. Some of the restrictions were even more severe than those imposed in the spring. A few countries managed to launch vaccination programs as early as December 2020. For the rest of the year, however, there was no negative impact of these containment measures on financial markets, such as falling share prices or widening of spreads.

Some EU countries still exceeded the ratios for new and overall indebtedness required for compliance with the stability criteria specified in the Fiscal Compact agreed by the EU member states at the beginning of 2012. In the Fiscal Compact, the signatory countries committed to reducing their debt (as a proportion of GDP) each year by one twentieth of the difference between the debt level and the Maastricht limit of 60 percent of GDP.

At the end of the third quarter of 2020, the total borrowing of the 19 eurozone countries equated to 97.3 percent of their GDP, an increase of 11.5 percentage points compared with the figure of 85.8 percent as at September 30, 2019.

Greece's public debt as a percentage of GDP was 199.9 percent in the third quarter of 2020 (third quarter of 2019: 182.6 percent). In the last few years, Greece has been forced to pursue a restrictive fiscal policy under the conditions for receiving support loans and, since mid-2019, has had a conservative government headed by Prime Minister Kyriakos Mitsotakis of the Nea Dimokratia (ND) party. In the reporting year, the country was unable to maintain the improvement in its economic and fiscal position evident in the previous year. The Greek economy, which is heavily dependent on tourism, was especially badly affected by the international travel restrictions imposed as a consequence of the COVID-19 pandemic.

The pandemic had a notable adverse impact on Italy, which has the lowest growth in the EU. The coronavirus crisis threw the spotlight on Italy's calls for greater financial solidarity in the eurozone. In 2020, the sustainability of Italy's debt largely depended on funding costs influenced by the ECB's bond-buying program. Italy's public debt as a percentage of GDP stood at 154.2 percent in the third quarter of 2020 (third quarter of 2019: 136.8 percent), which is the highest in the eurozone after that of Greece.

Portugal's economy, which likewise relies on the tourism industry, was detrimentally affected by the measures taken to contain the spread of COVID-19. Portugal's public debt as a percentage of GDP was 130.8 percent in the third quarter of 2020, compared with 119.6 percent in the third quarter of 2019.

Spain is ruled by a minority government led by Prime Minister Pedro Sánchez from the socialist workers' party. Spain was hit particularly hard by the COVID-19 crisis in 2020, its GDP contracting by 11.0 percent compared with 2019. Public debt as a percentage of GDP was 114.1 percent in the third quarter of 2020 (third quarter of 2019: 97.5 percent).

Based on a policy of quantitative easing, the ECB has continued to support the markets for government bonds, thereby creating the necessary time over the last few years for the European Monetary Union (EMU) countries burdened with excessive debt to reduce their budget deficits. In the reporting year, the ECB's monetary policy was predominantly focused on mitigating the negative impact of the protective measures introduced to contain the spread of the COVID-19 pandemic on EU member state public finances and on financial markets. Nonetheless, even in previous years, the countries specified above had not made sufficient efforts to reduce their high levels of indebtedness, which are above the Maastricht limit of 60 percent, or to bring in the necessary structural reforms. The benefit from the current low level of interest rates is reducing the impact from the debt burden and having the effect of decreasing various EMU countries' efforts to implement austerity measures.

The ECB's policy of zero and negative interest rates prevailing in 2019 was maintained in the reporting year. At its meeting on December 10, 2020, the ECB decided to leave the rate for the deposit facility at minus 0.50 percent. The main refinancing rate remained the same at 0.00 percent, while the rate for the marginal lending facility was also unchanged at 0.25 percent. The ECB Governing Council again let it be known that the ECB's key interest rates would remain at their current or a lower level until the inflation outlook is clearly approaching the target level of inflation, i.e. close to, but below, 2 percent. The Council also decided that net purchases under PEPP would be increased by a further €500.0 billion to a total of €1,850.0 billion until at least the end of March 2022. The net purchases under the asset purchase program (APP) were continued in 2020 with a monthly volume of €20.0 billion. The deposit facility rate, which has applied since September 12, 2019, meant that banks had to pay a higher negative interest rate on their deposits with the ECB. In October 2019, to mitigate the adverse impact on banks, the ECB introduced a two-tier system for remunerating excess reserve holdings, under which some of banks' excess liquidity would be exempted from the negative deposit rate. This system was retained in 2020.

On December 16, 2020, the US Federal Reserve (Fed) announced that the federal funds rate would remain unchanged in the range of 0 to 0.25 percent. The Fed also committed to maintaining its bond-buying program with a monthly volume of US$ 120 billion until substantial progress had been made toward achieving the inflation target and employment growth.

There was a significant difference in financial performance between Germany's two largest banks in 2020. Whereas one reported a sharp rise in net profit in the challenging market conditions, the other recorded a loss in the billions of euros. The loss allowances for loans and advances recognized by the major banks were significantly higher than in 2019. The major banks presented a mixed picture regarding administrative expenses, ranging from a 2 percent decrease brought about by management of costs to an 11 percent decrease as a result of transformation.

3 Financial performance

3.1 Financial performance at a glance

Despite the challenging market conditions resulting from the effects of the COVID-19 pandemic and the continuation of extremely low interest rates, the DZ BANK Group was able to maintain its position, reporting a profit before taxes of €1,455 million in 2020.

The year-on-year changes in the key figures that made up the net profit generated by the DZ BANK Group in 2020 were as described below.

FIG. 2 – INCOME STATEMENT

€ million	**2020**	2019
Net interest income	2,797	2,738
of which net income from long-term equity investments[2]	75	59
Net fee and commission income	2,121	1,975
Gains and losses on trading activities	552	472
Gains and losses on investments	166	182
Other gains and losses on valuation of financial instruments	-22	255
Gains and losses from the derecognition of financial assets measured at amortized cost	-2	15
Net income from insurance business	347	1,174 [1]
Loss allowances	-678	-329
Administrative expenses	-4,036	-4,074
Staff expenses	-1,910	-1,878
Other administrative expenses[3]	-2,126	-2,196
Other net operating income	210	250
Profit before taxes	1,455	2,658
Income taxes	-475	-778 [1]
Net profit	**980**	**1,880**

1 Amount restated (see note 2 in the notes to the consolidated financial statements).
2 Total of current income and expense from income from other shareholdings, current income and expense from investments in subsidiaries, current income and expense from investments in associates, income/loss from using the equity method, and income from profit-pooling, profit-transfer, and partial profit-transfer agreements (see note 34 in the notes to the consolidated financial statements).
3 General and administrative expenses plus depreciation/amortization expense.

Operating income in the DZ BANK Group amounted to €6,169 million (2019: €7,061 million). This figure comprises net interest income, net fee and commission income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, gains and losses from the derecognition of financial assets measured at amortized cost, net income from insurance business, and other net operating income.

Net interest income (including net income from long-term equity investments) in the DZ BANK Group rose by €59 million year on year to €2,797 million (2019: €2,738 million).

In 2020, net interest income rose by €81 million at BSH, by €10 million at TeamBank, by €60 million at DZ BANK – CICB, and by €58 million at DZ HYP. Conversely, net interest income went down by €30 million at UMH, by €9 million at VR Smart Finanz, and by €116 million at DVB. The specific reasons for the year-on-year change in net interest income were the factors described in the details for these operating segments.

Net income from long-term equity investments of the DZ BANK Group increased by €16 million to €75 million (2019: €59 million).

Net fee and commission income in the DZ BANK Group grew by €146 million to €2,121 million (2019: €1,975 million).

Net fee and commission income advanced by €98 million at UMH, by €53 million at DZ BANK – CICB, and by €12 million at DZ PRIVATBANK. In 2020, net fee and commission income at BSH amounted to a net expense of €9 million (2019: net expense of €28 million), and at VR Smart Finanz to a net expense of €24 million (2019: net expense of €10 million). At DVB, net fee and commission income declined by €23 million. The specific reasons for the year-on-year change in net fee and commission income were the factors described in the details for these operating segments.

The DZ BANK Group's **gains and losses on trading activities** in 2020 came to a net gain of €552 million compared with a net gain of €472 million for 2019. This was largely attributable to the gains and losses on trading activities at DZ BANK – CICB, amounting to a net gain of €488 million (2019: net gain of €437 million).

The net gains under **gains and losses on investments** went down by €16 million to €166 million (2019: €182 million). This figure rose by €42 million at UMH, by €18 million at DZ BANK – CICB, and by €40 million in the Other/Consolidation segment. On the other hand, it deteriorated by €107 million at BSH and by €9 million at DZ HYP. The specific reasons for the year-on-year change in gains and losses on investments were the factors described in the details for these operating segments.

Other gains and losses on valuation of financial instruments in the DZ BANK Group amounted to a net loss of €22 million in 2020 (2019: net gain of €255 million).

At BSH, other gains and losses on valuation of financial instruments deteriorated by €13 million. At UMH, the figure deteriorated by €40 million, largely because of higher expenses resulting from the valuation of guarantee commitments. There was a negative change of €157 million in other gains and losses on valuation of financial instruments at DZ HYP, primarily reflecting the effect of credit spreads on bonds from peripheral countries of the eurozone. The figure was subject to an adverse change of €45 million at DVB. The specific reasons for the year-on-year change in other gains and losses on valuation of financial instruments were the factors described in the details for these operating segments.

Gains and losses from the derecognition of financial assets measured at amortized cost deteriorated by €17 million to a net loss of €2 million (2019: net gain of €15 million). The DZ BANK – CICB segment saw an adverse change of €53 million compared with 2019. The figure for the Other/Consolidation segment in 2020 amounted to a net loss of €14 million (2019: net loss of €53 million).

The DZ BANK Group's **net income from insurance business** comprises premiums earned, gains and losses on investments held by insurance companies and other insurance company gains and losses, insurance benefit payments, insurance business operating expenses, and gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business. In the reporting year, this net income declined by €827 million to €347 million (2019: €1,174 million).

This year-on-year fall was primarily attributable to the changes, described in the details for the R+V operating segment, in premiums earned, gains and losses on investments held by insurance companies and other insurance company gains and losses, and insurance benefit payments.

Loss allowances amounted to a net addition of €678 million (2019: net addition of €329 million). The requirement for the addition of €220 million in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses.

Further disclosures on the nature and extent of risks arising from financial instruments and insurance contracts can be found in note 85 in the notes to the consolidated financial statements.

Administrative expenses in the DZ BANK Group decreased by €38 million to €4,036 million (2019: €4,074 million). Staff expenses amounted to €1,910 million (2019: €1,878 million). Other administrative expenses declined by €70 million to €2,126 million (2019: €2,196 million). The year-on-year change in administrative expenses can be explained by the factors described in the details for the individual operating segments.

The DZ BANK Group's **other net operating income** amounted to €210 million (2019: €250 million).

Other net operating income improved by €20 million at R+V, by €56 million at DZ BANK – CICB, by €14 million at DZ HYP, and by €15 million in the Other/Consolidation segment. By contrast, it fell by €20 million at BSH, by €60 million at UMH, by €17 million at VR Smart Finanz, and by €49 million at DVB. The specific reasons for the year-on-year change in other net operating income were the factors described in the details for these operating segments.

Profit before taxes for 2020 amounted to €1,455 million, compared with €2,658 million in 2019.

The DZ BANK Group's **cost/income ratio** (i.e. the ratio of administrative expenses to operating income) for 2020 was 65.4 percent (2019: 57.7 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 7.2 percent (2019: 15.2 percent).

The DZ BANK Group's **income taxes** amounted to €475 million in the reporting year (2019: €778 million).

The DZ BANK Group generated a **net profit** of €980 million in 2020 compared with a net profit of €1,880 million in 2019.

The following provides an explanation of the above information and the details below (section 3.2) concerning the financial performance of the DZ BANK Group with reference to the corresponding presentation in the outlook for 2020 (chapter V of the 2019 group management report).

In 2020, the DZ BANK Group generated profit before taxes that was slightly higher than the budgeted figure. Net interest income, net fee and commission income, and gains and losses on trading activities in 2020 marginally exceeded the forecast. Actual figures for gains and losses on investments and other net operating income were well above the respective budgeted levels. Gains and losses on investments were boosted in particular by non-recurring income in connection with the acquisition of a majority stake in ZBI Partnerschafts-Holding GmbH. By contrast, net income from insurance business was significantly below budget, the main reason being trends in capital markets as a consequence of the COVID-19 pandemic. The requirement for loss allowances was much greater than forecast because of the COVID-19 pandemic. Administrative expenses were cut to an amount below the budgeted figure.

3.2 Financial performance in detail

Figure 3 shows the details of the financial performance of the DZ BANK Group's operating segments in 2020 compared with 2019.

FIG. 3 – SEGMENT INFORMATION

2020

€ million	BSH	R+V	TeamBank	UMH
Net interest income	531	-	492	10
Net fee and commission income	-9	-	-30	1,566
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	56	-	-	44
Other gains and losses on valuation of financial instruments	5	-	-1	-83
Gains and losses from the derecognition of financial assets measured at amortized cost	15	-	-	-
Premiums earned	-	18,741	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	2,091	-	-
Insurance benefit payments	-	-17,499	-	-
Insurance business operating expenses	-	-3,046	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-19	-	-
Loss allowances	-29	-	-59	-
Administrative expenses	-526	-	-256	-919
Other net operating income	38	9	8	31
Profit/loss before taxes	**81**	**277**	**154**	**649**
Cost/income ratio (%)	82.7	-	54.6	58.6
Regulatory RORAC (%)	6.6	2.6	27.0	>100.0
Average own funds/solvency requirement	1,216	10,473	569	432
Total assets/total equity and liabilities as at Dec. 31, 2020	81,673	130,027	9,285	3,561

DZ BANK - CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK - holding function	Other/ Consolidation	**Total**
832	714	69	138	30	-50	31	2,797
441	6	188	-24	25	-	-42	2,121
488	9	17	-	26	-	12	552
15	1	-	-	-1	-	51	166
41	118	-2	-	-81	-	-19	-22
-3	-	-	-	-	-	-14	-2
-	-	-	-	-	-	-	18,741
-	-	-	-	-	-	-44	2,047
-	-	-	-	-	-	-	-17,499
-	-	-	-	-	-	124	-2,922
-	-	-	-	-	-	-1	-20
-337	-47	-1	-49	-153	-	-3	-678
-1,272	-237	-235	-102	-154	-188	-147	-4,036
39	18	2	-8	23	-	50	210
244	**582**	**38**	**-45**	**-285**	**-238**	**-2**	**1,455**
68.6	27.4	85.8	96.2	>100.0	-	-	65.4
4.6	36.7	10.8	-17.5	>100.0	-	-	7.2
5,298	1,586	352	255	154	-	-	20,336
314,612	94,486	17,691	3,684	10,247	21,297	-91,990	594,573

2019

€ million	BSH	R+V	TeamBank	UMH
Net interest income	450	-	482	40
Net fee and commission income	-28	-	-28	1,468
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	163	-	-	2
Other gains and losses on valuation of financial instruments	18	-	-	-43
Gains and losses from the derecognition of financial assets measured at amortized cost	18	-	-	-
Premiums earned	-	17,249	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	6,204	-	-
Insurance benefit payments[1]	-	-19,394	-	-
Insurance business operating expenses	-	-2,973	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-12	-	-
Loss allowances	-4	-	-77	-
Administrative expenses	-486	-	-230	-910
Other net operating income	58	-11	5	91
Profit/loss before taxes	**189**	**1.063**	**152**	**648**
Cost/income ratio (%)	71.6	-	50.1	58.4
Regulatory RORAC (%)	16.5	13.3	30.0	>100.0
Average own funds/solvency requirement	1,147	8,415	506	357
Total assets/total equity and liabilities as at Dec. 31, 2019 [1]	77,469	121,973	9,455	3,012

1 Amount restated (see note 2 in the notes to the consolidated financial statements).

DZ BANK - CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK - holding function	Other/ Consolidation	**Total**
772	656	65	147	146	-55	35	2,738
388	2	176	-10	48	-	-41	1,975
437	-2	9	-	6	-	22	472
-3	10	-	-	-1	-	11	182
39	275	2	1	-36	-	-1	255
50	-	-	-	-	-	-53	15
-	-	-	-	-	-	-	17,249
-	-	-	-	-	-	-47	6,157
-	-	-	-	-	-	-	-19,394
-	-	-	-	-	-	150	-2,823
-	-	-	-	-	-	-3	-15
-77	1	-	-30	-141	-	-1	-329
-1,296	-259	-220	-127	-202	-203	-141	-4,074
-17	4	4	9	72	-	35	250
293	**687**	**36**	**-10**	**-108**	**-258**	**-34**	**2,658**
77.8	27.4	85.9	86.4	86.0	>100.0	-	57.7
5.8	44.5	11.2	-3.4	-42.1	-	-	15.2
5,056	1,543	319	291	256	-	-	17,890
288,841	92,377	19,464	4,283	14,239	20,191	-91,832	559,472

3.2.1 BSH

Net interest income in the BSH subgroup improved by €81 million to €531 million (2019: €450 million).

Net interest income was again impacted by an additional charge arising from the increase in provisions relating to building society operations. However, at €115 million, this charge was lower than the equivalent amount of €280 million in 2019. This largely reflected discounted future obligations of BSH to make payments in the form of loyalty bonuses or premiums to those home savings customers who decline to take up the contractually agreed loans.

Otherwise, net interest income declined due to the persistently low level of interest rates. At the end of the reporting year, the 10-year swap rate was minus 0.27 percent (December 31, 2019: 0.21 percent).

Interest income arising on investments declined by €76 million to €437 million (2019: €513 million) because capital market rates for investments remained low. Net interest income was also adversely impacted by an increase of €38 million in fees, commissions, and transaction costs directly assignable to the acquisition of home savings contracts and loan agreements and incorporated into the effective interest method applied to home savings deposits and building loans.

In the case of loans issued under advance or interim financing arrangements and other building loans, income was held more or less stable at €999 million (2019: €1,002 million) on the back of the expansion in business over the last few years and despite a fall in average returns. Income from home savings loans amounted to €68 million (2019: €70 million).

The volume of home savings deposits from retail customers in the BSH subgroup grew in the reporting period by €1.5 billion to €64.7 billion (December 31, 2019: €63.2 billion). Despite this growth, the interest expense went down because the current tariffs have lower interest rates.

Net fee and commission income amounted to a net expense of €9 million in the reporting period (2019: net expense of €28 million).

This year-on-year change was largely attributable to the fall in fees and commissions not directly attributable to the conclusion of a home savings contract, which were down because of the lower volume of new business.

In the home savings business, BSH entered into approximately 456 thousand (2019: 524 thousand) new home savings contracts with a volume of €24.2 billion (2019: €28.5 billion) in Germany.

In the home finance business, the realized volume of new business advanced by €2.4 billion to €19.1 billion (2019: €16.7 billion) in Germany. This figure includes home savings loan contracts and bridging loans from BSH and other referrals totaling €2.1 billion (2019: €2.0 billion). Further financing of €2.4 billion (2019: €0.9 billion) was referred to cooperative banks via the BAUFINEX brokering platform.

Gains and losses on investments amounted to a net gain of €56 million (2019: €163 million). Gains and losses on the disposal of securities came to a net gain of €56 million (2019: €64 million). In the prior year, this figure had been boosted, in particular, by a gain of €99 million resulting from the disposal of the shares in Czech building society ČMSS.

Other gains and losses on valuation of financial instruments deteriorated by €13 million to a net gain of €5 million (2019: net gain of €18 million), which was attributable to changes in the fair value of hedging derivatives.

Loss allowances amounted to a net addition of €29 million in total (2019: net addition of €4 million). This figure included an ongoing addition resulting from the expansion of the lending portfolio and also additions to stages 1 and 2 in connection with the COVID-19 pandemic. The requirement for the addition of

€21 million in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses.

Administrative expenses went up by €40 million to €526 million (2019: €486 million). At €256 million, staff expenses were €31 million higher than the prior-year level of €225 million. This increase was largely explained by the recognition of a provision for a program aimed at the structural optimization and management of costs, which was set up in 2020. Other administrative expenses grew by €9 million to €270 million (2019: €261 million) because of greater depreciation and amortization expenses and IT investment.

Other net operating income decreased by €20 million to €38 million (2019: €58 million). The main influence on the figure for the prior year had been the reversal of provisions.

Profit before taxes declined by €108 million in the reporting year to €81 million (2019: €189 million) as a consequence of the changes described above.

The **cost/income ratio** in 2020 was 82.7 percent (2019: 71.6 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 6.6 percent (2019: 16.5 percent).

3.2.2 R+V

Premiums earned went up by €1,492 million to €18,741 million (2019: €17,249 million), thanks to the tight integration of the R+V subgroup into the cooperative financial network.

Premium income earned in the life insurance and health insurance business grew by a total of €1,012 million to €9,311 million.

Premiums earned from the life insurance business rose by €972 million to €8,645 million. Occupational pensions and new guarantees were the main areas of business contributing to this increase. On the other hand, credit insurance, unit-linked life insurance, and traditional product business have recently seen a decline. In the health insurance business, net premiums earned rose by €40 million to €666 million, with notably strong growth in private supplementary health insurance and full health insurance.

In the non-life insurance business, premium income earned grew by €217 million to €6,347 million, with most of this growth being generated from motor vehicle insurance and corporate customer business.

Premiums earned from the inward reinsurance business rose by €263 million to €3,083 million. Business performed particularly well in the Americas, Europe, and Asia, with Europe remaining the largest market. Growth was generated notably from the motor vehicle, fire, and property classes of insurance.

Gains and losses on investments held by insurance companies and other insurance company gains and losses declined by €4,113 million to a net gain of €2,091 million (2019: net gain of €6,204 million). This figure includes the fair value-based gains and losses on investments held by insurance companies in respect of insurance products constituting unit-linked life insurance for the account and at the risk of employees, employers, and holders of life insurance policies (unit-linked contracts). The gains and losses on investments held by insurance companies attributable to unit-linked contract products generally have no impact on profit/ loss before taxes, because this line item is matched by an insurance liability addition or reversal of the same amount. The net gain on investments held by insurance companies, excluding unit-linked contracts, amounted to €2,137 million in 2020 (2019: €4,402 million).

The level of long-term interest rates was lower than in 2019. However, changes in spreads on interest-bearing securities had some negative impact on this item. In the first six months of the year, spreads widened significantly, but a narrowing was evident in the second half of the year. The IBOXX Euro Overall Spread A index, which is the main index relevant to the portfolio structure at R+V, climbed from 80.0 points at the beginning of 2020 to 187.0 points at the end of the first quarter of 2020 and then declined steadily to 71.9 points at the end of the year. By contrast, there had been a continual narrowing of spreads in 2019.

Over the course of 2020, equity markets relevant to R+V performed worse than in 2019. For example, the EURO STOXX 50, a share index comprising 50 large listed companies in the eurozone, saw a fall of 192 points from the start of 2020, closing the reporting period on 3,553 points. In 2019, this index had risen by 744 points. In the reporting year, movements in exchange rates between the euro and various currencies were generally less favorable than in the previous year. For example, the US dollar/euro exchange rate on December 31, 2020 was 0.8173 compared with 0.8909 at the end of 2019, which equates to a fall of 8.3 percent in the value of the euro. By contrast, the euro had risen by 1.8 percent against the US dollar in the previous year.

Overall, these trends in the reporting year essentially resulted in a €3,078 million negative change in unrealized gains and losses to a net gain of €507 million (2019: net gain of €3,585 million), a €196 million decrease in the contribution to earnings from the derecognition of investments to a gain of €41 million (2019: gain of €237 million), and a deterioration of €986 million in the foreign exchange gains and losses to a net loss of €742 million (2019: net gain of €244 million). In addition, net income under current income and expense fell by €215 million to €2,132 million (2019: €2,347 million) and the balance of depreciation, amortization, impairment losses, and reversals of impairment losses deteriorated by €91 million to a net expense of €165 million (2019: net expense of €74 million). Other insurance gains and losses and non-insurance gains and losses improved by €434 million to a net gain of €318 million (2019: net loss of €116 million).

Owing to the inclusion of provisions for premium refunds (particularly in the life insurance and health insurance business) and claims by policyholders in the fund-linked life insurance business, the change in the level of gains and losses on investments held by insurance companies also affected the 'insurance benefit payments' line item presented below.

Insurance benefit payments amounted to €17,499 million, which equated to a decline of €1,895 million compared with the corresponding 2019 figure of €19,394 million.

The decrease in insurance benefit payments reflected both the trend in net premiums earned and the policyholder participation in gains and losses on investments held by insurance companies.

At the companies offering personal insurance, the changes in insurance benefit payments were in line with the change in premium income and in gains and losses on investments held by insurance companies and other insurance company gains and losses. An amount of €739 million (2019: €647 million) was added to the supplementary change-in-discount-rate reserve.

In the non-life insurance business, a decline in the claims rate trend was evident compared with the prior year. The overall claims rate was below the level of 2019. An increase in major claim costs was offset by reduction in claims expenses for natural disasters and basic claim costs. In the context of the COVID-19 pandemic, additions were made to provisions for claims on the basis of received and expected claims. The main areas of business affected were the corporate customer business (insurance covering event cancelations and business closures) and the banking/loan business (guarantee insurance, special indemnities). After taking into account the countervailing effects in motor vehicle insurance, the insurance expense in connection with the COVID-19 pandemic amounted to €58 million. The losses in connection with Storm Sabine amounted to around €62 million.

In the inward reinsurance business, the net claims ratio was up by 4.4 percentage points compared with the prior year. The ratio for large claims was higher than in 2019, but the ratio for moderate claims was down year on year. The basic claims ratio remained more or less steady in 2020. Notably, the COVID-19 pandemic gave rise to an insurance expense of around €263 million, with a corresponding impact on earnings. Up to the reporting date, claims of approximately €96 million had been received from ceding insurers, which included one major claim of €28 million. The claims in connection with the Beirut port explosion were quantified in the inward reinsurance division at €55 million, those arising from the Derecho storm in the US Midwest at €121 million, and those caused by Hurricane Laura at €31 million.

Insurance business operating expenses incurred in the course of ordinary business activities went up by €73 million to €3,046 million (2019: €2,973 million). This change resulted from business growth, with €66 million of the increase, or 9.5 percent, mainly accounted for by the inward reinsurance division. Expenses also rose in the life/health insurance business, by €13 million or 1.6 percent. In the non-life insurance division, expenses were down by €5 million or 0.3 percent, so were virtually unchanged.

As a result of the factors described above, **profit before taxes** for the reporting year fell by €786 million to €277 million (2019: €1,063 million).

The **regulatory return on risk-adjusted capital (RORAC)** was 2.6 percent (2019: 13.3 percent).

3.2.3 TeamBank

Net interest income at TeamBank amounted to €492 million, which was €10 million higher than the equivalent figure in 2019 of €482 million. The main source of this increase was expansion of the average volume of consumer finance. The volume of this portfolio at the end of 2020 stood at €8,818 million (December 31, 2019: €8,873 million). This change in the volume of consumer finance should be viewed in the context of the consequences of the COVID-19 pandemic and the related restrictions on public life, which curtailed the opportunities for consumer spending.

In response to the closure of branches as a result of the pandemic, TeamBank worked together with the cooperative banks to introduce measures such as comprehensive telephone consultations so that customers could continue to be advised and supported on a digital basis. As at December 31, 2020, TeamBank was working with 734 (December 31, 2019: 745) of Germany's 814 (December 31, 2019: 842) cooperative banks and with 145 (December 31, 2019: 138) partner banks in Austria. In addition, more than 65 thousand (2019: 110 thousand) members of cooperative banks benefited from favorable terms and conditions in 2020.

The business model of a consumer finance provider constructed on the basis of the easyCredit-Liquiditätsberater advisory concept, which includes a financial compass created individually for each customer and provides both the customer and the advisor with transparency about the credit decision reached, enabled TeamBank, despite the effects of the COVID-19 pandemic, to keep loans and advances to customers stable at €9,031 million (December 31, 2019: €9,063 million) and increase the number of customers to 962 thousand (December 31, 2019: 944 thousand). As at December 31, 2020, around 296 thousand customers had either signed up for easyCredit-Finanzreserve or were already using this flexible means of borrowing. As a result, some 19.0 percent of new business in 2020 was generated through easyCredit-Finanzreserve.

Net fee and commission income saw a negative change of €2 million to a net expense of €30 million (2019: net expense of €28 million). This change was largely due to the combined effect of lower fee and commission income from credit insurance policies and lower bonuses paid to partner banks as a result of the fall in new business caused by the COVID-19 pandemic.

The addition to **loss allowances** amounted to €59 million, which was down by €18 million compared with the prior-year figure of €77 million. The main reasons behind the smaller addition to loss allowances compared with the previous year were a lower level of new business and a reduction caused by non-recurring items resulting from adjustments during the year. The requirement for the addition of €18 million in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses.

Administrative expenses went up by €26 million to €256 million (2019: €230 million). Staff expenses rose by €8 million to €100 million (2019: €92 million), primarily because of the increase in headcount. Other administrative expenses went up by €18 million to €156 million (2019: €138 million), predominantly because of higher IT costs related to TeamBank's investment in the future.

Profit before taxes for the year under review amounted to €154 million. The increase of €2 million compared with the figure of €152 million reported for 2019 was a consequence of the factors described above.

TeamBank's **cost/income ratio** in 2020 was 54.6 percent (2019: 50.1 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 27.0 percent (2019: 30.0 percent).

3.2.4 UMH

Net interest income decreased by €30 million to €10 million (2019: €40 million). In 2020, the contribution to net interest income made by ZBI Partnerschafts-Holding GmbH amounted to a net expense of €2 million, which was €29 million worse than in the previous year (2019: net income of €27 million).

Net fee and commission income at UMH went up by €98 million to €1,566 million (2019: €1,468 million). The change in net fee and commission income was predominantly due to the factors described below.

Because of the rise in the average assets under management of the Union Investment Group, which climbed by €15.7 billion to €365.1 billion (2019: €349.4 billion), the volume-related contribution to net fee and commission income rose to €1,401 million (2019: €1,326 million).

The assets under management of the Union Investment Group comprise the assets and securities portfolios measured at their current market value, also referred to as free assets or asset management, for which Union Investment offers investment recommendations (advisory) or bears responsibility for portfolio management (insourcing). The assets are managed both for third parties and in the name of the group. Changes in the managed assets occur as a result of factors such as net inflows, changes in securities prices, and exchange-rate effects.

Income from performance-related management fees amounted to €32 million (2019: €9 million). Income from real estate fund transaction fees increased by €19 million to €55 million during the reporting year (2019: €36 million).

Against this backdrop, Union Investment managed to generate net inflows from its retail business of €8.8 billion in 2020 (2019: €8.1 billion) in collaboration with the local cooperative banks.

The number of traditional fund-linked savings plans, which are used by retail customers as investments aimed at long-term capital accumulation, had risen to 3.1 million contracts as at December 31, 2020, with an increase in the 12-month savings volume to €5.8 billion (December 31, 2019: €4.9 billion).

The total assets in the portfolio of Riester pension products swelled to €22.0 billion as at December 31, 2020 (December 31, 2019: €20.9 billion).

The number of fund-linked savings plans managed by Union Investment in its retail business as at December 31, 2020 totaled 5.7 million (December 31, 2019: 5.3 million). These plans included contracts under employer-funded capital formation schemes as well as the traditional savings plans and Riester pension contracts referred to above.

The open-ended real estate funds offered by the Union Investment Group, which are an intrinsic-value-based component of the investment mix, generated net new business totaling €2.3 billion in 2020 (2019: €3.8 billion).

Assets under management in the PrivatFonds family amounted to €25.0 billion as at December 31, 2020 (December 31, 2019: €25.3 billion).

The institutional business also continues to face significant challenges. Persistently low interest rates, the COVID-19 pandemic, and the ensuing market turmoil necessitated effective risk management from a number of perspectives, including broad portfolio diversification in terms of asset classes and country allocations. In the reporting year, demand was focused particularly on low-risk asset classes, capital preservation investment strategies, and sustainable investment. The market turmoil in the first half of 2020 naturally meant that many institutional clients required more liquidity, and this could be seen from the movements in short-dated bonds (short-term liquidity investments). In its institutional business, the Union Investment Group generated net inflows amounting to €6.3 billion (2019: €11.3 billion).

The portfolio of sustainably managed funds had expanded to €61.0 billion at the end of the reporting year (December 31, 2019: €53.1 billion). This growth demonstrates that institutional clients are increasingly focusing on socially responsible investing.

Gains and losses on investments went up by €42 million to a net gain of €44 million (2019: net gain of €2 million). The change was mainly due to the combination of non-recurring income of €48 million in connection with the acquisition of a majority stake in ZBI Partnerschafts-Holding GmbH and the loss realized on the disposal of funds forming part of Union Investment’s own account investing activities.

The deterioration in **other gains and losses on valuation of financial instruments** of €40 million to a net loss of €83 million (2019: net loss of €43 million) was mainly attributable to higher expenses arising from the valuation of guarantee commitments amounting to €94 million (2019: €31 million). Gains and losses on the valuation of Union Investment’s own-account investments amounted to a net gain of €14 million (2019: net gain of €10 million); gains and losses on the valuation of options in connection with the acquisition of a majority stake in ZBI Partnerschafts-Holding GmbH came to a net loss of €3 million (2019: net loss of €22 million).

Administrative expenses went up by €9 million to €919 million (2019: €910 million). Staff expenses rose by €24 million to €452 million (2019: €428 million), largely due to average pay rises and appointments to new and vacant positions. The pro rata effects in connection with the acquisition of a majority stake in ZBI Partnerschafts-Holding GmbH amounted to €7 million. Other administrative expenses contracted by €15 million to €467 million (2019: €482 million), mainly because of lower expenses incurred in connection with public relations and marketing.
Other net operating income decreased by €60 million to €31 million (2019: €91 million). The main influence on the figure for the previous year had been the disposal of the fully consolidated subsidiary Union Investment Towarzystwo Funduszy Inwestycyjnych S.A. (TFI), Poland.

Based on the changes described above, **profit before taxes** amounted to €649 million (2019: €648 million).

The **cost/income ratio** in 2020 was 58.6 percent (2019: 58.4 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was greater than 100.0 percent (2019: greater than 100.0 percent).

3.2.5 DZ BANK – CICB

Net interest income is primarily attributable to the lending business portfolios (Corporate Banking business line and a separately managed real estate lending portfolio), the portfolios from the capital markets business, and the long-term equity investments allocated to the central institution and corporate bank. Net interest income increased by 7.8 percent to €832 million (2019: €772 million).

In the Corporate Banking business line, net interest income rose by 7.8 percent to €481 million (2019: €446 million). The net interest income in the four regional corporate customer divisions plus Central Corporate Banking went up by 7.8 percent to €264 million (2019: €245 million). This change was attributable to the growth in the lending volume.

Net interest income in the Structured Finance division amounted to €162 million, an increase of 7.3 percent compared with the prior-year figure of €151 million. The drivers behind this increase were successful acquisitions at the beginning of 2020 and at the end of 2019, together with the conclusion of new income-generating deals in the reporting year in virtually all of the division's product groups, as a result of which there was a significant rise in net interest income particularly in the infrastructure, international trade finance, and project finance businesses.

Net interest income in the Investment Promotion division rose by 10.0 percent to €55 million (2019: €50 million). The year-on-year increase was mainly due to substantial growth in volume driven by the strong demand for business support programs in connection with the COVID-19 pandemic and for residential development loans.

At €23 million, net interest income from the separately managed real estate lending portfolio was down compared with the prior-year figure of €46 million due to the reduction in the size of portfolio caused by the transfer of some of its components to DZ HYP.

In the Capital Markets business line, net interest income advanced by 19.6 percent to €275 million (2019: €230 million). This was primarily attributable to business with institutional customers, the treasury portfolios, and other net interest income. The main reasons for the increase were the larger volume of money market business, lower interest expense on the specific funding structure, and the beneficial effect of the tiered interest rates introduced by the ECB.

Current income and expense from long-term equity investments amounted to net income of €53 million (2019: net income of €50 million). Income from long-term equity investments in respect of KBIH Beteiligungsgesellschaft für Industrie und Handel mbH shrank by €9 million to €0 million as a consequence of the COVID-19 pandemic, whereas equivalent income from VR Equitypartner GmbH went up by €10 million to €21 million.

Net fee and commission income rose by 13.7 percent to €441 million (2019: €388 million).

The principal sources of income were service fees in the Corporate Banking business line (in particular, from lending business including guarantees and international business), in the Capital Markets business line (mainly from securities issuance and brokerage business, agents' fees, transactions on futures and options exchanges, financial services, and the provision of information), and in the Transaction Banking business line (primarily from payments processing including credit card processing, safe custody, and gains/losses from the currency service business).

In the Corporate Banking business line, net fee and commission income was €1 million lower than in 2019 at €122 million (2019: €123 million). This decrease was mainly attributable to lower income in the corporate finance business and was largely offset by other corporate banking business.

In the Capital Markets business line, the contribution to net fee and commission income rose by 31.3 percent to €214 million (2019: €163 million). Of particular note was the growth of income from the securities business, among other things on the back of an increase in securities brokerage transactions.

Net fee and commission income in the Transaction Banking business line was also up on the previous year at €132 million, an increase of €5 million or 3.9 percent (2019: €127 million). This increase was primarily accounted for by payments processing, in particular due to market growth caused by the greater use of contactless payments. Income from credit card processing amounted to €17 million, which was similar to the level in 2019.

As part of service procurement arrangements, DZ BANK has transferred processing services in the lending business to Schwäbisch Hall Kreditservice, in the payments processing business to equensWorldline SE, and in capital markets business/transaction banking to Deutsche WertpapierService Bank AG. The expenses arising in connection with obtaining services from the above external processing companies amounted to a total of €185 million (2019: €169 million) and were broken down and reported under the net fee and commission income for the business lines as follows: Corporate Banking €9 million (2019: €9 million) and Capital Markets/ Transaction Banking €176 million (2019: €160 million).

Aside from the aforementioned business lines, net fee and commission income from other financial services amounted to a greater net expense of €27 million in 2020 (2019: net expense of €25 million). This figure included the derecognition of loan administration fees amounting to €22 million (2019: €23 million), which should have been allocated over the term of the loan and reported under net interest income in accordance with IFRS 9.

Gains and losses on trading activities rose by €51 million to a net gain of €488 million (2019: net gain of €437 million).

Gains and losses on trading activities related to the business activities of the Capital Markets business line. Gains and losses on money market business entered into for trading purposes (mainly repurchase agreements) by the Group Treasury division and all derivatives are also included in gains and losses on trading activities because they are categorized as 'financial assets and liabilities measured at fair value through profit or loss' (fair value PL).

Gains and losses on operating trading activities in the Capital Markets business line amounted to a net gain of €521 million, a year-on-year rise of 21.2 percent (2019: net gain of €430 million).

The business involving cooperative banks' own-account investing activities and institutional client business were expanded in 2020 compared with the previous year. In both cases, the level of income exceeded the corresponding prior-year figures. The volume of products sold rose across all customer groups. In terms of asset classes, the increase in product sales arose predominantly from trading in sovereign, supranational and agency (SSA) bonds, bank bonds, government bonds, and covered bonds, from business involving interest-rate structures and interest-rate derivatives, and from spot exchange business. In 2020, customer use of electronic trading platforms again exceeded the level of the previous year.

Other gains and losses on trading activities resulting from non-operating, IFRS-related effects amounted to a net loss of €33 million (2019: net gain of €7 million). For the assets and liabilities recognized at fair value in the 'fair value through profit or loss' category and in the 'financial assets and liabilities designated as at fair value through profit or loss' category, the adjustment of the valuation curves gave rise to a significant net gain

in 2020, as it had in the previous year. This gain was offset by a number of factors, notably negative valuation effects from interest-rate-sensitive derivatives in the banking book.

Gains and losses on investments improved by €18 million to a net gain of €15 million (2019: net loss of €3 million). The net gain in the reporting year resulted from the combination of income of €53 million from the sale of securities in the category 'fair value through other comprehensive income' and expenses of €40 million arising from the termination of hedges accounted for in the category 'fair value through other comprehensive income' and held in the fair value hedge accounting portfolio. In 2019, a net loss of €4 million had arisen from the sale of securities.

Other gains and losses on valuation of financial instruments rose by 5.1 percent to a net gain of €41 million (2019: net gain of €39 million). The fall of €20 million in the net gain on valuation of financial instruments measured at fair value through profit or loss to €4 million (2019: €24 million) was offset by a rise of €24 million in the net gain from ineffectiveness in hedge accounting to €37 million (2019: €13 million).

Gains and losses from the derecognition of financial assets measured at amortized cost deteriorated by €53 million to a net loss of €3 million (2019: net gain of €50 million). Within this figure, the gains on the derecognition of financial assets measured at amortized cost fell by €32 million to €4 million. The reversal of adjustments to carrying amounts (hedge adjustments) in the context of hedge accounting gave rise to a negative effect of €12 million.

Loss allowances amounted to a net addition of €337 million (2019: net addition of €77 million). Within this figure, the net additions in the lending business and in respect of investments amounted to €342 million. Of this total, net additions of €127 million related to the loss allowances in stages 1 and 2, and net additions of €215 million to those in stage 3. The net addition in respect of recoveries on loans and advances previously impaired, directly recognized impairment losses, and additions to loan provisions was €5 million. The requirement for the addition of €93 million in stages 1 and 2 in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses. Loss allowances in stage 3 also went up due to significant individual additions that were not solely attributable to the pandemic.

In 2019, some of the net additions in respect of the lending business and investments (€123 million) were offset by other income of €46 million (including recoveries on loans and advances previously impaired).

Administrative expenses went down by 1.9 percent to €1,272 million (2019: €1,296 million).

The €8 million rise in staff expenses to €603 million (2019: €595 million) was mainly due to higher remuneration expenses in the reporting year. Social security, pension and other post-employment benefit expenses, together with share-based payment transactions, remained at the prior-year level.

Other administrative expenses went down by 4.6 percent to €669 million (2019: €701 million). Most of this decrease (€31 million) resulted from lower management consultancy costs. Taking into account the reversal of provisions, the expenses relating to the restructuring fund for banks (bank levy) and contributions to the BVR protection scheme together came to €55 million and thus remained at the level of the previous year (2019: €56 million). The depreciation and amortization charges included in other administrative expenses rose by €1 million to €83 million. The breakdown of these charges was as follows: depreciation of right-of-use assets €36 million (2019: €36 million), depreciation of property, plant and equipment, and investment property €28 million (2019: €27 million), and amortization of other intangible assets €19 million (2019: €19 million).

In 2020, **other net operating income** amounting to €39 million (2019: net expense of €17 million) included reversals of provisions and accruals amounting to income of €67 million (2019: income of €33 million),

transfers of losses amounting to an expense of €15 million (2019: expense of €10 million), and expenses for paydirekt of €11 million (2019: expenses of €12 million).

Profit before taxes amounted to €244 million in the reporting year, which was €49 million lower than the figure of €293 million reported for 2019.

The **cost/income ratio** in 2020 was 68.6 percent (2019: 77.8 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 4.6 percent (2019: 5.8 percent).

3.2.6 DZ HYP

At €714 million, the **net interest income** of DZ HYP was €58 million higher than in the previous year (2019: €656 million). DZ HYP's participation in the ECB's TLTRO III program gave rise to a contribution of €16 million in the reporting period (2019: €0 million), which included the government grant of €8 million. Further detailed disclosures regarding government grants are presented in note 94 of the notes to the consolidated financial statements.

The rise in net interest income was mainly the result of portfolio growth generated from new business. The volume of real estate loans swelled by €3,187 million to €53,338 million (December 31, 2019: €50,151 million). The volume of new business (including public-sector finance) in 2020 was below the prior-year level at €10,736 million (2019: €12,885 million) owing to the challenging conditions created by the COVID-19 pandemic.

In the corporate customer business, the volume of new business came to €8,039 million (2019: €10,327 million). The volume of new lending jointly generated with the local cooperative banks in this area of business amounted to €3,349 million in 2020 (2019: €4,420 million). In the retail customer business, the volume of new commitments reached €2,066 million (2019: €1,841 million). Of this amount, the new commitment volume referred by local cooperative banks came to €1,961 million (2019: €1,841 million). Demand for long-term fixed interest rates in the retail customer business continued to be supported by the sustained low level of interest rates. In the public-sector business, DZ HYP generated a new business volume of €631 million (2019: €717 million). Of this amount, €521 million (2019: €582 million) was attributable to business brokered through the cooperative banks and €110 million to direct business (2019: €135 million). Some 83 percent of all deals were therefore generated through the brokering activities of the cooperative banks.

The net gain of €1 million under **gains and losses on investments** was lower than in the prior year (2019: net gain of €10 million) because there were no relevant sales during the reporting year. The net gain in 2019 had been significantly influenced by the sale of Spanish government bonds.

Other gains and losses on valuation of financial instruments declined by €157 million to a net gain of €118 million (2019: net gain of €275 million). A narrowing of credit spreads was evident in both 2020 and 2019, although this had resulted in a significantly more positive valuation effect in 2019. For example, the gains and losses on valuation of bonds from the peripheral countries of the eurozone amounted to a net gain of €105 million in 2020 (2019: €246 million). Of this amount, €89 million (2019: €126 million) was attributable to Italian government bonds, €14 million (2019: €79 million) to Spanish government bonds, and €2 million (2019: €42 million) to Portuguese government bonds.

Loss allowances amounted to a net addition of €47 million (2019: net reversal of €1 million). The greater loss allowance requirement was largely attributable to additions of €37 million in connection with the COVID-19 pandemic. This arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses. A further factor was the inclusion of another qualitative stage criterion for selected asset classes.

Administrative expenses went down by €22 million to €237 million (2019: €259 million). This was mainly attributable to the inclusion of merger-related strategic measures.

Other net operating income increased by €14 million to €18 million (2019: €4 million). The figure for the previous year had been adversely affected to a significant degree by the recognition of a restructuring provision of €17 million in connection with streamlining the organizational structure.

Profit before taxes in 2020 amounted to €582 million, which was down by €105 million compared with the equivalent prior-year figure of €687 million, predominantly as a consequence of the factors described above.

The **cost/income ratio** in 2020 was 27.4 percent (2019: 27.4 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 36.7 percent (2019: 44.5 percent).

3.2.7 DZ PRIVATBANK

Net interest income at DZ PRIVATBANK increased by €4 million to €69 million (2019: €65 million) despite the persistently low interest rates.

While the risk-conscious investment strategy was continued, the net interest income for the reporting period was boosted by the higher thresholds for deposits at central banks (ECB and the Swiss National Bank (SNB)) and by the lower US dollar money market rates.

In 2020, the average volume of guaranteed LuxCredit loans issued by DZ PRIVATBANK, which acts as the competence center for foreign-currency lending and investing in the interest-earning business, amounted to €4.9 billion (2019: €4.6 billion).

Net fee and commission income went up by €12 million to €188 million (2019: €176 million). The increase in net fee and commission income was mainly attributable to the larger contributions to income from private banking and the fund services business.

As at December 31, 2020, the volume of assets under management relating to high-net-worth clients amounted to €20.0 billion (December 31, 2019: €18.8 billion). The assets under management comprise the volume of securities, derivatives, and deposits of customers in the private banking business.

As at December 31, 2020, the value of funds under management amounted to €139.5 billion (December 31, 2019: €120.1 billion). The number of fund-related mandates was 515 (December 31, 2019: 540).

Gains and losses on trading activities rose by €8 million to a net gain of €17 million (2019: net gain of €9 million) as a result of a higher volume of transactions instigated by customers.

Administrative expenses went up by €15 million to €235 million (2019: €220 million). Staff expenses rose by €12 million to €144 million (2019: €132 million), predominantly because of the recognition of severance provisions, the first-time recognition of acquired pension rights, a rise in the average number of employees, the statutory indexing of salaries, pay rises, and a higher addition to the provision for bonuses. Other administrative expenses are subject to stringent process and cost management but increased year on year to €91 million (2019: €88 million) due, in particular, to the higher bank levy.

Profit before taxes went up by €2 million to €38 million overall (2019: €36 million), because of the changes described above.

The **cost/income ratio** in 2020 was 85.8 percent (2019: 85.9 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 10.8 percent (2019: 11.2 percent).

3.2.8 VR Smart Finanz

Net interest income at VR Smart Finanz declined by €9 million to €138 million in 2020 (2019: €147 million).

The expansion of the core business, which involved a further rise in the volumes of the digital solutions, had a positive impact on net interest income. However, it was unable to compensate for the absence of the income from the non-core areas of business that have been scaled back or sold in line with the strategy. In 2019, the strategy had resulted in the sale of the following areas of the business: real estate leasing (VR-IMMOBILIEN-LEASING GmbH), centralized settlement, IT leasing (BFL Leasing GmbH), and the unconsolidated property companies.

The year-on-year rise of 16.5 percent (2019: 33.0 percent) in the volume of online business (leasing, hire purchase, and lending) transacted with the cooperative banks in the year under review underlined the growing importance of digitally supported financing solutions. The proportion of total new business (leasing and lending) accounted for by contracts entered into online reached 98.3 percent in the reporting period (2019: 90.0 percent). In response to the COVID-19 pandemic, a needs-based support package was introduced for small-business and self-employed customers across the entire range of solutions. In connection with these measures, the 'VR Smart flexibel' financing solution was temporarily withdrawn until the end of November and the 'VR Smart flexibel support loan' solution, which was eligible for support from the KfW development bank, was introduced at short notice.

Net fee and commission income saw a negative change of €14 million to a net expense of €24 million (2019: net expense of €10 million). The main reasons for this change were the level of trailer fees to be paid to the cooperative banks, which climbed in line with the volume of business, and the absence of income resulting from the disposal of the centralized settlement business.

Loss allowances went up by €19 million to a net addition of €49 million in the reporting year (2019: €30 million). This change was primarily attributable to the adjustment of the scorecards, the adjustment of risk parameters used to calculate expected credit risk, and the addition in connection with the COVID-19 pandemic. The requirement for the addition of €27 million in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses.

Administrative expenses went down by €25 million to €102 million (2019: €127 million), largely because of the absence of the non-core areas of business that had been scaled back or sold. Staff expenses declined by €13 million to €55 million (2019: €68 million), mainly due to the lower headcount. Other administrative expenses fell by €12 million to €47 million (2019: €59 million).

Other net operating income amounted to a net expense of €8 million (2019: net income of €9 million). In 2019, other net operating income had included the gain of €11 million on the sale of the centralized settlement business. The net expense for the reporting period was primarily attributable to further transformation costs (including for the restructuring of IT and transaction costs).

VR Smart Finanz incurred a **loss before taxes** of €45 million in the year under review (2019: loss before taxes of €10 million), largely as a consequence of the factors described above.

The **cost/income ratio** in 2020 was 96.2 percent (2019: 86.4 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was minus 17.5 percent (2019: minus 3.4 percent).

3.2.9 DVB

The DVB subgroup's **net interest income** declined by €116 million in 2020 to €30 million (2019: €146 million). The decrease was essentially due to the absence of interest income following the sale of the aviation finance and land transport finance core businesses in 2019.

The volume of customer loans in the DVB subgroup stood at €3.9 billion as at December 31, 2020 (December 31, 2019: €7.4 billion).

At €25 million, **net fee and commission income** was down by €23 million year on year (2019: €48 million).

The decline was essentially due to the absence of income following the sale of the aviation finance and land transport finance businesses. Moreover, activity in the shipping finance and offshore finance businesses was now limited to the occasional extension of existing transactions.

Gains and losses on trading activities amounted to a net gain of €26 million (2019: net gain of €6 million), which was primarily achieved thanks to the movement of the euro/US dollar exchange rate.

Other gains and losses on valuation of financial instruments came to a net loss of €81 million (2019: net loss of €36 million). The main reason for the difference compared with the previous year was a negative valuation impact in respect of derivatives that were not included in hedge accounting. Some of this impact was offset by positive valuation effects compared with the previous year from the application of the fair value option.

The addition to **loss allowances** rose by €12 million to €153 million (2019: €141 million). This year-on-year change was primarily attributable to higher loss allowances in connection with the COVID-19 pandemic and the further adjustment of risk parameters used to calculate expected credit risk. This adjustment arose from additional defaults and deterioration of collateral values in the shipping and offshore businesses (in the case of the latter caused by low oil prices). The requirement for the addition of €22 million in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses. Overall, there was a greater net addition to loss allowances in stage 1 and stage 2 amounting to €50 million (2019: net reversal of €5 million) and a net addition in stage 3 in the shipping finance and offshore finance businesses in an amount of €103 million (2019: net addition of €146 million).

Administrative expenses amounted to €154 million (2019: €202 million), a year-on-year decrease of €48 million. Staff expenses declined by €28 million to €68 million owing to the reduction in headcount (2019: €96 million). Other administrative expenses went down to €86 million (2019: €106 million), primarily because of a fall in travel expenses, legal expenses, temporary staff costs, and a year-on-year decrease in the bank levy.

Other net operating income amounted to €23 million (2019: €72 million). Significant factors affecting this item in the reporting year were the gain of €71 million on the disposal of a further part of the aviation finance business, which had previously constituted a disposal group not qualifying as a discontinued operation, and other effects amounting to an expense of €44 million resulting from the recognition of impairment losses on assets held for sale. The net income in 2019 had included the effects in connection with the disposal of the aviation finance and land transport finance core businesses, amounting to €206 million and €12 million respectively, and of the long-term equity investment in LogPay Financial Services GmbH amounting to €28 million. In 2019, this item had also included investment management impairment losses of €100 million and restructuring expenses of €46 million.

In 2020, DVB incurred a **loss before taxes** of €285 million (2019: loss before taxes of €108 million), largely as a consequence of the factors described above.

The **cost/income ratio** in 2020 was greater than 100.0 percent (2019: 86.0 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was greater than 100.0 percent (2019: minus 42.1 percent).

3.2.10 DZ BANK – holding function

Net interest income includes the interest expense on subordinated capital, together with the net interest income from the funding of the main long-term equity investment carrying amounts and the investment of capital.

Net interest income amounted to a net expense of €50 million in the reporting year (2019: net expense of €55 million), which equated to a year-on-year improvement of 9.1 percent.

The average level of subordinated capital in 2020 was lower than in the previous year and the interest expense on this capital went down by 9.8 percent to €55 million (2019: €61 million).

Net interest income from the funding of long-term equity investment carrying amounts and the investment of capital amounted to €5 million in 2020 (2019: €6 million).

Administrative expenses declined by 7.4 percent year on year to €188 million (2019: €203 million).

Expenses from the group management function went down by €8 million to €62 million (2019: €70 million), which was predominantly attributable to lower management consultancy costs. Taking into account the reversal of provisions, the expenses relating to the bank levy and contributions (in particular to the BVR protection scheme) together came to €39 million and thus remained at the level of the previous year (2019: €39 million). In addition, IT and project expenses fell from €58 million in 2019 to €55 million in the reporting year, while other expenses for the benefit of the group and local cooperative banks decreased by €4 million to €31 million (2019: €35 million).

3.2.11 Other/Consolidation

The consolidation-related adjustments shown under Other/Consolidation to reconcile operating segment profit/loss before taxes to consolidated profit/loss before taxes are attributable to the elimination of intragroup transactions and to the fact that investments in joint ventures and associates were accounted for using the equity method.

The adjustments to net interest income were primarily the result of the elimination of intragroup dividend payments and profit distributions in connection with intragroup liabilities to dormant partners and were also attributable to the early redemption of issued bonds and commercial paper that had been acquired by entities in the DZ BANK Group other than the issuer.

The figure under Other/Consolidation for net fee and commission income largely relates to the fee and commission business of TeamBank and the BSH subgroup with the R+V subgroup.

The remaining adjustments are mostly also attributable to the consolidation of income and expenses.

4 Net assets

As at December 31, 2020, the DZ BANK Group's **total assets** had increased by €35.1 billion, or 6.3 percent, to €594.6 billion (December 31, 2019: €559.5 billion). This increase was largely attributable to a higher level of total assets at DZ BANK – CICB (up by €25.8 billion), BSH (up by €4.2 billion), R+V (up by €8.1 billion), and DZ HYP (up by €2.1 billion), whereas DVB recorded a decrease of €4.0 billion.

The **volume of business** amounted to €1,059,874 million (December 31, 2019: €994,235 million). This figure comprised the total assets, the assets under management at UMH as at December 31, 2020 amounting to €385,935 million (December 31, 2019: €368,208 million), the financial guarantee contracts and loan commitments amounting to €77,272 million (December 31, 2019: €65,794 million), and the volume of trust activities amounting to €2,094 million (December 31, 2019: €761 million). The growth of trust activities was attributable to KfW support loans that DZ BANK – CICB made available on behalf of the German government to support companies affected by the COVID-19 pandemic.

The DZ BANK Group's **cash and cash equivalents** went up by €15.9 billion, or 30.1 percent, to €68.4 billion (December 31, 2019: €52.5 billion) as a result of the corresponding rise in balances with central banks. The increase was predominantly attributable to DZ BANK – CICB (liquidity management function).

The DZ BANK Group's **loans and advances to banks** rose to €103.0 billion, an increase of €5.5 billion or 5.6 percent. Loans and advances to banks in Germany went up by €5.2 billion to €94.3 billion and loans and advances to foreign banks by €0.3 billion to €8.7 billion.

The DZ BANK Group's **loans and advances to customers** amounted to €190.3 billion, which was €4.1 billion, or 2.2 percent, higher than at the end of 2019. Within this figure, loans and advances to customers in Germany rose by €6.5 billion to €164.1 billion, whereas loans and advances to customers outside Germany went down by €2.4 billion to €26.2 billion.

As at December 31, 2020, **financial assets held for trading** amounted to €42.8 billion, a decrease of €2.0 billion, or 4.3 percent, on the figure as at December 31, 2019. This change was largely attributable to a decline in bonds and other fixed-income securities (down by €2.1 billion) and in receivables (down by €3.0 billion) combined with a rise in derivatives (positive fair values) (up by €3.0 billion).

Investments were up by €3.3 billion, or 5.8 percent, to €60.2 billion. The main reason for this change was the €3.2 billion increase in the portfolio of bonds and other fixed-income securities.

Investments held by insurance companies rose by €8.2 billion (7.1 percent) to €121.7 billion (December 31, 2019: €113.5 billion). This was due, above all, to a €5.7 billion increase in fixed-income securities to €61.5 billion, a €1.2 billion increase in mortgage loans to €10.9 billion, a €0.4 billion increase in unit-linked contracts to €14.8 billion, and a €0.3 billion increase in variable-yield securities to €11.6 billion.

The DZ BANK Group's **deposits from banks** as at December 31, 2020 amounted to €177.8 billion, which was €36.7 billion, or 26.0 percent, higher than the figure reported as at December 31, 2019. Deposits from domestic banks were up by €41.6 billion to €169.5 billion, while deposits from foreign banks decreased by €4.9 billion to €8.3 billion. The growth reflects the expansion of support loan business since the outbreak of the COVID-19 pandemic. In 2020, the DZ BANK Group also participated in the ECB's TLTRO III programs with a total drawdown amount of €17.8 billion, leading to a corresponding increase in deposits from banks.

Deposits from customers grew by €2.4 billion, or 1.8 percent, to €133.9 billion (December 31, 2019: €131.5 billion). Deposits from domestic customers increased by €3.2 billion to €116.2 billion (December 31, 2019: €113.0 billion). Deposits from foreign customers fell by €0.8 billion to €17.7 billion (December 31, 2019: €18.5 billion).

At the end of the reporting year, the carrying amount of **debt certificates issued including bonds** in the DZ BANK Group was €70.5 billion (December 31, 2019: €85.1 billion). The fall of €14.6 billion was largely due to a decrease of €25.9 billion in the portfolio of other debt certificates issued to €7.7 billion although, at the same time, the portfolio of bonds issued expanded by €11.3 billion to €62.8 billion. The bulk of the decrease in debt certificates issued including bonds was at DZ BANK – CICB and can be explained by the contraction of commercial paper in connection with the reduction of short-term liquidity.

Financial liabilities held for trading went down by €0.7 billion, or 1.3 percent, to €50.4 billion (December 31, 2019: €51.1 billion). This change was largely attributable to a decline in short positions (down by €0.5 billion) and in money market deposits (down by €2.0 billion). The figure under derivatives (negative fair values) increased by €1.9 billion.

Insurance liabilities went up by €6.9 billion, or 6.6 percent, to €111.2 billion (December 31, 2019: €104.3 billion). This was largely attributable to rises of €5.0 billion in the benefit reserve, €1.2 billion in the provision for claims outstanding, and €0.5 billion in the provision for premium refunds.

As at December 31, 2020, the **equity** reported by the DZ BANK Group was €29.2 billion (December 31, 2019: €27.8 billion). The increase of €1.4 billion compared with the end of 2019 was largely due to rises of €0.5 billion in retained earnings and €0.5 billion in the reserve from other comprehensive income.

The **capital and solvency situation** of the DZ BANK financial conglomerate, the DZ BANK Group, and the R+V Versicherung AG insurance group is described in the risk report within this group management report (chapter VII.5.3).

5 Financial position

Liquidity management for the entities in the DZ BANK Group is carried out by the Group Treasury division at DZ BANK and on a decentralized basis by the individual subsidiaries. The individual entities are provided with funding by DZ BANK (group funding) or the entities exchange cash among themselves via DZ BANK (group clearing). Liquidity is managed within DZ BANK centrally by the Group Treasury division in Frankfurt and by the associated treasury units in its international branches, although Frankfurt has primary responsibility.

In the context of liquidity management, the DZ BANK Group distinguishes between operational liquidity (liquidity in the maturity band of up to one year) and structural liquidity (liquidity in the maturity band of more than one year).

The DZ BANK Group has a diversified funding base for **operational liquidity**. A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the local cooperative banks. This enables cooperative banks to invest available liquidity with DZ BANK or obtain liquidity from DZ BANK if they need it. This regularly results in a liquidity surplus, which provides one of the main bases for short-term funding in the unsecured money markets. Corporate customers and institutional clients are another important source of funding for covering operational liquidity requirements.

For funding purposes, the DZ BANK Group also issues money market products based on debt certificates under a standardized groupwide multi-issuer euro commercial paper program through its offices and branches in Frankfurt, New York, Hong Kong, London, and Luxembourg. In addition, a new US CP head office program was set up centrally for Frankfurt in 2020.

Key repo and securities lending activities, together with the collateral management process, are managed centrally in DZ BANK's Group Treasury division as a basis for secured money market financing activities. Funding on the interbank market is not strategically important to the DZ BANK Group.

The DZ BANK Group also has at its disposal liquid securities that form part of its counterbalancing capacity. These securities can be used as collateral in monetary policy funding transactions with central banks, or in connection with secured funding in private markets.

Structural liquidity activities are used to manage and satisfy the long-term funding requirements (more than one year) of DZ BANK and, in coordination with the group entities, those of the DZ BANK Group.

In June and September 2020, the DZ BANK Group participated in the ECB's TLTRO III programs with a total drawdown amount of €17.8 billion. Of this sum, €14.8 billion was attributable to the joint bidder group of DZ BANK and TeamBank and €3.0 billion to DZ HYP.

The Group Treasury division at DZ BANK draws up a groupwide **liquidity outlook** annually. This involves determining the funding requirements of the DZ BANK Group for the next financial year on the basis of the coordinated business plans of the individual companies. The liquidity outlook is updated throughout the year.

Monthly **structural analyses** of the various resources available on the liabilities side of DZ BANK's balance sheet are also conducted. The purpose of these analyses is to provide senior management with information that can then be used as the basis for actively managing the liability profile. In addition to this description of the funding structure, the risk report within this group management report includes disclosures on **liquidity risk** (chapter VII.4.2). The year-on-year changes in cash flows from operating activities, investing activities, and financing activities are shown in the **statement of cash flows** in the consolidated financial statements. Contractual cash inflows and cash outflows are set out in the **maturity analysis** in note 86 of the notes to the consolidated financial statements.

III Events after the balance sheet date

Events of particular importance that occurred after the end of the financial year are described in note 101 of the notes to the consolidated financial statements.

IV Human resources report and sustainability

The non-financial group statement of DZ BANK AG in accordance with section 340i in conjunction with section 315b of the German Commercial Code (HGB) is combined with the non-financial statement of the parent entity in accordance with section 340a in conjunction with section 289b HGB.

The separate combined non-financial statement is integrated into the DZ BANK Group's 2020 Sustainability Report. It is available in German at www.berichte2020.dzbank.de and in English at www.reports2020.dzbank.com.

V Outlook

1 Economic conditions

1.1 Global economic trends

In 2020, the COVID-19 pandemic plunged the global economy into the deepest recession since the end of the Second World War. Global economic output contracted by almost 4 percent.

Even at the end of 2020 and at the beginning of 2021, the effects of COVID-19 remained all-pervading. However, various announcements over the last few weeks have given hope that the development of a number of vaccines to combat COVID-19 has been successful. During the course of 2021, a blanket global population vaccination program is therefore likely to stabilize the health emergency and then also help economic activity to return to normal. If this works, the pandemic will fade into the background, allowing everyone to focus on other issues. In almost every region, pent-up demand will then also probably give a huge boost to economic growth.

An enormous rebound in the global economy is anticipated during 2021, with growth predicted at 5.2 percent. Nevertheless, there is a risk that the vaccination program will not deliver a sufficient level of protection, as a consequence of which the COVID-19 pandemic could weigh on the economy and society at large for a much longer period.

Only brief upward pressure on consumer prices is expected in 2021. In key national economies, inflation rates are unlikely to reach a level that could be considered a cause for concern by central banks.

1.2 Trends in the USA

While the changeover in the White House at the beginning of 2021 is likely to open the way for negotiations on resolving the international trade disputes between the United States, China, and Europe, this does not mean that these disputes have been eliminated. In the absence of a lasting solution, there is still a risk that countries will impose protectionist measures, delivering a further blow to world trade already weakened by the impact of the COVID-19 pandemic. This would adversely affect the global economy and hit the heavily export-dependent German economy particularly hard.

In the most likely scenario, the US economy is expected to recover in 2021 from the pandemic-induced recession in 2020. Economic output in the country is predicted to rise by 6.0 percent, with the recovery probably being driven mainly by consumer spending.

1.3 Trends in the eurozone

The economic bounce-back in the eurozone was brought to a halt at the end of 2020 by the second wave of the pandemic. GDP contracted again in the final quarter of 2020 and the situation was expected to remain challenging in the first quarter of 2021. Many of the containment measures will remain more or less in place, acting as a brake on economic growth. Current assessments are that the situation will only normalize later in the year with the help of rising vaccination rates and warmer weather, at which point the economy is likely to kick into gear. Following a contraction of 6.8 percent in GDP in 2020, hefty economic growth of 3.7 percent is projected for 2021.

Consumer prices are only expected to be subject to a little upward pressure. The effect of falling energy prices will probably fade away during 2021, as will the pandemic-related weakness in the prices of other goods and services. The price of crude oil, in particular, is likely to climb as the economy recovers. While the inflation rate in 2020 was low at just 0.3 percent, consumer prices are expected to rise by an average of 1.6 percent in 2021.

1.4 Trends in Germany

As a consequence of high COVID-19 infection rates, lockdown measures were tightened again in December 2020 in order to bring about a lasting reduction in new cases. These restrictions are expected to have caused a recession in the fourth quarter of 2020 and first quarter of 2021, although current assessments indicate that this is likely to have been significantly less severe than in the first half of 2020.

A vigorous recovery is anticipated from the spring of 2021, bolstered by progress in the distribution of vaccines. An economic growth rate of 2.7 percent is projected for 2021. There is undoubtedly a significant risk that this forecast could be overstated if there were to be a harder and longer lockdown that extends beyond the first quarter of 2021. On the other hand, rapid success in combating the pandemic (for various reasons including faster distribution of vaccines) could bring the chance of a quicker recovery.

The average rate of inflation in Germany for 2021 will probably be markedly higher than in the previous year at 2.1 percent (2020: 0.4 percent). The main reasons are the end of the temporary reduction in VAT and a return to higher energy prices. There are no predictions of higher inflationary pressure over the longer term in Germany.

1.5 Trends in the financial sector

For some years, the financial sector has faced considerable pressure in terms of both adjustment and costs caused by the need to comply with regulatory reforms and implement structural change to adapt to competitive conditions.

The regulatory measures introduced since the financial crisis have had a range of objectives, including to make the financial sector more resilient in the event of a crisis, mainly through improved capital and liquidity adequacy, and to ensure that the risks arising from the business activities in the financial industry are not borne by the public sector.

In response to these regulatory requirements, banks have reduced their leverage over the last few years and substantially bolstered their risk-bearing capacity by improving liquidity and capital adequacy.

In addition, new competitors with approaches based on the use of technology are presenting the financial sector with the challenge of scrutinizing its existing business models, adapting them as required, and substantially improving its efficiency by digitalizing business and IT processes. The corresponding capital investment is initially likely to push up costs in the industry before the anticipated profitability gains can be realized.

From the current perspective and in view of the expansionary monetary policy pursued by virtually all central banks, efforts to address the challenges in the financial sector described above will be made more difficult in 2021 by what is expected to remain a comparatively low level of nominal interest rates. This will be accompanied by a relatively flat yield curve and will prevent any significant increase in margins in interest-related business. Accordingly, interest rates are not expected to return to normal levels in 2021.

In the last few years, central banks' expansionary monetary policy, and particularly the ECB's bond-buying programs, largely prevented structural problems, mainly in some EMU member countries, from being perceivable in the capital markets. Because of the way in which the COVID-19 pandemic has spread, the economic fallout in these countries has been especially severe and their need to obtain funding in the capital markets has risen sharply in view of the fiscal support measures that have been required. Asset-buying programs in response to the pandemic have so far limited an increase in risk premiums. However, a securities valuation risk could arise in conjunction with a potentially more restrictive approach to the bond-buying programs.

Because of the expansionary monetary policy pursued by central banks and the fiscal policy measures implemented in many countries, it is reasonable to assume that there will be a global economic recovery, which should also help to stabilize financial performance in the financial sector. However, it is not possible to rule out potential negative effects from the COVID-19 pandemic on businesses and consumers in 2021, which in turn could have an adverse impact on the financial sector.

The potential impact of uncertain political developments on the economic position of banks and insurance companies should also not be ignored. Relevant information on macroeconomic risk factors can be found in the risk report (chapter VII.2.3).

2 Financial position and financial performance

In a market and competitive environment that will continue to be challenging despite the projected economic recovery, key features of the 2021 financial year for the DZ BANK Group will include the planned evolution of the group's operating business and capital expenditure on digitalization.

The forecasts below are based on the outcome of the DZ BANK Group's annual planning process. Further information on the planning process can be found under 'DZ BANK Group fundamentals' (chapter I.2.4). Variances during 2021 from the underlying planning scenario, in the form of opportunities and risks, may have an influence on financial position and financial performance.

According to the planning for 2021, **total assets** will end the year slightly higher overall compared with the figure as at the end of 2020. The forecast growth in the customer business, which will have a corresponding impact on the balance sheet, is expected to be focused in the BSH, DZ BANK – CICB, DZ HYP, TeamBank, and R+V operating segments. Some of the growth in total assets will be offset by the planned reduction in the portfolios of loans and advances in the DVB operating segment.

Despite economic activity being dominated by the COVID-19 pandemic, the DZ BANK Group generated a very respectable **profit before taxes** in 2020. Based on current assessments and taking into account the persistently challenging conditions, the **profit before taxes** in 2021 is predicted to be lower than in 2020 and thus below the long-term target range of €1.5 billion to €2.0 billion.

The future financial performance of the DZ BANK Group could be subject to risks arising from the economic conditions outlined above. The situation is monitored continuously and factored into the DZ BANK Group's planning and management.

In 2021, **net interest income** including income from long-term equity investments is currently anticipated to rise slightly despite the likelihood of interest rates remaining low, mainly because of the projected positive trends in the BSH, TeamBank, and DZ BANK – CICB operating segments. Potential income in connection with the use of open market operations as part of the ECB's TLTRO III programs could have a positive impact on net interest income. The chances of generating this income are likely to have gone up because of the decision made in February 2021 to expand the existing joint bidder group comprising the DZ BANK – CICB and TeamBank operating segments to include the DZ HYP operating segment.

Net fee and commission income is projected to rise slightly and continue to make a hefty contribution to the earnings of the DZ BANK Group in 2021. This is due to the significant budgeted growth in the volume of assets under management and the associated volume-related income in the UMH and DZ PRIVATBANK operating segments.

Gains and losses on trading activities in 2021 are expected to decline sharply compared with 2020. The absence of the positive one-off items in 2020 will probably cancel out the intended boost from the customer-driven capital markets business in the DZ BANK – CICB operating segment.

Gains and losses on investments are anticipated to decline sharply in 2021 because of the absence of positive one-off items that were recognized in 2020 (see chapters II.3.2.1 BSH and II.3.2.4 UMH of the business report).

Other gains and losses on valuation of financial instruments are likely to improve significantly in 2021 compared with the reporting year.

Net income from insurance business in 2021 is expected to be well above the 2020 figure. In addition to the premium growth that has been assumed in the different divisions of the R+V operating segment, the net gains under gains and losses on investments held by insurance companies are predicted to rise sharply.

Expenses for **loss allowances** are likely to rise moderately in 2021 compared with their level in 2020 because of potential negative consequences of the COVID-19 pandemic on businesses and consumers.

In 2021, **administrative expenses** are likely to rise marginally compared with 2020. While staff expenses will decline slightly according to current predictions, general and administrative expenses are likely to rise markedly in view of the planned growth and capital spending requirements.

The **other net operating income** generated by the DZ BANK Group in 2021 is expected to fall sharply because of the absence of positive one-off items recognized in 2020 (see chapter II.3.2.9 DVB of the business report).

The **cost/income ratio** for the DZ BANK Group is likely to rise slightly in 2021 as a result of the expected slight year-on-year decrease in income and marginal rise in the level of expenses. As before, the DZ BANK Group will be focusing its energies on managing costs and generating growth in the operating business.

Regulatory RORAC, the risk-adjusted performance measure based on regulatory risk capital, will probably decline in 2021 because of the lower earnings projections.

3 Liquidity and capital adequacy

Based on the position in the year under review and the funding measures planned for 2021, the DZ BANK Group predicts that it will be able to continue maintaining an appropriate level of economic and regulatory **liquidity adequacy** in 2021.

Further information on liquidity adequacy can be found in the risk report (chapter VII.4).

As matters currently stand, the DZ BANK Group's **capital adequacy** will continue to be assured for 2021 from both economic and regulatory perspectives; that is to say, it will continue to have at its disposal the available internal capital necessary to cover the risks associated with the finance business and other risks arising from the group's business operations.

Over the last few years, the DZ BANK Group has greatly strengthened its capital base from its own resources (through the retention of profits) and through corporate action. In 2021, a high priority will once again be given to strengthening the capital base.

Further information on capital adequacy can be found in the risk report (chapter VII.5).

4 Operating segments in detail

4.1 BSH

According to research institute forecasts, the key drivers behind the demand for home ownership, namely a sustained uptrend in employment, real income growth, and affordable financing terms and conditions, will all remain in place in 2021 despite the COVID-19 pandemic. Furthermore, a backlog of more than half a million approved, but as yet uncompleted, homes has built up over the last few years. It is therefore unlikely that there will be any letup in the pressure on housing markets in 2021, particularly in urban centers and surrounding areas, no matter how the pandemic evolves. The Zentralverband des deutschen Baugewerbes (ZDB) [German Construction Confederation] predicts that around 300,000 new homes will be constructed in 2021, which is similar to the level of the previous year.

Around 35 percent of Germany's entire final energy consumption is accounted for by buildings, where the energy is used primarily for heating and hot water. The German government is aiming to ensure that all buildings in the country are carbon-neutral by 2050. In the intervening years, capital investment in the buildings sector is expected to be in a range from €500 billion to €1,000 billion. As an incentive to improve the energy-efficiency of housing, the German government is imposing a carbon tax on fossil fuels from 2021, making it more expensive to use such fuels. Capital investment in the use of climate-friendly technologies will thus be more financially worthwhile in the future.

In its core home finance business, BSH expects the volume of new business to be slightly lower than the record level achieved in 2020. As regards home savings, the second core business at BSH, new business is predicted to be at the same level as 2020 because of the continuing challenges presented by persistently low interest rates and temporary restrictions imposed as a consequence of the COVID-19 pandemic.

Taking these various factors into account, BSH anticipates that its **profit before taxes** will see a moderate year-on-year decline in 2021.

The low interest rates are likely to have a substantial detrimental impact on interest income in 2021. However, there will be a positive year-on-year effect from a sharp fall in interest expense caused by a lower addition to the provisions for risks attaching to older rate scales in building society operations. Based on these assumptions, **net interest income** is projected to rise moderately in 2021.

With regard to **loss allowances**, BSH will only benefit in the second half of 2021 from Germany's recovering economy and reduction in short-time working. A slight increase in unemployment in Germany will lead to higher loss allowances. As a result of the above and because of the comparatively low figure in 2020, loss allowances are anticipated to rise sharply in 2021.

Net fee and commission income in 2021 is expected to remain virtually unchanged based on a marginal contraction of the home finance business and little movement in the new home savings business from the 2020 level.

Gains and losses on investments are expected to deteriorate significantly compared with 2020.

Administrative expenses in 2021 will probably remain at the 2020 level. The reason for this is a program aimed at the structural optimization and management of costs (SOKS), which was set up in 2020. The SOKS program is a project over a number of years in the Schwäbisch Hall Group aimed at creating greater cost transparency and keeping costs to a lower level on a permanent basis.

Based on current assessments, the **cost/income ratio** is projected to improve slightly, largely because of a rise in net interest income combined with stable administrative expenses.

Regulatory RORAC will probably be down significantly because of the higher capital requirements and the fall in profit before taxes.

4.2 R+V

In the opinion of R+V, the 2021 financial year will continue to be shaped by the challenging conditions. In addition to the impact of the COVID-19 pandemic, the market environment will remain very tough from any number of perspectives, including political issues, regulation, low interest rates, economic conditions, and consumer behavior.

Back in 2017, R+V launched its 'Wachstum durch Wandel' (growth through change) program with the overall objective of consolidating its position in the market and equipping itself for the future. The main aims within the strategic program are to safeguard profitable growth over the long term, bring about further growth in sales, refine the strong R+V corporate culture, and sharpen the focus on customer needs.

In line with this strategy, R+V – the composite insurer in the Volksbanken Raiffeisenbanken cooperative financial network – is planning to continue on its trajectory of profitable growth in 2021. The value added for the cooperative financial network should also increase steadily as a result.

Slight overall growth is expected in **gross premiums written**.

The **non-life insurance** division benefited from premium growth in 2020 despite the duration and intensity of the COVID-19 pandemic. This growth is likely to continue in 2021 as part of the ongoing strategic 'Wachstum durch Wandel' program. In this regard, a slight rise in **gross premiums written** is predicted. The **claims rate** will probably be a little higher than the level of 2020. This is because the number of traffic accidents and natural disaster events are expected to return to normal levels. The rate also takes into account the risk of a rise in insolvencies as a consequence of the pandemic. Based on a modest rise in the expense ratio, the **combined ratio** (total of insurance business operating expenses and claims expenses divided by premiums earned) is projected to be a little higher than the 2020 figure. In 2021, R+V will again participate as a credit insurer in the protective shield for supply chains agreed between the insurance industry and the German government. This protective shield supports supply arrangements for businesses that were financially sound prior to the COVID-19 pandemic but that have run into financial difficulties because of the pandemic.

As the period of low interest rates continues, business management in the **life and health insurance** division will be increasingly focused on profitability in 2021. Following the growth of recent years, **gross premiums written** are likely to decline moderately overall. Within this figure, a decrease in single premiums in life insurance will probably be offset by a slight rise in business involving ongoing premiums. A sharp rise in gross premiums written is anticipated in health insurance.

The latest pension insurance report (2020) published by the Bundesministerium für Arbeit und Soziales (BMAS) [German Federal Ministry of Labour and Social Affairs] states that the ratio of pensions to pay (before tax), referred to as the security level, will fall from the current level of 48.2 percent to 46.0 percent by 2034. In the report, the German government explicitly highlights that there is a need for policyholders to take action so that their income in later life will be improved. Based on a redesigned range of products, R+V offers customers a diverse range of options in this regard to meet their needs. In addition to unit-linked products, R+V is increasingly focusing on products that combine protective components with potential returns.

The pension insurance report recommends that individuals make use, in good time, of the financial latitude offered by the German Retirement Income Act (AltEinkG) and government subsidies. The German Act to Strengthen Occupational Pensions (BRSG), which came into force on January 1, 2018, is a further component in the efforts to prevent old-age poverty. This act is focused particularly on small and medium-sized enterprises (SMEs) as well as on employees with low incomes, who are more likely to be affected by old-age poverty. Industry-specific pension schemes such as the dedicated schemes available in Germany for the chemicals industry (Chemie-Versorgungswerk), engineering industry (MetallRente), pharmacy industry (ApothekenRente), healthcare industry (KlinikRente), and media industry (Versorgungswerk der Presse) are helping to popularize occupational pension provision.

In the chemicals industry, occupational long-term care insurance (CareFlex Chemie) has also been introduced as part of the collective pay agreement. This insurance is offered through a consortium of insurers in which R+V is the managing consortium member. The freely available monthly care benefit under CareFlex Chemie complements the benefits received under statutory long-term care insurance and helps to close the financing gaps.

In the **inward reinsurance division** awareness of economic losses from natural disasters (made more acute by the COVID-19 pandemic), the return to economic growth around the globe, and the steadily growing global population are expected to generate greater demand for reinsurance. Following the major loss events that occurred in previous years as a result of natural disasters and the adverse impact of the COVID-19 pandemic, a substantial increase in the price of reinsurance cover is also anticipated in 2021. The inward reinsurance division will be focusing to a greater extent on improving other insurance gains and losses in 2021 in line with an adjustment to the division’s strategy.

Further substantial growth in **gross premiums written** is predicted. On the costs side, R+V anticipates a slightly higher expense ratio (net insurance business operating expenses divided by net premiums earned) and a significant year-on-year improvement in the **combined ratio** in 2021.

Investing activity is based on a long-term investment strategy combined with an integrated approach to risk management. Focusing on asset protection, the strategy is designed to ensure that insurance obligations can be met at all times.

The forecast net gains under **gains and losses on investments held by insurance companies** for 2021 are much higher than the figure achieved in 2020. The net gains in 2020 fell sharply because of the turmoil in capital markets triggered by the COVID-19 pandemic. By contrast, capital markets are expected to rally in 2021. In the context of the strategic ‘Wachstum durch Wandel’ program, R+V decided to realign and optimize its strategic asset allocation (SAA) with effect from December 31, 2020. This involves a comprehensive change to the management of its investments. As a result of this strategic realignment, R+V is reviewing its existing business models in accordance with IFRS 9. Under the changes that have been introduced, the strategy and management used for the investment of financial instruments will be realigned toward the ‘hold to collect and sell’ business model and away from the ‘hold to collect’ and ‘other’ business models. The necessary reclassifications in the portfolio will be carried out prospectively from January 1, 2021. This will lead to a lower volume of investments whose changes in fair value are recognized directly in the income statement. As a result, market value volatility is expected to have a lower impact on the forecast earnings.

The overall result of the above factors in the planning for 2021 is a substantial rise in **profit before taxes** compared with the 2020 figure, which had been significantly impacted by the consequences of the COVID-19 pandemic.

Regulatory RORAC is projected to rise considerably in 2021 because of the low pandemic-related profit before taxes in 2020.

4.3 TeamBank

Economic growth and consumer spending will again depend to a large degree on the epidemiological situation regarding COVID-19 in 2021. It is likely that a substantial economic recovery will only materialize from the second half of the year. Based on the information currently available, the competitive situation in the consumer finance market will remain largely unchanged, although an increasing consumer preference for digital channels is anticipated. The greater prevalence of online sales will also encourage the use of installment payment plans in e-commerce.

In collaboration with the cooperative banks, TeamBank is aiming in 2021 to generate profitable, sustainable growth at a rate that is higher than that of the market.

TeamBank is forecasting significant portfolio growth in 2021, which is projected to lead to a marked rise in **net interest income**.

As a consequence of the portfolio growth and beneficial one-off items in 2020, there is likely to be a hefty increase in **loss allowances** in 2021 and therefore a return to the level in the medium-term planning horizon.

Administrative expenses will probably rise sharply in 2021, mainly because of the planned additional investment to expand the technical infrastructure as a prerequisite for the focus on growth.

In view of the changes described above, **profit before taxes** is projected to fall substantially.

Consequently, the **cost/income ratio** for 2021 will worsen slightly compared with the 2020 level.

Because of the change in profit before taxes in 2021, there is likely to be a significant decline in **regulatory RORAC**.

4.4 UMH

Against the backdrop of persistently tough political and economic conditions (the consequences of the COVID-19 pandemic, the associated extensive support measures and the broad availability of vaccines, the withdrawal of the UK from the EU, and the continuation of low interest rates in Europe and many other parts of the world), UMH intends to continue systematically exploiting opportunities to deliver a positive business performance.

UMH is aiming for a significantly higher level of assets under management by the end of 2021. New business is expected to climb sharply. Expectations regarding overall performance are slightly higher for 2021.

Net fee and commission income is projected to rise substantially in 2021, mainly as a consequence of the expected slight increase in volume-dependent income resulting from the significantly higher average level of assets under management and the sharp rise in forecast income from performance-related management fees.

Net finance costs – comprising net interest income, gains and losses on investments, and other gains and losses on valuation of financial instruments – are likely to improve significantly in 2021, largely because of an anticipated sharp fall in the expense from the valuation of guarantee commitments for investment products. On the other hand, the figure will no longer include the one-off item recognized in 2020 in connection with the acquisition of the majority stake in ZBI Partnerschaftsholding GmbH; in addition, the contribution from own-account investing is predicted to deteriorate substantially.

Administrative expenses will probably go up significantly again in 2021 because these expenses benefited from predominantly one-off cost-cutting measures in 2020 in order to safeguard the level of earnings. Staff expenses at UMH will rise slightly; general and administrative expenses will increase considerably, primarily because of consultancy and office operating costs, and expenses incurred in connection with public relations and marketing. Depreciation, amortization, and impairment will increase significantly, mainly as a result of costs for buildings and of the first-time recognition of capital expenditure.

A sharp decrease in **other net operating income** is expected, mainly because of a significant fall in the forecast figure for income from the remeasurement of provisions.

Based on the factors described above, **profit before taxes** in 2021 is projected to be slightly higher than in 2020.

The **cost/income ratio** is expected to rise a little and **regulatory RORAC** will probably remain at a high level.

4.5 DZ BANK – CICB

The effects of the COVID-19 pandemic on economic output and on banks in Germany and the rest of Europe are likely to continue at the same level in 2021. In particular, this has led to greater planning uncertainty and risk. Around the world, banks are faced with new challenges, primarily in terms of expected earnings, an associated greater level of loss allowances, and a potential rise in capital requirements.

Greater competitive pressure combined with low interest rates and rising costs, specifically those resulting from further IT upgrades and increasing digitalization expenses, are creating both the incentive and the need for consolidation measures in the European banking landscape.

In view of these developments, **profit before taxes** in 2021 in the DZ BANK – CICB operating segment is expected to fall sharply. A large part of this contraction can be explained by particular items in 2020, notably positive valuation effects, that will no longer be included in the 2021 figure.

Net interest income in 2021 is predicted to be well above the 2020 level. The intended growth in net interest income is likely to be derived mainly from corporate banking, largely through an expansion in volume. The DZ BANK – CICB operating segment expects slightly higher margins in corporate banking in 2021 despite a market environment still considered to be competitive.

It is also likely that 2021 will see an increase in the drawdown of loan facilities because of the COVID-19 pandemic. In addition, the Investment Promotion division anticipates further portfolio expansion caused by heavy demand for COVID-19 support.

In line with the strategic ambitions of the DZ BANK – CICB operating segment, corporate banking will remain a key area of growth. It is intended to actively support the planned growth in volume with packages of measures under the 'Verbund First 4.0' strategy, such as greater customer focus and digitalization-driven streamlining of sales processes.

In 2020, **loss allowances** were increased because of the COVID-19 pandemic and additional effects from major individual exposures. Despite the forecast that 2021 will see a substantial economic recovery, thereby easing the need to apply a PD shift, loss allowances are likely to rise slightly. Loss allowances will continue to be shaped by the effects of the COVID-19 pandemic, which are unlikely to be fully overcome in 2021.

Net fee and commission income in 2021 is only expected to be down a little, i.e. almost at the high level of 2020 again, primarily as a result of the planned steady level of service fees in individual operating units. The DZ BANK – CICB operating segment aims to achieve this level of performance by maintaining its excellent market positioning in the Transaction Banking business line, by continuing to implement the digitalization strategy, and by steadily increasing the number of transactions in payments processing and depositary services.

Gains and losses on trading activities are expected to deteriorate significantly in 2021, provided there is no substantial market turmoil. The reasons for the substantial change are the one-off item from the adjustment of valuation curves and the positive effects of the COVID-19 pandemic on the capital markets business in 2020. Effects to the same degree are neither planned nor expected in 2021.

Gains on trading activities in the DZ BANK – CICB operating segment will be generated from margins and trading volume in customer business involving investment and risk management products and from the related customer-initiated trading contributions. In operating capital markets business, key income drivers in 2021 are likely to include the further exploitation of capital-markets-related cross-selling potential in corporate banking, the expansion of the range of products via targeted product initiatives, and the harnessing of potential in the securities business by stepping up collaboration with the cooperative banks in customer business.

Administrative expenses in 2021 will probably remain at the 2020 level. Despite the systematic implementation of the forward-looking 'Verbund First 4.0' strategic program with the leveraging of specific efficiencies, further cuts in the number of full-time equivalents, and the reduction of project portfolios, there will be countervailing charges under general and administrative expenses. These include expenses related to strategic investment in further digitalization of market access and the expansion of next-generation working methods. Higher contributions to the BVR protection scheme and for banking supervision are also expected.

Current assessments show that the **cost/income ratio** will rise significantly in 2021 as a result of the projection of financial performance compared with 2020 and a steady level of administrative expenses.

As things stand, **regulatory RORAC** will probably decline significantly in 2021 based on slightly higher capital requirements and the forecast of lower profit before taxes.

4.6 DZ HYP

In the reporting year, the effects of the COVID-19 pandemic were reflected in the German economy, which was therefore unable to sustain the relatively high growth rates of previous years. This also had an impact on the volumes traded in the real estate market. Because of the perpetually low level of interest rates, real estate remains an attractive investment product. According to current assessments, capital in search of suitable real estate, coupled with the continued economic strength of Germany and the ECB's expansionary monetary policy, will lead to steady turnover in real estate markets. On the supply side, in terms of real estate finance, there is likely to be ongoing pressure to consolidate within the industry accompanied by increased capital requirements in the banking sector.

Overall, this creates a solid foundation for DZ HYP, which is once again forecasting that the volume of new business in real estate finance will exceed €10 billion with comfortable interest margins.

Net interest income in 2021 is projected to be slightly below the 2020 figure. Real estate lending is expected to remain at a stable level overall, with the associated margins also remaining adequate.

It is anticipated that **loss allowances** will go up significantly in 2021 because of potential risks from the COVID-19 pandemic that have not yet been identified.

In the public-sector financing business, only small changes in spread levels are expected in 2021 compared with 2020. **Other gains and losses on valuation of financial instruments**, which resulted in a net gain in 2020, will therefore probably be close to zero in 2021.

Administrative expenses are projected to be much higher than in 2020, largely because of one-off items in 2020 in connection with the bank levy.

Overall, **profit before taxes** at DZ HYP is predicted to be well below the corresponding 2020 figure, mainly because of the higher loss allowances and the zero figure under other gains and losses on valuation of financial instruments.

Based on the projected changes, the **cost/income ratio** is expected to rise significantly.

Regulatory RORAC will probably decline significantly as a consequence of the deterioration in other gains and losses on valuation of financial instruments and the sharp rise in loss allowances in 2021.

4.7 DZ PRIVATBANK

It is anticipated that 2021 will see a recovery of the economy, which has been badly hit by the effects of the COVID-19 pandemic. The inflation rate in the eurozone will probably go up, but is unlikely to exceed the ECB’s target of 2 percent.

Based on current assessments, **net interest income** will fall sharply in 2021 because of the persistently low interest rates and low market volatility.

In 2021, **net fee and commission income** is predicted to rise substantially, driven by forecasts that the private banking and fund services businesses will perform well.

The assets under management in private banking are also projected to rise because of planned increases in inflow rates. The main value driver is fund volume, and UMH funds and third-party funds are expected to grow markedly.

Gains and losses on trading activities are forecast to deteriorate significantly in 2021 following the exceptionally high customer-driven transaction figures in 2020.

Administrative expenses are expected to rise slightly in 2021. The increase will be due not only to the sustained growth of costs relating to regulatory requirements but also to high levels of capital expenditure.

Based on current forecasts, **profit before taxes** in 2021 will remain at the 2020 level, despite a challenging market environment.

The **cost/income ratio** in 2021 is likely to be slightly higher than the 2020 level, whereas **regulatory RORAC** will be well below the level in the reporting year.

4.8 VR Smart Finanz

The priorities for VR Smart Finanz in 2021 are to continue to deal with the economic consequences of the COVID-19 pandemic, step up collaboration with the cooperative banks, and achieve a greater level of market penetration for the existing solutions aimed at small-business and self-employed customers.

In 2021, VR Smart Finanz will also continue to pursue a decentralized approach with the aim of providing the best possible support for the cooperative banks as a strategic partner in the corporate customer business and meeting the needs of their business customers for fast, easily accessible digital solutions. In this context, VR Smart Finanz will focus on joint marketing with the cooperative banks and on the objective of tapping into the available potential for income and growth from small businesses, the self-employed, and the (lower) SME segment.

It is expected that 2021 will see a gradual containment of the COVID-19 pandemic and an ensuing economic recovery accompanied by a significant rise in demand for lending from SMEs.

In these circumstances, VR Smart Finanz expects to benefit from a sharp rise in the number of customers and in the volume of new business. Areas of the business likely to contribute to this increase include asset finance and also the 'VR Smart flexibel' business loan, which has been reintroduced after being temporarily withdrawn between March and November in 2020 because of the volatile market environment. The automated 'VR Smart flexibel support loan' product, which was launched during the pandemic, will also continue to be offered in 2021 until KfW's underlying support program expires. VR Smart Finanz also intends to exploit the potential offered by financing platforms on a decentralized basis to establish its financing solutions in a rapidly growing sales channel and broaden the offering from cooperative banks. In addition, there are plans to systematically refine the VR Smart Guide and Bonitätsmanager (credit status manager) digital value-added services based on customer feedback. The primary focus will be on greater marketing and further market penetration for the value-added services. This is to be achieved by signing up more banks and making specific use of strategic partnerships.

The economic recovery, the planned initiatives to accelerate collaboration with the cooperative banks, and the relaunch of 'VR Smart flexibel' business loans to be offered alongside the 'VR Smart flexibel support loan' are likely to result in a steep rise in **net interest income** and also in the **fee and commission contributions** paid to the cooperative banks for recommending VR Smart Finanz financing solutions to their customers.

The transaction and outsourcing activities implemented in 2020 are helping VR Smart Finanz to focus on areas of business that make it stand out from its competitors as a provider of digital solutions. VR Smart Finanz outsources certain areas of activity with the aim of enabling it to leverage synergies in the DZ BANK Group and benefit from divisions that operate as centers of expertise. The completion of the sale of the non-strategic businesses, the reduction in headcount, and the progressive automation of the financing solutions mean that it will probably be possible to substantially reduce **administrative expenses** compared with 2020. This is also likely to be reflected in a significant improvement in the **cost/income ratio**.

The effects of the ongoing COVID-19 pandemic and its economic consequences are again expected to be evident in the **loss allowance requirement** in 2021. Risk costs are therefore likely to be at the level of 2020.

Due to the assumed adverse impact of loss allowances, VR Smart Finanz is likely to report a small **loss before taxes** in 2021. However, the loss before taxes will be much improved compared with 2020 owing to the significant rise in net interest income and sharp fall in administrative expenses, while risk costs are predicted to hold steady. **Regulatory RORAC** is expected to be negative.

4.9 DVB

DVB's outlook for 2021 is determined by sector-specific developments and macroeconomic factors. Moreover, the strategic considerations that emerged during 2018 will continue to have an impact on DVB's business performance in 2021. Following the sale of core business activities in 2019, DVB initiated a run-off plan for its remaining portfolios. As a result, it is continuing to manage its existing business as a fully operational bank but, in the shipping finance business, has ceased active marketing and, as a rule, is not entering into any new business.

In view of the general state of transport markets and the aforementioned strategic decisions, the objectives for 2021 are as follows:

In a challenging operating environment, the top day-to-day priorities are to uphold operational stability, maintain an ongoing dialog with customers, and satisfy all the requirements applicable to a regulated bank.

In addition, the progress made with the strategic initiatives listed below will determine the future structure of the DVB operating segment.

- Successfully complete the disposal activities:
  - Carry out the sale and carve-out of Aviation Investment Management/Aviation Asset Management
  - Sell the Shipping & Intermodal Investment Management portfolio
  - Complete the post-closing activities and obligations associated with the aviation business
- Continue to allow the maritime portfolio to run off and actively wind down the non-performing loan portfolio
- Implement the run-off plan while maintaining value; includes simplifying the operating model, closing sites, and managing costs
- Carry out an open-ended review to establish whether the remaining activities of the DVB operating segment can be integrated into the DZ BANK – CICB operating segment.

Overall, DVB's projected financial performance in 2021 will be heavily influenced by conditions in the maritime market and the potential decisions on the future structure of the DVB operating segment. The bank is committed to achieving the objectives outlined above and living up to its reputation as a reliable and solid financial institution. It is optimistic that its results for 2021 will be in line with the financial planning and will meet stakeholders' expectations. For 2021, DVB currently anticipates that its performance in terms of **profit or loss before taxes** will be much improved compared with 2020.

4.10 DZ BANK – holding function

The **loss before taxes** is forecast to be markedly higher in 2021.

Net interest income in 2021 is likely to deteriorate slightly compared with the 2020 figure.

Administrative expenses are projected to rise substantially in 2021. Within this figure, expenses related to protection levies are likely to go up significantly in the forecast period. A slight increase in group function expenses and in IT and project expenses is also anticipated.

By contrast, there will probably be a slight fall in the other expenses for the benefit of the group and local cooperative banks.

VI DZ BANK Group and DZ BANK opportunity report

Up to and including the 2019 annual financial report, opportunities and risks were disclosed together in one chapter (Opportunity and risk report) of the (group) management report. In view of the increasingly complex regulation affecting risk management, which is reflected in the broader scope of external risk reporting, opportunities and risks are now set out in separate chapters of the (group) management report to ensure that opportunities are presented with greater clarity.

The details relating to DZ BANK are included in the opportunity report for the DZ BANK Group so that the disclosures are more transparent and understandable. A separate opportunity report is not prepared for DZ BANK. Unless stated otherwise, the disclosures relating to the DZ BANK Group also apply to DZ BANK.

1 Management of opportunities

The DZ BANK Group and DZ BANK define **opportunities** as situations presenting the potential for further returns that could be exploited.

The management of opportunities is integrated into the **annual strategic planning process**. The potential for returns is identified and analyzed on the basis of various macroeconomic scenarios, trends, and changes in the market environment, and then included in strategic financial planning. Details about the strategic planning process are presented in chapter I.2.4 in 'DZ BANK Group fundamentals' in this (group) management report.

Reports on future business development opportunities are based on the business strategies. As part of the general communication of the business strategies, employees are kept up to date about potential opportunities that have been identified.

Opportunity management is an integral component of governance and is therefore taken into account in the general management approach, in the management of subsidiaries via appointments to key posts, and in the DZ BANK Group's committees. The governance of the DZ BANK Group is described in chapter I.2.2 in 'DZ BANK Group fundamentals'.

The opportunity management system is not integrated into the risk management system.

2 Potential opportunities

2.1 Corporate strategy

The strategic focus in the DZ BANK Group follows the guiding principle of fulfilling the role of a **network-oriented central institution and financial services group**. Business activities are centered on the local cooperative banks and their customers. The objective of this strategic approach is to consolidate the positioning of the cooperative financial network as one of the leading financial services providers in Germany on a long-term basis.

Note:
In the event of differences between the English version of the opportunity report and the original German version, the German version shall be definitive.

The partnership between the cooperative banks and the entities in the DZ BANK Group is built on the principles of subsidiarity, decentralization, and regional market responsibility.

The DZ BANK Group drives forward **strategic initiatives and programs** at three levels.

- Firstly, the entities in the DZ BANK Group work on strategic projects and initiatives in collaboration with the cooperative banks and Fiducia & GAD, with the BVR taking a leading role. The strategy agenda entitled 'Shaping the future cooperatively' provides a framework within which the entities of the cooperative financial network are implementing the initiatives in the strategic KundenFokus (customer focus) project with the aim of establishing an omnichannel model to strengthen their competitiveness.

- Secondly, the entities in the DZ BANK Group have jointly identified key areas of collaboration (such as operating models and sustainability) that offer the potential for reinforcing the future viability and profitability of all the members of the cooperative financial network. The aim is to continue to press ahead with collaboration in these areas of activity over the coming years.

- At the third level, each individual entity in the DZ BANK Group pursues its own strategic initiatives, such as the 'Verbund First 4.0' strategic program at DZ BANK. The strategic focus of the DZ BANK Group is described in chapter I.1 in 'DZ BANK Group fundamentals' in this (group) management report.

Chapter V in the outlook describes expected developments in the market and operating environment and their implications for the earnings performance forecast for 2021. The expected developments in the market and business environment are crucial factors in the **strategic positioning** and the resulting opportunities for increasing earnings and cutting costs.

2.2 Digitalization and new competitors

The process of **digitalization** has been surging ahead in virtually every area of life, evidenced by the widespread growth in the use of internet-based services and high-tech end devices. This trend is encouraging the intermediation of **new competitors** at the interface between customers and banking services. For example, it is evident that non-banks are increasingly gaining a foothold in the payments processing segment.

At the same time, the advancing digitalization across all areas of life and the associated changes in customer behavior are opening up opportunities in relation to day-to-day banking business, especially payments processing. For example, increased **use of mobile devices in payments processing** means that particularly Germany – where paying in cash has generally continued to be more common than in other countries – is now seeing cash transactions being substituted with cashless payments. Payments through online cash register functions are climbing steadily, making it more important to have payment processes that are suitable for omnichannel use. Overall, the acceleration in the use of financial management applications means that business processes and payment processes are becoming increasingly merged.

The entities in the DZ BANK Group responded to these developments a while ago by increasing the new products and services that they offer. Examples include the launch of a cross-bank e-commerce payment system called paydirekt, the implementation of **contactless credit card payments** using a smartphone at point of sale, and the introduction of standardized and stronger authentication procedures. Furthermore, DZ BANK offers a portfolio of solutions for mobile payments systems, which was rounded off in 2020 with the addition of Apple Pay.

In response to the growing importance of payment processes suitable for omnichannel use, DZ BANK is also supporting the development of a European omnichannel payments solution (**European Payments Initiative**) and the consolidation of national systems in the first step toward a pan-European payments solution. The expansion of applications aimed at simplifying liquidity management and billing, together with greater use of a range of special benefits, facilitates more integration of banking business into customer value chains.

DZ BANK's participation in the **SEPA instant payments** system also opens up opportunities for developing new solutions. Future solutions such as Request to Pay – a system in which the account acquires another dimension as a communications channel – are currently being designed using the instant payments infrastructure.
Based on this range of initiatives, the DZ BANK Group is forging ahead with the replacement of cash and increasingly tying in additional **payment-related services with accounts**. DZ BANK is thus sharing in the accelerating trend toward electronic payment transactions with the objective of increasing its earnings.

Furthermore, **new technologies and developments** – such as blockchain, internet of things, and digital currencies – are being identified as potential opportunities, tested by the Transaction Banking business line, and assessed as to whether they are viable for use in the cooperative financial network.

2.3 Credit ratings

The credit ratings of DZ BANK and its subsidiaries are critical in determining the funding opportunities available on money and capital markets. The relatively high ratings compared with other entities in the market open up potential opportunities for the entities in the DZ BANK Group, primarily in terms of customer acquisition, pricing, and funding through capital markets.

The credit ratings for DZ BANK can be found in the 'Key figures' at the front of the Annual Report.

2.4 Summary of the opportunity situation

The opportunities presented by the forecast developments are reasonable in relation to the risks that will be incurred.

VII DZ BANK Group and DZ BANK risk report

1 Disclosure principles

In its capacity as the parent company in the DZ BANK Group, DZ BANK is publishing this risk report in order to meet the transparency requirements for risks applicable to the DZ BANK Group as specified in **sections 114 and 117 of the German Securities Trading Act (WpHG)** and **section 315 of the German Commercial Code (HGB)** in conjunction with **German Accounting Standard (GAS) 20**. Furthermore, the risk report meets the transparency requirements regarding risks applicable to DZ BANK as a separate entity that are specified in **section 289 HGB** in accordance with GAS 20.

This report also implements the risk reporting requirements specified in the International Accounting Standards (IASs) and International Financial Reporting Standards (IFRSs), specifically those set out in the following legal standards:
– **IAS 1.134–136** (capital)
– **IFRS 7.31–42** (nature and extent of risks arising from financial instruments)
– **IFRS 4.38–39A** (nature and extent of risks arising from insurance contracts).

This does not include the legal standards below, because the required disclosures are not used to manage risk. In these instances, the disclosures are included in the notes to the consolidated financial statements ('notes'):
– Accounting-related credit disclosures in accordance with **IFRS 7.35F(a)–36(b)**: note 85
– Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 7.39(a) and (b)**: note 86
– Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 4.39(d)(i)**: note 86
– Claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with **IFRS 4.39(c)(iii)**: note 42.

The requirements set out in IFRS 7 are generally limited to financial instruments, shifting the focus of reporting to credit risk, equity investment risk, market risk, and liquidity risk. In contrast, the DZ BANK Group takes a holistic view of all these risks when using risk management tools and when assessing the risk position. As a consequence, the groupwide risk management system not only covers risks that arise specifically in connection with financial instruments, but also all other relevant types of risk. This integrated approach is reflected in this risk report.

The risk report also includes information in compliance with those recommended risk-related disclosures that have been issued by the **Financial Stability Board** (FSB), the **European Banking Authority** (EBA), and the **European Securities and Markets Authority** (ESMA) that are intended to improve the usefulness of the disclosures in the decision-making process.

The quantitative disclosures in this risk report are based on information that is presented to the Board of Managing Directors and used for internal management purposes (known as the **management approach**). The disclosure of this information, which is important for knowledgeable users, is designed to ensure that external reporting is useful when such users need to make decisions.

Note:
In the event of differences between the English version of the risk report and the original German version, the German version shall be definitive.

The details relating to DZ BANK are included in the risk report for the DZ BANK Group so that the disclosures are more transparent and understandable. A separate risk report is not prepared for DZ BANK. Unless stated otherwise, the disclosures relating to the DZ BANK Group and the Bank sector also apply to DZ BANK.

Detailed information on individual subsidiaries of DZ BANK is only provided if the subsidiaries are of material significance to risk management, risk factors or the risk position, and if the situation in the subsidiaries differs substantially from the overall descriptions applicable to the DZ BANK Group. However, subsidiaries are always specifically mentioned where this is necessary to explain the amount, structure, and management of the risks in the DZ BANK Group, and the changes in these risks.

The disclosure of **non-financial risks** in accordance with section 315c HGB in conjunction with section 289c HGB is included in the non-financial statement, which forms part of the Sustainability Report. The statement analyzes the impact of the activities of the entities in the DZ BANK Group on economic units and persons outside the DZ BANK Group. The concept of risk in section 315c HGB therefore fundamentally differs from the standard concept of risk as defined in Basel Pillar 2, which is concerned with risks that affect the entities in the DZ BANK Group themselves. The risks as defined in Basel Pillar 2 are disclosed in this risk report.

Non-financial risks subject to regulatory standards comprise reputational risk and operational risk. Details on the management of these risks are included in sections 11 and 17 (reputational risk) and in sections 12 and 18 (operational risk) of this risk report.

DZ BANK Group

2 Summary and material changes

2.1 Risk management system

2.1.1 Fundamental features

Risks result from adverse developments affecting financial position or financial performance, and essentially comprise the risk of an unexpected future liquidity shortfall or unexpected future losses. A distinction is made between liquidity and capital. Risks that materialize can affect both of these resources.

The risk management system is based on the risk appetite statement – the fundamental document for determining risk appetite in the DZ BANK Group – and the specific details and additions in **risk strategies**, which are consistent with the business strategies and have been approved by the Board of Managing Directors. The **risk appetite statement** contains risk policy guidelines and risk strategy requirements applicable throughout the group. It also sets out quantitative requirements reflecting the risk appetite specified by the Board of Managing Directors.

Management and control tools are used in all areas of risk. These tools are subject to continual refinement. The methods used for measuring risk are integrated into the risk management system. Risk model calculations are used to manage the DZ BANK Group, DZ BANK, and its subsidiaries.

DZ BANK and its subsidiaries have a **risk management system** that is updated on an ongoing basis in line with changes to the business and regulatory environment. The organizational arrangements, methods, and IT systems that have been implemented – especially the limit system based on risk-bearing capacity, stress testing of all material risk types, and internal reporting – are designed to enable the entities in the DZ BANK Group to identify

material risks at an early stage and initiate the necessary control measures. This particularly applies to **risks that could affect the group's survival as a going concern**.

The tools used for the purposes of risk management are also designed to enable the DZ BANK Group to respond appropriately to **significant market movements**. Possible changes in risk factors are reflected in adjusted risk parameters in the mark-to-model measurement of credit risk and market risk. Conservative crisis scenarios for short-term and medium-term liquidity are intended to ensure that liquidity risk management also takes adequate account of market crises.

2.1.2 KPIs

Risks affecting liquidity and capital resources are managed on the basis of groupwide liquidity risk management and groupwide risk capital management. The purpose of **liquidity risk management** is to ensure adequate levels of liquidity reserves are in place in respect of risks arising from future payment obligations (liquidity adequacy). The aim of **risk capital management** is to ensure the availability of capital resources that are commensurate with the risks assumed (capital adequacy).

The key risk management figures are the minimum liquidity surplus and the liquidity coverage ratio (LCR) in respect of **liquidity**, economic capital adequacy, the coverage ratio for the financial conglomerate, and the regulatory capital ratios in respect of **capital**, plus the leverage ratio and the minimum requirement for own funds and eligible liabilities (MREL).

2.1.3 Management units

Based on statutory requirements (GAS 20.A1.3), this risk report is structured according to **risk type**. The DZ BANK Group is managed using the main types of risk, taking into account particular features relating to DZ BANK and its material subsidiaries (referred to below as **management units**).

All entities in the DZ BANK Group are integrated into the groupwide risk management system. The DZ BANK Group largely comprises the regulatory DZ BANK banking group and R+V. The management units form the core of the financial services group.

The insurance business operated at R+V differs in material respects from the other businesses of the DZ BANK Group. For example, actuarial risk is subject to factors that are different from those affecting risks typically assumed in banking business. Furthermore, policyholders have a share in any gains or losses from investments in connection with life insurance, as specified in statutory requirements, and this must be appropriately taken into account in the measurement of risk. Not least, the supervisory authorities also treat banking business and insurance business differently. This is reflected in differing regulatory regimes for banks and insurance companies.

Because of these circumstances, two sectors – Bank sector and Insurance sector – have been created within the DZ BANK Group for the purposes of risk management. The management units are assigned to these sectors as follows:

Bank sector:
- DZ BANK
- BSH
- DVB
- DZ HYP
- DZ PRIVATBANK
- TeamBank
- UMH
- VR Smart Finanz

Insurance sector:
– R+V.

The management units represent the operating segments of the DZ BANK Group. From a risk perspective, the 'DZ BANK' management unit equates to the central institution and corporate bank operating segment and the holding function.

DZ HYP has applied the **waiver** pursuant to section 2a (1), (2), and (5) of the German Banking Act (KWG) in conjunction with article 7 (1) of the Capital Requirements Regulation (CRR), under which – provided certain conditions are met – the regulatory supervision at individual bank level (for example, in relation to capital adequacy) may be replaced by supervision of the entire banking group.

The management units are deemed to be material in terms of their contribution to the DZ BANK Group's aggregate risk and are directly incorporated into the group's risk management system. The other subsidiaries and investee entities of DZ BANK are included in the risk management system either indirectly as part of equity investment risk or directly as part of other types of risk. This is decided for each of them annually.

The management units' subsidiaries and investees are also included in the DZ BANK Group's risk management system – indirectly via the majority-owned entities – with due regard to the minimum standards applicable throughout the group.

Risk is managed groupwide on a consolidated basis. Risks arising in the subsidiaries therefore impact the risk-bearing capacity of DZ BANK as the group parent.

2.1.4 Material changes to the risk management system

Business risk (Bank sector)

The modeling of business risk in the Bank sector was changed at the start of 2020. Until 2019, this risk had been measured on a decentralized basis in the management units. Business risk in the Bank sector is now calculated centrally by DZ BANK with the help of a standardized method. The centralized model for business risk is used to calculate the risk capital requirement for each management unit in isolation and the risk capital requirement for the Bank sector as a whole, including the management units' risk contributions to the aggregate risk. The calculation covers a forecast period of one year. The centralized model takes account of diversification effects between the management units, thereby significantly reducing the capital requirement for business risk in the Bank sector. Replacing the decentralized calculation method with the centralized risk model should also help to reduce costs because of the simplification of data structures and management processes. Further details on the management of business risk can be found in section 10.5 of this risk report.

Operational risk (Bank sector)

In 2020, the management of operational risk in the Bank sector was more sharply focused on the main risk subtypes. This shift in focus is intended to provide a more nuanced view of operational risk and help the specialist divisions in the second line of defense manage the risk better. This is reflected in the management tools used for operational risk and in the reports to the Board of Managing Directors.

The risk subtypes were therefore amended, as follows:
– IT risk was broadened to include communication technology and is now referred to as information and communication technology (ICT) risk; it is integrated into the information risk subtype.
– Security risk and project risk were added.
– HR risk, tax risk, and risk in connection with the (consolidated) financial reporting process were not deemed to be material. Disclosures for these risks have therefore no longer been provided.

These changes mean there is only limited direct comparability with the corresponding disclosures in the 2019 opportunity and risk report.

The structure of sections 12.5 and 12.6 in this risk report reflects the realignment of the management of operational risk.

Volatility adjustment and transitional measure on technical provisions (Insurance sector)

In the first half of 2020, BaFin was notified of the first-time use of the transitional measure on technical provisions for individual personal insurance companies of R+V. BaFin approved the application to use the volatility adjustment, which was also submitted in the first half of the reporting year. Both measures have a positive impact on economic and regulatory capital adequacy. The volatility adjustment, which can be used indefinitely, prevents a brief phase of heightened market volatility from affecting the valuation of long-term insurance guarantees. The transitional measure on technical provisions is a time-limited measure designed to make it easier for insurance companies to transition from Solvency I to the current regulatory regime, Solvency II.

2.2 Risk

The main **features of the directly managed risks** and their significance for the operating segments in the Bank and Insurance sectors are shown in Fig. 4 and Fig. 5. The risks shown correspond to the outcome of the risk inventory check carried out for 2020 and reflect the risks that are material to the DZ BANK Group.

To ensure that the presentation of the disclosures remains clear, the risk management system disclosures included in the risk report are limited to the main material entities in the group (indicated in Fig. 4 by a dot on a dark gray background). This selection is based on a **materiality assessment**, which takes into account the contribution of each management unit to the DZ BANK Group’s overall risk for each type of risk. However, the figures presented in the risk report cover all the management units included in the internal reporting system (indicated additionally in Fig. 4 by a dot on a light gray background).

The following risks have been identified as **not material**:
– Funding risk (Bank sector)
– Strategic risk (Bank sector and Insurance sector).

FIG. 4 – RISKS AND OPERATING S EGMENTS IN THE BANK SECTOR[1]

Risks

	Risk type	Definition	Risk factors
	RISK NOT COVERED BY CAPITAL		
	Liquidity risk	Risk that cash and cash equivalents will not be available in sufficient amounts to ensure that payment obligations can be met (insolvency risk)	– Follow-up funding risk – Collateral risk – Fair value risk – Drawdown risk – Termination risk – New business risk – Repurchase risk – Intraday risk – Foreign currency funding risk
	RISK COVERED BY CAPITAL		
Financial risks	**Credit risk** – Traditional credit risk – Issuer risk – Replacement risk	Risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) and from the migration of the credit ratings of these counterparties	General credit risk factors: – Increase in the concentration of volume in counterparties, industries, or countries – Accumulation of exposures with longer terms to maturity Specific credit risk factors: – Economic divergence in the eurozone – Challenging shipping and offshore markets – Risks to the global economy – Climate change
Financial risks	**Equity investment risk**	Risk of losses arising from negative changes in the fair value of that portion of the long-term equity investments portfolio for which the risks are not included in other types of risk	Increased requirement for the recognition of impairment losses on the carrying amounts of investments – as a result of impaired carrying amounts – as a result of a lack of information in the case of non-controlling interests
Financial risks	**Market risk** – Interest-rate risk – Equity risk – Fund price risk – Currency risk – Commodity risk – Spread risk and migration risk – Asset-management risk – Market liquidity risk	– Risk of losses that could arise from adverse changes in market prices or in the parameters that influence prices (market risk in the narrow sense of the term) – Risk of losses that could arise from adverse changes in market liquidity such that assets can only be liquidated in markets if they are discounted and that it is only possible to carry out active risk management on a limited basis (market liquidity risk)	General market risk factors: – Changes in the yield curve – Changes in credit spreads – Changes in exchange rates – Changes in share prices Specific market risk factors: – Low interest rates – Risks to the global economy – Economic divergence in the eurozone
Financial risks	**Technical risk of a home savings and loan company[2]** – New business risk – Collective risk	– Risk of a negative impact from possible variances compared with the planned new business volume (new business risk) – Risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates (collective risk)	– Decline in new business – Changed customer behavior (unrelated to changes in interest rates)
Financial risks	**Business risk**	Risk of losses arising from earnings volatility for a given business strategy and not covered by other types of risk	Regulatory risk factors: – Costs of regulation – Basel IV – Switch in interest-rate benchmarks Competition-related risk factors: – Competition based on pricing and terms – Greater competition in capital markets business – New competitors in transaction banking Rating downgrades
Non-financial risks	**Reputational risk[3]**	Risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed
Non-financial risks	**Operational risk**	Risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events	– Compliance risk including conduct risk: Violations of legal provisions; failure to comply with corporate policies – Legal risk: Violations of legal provisions or failures in applying such provisions; adverse changes in the legal environment – Information risk including ICT risk: Failure to maintain the confidentiality, integrity, availability, or authenticity of information or data – Security risk: Inadequate protection of individuals, premises, assets, or time-critical processes – Outsourcing risk: Disruptions to outsourced processes and services – Project risk: Failure to complete projects on schedule

1 Apart from migration risk on traditional loans, which are covered by the capital buffer.
2 Including business risk and reputational risk of BSH.
3 The Bank sector's reputational risk is contained in the risk capital requirement for business risk. BSH's reputational risk, which is covered mainly by the technical risk of a home savings and loan company, is not included here.

Risks		Operating segments (management units)							
Risk management KPIs disclosed		DZ BANK	BSH	DVB	DZ HYP	DZ PRIVATBANK	TeamBank	UMH	VR Smart Finanz
– Liquid securities – Unsecured short-term and medium-term funding – Minimum liquidity surplus – LCR	Section 4.2.6 Section 4.2.6 Section 4.2.7 Section 4.3.3	•	•	•	•	•	•		•
– Lending volume – Risk capital requirement	Sections 0, 6.7, and 6.8 Section 6.10	•	•	•	•	•	•		•
– Carrying amounts of investments – Risk capital requirement	Section 7.5	•	•	•	•		•	•	•
– Value-at-risk – Risk capital requirement	Section 8.7.1 Section 8.7.2	•	•	•	•	•	•	•	•
Risk capital requirement	Section 9.5		•						
Risk capital requirement	Section 10.6	•				•			•
		•	•	•	•	•	•	•	•
– Losses – Risk capital requirement	Section 12.6 Section 12.7	•	•	•	•	•	•	•	•

Management unit disclosures in the risk report:

Quantitative and qualitative disclosures

Quantitative disclosures

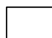
 Not relevant

FIG. 5 – RISKS IN THE INSURANCE OPERATING SEGMENT AND SECTOR

	Risk type	Definition	Risk factors	Risk management KPIs disclosed	
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY II				
Financial risks	**Actuarial risk** – Life actuarial risk – Health actuarial risk – Non-life actuarial risk	– Life actuarial risk: Risk arising from the assumption of life insurance obligations in relation to the risks covered and the processes used in the conduct of this business – Health actuarial risk: Risk arising from the assumption of health and casualty insurance obligations in relation to the risks covered and the processes used in the conduct of this business – Non-life actuarial risk: Risk arising from the assumption of non-life insurance obligations in relation to the risks covered and the processes used in the conduct of this business	– Life actuarial risk: Adverse change in the calculation assumptions for life insurance over the lifetime of the contract – Health actuarial risk: Higher drawdown of benefits by health insurance policyholders – Non-life actuarial risk: Unexpected rise in claims incurred	– Claims rate trend in non-life insurance – Overall solvency requirement	Section 14.6 Section 14.7
Financial risks	**Market risk** – Interest-rate risk – Spread risk – Equity risk – Currency risk – Real-estate risk – Concentration risk	Risk arising from fluctuation in the level or volatility of market prices of assets, liabilities, and financial instruments that have an impact on the value of the assets and liabilities of the entity	It becomes difficult to generate a guaranteed rate of return because of – a protracted period of low interest rates – a narrowing of spreads on investments The fair values of investments fall because of – a fast rise in interest rates – a widening of spreads on investments	– Lending volume – Overall solvency requirement	Section 15.4 Section 15.5
Financial risks	**Counterparty default risk**	Risk of losses due to unexpected default or deterioration in the credit standing of counterparties or debtors of insurance or reinsurance companies over the subsequent 12 months	Deterioration of counterparties' financial circumstances	Overall solvency requirement	Section 16.4
Non-financial risks	**Reputational risk**[1]	Risk of losses that could arise from damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed		
Non-financial risks	**Operational risk**	Risk of losses arising from inadequate or failed internal processes, personnel, or systems, or from external events (including legal risk)	– Legal and compliance risk: Violations of legal provisions or failures in applying such provisions; adverse changes in the legal environment; violations of statutory provisions; failure to comply with corporate policies – Information risk: Malfunctions or breakdowns in IT systems – Security risk: Inadequate protection of individuals, premises, assets, or time-critical processes – Outsourcing risk: Disruptions to outsourced processes and services – Project risk: Failure to complete projects on schedule	Overall solvency requirement	Section 18.4
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY I				
	Risks from entities in other financial sectors	The entities in other financial sectors mainly consist of pension funds and occupational pension schemes	Generally corresponding to the risk factors for risks backed by capital pursuant to Solvency II	Overall solvency requirement	Section 19

1 The Insurance sector's reputational risk is included in the overall solvency requirement for life actuarial risk (lapse risk).

2.3 General risk factors

The entities in the DZ BANK Group are exposed to a range of risk factors that could affect a number of risk types. These general risk factors are explained below.

2.3.1 Low interest rates

Chapter V.1.5 in the outlook describes the anticipated trend in interest rates in 2021. Permanently low interest rates could have the following negative consequences for the DZ BANK Group.

– In BSH's **building society operations**, the current very low level of interest rates means that home savings loans are not particularly appealing for customers, whereas high-interest home savings deposits under older contracts are attractive. If interest rates were to go down yet again, interest income on home savings loans could fall further, while the interest expense for home savings deposits could rise. Furthermore, available liquidity could only be invested at low rates of return, which would be an additional factor depressing earnings, and this could lead to a decrease in capital.

– In addition, a long period of low interest rates and the growing importance of central banks' bond-buying programs also increase the risk of **incorrect valuations** in the financial and real estate markets in the form of significant overpricing. If bubbles like this are created, there is a risk of a sudden correction, which could lead to a sharp drop in share prices and widening credit spreads. In extreme cases, a **market crisis** of this nature could cause the interbank market to crash. These effects could increase the specific risk factors applicable to liquidity risk and the risks covered by capital, resulting in a fall in the DZ BANK Group's liquidity and capital adequacy. Information on the inclusion of market crises in liquidity risk management can be found in sections 4.2.5 and 4.2.7 of this risk report.

Further potential effects of the low interest rates on **individual risks in the DZ BANK Group** are described within the sections of this risk report covering the following:

– Market risk factors in the Bank sector (section 8.3.2)
– Business risk factors in the Bank sector resulting from the competitive situation in the capital markets business (section 10.3.2)
– Market risk factors in the Insurance sector (sections 15.2 and 15.3.4).

2.3.2 Risks to the global economy

Chapters V.1.1 to V.1.4 in the outlook include assessments as to the consequences of the **COVID-19 pandemic** in the coming year. Chapter V.1.2 also provides information on the anticipated developments in **international trade disputes**.

– In addition to the above information, the impact of the COVID-19 pandemic and the international trade disputes on **the DZ BANK Group's risks** are also discussed within the sections of this risk report covering the following:
– Credit risk factors in the Bank sector (section 6.3.2)
– Market risk factors in the Bank sector (section 8.3.2)
– Market risk factors in the Insurance sector (section 15.2).

2.3.3 Economic divergence in the eurozone

In **Italy**, the current COVID-19 pandemic is expected to result in a sharp fall in GDP, a high and rising level of unemployment, and a marked increase in the already high level of government debt. This is the likely outcome of the fiscal spending in connection with the government's support measures to reduce the adverse effects of the pandemic. At the same time, the Italian administration continues to show no signs of willingness to implement far-reaching reforms. If there are no lasting solutions to these problems, there could be perpetual concerns about whether the government debt can be sustained and/or refinanced and about whether long-term growth can be initiated. This could prejudice the ability of the country to obtain funding in international capital markets.

As a result of the economic developments in Italy, **Italian banks** are finding it increasingly difficult to secure funding via the capital markets. Moreover, the financial performance of Italian banks is continuing to suffer as they make large additions to loss allowances and incur losses relating to the elimination of non-performing loans.

The COVID-19 pandemic is substantially exacerbating the existing difficulties in **Spain**. Its already high level of government debt is coming under even more pressure due to high government spending as part of its fiscal support measures. Moreover, the macroeconomic outlook has turned decidedly gloomy in view of the forecast recession and predicted further increase in the already high unemployment rate. The direction of the fiscal policy of the Spanish government, which has been in place since January 2020, is also subject to significant uncertainty. The tensions in Catalonia could give rise to further risks for the economy. Overall, these factors could prejudice the ability of the country and its banks to obtain funding in international capital markets.

Portugal's financial strength is weakened by a significant level of government debt that is likely to rise even higher owing to the COVID-19 pandemic and the increase in fiscal spending aimed at supporting the economy. The pandemic will probably mean a sharp fall in GDP too. The banking sector harbors further risks to financial stability. Even after capitalization, the banks are still carrying substantial portfolios of non-performing loans, although these are declining. To add to this, the earnings prospects for the sector are weak because of the current low level of interest rates. The Portuguese financial market is highly susceptible to volatility in investor confidence. At the same time, the country's ability to respond to negative shocks with fiscal policy measures is limited because of the high level of public debt.

In the last few years, the **expansionary monetary policy of the European Central Bank (ECB)**, and particularly its bond-buying program, largely prevented the structural problems in some European Monetary Union (EMU) member countries from being reflected in the capital markets. Because the COVID-19 pandemic has hit Italy and Spain particularly hard, the economic fallout in these countries is especially severe and their need to obtain funding in the capital markets has risen sharply. Expansion of the ECB's asset purchase program has so far limited the widening of credit spreads. But there is a risk that this situation could change if the asset purchase program were to end. These highly indebted countries could find it considerably more difficult to arrange funding through capital markets.

The effects of the economic divergence in the eurozone on the **DZ BANK Group's risks** are described within the sections of this risk report covering the following:
- Credit risk factors in the Bank sector (section 6.3.2)
- Market risk factors in the Bank sector (section 8.3.2)
- Market risk factors in the Insurance sector (section 15.2).

2.3.4 Climate change

Property damage caused by climate change and the transformation to a low-emission economy could have a considerable negative impact on the real economy, the financial system, and banks. The DZ BANK Group is therefore exposed to medium- and long-term risks resulting from climate change. These risks comprise both physical risks, such as more occurrences of natural disasters and flooded buildings, and transition risks, which can arise particularly as a result of legislative initiatives and changes in consumer behavior.

Physical climate risks affect the lending business of the entities in the Bank sector. Further details on the significance of climate change for **credit risk in the Bank sector** can be found in section 6.3.2 of this risk report.

In the Insurance sector of the DZ BANK Group, catastrophe risk (which forms part of **non-life actuarial risk**) is the main type of risk that could be significantly affected by physical climate risk (see sections 14.2 and 14.5). Specifically, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact.

In both the Bank sector and the Insurance sector, physical climate risk materializing in a number of forms, such as weather or environmental events, could also give rise to **operational risk** from the non-availability of buildings. This type of security risk is described for the Bank sector in section 12.5.4, and for the Insurance sector in section 18.3.3, of this risk report.

Furthermore, negative effects from physical climate risk on the **reputation** of individual entities in the DZ BANK Group or on the DZ BANK Group as a whole cannot be ruled out.

Transition climate risk could be reflected in the main economic risk types in the DZ BANK Group as a consequence of the transition to a lower-carbon, more sustainable economy.

If climate risks are relevant because of the business model, they are implicitly backed with capital within the risk types referred to above.

2.4 Dealing with the impact of the COVID-19 pandemic

2.4.1 Relaxation of supervisory requirements

To enable the banking industry to tackle the impact of the COVID-19 pandemic, the supervisory authorities introduced various relief measures in 2020 concerning the **liquidity and solvency requirements**. This led to the external minimum targets for regulatory key figures being lowered until further notice. Consequently, the Board of Managing Directors of DZ BANK reduced selected **internal thresholds** for the management of capital adequacy in the DZ BANK Group's risk appetite statement. The new arrangements came into force on June 30, 2020. The internal thresholds are set out in Fig. 6. No material changes to the **risk strategies** were required in response to the pandemic. In addition, the EBA relaxed some of its requirements for DZ BANK, and for the banking industry as a whole, relating to the preparation of a group recovery plan.

2.4.2 Risk management measures

Reporting and stress tests

In addition, changes were made to the **risk-related reporting to the Board of Managing Directors** of DZ BANK to match the management requirements at the start of the COVID-19 pandemic. This included the introduction of two new reporting instruments that can also be used to report on the risk situation to the supervisory authorities. The **financial and risk radar** was established as a monthly reporting format that covers economic indicators, forecasts, and the DZ BANK Group's current financial and risk position. The report is designed, in particular, to monitor the impact of the capital market turmoil brought about by the COVID-19 pandemic and any other developments that may adversely affect the business models in the DZ BANK Group. The second instrument, the **CET1 radar**, is used to report on the expected changes to the DZ BANK Group's common equity Tier 1 capital ratio. It also shows other relevant parameters that have an influence on this ratio.

Furthermore, the focus of **stress testing** was switched to identifying and analyzing the effects of the COVID-19 pandemic. Specific COVID-19 scenarios were developed and their effect on the DZ BANK Group simulated. The findings from the scenarios are made available to the Board of Managing Directors and to the Supervisory Board's Risk Committee in a report on the stress tests in the DZ BANK Group. See section 5.4.1 of this risk report for further information.

To date, the COVID-19 pandemic has mainly had an impact on credit risk in the Bank sector and on market risk and non-life actuarial risk in the Insurance sector.

Credit risk in the Bank sector

The entities in the Bank sector adapted their **process management** in the lending business to reflect the relief measures brought in by the supervisory authorities in light of COVID-19. The following special arrangements were temporarily introduced in this context.

In response to the fallout from the COVID-19 pandemic, the credit portfolio of the Bank sector is being **monitored** even more closely at individual borrower level and at sector and country levels. The content of the credit risk report was expanded. In addition, credit-risk-related effects of the pandemic were reported at monthly intervals as part of the financial and risk radar.

Ad hoc **re-ratings** led to an increase in credit rating downgrades in some sectors. This particularly affected the **shipping**, **cruise ships**, and **automotive** industries, but other sectors such as steel, logistics, consumer goods, services, and publishing were also hit. Owing to the quality of the portfolio prior to the COVID-19 pandemic, re-ratings did not automatically result in these industries being classified as credit portfolios with increased risk content. Further disclosures relating to shipping finance and the related risks can be found in sections 6.3.2, 6.8.2, and 6.10.2 of this risk report. Details of the financing of cruise ships and the resulting risks can be found in sections 6.3.2, 6.8.3, and 6.10.2. The situation in the automotive sector and the exposure to this market segment of the entities in the Bank sector is explained in section 6.7.1.

At the end of 2020, the **hotel and department store financing** business at DZ HYP was also subject to substantial uncertainty because of the trend in new COVID-19 cases. However, no significant credit rating downgrades were necessary because the quality of the portfolio remained fundamentally sound. Section 6.7.1 of this risk report includes further details on this subportfolio.

The COVID-19 pandemic led to existing customers submitting a substantial volume of **applications for liquidity support**. To process them, DZ BANK made use of the support programs of the Federal Republic of Germany provided through KfW and the development banks of the individual federal states (see also section 6.7.2).

Borrowers also applied to **defer repayments** under measures introduced by the German government and banking federations and under options offered voluntarily by the entities in the Bank sector to their customers. Details on the extent of deferred payments are also included in section 6.7.2 of this risk report.

The temporary, government-imposed shutdown of public life and economic activity (lockdown) and the resulting recession in the economy as a whole led to a significant rise in **loss allowances**. In addition to the COVID-19-related effects, loss allowances also increased because of significant impairment losses recognized on a specific exposure.

It is already foreseeable that the adverse effects of the pandemic on credit risk in the Bank sector will continue in 2021. Depending on the duration and intensity of the pandemic, there may also be **subsequent effects** on the credit portfolio in 2021. In particular, there is expected to be a sharp rise in company insolvencies that have not yet had to be registered because of the statutory changes to the obligation to apply for insolvency. Personal insolvencies due to unemployment are also likely to increase.

Risks in the Insurance sector

R+V tightened its underwriting guidelines for various products in order to limit the adverse effects of the COVID-19 pandemic on the insurance business.

The increases in risk presented in the sections on the risk position in the Insurance sector were primarily driven by the market turmoil triggered by the COVID-19 pandemic. Where there were other material reasons, this is explained with regard to the affected risk type. In the first half of 2020, the overall limit for the Insurance sector

was raised in response to the market turmoil triggered by the pandemic (see section 5.2.3). On this basis, the limits were raised for life, health, and non-life actuarial risk, market risk, and counterparty default risk.

The increase in risk was partly offset by the first-time use of the volatility adjustment in individual personal insurance companies (see also sections 5.2.3 and 5.3.4).

2.5 Risk profile

The DZ BANK Group's **business model** and the associated business models used by the management units (see chapter I.1 in 'DZ BANK Group fundamentals' in this (group) management report) shape the risk profile of the group. The main risks associated with the business models are shown in Fig. 4 and Fig. 5. The businesses operated by the management units that have a significant impact on the risk profile are described under 'Business background and risk strategy' within the sections of the risk report covering the different risk types.

The values for the measurement of **liquidity and capital adequacy** presented in Fig. 6 reflect the liquidity risks and the risks backed by capital assumed by the DZ BANK Group. They illustrate the **risk profile** of the DZ BANK Group. The values for these KPIs are compared against the (internal) threshold values specified by the Board of Managing Directors of DZ BANK with due regard to the business and risk strategies – also referred to below as **risk appetite** – and against the (external) minimum targets laid down by the supervisory authorities.

FIG. 6 – LIQUIDITY AND CAPITAL ADEQUACY KPIS

	Measured figure		Internal minimum threshold value[1]			External minimum target		
	Dec. 31, 2020	Dec. 31, 2019	2020 (after adjustment)[2]	2020 (before adjustment)[2]	2019	2020 (after adjustment)[2]	2020 (before adjustment)[2]	2019
LIQUIDITY ADEQUACY								
DZ BANK Group (economic perspective)								
Economic liquidity adequacy (€ billion)[3]	15.3	12.5	4.0	4.0	4.0	-	-	-
DZ BANK banking group (normative internal perspective)								
Liquidity coverage ratio (%)[4]	146.3	144.6	110.0	110.0	110.0	< 100.0	100.0	100.0
CAPITAL ADEQUACY								
DZ BANK Group (economic perspective)								
Economic capital adequacy (%)[5]	163.1	160.2	120.0	120.0	120.0	100.0	100.0	100.0
DZ BANK financial conglomerate (normative internal perspective)								
Coverage ratio (%)[6]	142.2	127.6	110.0	120.0	120.0	100.0	100.0	100.0
DZ BANK banking group (normative internal perspective)								
Common equity Tier 1 capital ratio (%)[6, 7]	15.2	14.4	10.0	11.5	11.5	9.0	9.8	9.8
Tier 1 capital ratio (%)[6, 7]	16.6	15.9	11.9	13.0	13.0	10.8	11.3	11.3
Total capital ratio (%)[6, 7]	19.4	17.9	14.3	15.0	15.0	13.3	13.3	13.3
Leverage ratio (%)[6]	5.6	4.9	3.5	3.5	3.5			
MREL ratio (%)[8]	12.2	11.0	8.3	8.3	8.5	8.0	8.0	8.2

Not available (grey cells)

1 As specified by the Board of Managing Directors.
2 'Before adjustment': internal thresholds originally planned for 2020 and external minimum requirements originally specified by the supervisory authorities for 2020. 'After adjustment': internal thresholds and external minimum requirements after factoring in the changes triggered by the COVID-19 pandemic.
3 The measured value relates to the stress scenario with the lowest minimum liquidity surplus. The internal threshold value relates to the observation threshold.
4 In view of the COVID-19 pandemic, the supervisory authorities will tolerate a value below the external minimum target of 100 percent until further notice.
5 The internal threshold value is the amber threshold in the traffic light system for managing and monitoring economic capital adequacy.
6 Measured values based on full application of CRR I.
7 The external minimum targets are the binding regulatory minimum capital requirements. Details on the minimum capital requirements can be found in section 5.3.3.
8 The value as at December 31, 2020 was not available by the publishing deadline for this risk report. The value measured as at September 30, 2020 is therefore shown.

In view of the fallout from the COVID-19 pandemic, the supervisory authorities tolerated values that had temporarily fallen below the external minimum targets for liquidity adequacy and capital adequacy during the reporting period. This applies analogously to the internal thresholds defined by the Board of Managing Directors.

The **solvency** of DZ BANK and its subsidiaries was never in jeopardy at any point during the reporting period.

They also complied with regulatory requirements for liquidity adequacy on every reporting date. By holding ample liquidity reserves, the group aims to be able to protect its liquidity against any potential crisis-related threats.

In addition, the DZ BANK Group remained within its economic **risk-bearing capacity** in 2020 and also complied with regulatory requirements for capital adequacy on every reporting date.

3 Fundamental principles of risk management

3.1 Regulatory framework for risk management

The **conglomerate-wide risk management system** takes into account the statutory requirements specified in section 25 (1) of the German Supervision of Financial Conglomerates Act (FKAG) in conjunction with section 25a KWG and the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA). In respect of risk management for the relevant management units, the DZ BANK Group also observes the requirements specified in sections 26 and 27 of the German Act on the Supervision of Insurance Undertakings (VAG) and section 28 of the German Capital Investment Code (KAGB) in conjunction with the German Minimum Requirements for Risk Management for Investment Management Companies (KAMaRisk).

When the DZ BANK Group designed the risk management system, it followed the guidance provided by the EBA and the European Insurance and Occupational Pensions Authority (EIOPA), together with the pronouncements of the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB) on risk management issues.

In the reporting year, DZ BANK updated its **group recovery plan** for the DZ BANK Group in accordance with the requirements specified by banking supervisors and submitted it to the ECB. The recovery plan is based on the requirements specified in the German Bank Recovery and Resolution Act (SAG) and in other legal sources, especially Commission Delegated Regulation (EU) No. 2016/1075, which implements various EBA guidelines and also includes specific national stipulations. The German Regulation on Minimum Requirements for the Design of Recovery Plans (MaSanV) contains further relevant provisions. Furthermore, R+V was requested by BaFin to prepare a hypothetical recovery plan in accordance with section 26 (1) VAG in conjunction with section 275 (1) VAG. **R+V's recovery plan** was submitted to BaFin on time.

In accordance with article 7 (2) of Regulation (EU) No. 806/2014, the Single Resolution Board (SRB) is the European regulator responsible under the Single Resolution Mechanism (SRM) for the preparation of resolution plans and for all decisions in connection with the resolution of all institutions that are under the direct supervision of the ECB. A group resolution plan is drawn up for institutions that are subject to supervision at consolidated level. The SRB works closely with the national resolution authorities (in 2020 in Germany, this was the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German Federal Financial Supervisory Authority]). The **resolution plan** is aimed at ensuring the resolvability of the banking group. In accordance with section 42 (1) SAG, the resolution authority (BaFin) can demand that the institution provide it with comprehensive assistance in connection with drawing up and updating the resolution plan. For this reason, as in prior years, DZ BANK once again in 2020 supported the ongoing preparation of the resolution plan for the DZ BANK Group. It supplied the resolution authority with numerous analyses related to DZ BANK and completed standardized questionnaires.

3.2 Risk culture

The risk culture at DZ BANK is shaped by the high degree of responsibility assumed by the cooperative financial network for its members and for society. At DZ BANK, activities involving risk are based on the values of drive, integrity, and trust. The priority is on compliance with strategic and associated operating requirements when dealing with risk. The risk culture is reflected in the existing risk management processes and methods and in the conduct of employees.

The following **principles** apply in respect of employee conduct:

- **Leadership culture**: The management must set out clear expectations regarding the handling of risk and lead by example.
- **Risk appetite**: Employees must understand their roles and their part in the risk management system; they must assume responsibility for their decisions.
- **Communications**: Internal communications must be open and consensus-based. Alternative opinions must be respected and employees encouraged to analyze risk transparently.
- **Employees and expertise**: Employees must bear responsibility for conscious handling of risk. They must use the available expertise and undertake continuing professional development in a changing environment.
- **Change management**: Employees must learn from past experience and ensure the business model is sustainable by managing change proactively.

The key features of the risk culture are documented in a framework, which is available to all employees of DZ BANK.

3.3 Risk strategies

The **systematic controlled assumption of risk in relation to target returns** is an integral part of corporate control in the DZ BANK Group. The activities resulting from the business model require the ability to identify, measure, assess, manage, monitor, and communicate risks. The need to hold appropriate reserves of cash and to cover risks with adequate capital is also recognized as an essential prerequisite for the operation of the business and is of fundamental importance.

The Board of Managing Directors of DZ BANK has drawn up risk strategies for each of the material risks using the **business strategies** as a basis. The risk strategies each encompass the main risk-bearing business activities, the objectives of risk management (including the requirements for accepting or preventing risk), and the action to be taken to attain the objectives. The risk strategies are each valid for one calendar year.

The annual updating of the risk strategies is integrated with the **strategic planning process** and is carried out by the Group Risk Controlling, Group Finance, and Credit divisions in close consultation with other relevant divisions at DZ BANK and its subsidiaries.

The risk strategies are described in the sections covering the individual risk types in this risk report.

3.4 Risk appetite

The entities in the DZ BANK Group define risk appetite as the nature and extent of the risks that will be accepted at group level or by the management units when implementing their business models. Risk appetite equates to the term '**risk tolerance**' used by the supervisory authorities in a disclosure context.

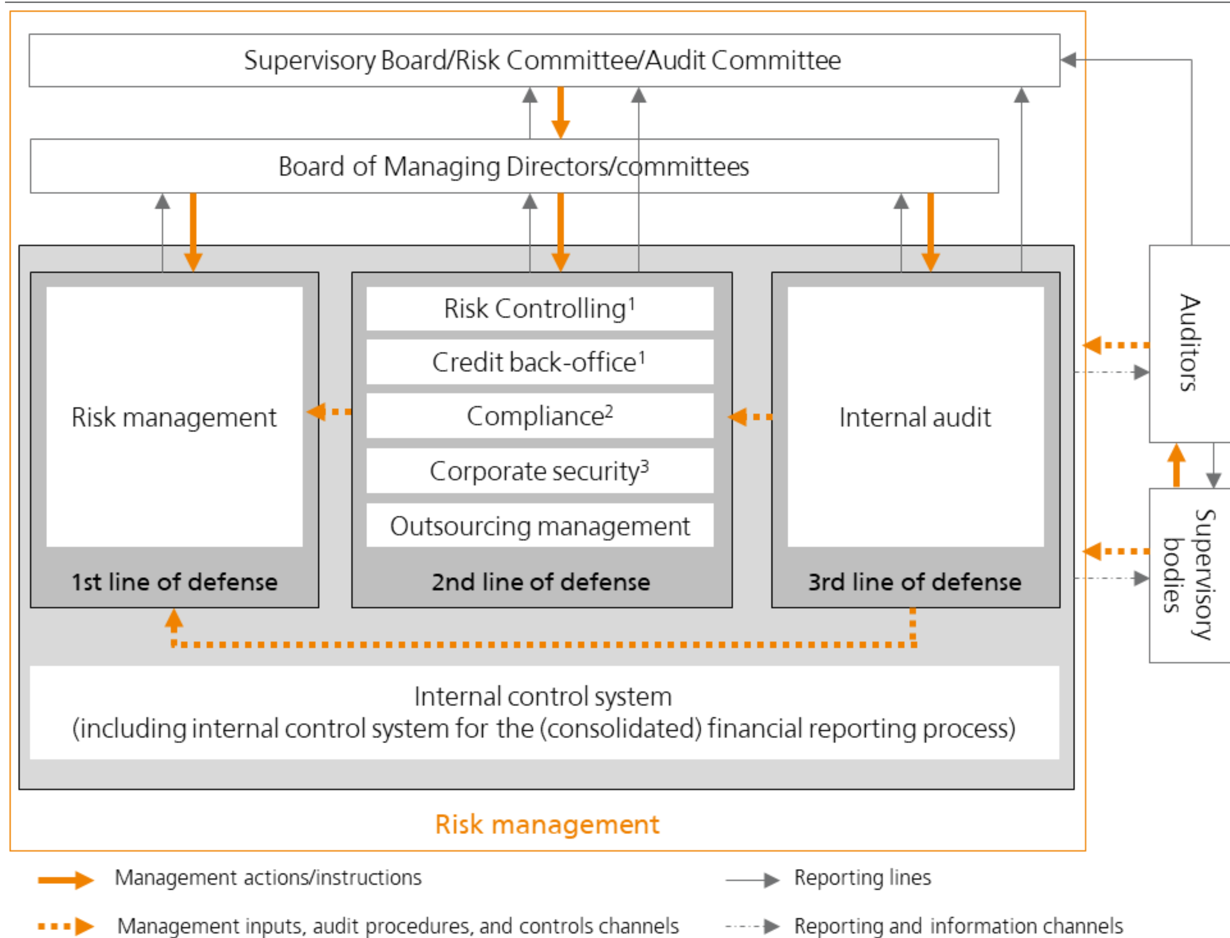
The **risk appetite statement** formulates risk policy principles on risk tolerance in the DZ BANK Group. The principles are overarching statements that are consistent with the business model and the risk strategies. The qualitative principles are supplemented by quantitative key figures, for which threshold values are set internally. The values for the KPIs and the internal threshold values are shown in Fig. 6. The monthly overall risk report is used to monitor the internal threshold values.

3.5 Risk-oriented corporate governance

3.5.1 Governance structure

The DZ BANK Group's **risk management system** builds on the risk appetite statement and risk strategies. It is based on three lines of defense that are interlinked and well established in the monitoring and control environment. Fig. 7 shows the governance structure for risk management.

FIG. 7 – GOVERNANCE STRUCTURE OF RISK MANAGEMENT IN THE DZ BANK GROUP (SCHEMATIC DIAGRAM)



1 Risk Controlling and the Credit back-office division together form the risk management function in the narrower sense as specified in the EBA guidelines on internal governance.
2 Including data protection.
3 Including information security and business continuity management.

The **three-lines-of-defense model** clarifies the understanding of risk management within the DZ BANK Group and sets out the roles and responsibilities.

The interaction between the three functional areas, or lines of defense, is intended to provide the basis for effective groupwide risk management. The tasks of the individual lines of defense are as follows:

First line of defense:
Day-to-day assumption and management of risk; related reporting to the Board of Managing Directors

Second line of defense:
– Establishment and enhancement of a framework for risk management
– Monitoring of compliance with the framework in the first line of defense
– Related reporting to the Supervisory Board and Board of Managing Directors
– Second vote in credit decisions as defined in MaRisk
– Structuring and monitoring of compliance, data protection, and corporate security
– Development and monitoring of principles for compliance with data protection requirements
– Group Risk Controlling and Credit divisions together form the risk management function

Third line of defense:
- Process-independent examination and assessment of risk management and control processes in the first and second lines of defense
- Reporting to the Board of Managing Directors, Supervisory Board, and Audit Committee

Independent auditors, together with banking and insurance supervisory authorities, form the **external control functions** and these functions regularly hold discussions with all three lines of defense. The supervisory authorities can specify key points to be covered by independent auditors in their audits of financial statements. The auditors report to the supervisory authorities on the findings of their audits of financial statements and special audits.

Risk management is an integral component of governance and is therefore taken into account in the general management approach, in the management of subsidiaries via appointments to key posts, and in the DZ BANK Group's committees. The governance of the DZ BANK Group is described in chapter I.2.2 in 'DZ BANK Group fundamentals' in this (group) management report.

Risk management
Risk management refers to the operational implementation of the risk strategies based on standards applicable throughout the group.

The management units make conscious decisions on whether to assume or avoid risks. They must observe guidelines and risk limits specified by the head office. The divisions responsible for risk management in the first line of defense are separated in terms of both organization and function from the divisions in the second and third lines of defense.

3.5.2 Risk control

Central Risk Controlling at DZ BANK is responsible for identifying, measuring, and assessing risk in the DZ BANK Group. This role includes early detection, full recording of data (to the extent that this is possible), and internal monitoring for all material risks. Risk Controlling also reports risks to the Supervisory Board, the Board of Managing Directors, and the management units.

Risk Controlling at DZ BANK lays down the fundamental requirements for the risk measurement methods to be used throughout the group and coordinates implementation with the risk control units in the other management units. The aim of this structure is to ensure that the management of risk capital is consistent throughout the group.

In cooperation with the other management units, Risk Controlling at DZ BANK establishes a groupwide risk reporting system covering all material types of risk based on specified minimum standards using methods agreed between the management units.

Both at DZ BANK and in the other management units, Risk Controlling is responsible for the transparency of risks assumed and aims to ensure that all risk measurement methods used are up to date. The risk control units in the management units also monitor compliance with the entity-related limits that have been set based on the risk capital allocated by DZ BANK.

3.5.3 Credit back-office division

The Credit divisions of the entities in the Bank sector form the back office within the meaning of MaRisk. They are responsible for aspects of identifying, measuring, monitoring, and managing credit risk. These aspects include analyzing the risk (including ratings), approving or rejecting a credit decision with the back office's 'second vote', ensuring compliance with the credit risk strategy, and identifying and appropriately assessing the risks from loans to members of the governing bodies. The responsibilities of the back office also comprise the ongoing monitoring of loan exposures, including identifying and processing non-performing exposures and deciding on measures to be implemented if limits are exceeded, as well as the management of loan collateral. In the case of exposures that are relevant for management, the exposure throughout the group is taken into account and appropriate management guidance is given to the management units.

The Credit back-office division also specifies credit standards, processes, and procedures for the lending business and monitors compliance in a number of ways, notably through the comply-or-explain approach. In addition, the Credit divisions are responsible for supervising and updating the group credit risk reporting system, which complements the risk control reporting system.

3.5.4 Compliance

Compliance function

The Board of Managing Directors of DZ BANK and the Boards of Managing Directors of the other management units are responsible for compliance with legal provisions and requirements and with the principles and measures implemented for this purpose. To fulfill these duties, the Boards of Managing Directors generally appoint an independent compliance function.

The main tasks of the compliance function are to identify, manage, and mitigate compliance risk in order to protect customers, the entities in the DZ BANK Group, and their employees against breaches of legal provisions and requirements. The compliance function is also responsible for monitoring compliance with legal provisions, external and internal agreements, and internal standards. Other tasks of the compliance function are to keep senior management up to date with new regulatory requirements and to advise the departments on implementing new provisions and requirements.

In accordance with the requirements of the Supervisory Review and Evaluation Process for Basel Pillar 2 (SREP), a single compliance framework must be established for the main entities in the DZ BANK Group. This framework must lay down rules on cooperation between the individual compliance functions and set out their authority and responsibilities. The DZ BANK Group's compliance framework comprises the compliance policy. The policy includes requirements for establishing and organizing the compliance functions and details of their duties. It is supplemented by compliance standards, which specify how to implement these requirements at an operational level. If individual requirements in the compliance standards cannot be fulfilled by a management unit, for example because they conflict with local rules or special legal requirements, the affected management unit must provide an explanation. The compliance framework is reviewed annually to check that it is up to date.

Further disclosures relating to compliance risks can be found in sections 12.5.1 and 18.3.1 of this risk report.

Code of conduct

The risk culture principles (see section 3.2) are mirrored in the DZ BANK Group's code of conduct. The code of conduct represents a framework for the group entities, the details of which are implemented by means of internal regulations and policies in the management units according to their respective core businesses and entity-specific requirements. The code of conduct encompasses the responsibility to stakeholders who are directly affected by the management unit concerned. These stakeholders include customers, business partners, shareholders, and employees. Compliance with social and ethical standards also forms part of the code of conduct.

The subsidiaries of DZ BANK have undertaken to uphold DZ BANK's standards on preventing money laundering, the financing of terrorism, and other criminal offenses. The measures required by the German Anti-Money Laundering Act (GwG) have been put in place and implemented. No corruption is tolerated, either in the entities of the DZ BANK Group or at business partners or other third parties. The DZ BANK Group implements appropriate organizational arrangements designed to ensure compliance with all applicable sanctions and embargoes.

Data protection

The entities in the DZ BANK Group have introduced suitable precautions aimed at ensuring that they comply with data protection provisions relating to customers, business partners, and employees. This has involved, in particular, creating the function of data protection officer and issuing standard data protection principles. In addition, employees regularly receive updates on the currently applicable data protection provisions.

In the management units, independent data protection officers report to the relevant Board of Managing Directors. A Data Protection Officers working group was created for the DZ BANK Group in 2020; it generally meets four times a year. The working group deals with current issues relating to data protection.

3.5.5 Corporate security

The entities in the DZ BANK Group take into account the relevant regulatory requirements in the following areas of corporate security:
– Information security
– Business continuity management.

The regulatory requirements are implemented in all of the group's subsidiaries by means of written specifications and compliance is monitored by DZ BANK.

Information security

The DZ BANK Group understands information security management to encompass organizational structures, processes, and IT infrastructures that serve to protect data and information.

DZ BANK has implemented an information security management system (ISMS). The rules that it contains, along with the methodological framework that it provides, are based on the ISO/IEC 27001:2013 standard. The ISMS is designed to ensure the confidentiality, integrity, availability, and authenticity of data, information, and the media on which data is stored (IT applications, IT systems, and infrastructure components). The governance model implemented defines the methods, processes, roles, responsibilities, authority, and reporting channels that are necessary to achieve the strategic objectives and carry out the tasks of information security at operational level. It also provides an operational framework for the consistent quantitative and qualitative evaluation and management of information security risk, which forms part of operational risk.

Further disclosures relating to information risk, including ICT risk, can be found in sections 12.5.3 and 18.3.2 of this risk report.

Business continuity management

A groupwide business continuity and crisis management system has been set up to implement regulatory requirements throughout the group and to mitigate security risk relating to time-critical processes. Group standards are applied to address the regulatory minimum requirements for the business continuity and crisis management system and a governance process is used to track compliance with the standards.

At DZ BANK, business continuity management provides structures and methodologies that will enable time-critical business processes to be maintained should an emergency arise (dealing with emergencies). Measures to protect people, premises, and assets are also developed and implemented (preventing emergencies). In this way, DZ BANK aims to ensure that it can maintain its operations in the event of emergencies, even though the level of

activity may have to be reduced. This applies particularly if there are situations in which whole groups of individuals or significant parts of the buildings or IT infrastructure are affected.

At DZ BANK, time-critical business processes are identified by the head-office team for business continuity management using business impact analyses and protected by business continuity planning. DZ BANK's business continuity management system has been certified in accordance with the ISO 22301 2012 standard.

Further disclosures relating to security risk can be found in sections 12.5.4 and 18.3.3 of this risk report.

3.5.6 Outsourcing management

At DZ BANK, the Central Outsourcing Management unit acts as the central point of contact for all issues relating to the management of external procurement. This includes outsourcing and management-relevant external procurement (external procurement of IT services and other purchases from third parties). The Central Outsourcing Management unit is responsible for developing, introducing, and monitoring the framework specifications as well as for appropriately implementing the statutory requirements in respect of regulated external procurement at DZ BANK.

The framework specifications for outsourcing management include general requirements for the management units in the Bank sector to ensure that the management of outsourcing is largely standardized throughout the DZ BANK Group. The Insurance sector is subject to separate regulatory requirements that are described in internal guidance issued by R+V.

Further disclosures relating to outsourcing risk can be found in sections 12.5.5 and 18.3.4 of this risk report.

3.5.7 Control functions

Internal audit

The internal audit departments of the management units are responsible for control and monitoring tasks, which are carried out independently of individual processes. They carry out systematic, regular risk-based audits focusing on compliance with statutory and regulatory requirements. The internal audit departments also review and assess risk management and the internal control system to ensure that they are fully operational and effective, and that processing is properly carried out. In addition, they monitor the action taken in response to audit findings to ensure that identified problems have been rectified.

The internal audit departments at the entities in the DZ BANK Group report to the chief executive officer or other senior managers of the entity concerned.

DZ BANK's internal audit department is responsible for internal audit tasks at group level. These tasks include, in particular, the design and coordination of audits involving multiple entities, the implementation of which lies within the remit of the individual internal audit departments in the management units concerned, and the evaluation of individual management unit audit reports of relevance to the group as a whole. Cooperation between internal audit departments in the DZ BANK Group is governed by general parameters, the operational details of which are set out in a separate group audit manual. DZ BANK's internal audit department also carries out audit activities for selected subsidiaries under service agreements.

Supervisory Board

The Board of Managing Directors reports to the Supervisory Board of DZ BANK four times a year about the risk situation, the risk strategies, and the status and further development of the risk management system of the DZ BANK Group and DZ BANK. The Board of Managing Directors also provides the Supervisory Board with reports about significant loan and investment exposures and the associated risks, again four times a year. The Supervisory Board discusses these issues with the Board of Managing Directors, advises it, and monitors its management activities. The Supervisory Board is involved in decisions of fundamental importance.

The Supervisory Board has set up a Risk Committee, which addresses issues related to overall risk appetite and risk strategy. The chairman of the Risk Committee reports to the full Supervisory Board four times a year on the material findings of the committee's work.

At least quarterly, the Board of Managing Directors makes the centrally produced risk reports available to the members of the Risk Committee and the other members of the Supervisory Board. The chairman of the Risk Committee informs the full Supervisory Board about the main content of these reports no later than at its next meeting.

External control functions

Independent **auditors** carry out audits pursuant to section 29 (1) sentence 2 no. 2a KWG in conjunction with section 25a (1) sentence 3 KWG in relation to the risk management system, including the internal control functions, of the entities in the Bank sector. For the Insurance sector, verification of the Solvency II balance sheet is carried out pursuant to section 35 (2) VAG and an audit of the early-warning system for risk, including the internal monitoring system of R+V, is carried out pursuant to section 35 (3) VAG in conjunction with section 317 (4) HGB and section 91 (2) of the German Stock Corporation Act (AktG).

The **banking and insurance supervisory authorities** also conduct audits focusing on risk.

3.5.8 General internal control system

The objective of the internal control systems operated in the entities of the DZ BANK Group is to ensure, in each case, the effectiveness and efficiency of the risk management activities by means of suitable basic principles, action plans, and procedures.

Organizational structures and controls built into work processes serve to ensure that the monitoring of risk management activity is integrated into processes. IT systems are systematically protected by authority-dependent management of authorizations and by technical security measures, the aim of which is to prevent unauthorized access both within and outside management units.

3.5.9 Internal control system for the (consolidated) financial reporting process

Objective and responsibilities

DZ BANK is subject to a requirement to prepare consolidated financial statements and a group management report as well as separate financial statements and a management report. The primary objective of external (consolidated) financial reporting for the entities in the DZ BANK Group is to provide decision-useful information for the users of the reports. This includes all activities to ensure that (consolidated) financial reporting is properly prepared and that material violations of accounting standards – which could result in the provision of inaccurate information to users or in mismanagement of the group – are avoided with a sufficient degree of certainty.

In order to limit operational risk in this area of activity, the entities in the DZ BANK Group have set up internal control systems for the (consolidated) financial reporting process as an integral component of the control systems put in place for the general risk management process. In this context, the activities of employees, the implemented controls, the technologies used, and the design of work processes are structured to ensure that the objectives associated with (consolidated) financial reporting are achieved.

Overall responsibility for (consolidated) financial reporting lies in the first instance with Group Finance and Group Risk Controlling at DZ BANK, with all the consolidated entities in the DZ BANK Group responsible for preparing and monitoring the quantitative and qualitative information required for the consolidated financial statements.

Instructions and rules

The methods to be applied within the DZ BANK Group in the preparation of the consolidated financial statements are set out in writing in a group manual. The methods to be applied within DZ BANK in the preparation of the separate financial statements are documented in a written set of procedural rules. Both of these internal documents are updated on an ongoing basis. The instructions and rules are audited to assess whether they remain appropriate and are amended in line with changes to internal and external requirements.

Resources and methods

The group's financial reporting process is decentralized. Responsibility for preparing and checking the quantitative and qualitative information required for the consolidated financial statements lies with the organizational units used for this purpose in the entities of the DZ BANK Group. The Group Finance and Group Risk Controlling divisions at DZ BANK implement the relevant controls and checks in respect of data quality and compliance with the DZ BANK Group rules. Guidelines for the management units' risk control departments on data quality management and the internal control system set out the standards for ensuring the quality of data in the process for managing economic capital adequacy.

The organizational units post the accounting entries for individual transactions. The consolidation processes are carried out by DZ BANK's Group Finance division and by the accounting departments of each entity in the DZ BANK Group. The purpose of this structure is to ensure that all accounting entries and consolidation processes are properly documented and checked.

Financial reporting, including consolidated financial reporting, is chiefly the responsibility of employees of DZ BANK and the other organizational units used for this purpose in the entities of the DZ BANK Group. If required, external experts are brought in for certain accounting-related calculations as part of the financial reporting process, such as determining the defined benefit obligation and valuing collateral.

Consolidated financial reporting is based on mandatory workflow plans agreed between DZ BANK's Group Finance division and the individual accounting departments of the subsidiaries. These plans set out the procedures for collating and generating the quantitative and qualitative information required for the preparation of statutory financial reports. The plans also apply to the financial reports prepared for DZ BANK.

Generally accepted valuation methods are used in the preparation of the consolidated financial statements and group management report, and the separate financial statements and the management report. These methods are regularly reviewed to ensure they remain appropriate.

In order to ensure the efficiency of the (consolidated) financial reporting system, the processing of the underlying data is extensively automated using IT systems. Control mechanisms are in place with the aim of ensuring the quality of processing and are one of the elements used to limit operational risk. (Consolidated) accounting input and output data undergoes automated and manual checks.

Business continuity plans have also been put in place. These plans are intended to ensure the availability of HR and technical resources required for the (consolidated) accounting and financial reporting processes.

Information technology

The IT systems used for (consolidated) financial reporting have to satisfy the applicable security requirements in terms of confidentiality, integrity, availability, and authenticity. Automated controls are used to ensure that the processed (consolidated) accounting data is handled properly and securely in accordance with the relevant requirements. The controls in IT-supported (consolidated) accounting processes include, in particular, validation procedures to ensure consistent issue of authorizations, verification of master data modifications, logical access controls, and change management validation procedures in connection with developing, implementing, or modifying IT applications.

The IT infrastructure required for the use of electronic (consolidated) accounting systems is subject to the security controls implemented on the basis of the general IT security principles in the entities of the DZ BANK Group.

The information technology used for consolidated accounting purposes is equipped with the functionality to enable it to handle the journal entries in individual organizational units as well as the consolidation transactions carried out by DZ BANK's group accounting department and by the accounting departments in the subgroups.

IT-supported (consolidated) accounting processes are audited as an integral part of the internal audits carried out by the internal audit departments of the entities in the DZ BANK Group.

Ensuring and improving effectiveness

The processes used are reviewed to ensure they remain appropriate and fit for purpose; they are adapted in line with new products, circumstances, or changes in statutory requirements. To guarantee and increase the quality of (consolidated) accounting in the entities of the DZ BANK Group, the employees charged with responsibility for financial reporting receive needs-based training in the legal requirements and the IT systems used. When statutory changes are implemented, external advisors and auditors are brought in to provide quality assurance for financial reporting. At regular intervals, the internal audit department audits the internal control system related to the process for (consolidated) financial reporting.

3.6 Risk management tools

3.6.1 Accounting basis

Accounting basis for risk measurement

The transaction data that is used to prepare the DZ BANK consolidated financial statements forms the basis for the measurement of risk in the Bank sector and in the Insurance sector. Similarly, the transaction data used by the entities in the DZ BANK Group to prepare separate financial statements and subgroup financial statements is also used for the measurement of risk in the management units. A wide range of other factors are also taken into account in the calculation of risk. These factors are explained in more detail during the course of this risk report.

The line items in the consolidated financial statements significant to risk measurement are shown in Fig. 8. The information presented is also applicable to the measurement of risk for the separate financial statements of DZ BANK and the measurement of its risk, which does not include the technical risk of a home savings and loan company or the risks incurred by the Insurance sector.

FIG. 8 – RISK-BEARING LINE ITEMS IN THE CONSOLIDATED FINANCIAL STATEMENTS[1]

		BANK SECTOR												INSURANCE SECTOR									
		Credit risk			Equity investment risk	Market risk							Technical risk of a home savings and loan company	Actuarial risk			Market risk					Counterparty default risk	Operational risk
						General market risk																	
Consolidated financial statements		Traditional credit risk	Issuer risk	Replacement risk		Interest-rate risk	Equity risk	Fund price risk	Currency risk	Commodity risk	Spread risk and migration risk	Asset-management risk		Life	Health	Non-life	Interest-rate risk	Spread risk	Equity risk	Currency risk	Real-estate risk		
Risk-bearing assets	Loans and advances to banks	•		•		•			•		•		•										
	Loans and advances to customers	•				•			•		•		•										
	Derivatives used for hedging (positive fair values)			•		•	•	•	•	•	•												
	Financial assets held for trading		•	•		•	•	•	•	•	•												
	Investments		•	•	•	•	•	•	•	•	•												
	Investments held by insurance companies																•	•	•	•	•	•	
	Other assets													•	•	•						•	
	Financial guarantee contracts and loan commitments	•				•			•														
Risk-bearing liabilities	Deposits from banks					•			•		•		•										
	Deposits from customers					•			•		•		•										
	Debt certificates issued including bonds					•	•	•	•	•	•												
	Derivatives used for hedging (negative fair values)			•		•	•	•	•	•	•	•											
	Financial liabilities held for trading			•		•	•	•	•	•	•												
	Insurance liabilities													•	•	•	•						•

1 As liquidity risk is determined on the basis of all line items in the consolidated financial statements, the details for liquidity risk are not provided here for reasons of clarity.

The sections below provide a further explanation of the link between individual types of risk and the consolidated financial statements.

A further breakdown of the line items in the consolidated financial statements used to determine **credit risk** is given in section 6.6.2 of this risk report.

The investments used for the purposes of measuring **equity investment risk** are the following items reported in note 56 of the notes to the consolidated financial statements: shares and other shareholdings, investments in subsidiaries, investments in associates, and investments in joint ventures.

In the **Bank sector**, the measurement of financial instruments both for the purposes of determining market risk and for financial reporting purposes is based on financial market data provided centrally. Discrepancies in carrying amounts arise from the differing treatment of impairment amounts in the market risk calculation and in the accounting figures. Differences also arise because the market risk calculation measures bonds on the basis of issuer and credit spreads using available market data whereas the accounting treatment uses liquid bond prices. If no liquid prices are available for bonds, issuer and credit spreads are also used to measure bonds for accounting purposes. With the exception of these differences, the disclosures relating to **market risk** reflect the fair values of the assets and liabilities concerned.

The measurement for the **technical risk of a home savings and loan company** is based on the loans and advances to banks and customers (home savings loans) and also the home savings deposits (deposits from banks and customers) described in notes 64 and 65 of the notes to the consolidated financial statements.

Insurance liabilities, as reported in the financial statements, are a key value for determining all types of **actuarial risk**. Insurance liabilities are also a determining factor in the calculation of **risks from entities in other financial sectors**. The line item Investments held by insurance companies is used to determine all types of **market risk** and **counterparty default risk**. The line item Other assets is included in the computation of actuarial risk and counterparty default risk.

Operational risk in the Bank sector, **business risk** (Bank sector), and **reputational risk** (Bank sector and Insurance sector) are measured without a direct link to balance sheet line items reported in the consolidated financial statements. On the other hand, **operational risk in the Insurance sector** is based on insurance liabilities.

The calculation of **liquidity risk** is derived from future cash flows, which in general terms are determined from all of the balance sheet items in the consolidated financial statements.

Accounting basis for risk coverage

The link between available liquidity reserves, which are used to determine economic liquidity adequacy, and the consolidated balance sheet is described in section 4.2.6 of this risk report. The link between available internal capital, which is used to determine economic capital adequacy, and the consolidated balance sheet is covered in section 5.2.1.

3.6.2 Measurement of risk and risk concentrations

Framework

Risk management in the DZ BANK Group is based on a **resource-oriented perspective of liquidity and capital**. The group uses this approach to implement the regulatory requirements for the internal liquidity adequacy assessment process (ILAAP) and the internal capital adequacy assessment process (ICAAP). This involves dovetailing between the economic and normative internal perspectives within the ILAAP and ICAAP.

A distinction is also made between **economic and regulatory liquidity adequacy and between economic and regulatory capital adequacy**. The impact of each risk type on both economic capital and economic liquidity is taken into consideration. The effect and materiality of the various types of risk may vary, depending on the resource in question.

Economic liquidity adequacy

To ascertain the DZ BANK Group's economic liquidity adequacy, the minimum surplus cash that would be available if various scenarios were to materialize within the following year is determined as part of the **measurement of liquidity risk**.

Concentrations of liquidity risk can occur primarily due to the accumulation of outgoing payments at particular times of the day or on particular days (concentrations of maturities), the distribution of funding across particular currencies, markets, products, and liquidity providers (concentrations of funding sources), and the distribution of liquidity reserves across particular currencies, ratings, and issuers (concentrations of reserves). There is no capital requirement in connection with liquidity risk.

Liquidity risk at R+V (Insurance sector) is not material at DZ BANK Group level. This is because liquidity is typically tied up in liabilities with maturities of 5 years or more in insurance business.

Economic capital adequacy

In the **Bank sector**, **economic capital** (risk capital requirement) is calculated for credit risk, equity investment risk, market risk, the technical risk of a home savings and loan company, operational risk, and business risk in order to ascertain economic capital adequacy. This risk capital requirement is generally calculated as value-at-risk with a holding period of one year and a unilateral confidence level of 99.9 percent.

The capital requirement for the individual risk types is aggregated into the total risk capital requirement for the Bank sector taking into account various diversification effects. The diversified risk capital requirement reflects the interdependency of individual types of risk. The risks relating to the Bank and Insurance sectors are aggregated, disregarding diversification effects between the sectors.

In the **Insurance sector**, risk measurement is based on the method specified in Solvency II with the aim of determining value-at-risk, which is the measure of **economic capital**. The value-at-risk for the change in economic own funds is determined with a confidence level of 99.5 percent over a period of one year.

The DZ BANK Group holds a **capital buffer** as a component of aggregate risk to allow for a possible lack of precision in the measurement of the risks backed by capital.

Based on an analysis of portfolios, the sector-specific and cross-sector management of **risk concentrations** aims to identify potential downside risks that may arise from the accumulation of individual risks and, if necessary, to take corrective action. A distinction is made between risk concentrations that occur within a risk type (intra-risk concentrations) and concentrations that arise as a result of the interaction between different types of risk (inter-risk concentrations). Inter-risk concentrations are implicitly taken into account when determining correlation matrices for the purposes of inter-risk aggregation. They are mainly managed by using quantitative stress test approaches and qualitative analyses, which aim to provide a holistic view across all types of risk.

3.6.3 Stress tests

In addition to the risk measurements, the effects of extreme but plausible events are also analyzed. Stress tests of this kind are used to establish whether the DZ BANK Group can sustain its business models, even under extreme economic conditions. Stress tests are carried out in respect of liquidity, economic risk-bearing capacity, and regulatory capital ratios.

The stress tests include scenarios for the purposes of liquidity management, capital, funding, and balance sheet planning, as well as internal capital and risk management. Stress tests are also carried out as part of bank recovery and resolution planning. Furthermore, the DZ BANK Group takes part in supervisory stress tests organized by the EBA and ECB. The outcome of the stress tests provides guidance for the management of risk, business planning, and decisions on liquidity measures or corporate action.

3.6.4 Limitation principles

The DZ BANK Group has implemented a system of limits to ensure that it retains an adequate level of liquidity and maintains its risk-bearing capacity. A system of limits and pre-set threshold values aims to ensure that the **liquidity surplus** at the level of the DZ BANK Group does not become a shortfall and therefore that an adequate level of liquidity is guaranteed.

In the case of **risks backed by capital**, the limits take the form of risk limits or volume limits, depending on the type of business and type of risk. Whereas risk limits in all types of risk restrict exposure measured with an economic model, volume limits are applied additionally in transactions involving counterparties. Risk management is also supported by limits for relevant key performance indicators. Specific amendments to risk positions based on an adjustment of the volume and risk structure in the underlying transactions are intended to ensure that the measured exposure does not exceed the approved volume and risk limits. Risks that are incurred are compared with the limits allocated to them and monitored using a traffic light system.

3.6.5 Hedging objectives and hedging transactions

Hedging activities can be undertaken where appropriate in order to transfer liquidity risk, credit risk, market risk (Bank sector), market risk (Insurance sector), actuarial risk, and operational risk to the greatest possible extent to third parties outside the DZ BANK Group. All hedging activities are conducted within the strategic rules specified in writing and applicable throughout the group. Derivatives and other instruments are used to hedge credit risk and market risk.

If the hedging of risk in connection with financial instruments gives rise to **accounting mismatches** between the hedged item and the derivative hedging instrument used, the DZ BANK Group designates the hedging transaction as a hedge in accordance with the hedge accounting requirements of IFRS 9 in order to eliminate or reduce such mismatches. The DZ BANK Group continues to account for portfolio hedges in application of the rules under IAS 39. Hedge accounting in the DZ BANK Group encompasses the hedging of interest-rate risk and currency risk. It therefore affects market risk in both the Bank and Insurance sectors. Hedging information is disclosed in note 84 of the notes to the consolidated financial statements.

DZ BANK has not recognized any hedges on the balance sheet in accordance with section 254 HGB.

3.6.6 Risk reporting and risk manual

The quarterly **overall risk report** includes the risks throughout the group identified by DZ BANK. Together with the **DZ BANK Group stress tests report**, which is also compiled on a quarterly basis, the **report on recovery indicators**, which is prepared quarterly, and the **reverse stress tests report**, which is produced annually, the overall risk report is the main channel through which risks incurred by the DZ BANK Group and the management units are communicated to the Supervisory Board's Risk Committee, the Board of Managing Directors, and the Group Risk and Finance Committee. Economic and regulatory key risk indicators are also made available to the Board of Managing Directors in a **monthly overall risk report**, which is intended to ensure that the Board is informed promptly about the overall risk situation. In addition, the Board of Managing Directors and the Supervisory Board's Risk Committee receive portfolio and exposure-related management information in the quarterly **credit risk report for the DZ BANK Group**. The Board of Managing Directors also receives monthly information on **liquidity risk** in the DZ BANK Group and in the management units.

To complement the above, the management units have further reporting systems for all relevant types of risk. Depending on the degree of materiality in the risk exposures concerned, these systems aim to ensure that decision-makers and supervisory bodies receive transparent information at each measurement date on the risk profile of the management units for which they are responsible.

The **risk manual**, which is available to all employees of the management units, sets out the general parameters for identifying, measuring, assessing, managing, monitoring, and communicating risks. These general parameters are intended to ensure that risk management is properly carried out in the DZ BANK Group. The manual forms the basis for a shared understanding of the minimum standards for risk management throughout the group.

The main subsidiaries also have their own risk manuals covering special aspects of risk related specifically to these management units. R+V has Solvency II guidelines.

3.6.7 Risk inventory and appropriateness test

Every year, DZ BANK draws up a **risk inventory**, the objective of which is to identify the types of risk that are relevant for the DZ BANK Group and assess the materiality of these risk types. According to need, a risk inventory check may also be carried out at other times in order to identify any material changes in the risk profile during the course of the year. A materiality analysis is carried out for those types of risk that could arise in connection with the operating activities of the entities in the DZ BANK Group. The next step is to assess the extent to which there are concentrations of risk types classified as material in the Bank sector, the Insurance sector, and across sectors.

DZ BANK also conducts an annual **appropriateness test**, both for itself and at DZ BANK Group level. The appropriateness test may also be carried out at other times in response to specific events. The objective is to review the latest groupwide specifications for the analysis of risk-bearing capacity. In addition, the appropriateness test includes a number of other tests to assess whether the risk measurement methods used for all types of risk classified as material are in fact fit for purpose. The appropriateness test found that risk measurement in the DZ BANK Group is generally appropriate, although potential improvements to some aspects of risk measurement were identified.

The risk inventory check and appropriateness test are coordinated in terms of content and timing. All management units in the DZ BANK Group are included in both processes. The findings of the risk inventory and the appropriateness test are incorporated into the risk management process.

Risk inventory checks and appropriateness tests are generally conducted in a similar way for the main subsidiaries.

4 Liquidity adequacy

4.1 Principles

The management of liquidity adequacy is an integral component of business management in the DZ BANK Group and the management units. Liquidity adequacy is defined as the holding of sufficient liquidity reserves in relation to the risks arising from future payment obligations. It is considered from both an economic and a regulatory perspective. Whereas the economic perspective takes into account the requirements of MaRisk BA and the ECB Guide to the ILAAP, the regulatory perspective (normative internal perspective), while also taking account of the ECB Guide to the ILAAP, additionally applies the requirements from the CRR and the German national requirements for the implementation of Capital Requirements Directive (CRD) IV in the KWG.

Economic liquidity adequacy is managed on the basis of the internal liquidity risk model, which takes account of the impact on liquidity of other risks when measuring liquidity risk. The DZ BANK Group fulfills the regulatory liquidity adequacy requirements by managing economic liquidity adequacy.

4.2 Economic perspective

Owing to the close ties between management of economic liquidity adequacy at DZ BANK and that of the DZ BANK Group, the information below on economic liquidity adequacy also applies to DZ BANK. Liquidity risk is a key aspect of economic liquidity adequacy. Liquidity risk at DZ BANK to a large degree determines liquidity risk in the DZ BANK Group.

4.2.1 Definition

Liquidity risk is the risk that cash and cash equivalents will not be available in sufficient amounts to ensure that payment obligations can be met. It is therefore defined as insolvency risk. Liquidity risk is significantly influenced by the risks that are backed by capital and those that are not backed by capital. In particular, reputational risk is relevant to liquidity risk.

4.2.2 Business background and risk strategy

The activities of DZ BANK and the management units BSH, DVB, DZ HYP, DZ PRIVATBANK, TeamBank, and VR Smart Finanz are relevant to the level of liquidity risk in the DZ BANK Group.

A key component of the liquidity risk strategy is the process of specifying and monitoring the risk appetite for liquidity risk. The liquidity risk strategy aims to establish a binding basis for implementing these requirements at operational level.

The operations of the entities in the DZ BANK Group are governed by the principle that liquidity risk must only be assumed if it is in compliance with the **risk appetite** specified by the Board of Managing Directors. Solvency must be ensured, even in times of serious crisis. Risk appetite is expressed in the form of crisis scenarios, and stress tests must demonstrate that there is adequate cover for these scenarios. The crisis scenarios also take into account the specific MaRisk BA requirements for the structure of stress scenarios at capital-market-oriented banks.

However, further **extreme scenarios** are not covered by the risk appetite. The risks arising in this regard are accepted and therefore not taken into account in the management of risk. Examples of such scenarios are a run on the bank, i.e. an extensive withdrawal of customer deposits as a result of damage to the reputation of the

banking system, or a situation in which all non-collateralized funding sources on money markets completely dry up over the long term, also encompassing transactions with those corporate customers, institutional customers, and customer banks that have close ties to the entities in the DZ BANK Group. On the other hand, the risk of a short-term and complete loss, or the risk of a medium-term and substantial loss, of unsecured funding from institutional investors is not accepted and this risk is the subject of relevant stress scenarios.

Liquidity reserves in the form of liquid securities are held by the entities so that they can remain solvent, even in the event of a crisis. Potential sources of funding in the secured and unsecured money markets are safeguarded by maintaining a broadly diversified national and international customer base. The local cooperative banks also provide a significant source of funding.

DZ BANK aims to ensure that the liquidity risk strategy is consistent with the **business strategies**. To this end, the liquidity risk strategy is reviewed at least once a year with due regard to the business strategies and adjusted as necessary.

4.2.3 Risk factors

The following factors, alone or in combination with each other, could lead to an increase in liquidity risk, adversely affect financial position and, in an extreme case, cause the insolvency of DZ BANK:

- Funding is withdrawn but cash nevertheless still flows out when legally due (follow-up funding risk).
- Derivatives result in greater collateral requirements that involve cash outflows (collateral risk).
- Changes in the fair value of financial instruments mean that less liquidity can be generated (fair value risk).
- Cash is paid out earlier than expected because drawing rights are exercised (drawdown risk).
- Cash outflows are earlier than expected or cash inflows later than expected because termination rights are exercised (termination risk).
- New business is entered into on a significant scale, resulting in cash outflows (new business risk).
- Products are repurchased on a significant scale, resulting in cash outflows (repurchase risk).
- The liquidity requirement to ensure intraday payment obligations can be satisfied is greater than expected (intraday risk).
- There has been a negative impact on opportunities for funding in foreign currencies, for example the generation of currency-related liquidity through currency swaps (foreign currency funding risk).

These events are incorporated into the calculation of liquidity risk as **stress scenarios** (see section 4.2.5).

4.2.4 Organization, responsibility, and risk reporting

Organization and responsibility

The strategic guidelines for the management of liquidity risk by the entities in the DZ BANK Group are established by the **Group Risk and Finance Committee**. At the level of DZ BANK, this is the responsibility of the **Treasury and Capital Committee**.

Liquidity risk control in the DZ BANK Group is coordinated by the Group Risk Management working group and carried out in Risk Controlling at DZ BANK independently of the units that are responsible for liquidity risk management. The risk data calculated by the subsidiaries on the basis of intra-group guidelines is aggregated to provide a group perspective.

Risk reporting

Liquidity up to one year and structural liquidity of one year or more are reported by liquidity risk control at DZ BANK on a daily basis to the **members of the Board of Managing Directors** of DZ BANK responsible for the Group Treasury and Group Risk Controlling divisions. The **Board of Managing Directors** receives a monthly report on liquidity risk. The DZ BANK Group Treasury division and the units in the subsidiaries responsible for the management of liquidity risk also receive detailed daily information showing the contribution from each individual position to the aggregate position.

The **Group Risk and Finance Committee** receives a quarterly report on the liquidity risk of the DZ BANK Group and the individual management units. The entities in the DZ BANK Group have their own corresponding reporting procedures that help to manage and monitor liquidity risk at individual entity level.

Group Treasury is informed on a daily basis of the largest providers of liquidity to DZ BANK in the unsecured money markets. This is reported to the **Treasury and Capital Committee** and the **Board of Managing Directors** on a monthly basis. The reports make a distinction between customers and banks and relate to DZ BANK in Frankfurt and to each foreign branch. These reports ensure that any possible concentration risk as regards sources of liquidity can be clearly identified at an early stage.

4.2.5 Risk management

Measurement of liquidity risk

DZ BANK uses an **internal risk model** to determine liquidity risk for the DZ BANK Group and DZ BANK over a time horizon of one year. Using this model, four stress scenarios and one risk scenario are simulated on a daily basis. In addition to DZ BANK, all other entities in the DZ BANK Group relevant to liquidity risk are integrated into the groupwide measurement of this risk.

A **minimum liquidity surplus** figure is calculated for each scenario. This figure quantifies the minimum surplus cash that would be available if the scenario were to materialize suddenly within the next 12 months. To carry out this calculation, cumulative cash flow (forward cash exposure) is compared against available liquidity reserves (counterbalancing capacity) on a day-by-day basis. The minimum liquidity surplus expresses economic liquidity adequacy. **Forward cash exposure** includes both expected and unexpected payments.

The **counterbalancing capacity** includes balances on nostro accounts, liquid securities, and unsecured funding capacity with customers, banks, and institutional investors. By including the counterbalancing capacity, the calculation of the minimum liquidity surplus already takes into account the effect on liquidity of the measures that could be implemented to generate liquidity in each scenario. These measures include collateralized funding of securities in the repo market.

The internal liquidity risk model is constantly revised using an **appropriateness test** and adjusted in line with changes in the market, products, and processes. The appropriateness test is conducted for each entity in the DZ BANK Group and aggregated at group level.

Liquidity risk stress tests

Stress tests are conducted for the forward cash exposure and for the counterbalancing capacity using the following four scenarios with defined limits: ‘downgrading’, ‘corporate crisis’, ‘market crisis’, and ‘combination crisis’. The stress scenarios are defined as follows:

- **Downgrading**: Long-term ratings of one or more entities in the DZ BANK Group downgraded by one notch, indirectly triggered, for example, by a temporary loss of confidence among customers and banks.

- **Corporate crisis**: Serious entity-specific crisis, for example caused by reputational damage. The main consequences of this scenario could be a considerable negative impact on customer behavior and downgrading of the long-term rating by three notches.

- **Market crisis**: Turmoil in global money and capital markets. The primary feature of this scenario is a sudden, sharp fall in the value of assets traded in these markets. The scenario assumes, for example, a loss of confidence among money market players, which could lead to a liquidity squeeze.

- **Combination crisis**: Analysis of a combination of bank-specific and market-related factors. However, it does not constitute a mere aggregation of the two stress scenarios arising from a market crisis and a corporate crisis. Instead, the interaction between the two scenarios is taken into account. The combination crisis assumes

that the financial sector would be particularly badly affected. The underlying scenario is also based on a deterioration in the reputation of the entities in the DZ BANK Group. It assumes there would only be very limited access to unsecured funding from customers, banks, and institutional investors over the forecast period of one year.

The stress scenario with the lowest minimum liquidity surplus is deemed to be the **squeeze scenario**. Economic liquidity adequacy is determined as the amount of the minimum liquidity surplus in the squeeze scenario.

Further stress scenarios in addition to the scenarios with defined limits are analyzed, and a **reverse stress test** is carried out and reported on a monthly basis. The reverse stress test shows which stress events (changes in risk factors) could still occur without liquidity falling below the limit in a subsequent liquidity risk measurement and triggering the need for a business model adjustment.

Management of limits for liquidity risk

Liquidity risk is monitored and managed with the aim of ensuring economic liquidity adequacy at every measurement date. This is based on the minimum liquidity surplus calculated for the four stress scenarios with defined limits. The Board of Managing Directors of DZ BANK has set, at the level of the **DZ BANK Group**, a **limit** (€1.0 billion) for liquidity risk and an **observation threshold** (€4.0 billion) that is higher than the limit. The observation threshold equates to the threshold value for economic liquidity adequacy specified in the risk appetite statement. The observation threshold and limit as at December 31, 2020 were unchanged compared with the end of 2019. The Board of Managing Directors of DZ BANK has also specified a limit for **each management unit**. The observation threshold and the limits are monitored by the liquidity risk control function at DZ BANK both at group level and also for the management units.

The limit system aims to ensure that the DZ BANK Group remains solvent even in serious stress scenarios. **Emergency liquidity plans** are in place so that the group is able to respond to crisis events rapidly and in a coordinated manner. The emergency plans are revised annually.

Liquidity risk mitigation

Within liquidity management activities, measures to reduce liquidity risk are initiated by the treasuries of the management units. Active liquidity risk management is made possible by holding instruments in the form of cash and liquid securities, and by managing the maturity profile of money market and capital market transactions.

Liquidity transfer pricing system

The DZ BANK Group aims to use liquidity – which is both a resource and a success factor – in line with risks. Liquidity costs, benefits, and risks are allocated among the entities in the DZ BANK Group based on the liquidity transfer pricing system using internal prices charged by the units generating liquidity and paid by those consuming liquidity. Care is taken to ensure that the transfer prices are consistent with risk measurement and risk management.

Transfer prices are set for all significant products. The transfer pricing system takes into account the holding period and market liquidity of the products and has an impact on risk/return management.

4.2.6 Quantitative variables

Liquid securities

The available liquid securities have a significant influence on the level of the minimum liquidity surplus. Liquid securities are a component of the **counterbalancing capacity** and are largely held in the portfolios managed by DZ BANK's Group Treasury and Capital Markets Trading divisions or in the portfolios of the treasury units at the subsidiaries of DZ BANK. Only bearer bonds are counted as liquid securities.

Liquid securities comprise highly liquid securities that are suitable for collateralizing funding in private markets, securities eligible as collateral for central bank loans, and other securities that can be liquidated in the one-year forecast period that is relevant for liquidity risk.

Securities are only eligible as liquid securities if they are not pledged as collateral, e.g. for secured funding. Securities that have been borrowed or taken as collateral for derivatives business or in connection with secured funding only become eligible when they are freely transferable. Eligibility is recognized on a daily basis and also takes into account factors such as restrictions on the period in which the securities are freely available.

Fig. 9 shows the liquidity value of the liquid securities that would result from secured funding or if the securities were sold.

FIG. 9 – LIQUID SECURITIES

	DZ BANK Group		DZ BANK	
€ billion	**Dec. 31, 2020**	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**21.7**	26.3	**14.1**	18.7
Securities in own portfolio	29.7	27.6	15.9	16.2
Securities received as collateral	8.5	9.4	8.5	9.4
Securities provided as collateral	-16.5	-10.7	-10.3	-7.0
Liquid securities eligible as collateral for central bank loans	**9.1**	16.8	**5.8**	14.2
Securities in own portfolio	20.5	17.7	13.4	12.6
Securities received as collateral	5.7	6.0	5.7	6.0
Securities provided as collateral	-17.2	-6.9	-13.3	-4.3
Other liquid securities	**6.1**	6.5	**5.8**	6.1
Securities in own portfolio	5.7	5.5	5.2	4.9
Securities received as collateral	0.8	1.2	0.8	1.2
Securities provided as collateral	-0.3	-0.2	-0.2	-0.0
Total	**36.9**	49.6	**25.7**	39.0
Securities in own portfolio	55.9	50.8	34.5	33.7
Securities received as collateral	15.0	16.6	15.0	16.6
Securities provided as collateral	-33.9	-17.7	-23.8	-11.3

1 GC = general collateral, ECB Basket = eligible collateral for ECB funding.

As at December 31, 2020, the total liquidity value at the level of the **DZ BANK Group** was €36.9 billion (December 31, 2019: €49.6 billion). The total liquidity value attributable to **DZ BANK** as at December 31, 2020 was €25.7 billion (December 31, 2019: €39.0 billion). The decline in the volume of liquid securities was largely attributable to their use as pledged collateral.

Consequently, liquid securities represent the largest proportion of the counterbalancing capacity and make a major contribution to maintaining solvency in the stress scenarios with defined limits at all times during the relevant forecast period. In the first month, which is a particularly critical period in a crisis, liquid securities were almost exclusively responsible for maintaining solvency in the stress scenarios with defined limits.

Unsecured short- and medium-term funding

Other than liquid securities, the main factors determining the minimum liquidity surplus are the availability and composition of the sources of funding. The DZ BANK Group has a diversified funding base for operational liquidity.

A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the **local cooperative banks**. Under these arrangements, the cooperative banks can invest free cash flow with DZ BANK. Conversely, if the cooperative banks need liquidity, they can obtain it from DZ BANK. This regularly

results in a liquidity surplus in the DZ BANK Group and at DZ BANK, which provides one of the main bases for short-term funding in the unsecured money markets.

Corporate customers and **institutional clients** are another important source of funding for covering operational liquidity requirements in the DZ BANK Group.

For funding purposes, the management units also issue **money market products based on debt certificates** under a standardized groupwide multi-issuer euro commercial paper program through the offices and branches in Frankfurt, New York, Hong Kong, London, and Luxembourg. In 2020, DZ BANK also launched a new US-dollar-denominated commercial paper program for Frankfurt. Key repo and securities lending activities, together with the collateral management process, are managed centrally in DZ BANK's Group Treasury division. Funding on the **interbank market** is not strategically important, either to the DZ BANK Group or to DZ BANK.

Group Treasury at DZ BANK prepares a groupwide **liquidity outlook** annually. This involves determining the funding requirements of the DZ BANK Group and DZ BANK for the next financial year on the basis of the coordinated business plans of the individual management units. The liquidity outlook is updated throughout the year.

Further liquidity management disclosures can be found in chapter II.5 in the business report.

The range of funding sources in the unsecured money markets is shown in Fig. 10.

The year-on-year changes in the composition of the main sources of funding were attributable to a change in the behavior of customers and investors resulting from money market policy implemented by the ECB.

The **maturity analysis of contractual cash inflows and cash outflows** is set out in note 86 of the notes to the consolidated financial statements. The cash flows in these disclosures are not the same as the expected and unexpected cash flows used for internal liquidity risk management.

FIG. 10 – UNSECURED SHORT-TERM AND MEDIUM-TERM FUNDING

	DZ BANK Group		DZ BANK	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Local cooperative banks	61.6	42.9	61.5	42.7
Commercial paper (institutional investors)	7.5	33.6	5.1	31.0
Corporate customers, institutional customers	13.2	11.5	12.5	10.1
Interbank, customer banks, central banks	6.0	11.3	5.1	10.2

4.2.7 Risk position

Economic liquidity adequacy is assured if none of the four stress scenarios with defined limits exhibit a negative value for the internal key risk indicator 'minimum liquidity surplus'. Fig. 11 shows the results of measuring liquidity risk. The results are based on a daily calculation and comparison of forward cash exposure and

counterbalancing capacity. The values reported are the values that occur on the day on which the liquidity surplus calculated over the forecast period of one year is at its lowest point.

FIG. 11 – LIQUIDITY UP TO 1 YEAR IN THE STRESS SCENARIOS WITH DEFINED LIMITS: MINIMUM LIQUIDITY SURPLUSES FOR THE DZ BANK GROUP

	Forward cash exposure		Counterbalancing capacity		Minimum liquidity surplus	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Downgrading	-31.1	-76.1	58.4	105.7	27.4	29.6
Corporate crisis	-34.2	-74.5	49.6	88.0	15.3	13.5
Market crisis	-32.8	-80.7	53.9	97.2	21.1	16.4
Combination crisis	-35.8	-80.2	53.5	92.7	17.7	12.5

The liquidity risk value measured for the **DZ BANK Group** as at December 31, 2020 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €15.3 billion (December 31, 2019: €12.5 billion). The liquidity risk value attributable to **DZ BANK** as at December 31, 2020 was €4.4 billion (December 31, 2019: €3.0 billion). The increase in the minimum liquidity surplus for the DZ BANK Group and for DZ BANK was largely due to greater issuing activities.

The risk values as at December 31, 2020 for the **DZ BANK Group** were above the internal threshold value (€4.0 billion) and above the limit (€1.0 billion). They were also above the external minimum target (€0 billion). The observation threshold, limit, and external minimum target remained unchanged compared with 2019. Furthermore, **DZ BANK** did not exceed the limit of €700 million as at December 31, 2020. The limit at the end of 2019 had been €750 million.

The minimum liquidity surplus as at December 31, 2020 for both the DZ BANK Group and DZ BANK was positive in the stress scenarios with defined limits that were determined on the basis of risk appetite. This is due to the fact that the counterbalancing capacity was above the cumulative cash outflows on each day of the defined forecast period for each scenario, which indicates that the cash outflows assumed to take place in a crisis could be comfortably covered.

4.2.8 Possible impact from crystallized liquidity risk

One of the main operating activities of the management units is to make long-term liquidity available to their customers for different maturity periods and in different currencies, for example in the form of loans. The units generally organize their funding to match these transactions that tie up liquidity. Any funding needs that are not covered by the local cooperative banks are met by obtaining additional funding in the money and capital markets, with the deposit base from money market funding reducing the need for long-term funding. When funding matures, it is therefore possible that the replacement funding required to fund transactions with longer maturities has to be obtained at **unfavorable terms and conditions**.

The entities in the DZ BANK Group are also exposed to the risk that the minimum liquidity surplus will fall below the limit. If the minimum liquidity surplus were to fall below the limit for an extended period, the possibility of **reputational damage and a ratings downgrade** could not be ruled out.

Crystallization of liquidity risk causes an unexpected **reduction in the liquidity surplus**, with potential negative consequences for DZ BANK's financial position and enterprise value. If a crisis were to occur in which the circumstances were more serious or the combination of factors were significantly different from those assumed in the stress scenarios, there would be a risk of **insolvency**.

4.3 Normative internal perspective

4.3.1 Regulatory framework

The normative internal perspective is based on the liquidity ratios required under Basel Pillar 1. Its objective is to assess the DZ BANK banking group's ability to comply with regulatory minimum requirements (plus an internally specified management buffer).

Internal liquidity risk management is supplemented by the liquidity coverage ratio (LCR) specified in the Basel III framework, which was transposed into law with the CRR and Commission Delegated Regulation (EU) No. 2015/61, and by the net stable funding ratio (NSFR), which is based on the Basel III framework (BCBS 295) and which was implemented in European law with CRR II.

The **LCR** has a short-term focus and is intended to ensure that institutions can withstand a liquidity stress scenario lasting 30 days. This KPI is defined as the ratio of available liquid assets (liquidity buffer) to total net cash outflows in defined stress conditions over the next 30 days. DZ BANK reports its own LCR and that of the DZ BANK banking group, calculated in accordance with the CRR in conjunction with Commission Delegated Regulation (EU) No. 2015/61, to the supervisory authority on a monthly basis.

The **net stable funding ratio** has a long-term focus and is intended to ensure that institutions restrict mismatches between the maturity structures of their assets-side and liabilities-side business. This ratio is the amount of available stable funding (equity and liabilities) relative to the amount of required stable funding (assets-side business). The funding sources are weighted according to their degree of stability and assets are weighted according to their degree of liquidity based on factors defined by the supervisory authority. Unlike the LCR, compliance with the NSFR will only become mandatory from June 2021 with the application of CRR II. From this point, it is planned to manage the NSFR within the groupwide liquidity risk management system.

4.3.2 Organization, responsibility, and reporting

The liquidity ratios reported for supervisory purposes resulting from the CRR and Commission Delegated Regulation (EU) No. 2015/61 are calculated for DZ BANK by the **Group Finance** division and aggregated at the level of the DZ BANK banking group with the corresponding values for the management units.

Both the **Treasury and Capital Committee** and the **Board of Managing Directors** are notified of the LCR and the NSFR each month.

4.3.3 Liquidity coverage ratio

The LCRs for the **DZ BANK banking group** and **DZ BANK** calculated in accordance with Commission Delegated Regulation (EU) No. 2015/61 are shown in Fig. 12.

FIG. 12 – LIQUIDITY COVERAGE RATIOS AND THEIR COMPONENTS

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2020	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019
Total liquidity buffer (€ billion)	91.4	84.1	73.7	63.4
Total net liquidity outflows (€ billion)	62.5	58.2	55.2	46.1
LCR (%)	**146.3**	**144.6**	**133.5**	**137.5**

The rise in the LCR measured for the **DZ BANK banking group** from 144.6 percent as at December 31, 2019 to 146.3 percent as at December 31, 2020 was largely attributable to the excess cover at DZ BANK and in the subsidiaries, especially DZ PRIVATBANK and BSH.

Despite the rise in excess cover, the LCR measured for **DZ BANK** declined from 137.5 percent as at December 31, 2019 to 133.5 percent as at December 31, 2020, which was attributable to the ratio's increased sensitivity to net liquidity outflows. Excess cover in relation to the LCR is the difference between the liquidity buffer and the net liquidity outflows.

As at December 31, 2020, both the internal threshold (110.0 percent) and the external minimum target, i.e. the normal regulatory minimum requirement, (100 percent) were exceeded at the level of the DZ BANK banking group. Under the relief measures introduced to help banks cope with the COVID-19 pandemic, the supervisory authorities have permitted banks' LCR to fall temporarily below the external minimum target. However, the DZ BANK Group exceeded this target by some way as at December 31 2020.

5 Capital adequacy

5.1 Strategy, organization, and responsibility

The management of capital adequacy is an integral component of business management in the DZ BANK Group and the management units. Capital adequacy is defined as the holding of sufficient capital to cover the risks assumed by the business. It is considered from both an economic and a regulatory perspective. Whereas the economic perspective takes into account the requirements of MaRisk BA and the ECB Guide to the ICAAP, the regulatory perspective (normative internal perspective), while also taking account of the ECB Guide to the ICAAP, additionally applies the requirements from the CRR and the German national requirements for the implementation of CRD IV.

The aim of the ICAAP is to ensure that, from two complementary perspectives (the economic and the normative internal perspectives), **capital resources are adequate** for an institution to be able to continue operating. Both perspectives are equally valid management approaches. They are integrated mainly on the basis of the risk inventory check, which the management uses to determine and specify the main risks in the DZ BANK Group.

All management units are included in the groupwide management of capital adequacy. Management of economic capital adequacy on the basis of both internal risk measurement methods and regulatory capital adequacy requirements aims to ensure that the assumption of risk is consistent with the capital resources of the DZ BANK Group, the DZ BANK financial conglomerate, and the DZ BANK banking group at every measurement date and at every reporting date.

The **Board of Managing Directors of DZ BANK** defines the corporate objectives and the capital requirement in the DZ BANK Group and at DZ BANK in terms of both risks and returns. In managing the risk profile, the Board of Managing Directors strives for an appropriate balance between risk and available internal capital (calculated from both economic and normative internal perspectives). DZ BANK is responsible for risk and capital management, and for compliance with capital adequacy at group level.

The management of economic and regulatory capital adequacy is based on internal target values. To avoid any unexpected adverse impact on **target values and capital ratios** and ensure that any changes in risk are consistent with corporate strategy, groupwide economic limits and risk-weighted assets are planned as limits on an annual basis as part of the **strategic planning process**. This process results in a requirements budget for the economic and regulatory capital needed by the group. Any corresponding measures to raise capital are approved by the Treasury and Capital Committee or recommended to the Board of Managing Directors for approval. The implementation of the measures is then coordinated by **Group Treasury** at DZ BANK.

At DZ BANK, the **Group Finance** division is responsible for monitoring regulatory capital adequacy. Regular monitoring is designed to ensure that the applicable minimum regulatory requirements for solvency are met at every reporting date. Monitoring takes place monthly for the DZ BANK financial conglomerate, the DZ BANK banking group, and DZ BANK, and at least quarterly for the R+V Versicherung AG insurance group. The Board of

Managing Directors and the supervisory authority are notified of the results within the monthly reports on capital management.

5.2 Economic perspective

Owing to the close ties between the management of economic capital adequacy at DZ BANK and that of the DZ BANK Group, the information below also applies to DZ BANK.

5.2.1 Measurement methods

The **economic perspective** of capital adequacy is an internally defined management perspective with the aim of ensuring that all of the DZ BANK Group's material capital risks are fully backed by capital plus an internally specified management buffer. The economic perspective is based on the assumption that an institution will continue to operate as a going concern.

Economic capital management is based on internal risk measurement methods that take into account all types of risk that are material from a capital adequacy perspective. The risk capital requirement is determined by aggregating the various risk types relevant to the DZ BANK Group. The methods selected serve to meet the statutory requirements for a groupwide integrated risk capital management system.

In the **risk-bearing-capacity analysis**, the risk capital requirement (including capital buffer) is compared with the available internal capital in order to determine the economic capital adequacy. The Board of Managing Directors determines the limits for a particular year on the basis of the available internal capital. These limits then restrict the risk capital requirement (including capital buffer). If necessary, the limits can be adjusted during the year, e.g. if economic conditions change.

Available internal capital comprises equity and hidden reserves. It is reviewed on a quarterly basis. The available internal capital is determined as follows:

- The available internal capital from the **Bank sector** is calculated on the basis of the IFRS data in accordance with regulatory financial reporting. In this process, R+V is not fully consolidated but taken into account using the equity method.
- The available internal capital from the **Insurance sector** is based on the own funds of the R+V Versicherung AG insurance group in accordance with Solvency II.
- The available internal capital from the two sectors is combined to produce the available internal capital of the DZ BANK Group. During this process, the effects of consolidation between the Bank and Insurance sectors are taken into account, resulting in a reduction in the available internal capital at group level.

The purpose of the **capital buffer** (also referred to below as the capital buffer requirement) is to cover the lack of precision in some areas of risk measurement. This applies to migration risk on traditional loans and the risk arising from defined benefit obligations, for example. The latter, in the form of longevity risk, is one aspect of actuarial risk and is particularly important for the Bank sector. The individual components of the capital buffer are quantified using a method based on scenarios and models with input from experts. A distinction is made between centralized and decentralized capital buffer requirements. Decentralized capital buffer requirements are managed within the limits for the individual risk types, whereas the centralized capital buffer is managed on the basis of a limit covering all sectors and risk types.

5.2.2 Traffic light system

Economic capital adequacy is monitored and managed using a traffic light system based on the ratio of available internal capital to aggregate risk (expressed as a percentage). The switch from green to amber in the traffic light system (**amber threshold**) is set at the internal threshold value for economic capital adequacy specified in the risk appetite statement, which in 2020 was unchanged compared with the previous year at 120 percent. The amber threshold serves as an early warning indicator. The **red threshold**, i.e. the borderline between amber and red in the traffic light system, was set at 110.0 percent in the year under review, again unchanged compared with 2019. The threshold values for economic capital adequacy are reviewed annually and adjusted if necessary.

5.2.3 Risk-bearing capacity

Retrospective recalculation of the overall solvency requirement

It was necessary to recalculate the overall solvency requirement as at December 31, 2019 owing to scheduled changes to the parameters for the risk measurement procedures and the updating of actuarial assumptions carried out in the second quarter of 2020 for the Insurance sector on the basis of R+V's 2019 consolidated financial statements. The recalculation reflects updated measurements of insurance liabilities based on annual actuarial analyses and updates to parameters in the risk capital calculation. Because of the complexity and the amount of time involved, the parameters are not completely updated in the in-year calculation and an appropriate projection is made.

The recalculation led to changes in the available internal capital, the key risk indicators at the level of the DZ BANK Group, and economic capital adequacy. The figures as at December 31, 2019 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2019 opportunity and risk report.

Available internal capital and limit

The DZ BANK Group's **available internal capital** as at December 31, 2020 was measured at €29,555 million. The comparable figure as at December 31, 2019 was €27,328 million. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report came to €26,968 million. The increase in available internal capital compared with December 31, 2019 was largely due to developments in the capital markets and the first-time use of the transitional measure on technical provisions and the volatility adjustment in the Insurance sector (for details, see section 5.3.4 of this risk report).

The **limit** derived from the available internal capital was specified at €23,730 million as at December 31, 2020 (December 31, 2019: €21,723 million). It was raised because of the planned expansion of business and in response to the fallout from the COVID-19 pandemic. The limit for the Insurance sector was lifted by €2,268 million, from €5,902 million to €8,170 million, whereas the limit for the Bank sector was reduced by €366 million, from €15,201 million to €14,835 million. In the Bank sector, the reallocation of limits led to significant changes in limits compared with the previous year. The main risks affected were the technical risk of a home savings and loan company and operational risk. The limit for the centralized capital buffer requirement was raised by €105 million.

As at December 31, 2020, **aggregate risk** was calculated at €18,126 million. The comparable figure as at December 31, 2019 was €17,056 million. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report came to €16,932 million. This increase was driven by higher numbers in both the Bank sector and the Insurance sector that were primarily attributable to movements in capital markets and business growth.

Economic capital adequacy

As at December 31, 2020, the economic capital adequacy ratio for the **DZ BANK Group** was calculated at 163.1 percent. The comparable figure as at December 31, 2019 was 160.2 percent. The figure originally measured as at December 31, 2019 and disclosed in the 2019 opportunity and risk report was 159.3 percent. As at the reporting date, the economic capital adequacy ratio was higher than the internal threshold value of 120.0 percent and the external minimum target of 100.0 percent. The internal threshold value and the external minimum target for 2020 remained unchanged compared with those for 2019. The increase in the economic capital adequacy ratio compared with the end of 2019 was due to the larger rise in available internal capital relative to the rise in aggregate risk.

Fig. 13 provides an overview of the components of economic capital adequacy.

FIG. 13 – ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

	Dec. 31, 2020	Dec. 31, 2019
Available internal capital (€ million)	29,555.0	27,328.0
Limit (€ million)	23,730.0	21,723.0
Aggregate risk (€ million)	18,126.0	17,056.0
Economic capital adequacy (%)	**163.1**	**160.2**

The limits and risk capital requirements including the capital buffer requirements for the **Bank sector**, broken down by risk type, are shown in Fig. 14.

FIG. 14 – LIMITS AND RISK CAPITAL REQUIREMENTS INCLUDING CAPITAL BUFFER REQUIREMENTS IN THE BANK SECTOR

	Bank sector				DZ BANK			
	Limit		Risk capital requirement[3]		Limit		Risk capital requirement[3]	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Credit risk	6,978	7,189	5,496	5,484	2,730	2,674	2,227	2,297
Equity investment risk	1,090	1,063	936	850	725	640	634	503
Market risk	5,725	5,646	4,310	3,860	2,600	2,220	1,908	1,698
Technical risk of a home savings and loan company[1]	550	706	545	397				
Business risk[2]	550	1,016	382	837	500	770	356	673
Operational risk	1,020	926	844	859	547	472	467	459
Total (after diversification)[4]	**14,835**	**15,201**	**11,647**	**11,289**				

Not relevant

1 Including business risk and reputational risk of BSH.
2 Apart from that of BSH, reputational risk is contained in the risk capital requirement for business risk.
3 Including decentralized capital buffer requirement.
4 No totals are shown for DZ BANK because the management within the Bank sector is by risk type.

Fig. 15 sets out the limits and overall solvency requirements for the **Insurance sector**, broken down by risk type, and includes policyholder participation. The definition of the limits and determination of overall solvency requirements take into account the ability to offset deferred taxes against losses (which arises where deferred tax liabilities can be eliminated in the loss scenario). Diversification effects between the risk types are also taken into consideration. Owing to these effects of correlation, the overall solvency requirement and limit for each risk type are not cumulative. The rise in the overall solvency requirement compared with the prior year resulted first and foremost from the trend in interest rates and business growth.

FIG. 15 – LIMITS AND OVERALL SOLVENCY REQUIREMENTS IN THE INSURANCE SECTOR

	Limit		Overall solvency requirement	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Life actuarial risk	1,400	1,200	1,058	1,049
Health actuarial risk	700	410	286	245
Non-life actuarial risk	4,500	3,960	3,979	3,724
Market risk	5,750	3,850	3,869	3,789
Counterparty default risk	220	100	188	88
Operational risk	800	680	709	637
Risks from entities in other financial sectors	140	112	119	119
Total (after diversification)	**8,170**	**5,902**	**5,845**	**5,240**

In addition to the figures shown in Fig. 14 and Fig. 15, the aggregate risk includes **a centralized capital buffer requirement across all types of risk**, which was calculated at €633 million as at December 31, 2020 (December 31, 2019: €526 million). The corresponding **limit** was €725 million (December 31, 2019: €620 million). The increase was primarily due to the inclusion of DVB's business risk, which is not included in the centralized risk model.

5.2.4 Possible impact from crystallized risk covered by capital

If there is a deterioration in financial performance, there is the risk of long-term **negative risk-adjusted profitability** where the cost of capital cannot then be covered, and economic value added (EVA) becomes negative. If this situation arose, there would no longer be any point in continuing business operations from a business management perspective.

Viewed in isolation and assuming there are no other influencing factors, this chain of events would apply particularly in a scenario where the equity holder is simply seeking to maximize profits. In the case of DZ BANK, however, there is another significant factor in that the intention of the equity holders (who in many cases are also customers of DZ BANK and its subsidiaries) in committing equity to DZ BANK is not only to achieve, as far as possible, market-level returns commensurate with the risk involved, but also to utilize the decentralized services that DZ BANK provides as the central institution in the cooperative financial network. The return on capital that forms part of any purely monetary analysis therefore needs to be adjusted in the case of DZ BANK to add the effects of the extra benefits. Given this background, EVA is only of limited use for assessing the advantages of the investment in DZ BANK. Thus, a negative EVA is not necessarily associated with the discontinuation of business activities undertaken by DZ BANK or its subsidiaries.

If risk were to materialize and associated losses be incurred, there would be a risk that the DZ BANK Group would **miss its economic capital adequacy target**. However, this situation could also occur with an increase in risk arising from heightened market volatility or as a consequence of changes in the business structure. In addition, a decrease in available internal capital, for example because its components have expired or are no longer eligible, could mean that the risk capital requirement exceeds the available internal capital. Additional or more stringent regulatory requirements could also have a negative impact on the economic capital adequacy of the DZ BANK Group.

In a situation in which the economic capital adequacy of the DZ BANK Group could not be guaranteed, there would be insufficient capital available to meet the group's own standards with regard to the coverage of risk. This could lead to a **deterioration in the credit ratings** for DZ BANK and its subsidiaries. If there is also insufficient capital to meet the level of protection demanded by the supervisory authority, this authority could initiate action, which in extreme cases could lead to the **resolution** of DZ BANK or its subsidiaries.

5.3 Normative internal perspective

5.3.1 Regulatory framework

The normative internal perspective is based on the capital ratios in Basel Pillar 1. It comprises three management dimensions: monitoring of actual regulatory KPIs, capital planning, and adverse stress tests.

Whereas the monitoring of actual and projected figures, together with capital planning, in the baseline scenario focuses on the current regulatory ratios and their changes in probable scenarios, the analysis of these ratios in adverse scenarios is based on capital planning and the quarterly adverse stress tests.

From the normative internal perspective, the DZ BANK Group's risk-bearing capacity is assured if, in the medium term, the group is in a position to meet all regulatory minimum solvency requirements at any future reporting date, even in crisis situations. An internal management buffer over and above the regulatory requirements for each ratio is also included in order to ensure that the group has an adequate level of capital.

The normative internal perspective is an integral part of the ICAAP. The key risk indicators in the normative internal perspective are specified by the regulatory requirements, mainly the CRR, but the selection and specific design of the scenarios are internal decisions. With due regard to regulatory and supervisory guidance, such as the ECB Guide to the ICAAP and the EBA Guidelines on stress testing, the DZ BANK Group selects and simulates scenarios that adequately reflect the vulnerabilities of the business models operated in the group. The scenarios to be analyzed are determined at least once a year.

The regulatory ratios presented below are used as part of the internal management of the DZ BANK financial conglomerate, the DZ BANK banking group, and DZ BANK. The procedures used to determine these ratios are predominantly those that will be required by the full application of CRR I going forward.

5.3.2 DZ BANK financial conglomerate

The DZ BANK financial conglomerate comprises the DZ BANK banking group and the R+V Versicherung AG insurance group.

The FKAG forms the main legal basis for the supervision of the DZ BANK financial conglomerate. The calculation methodology for the coverage ratio is taken from Commission Delegated Regulation (EU) No. 342/2014 in conjunction with article 49 (1) CRR. The financial conglomerate coverage ratio is the ratio between the total of own funds in the financial conglomerate and the total of solvency requirements for the conglomerate. The resulting ratio must be at least 100 percent.

Until the end of the second quarter of 2020, the coverage ratio for the financial conglomerate was calculated on the basis of the minimum capital requirement according to the CRR (8 percent). Since the third quarter, the coverage ratio has been determined using the overall minimum capital requirement applicable to the DZ BANK banking group as specified in the SREP. As at December 31, 2020, this figure was 13.26 percent.

The change in the coverage ratio determined for the DZ BANK banking group using the SREP minimum capital requirement and in the own funds and in the solvency requirements for the DZ BANK financial conglomerate are shown in Fig. 16.

FIG. 16 – REGULATORY CAPITAL ADEQUACY OF THE DZ BANK FINANCIAL CONGLOMERATE

	Dec. 31, 2020[1]	Dec. 31, 2019[2]
Own funds (€ million)	35,288	30,039
Solvency requirements (€ million)	24,809	23,552
Coverage ratio (%)	**142.2**	**127.6**

1 Preliminary figures.
2 The figures for the solvency requirements and the coverage ratio reported as at December 31, 2019 are final figures. They are not comparable with the corresponding figures in the 2019 opportunity and risk report because of the changes to the calculation methodology. In the 2019 report, the preliminary solvency requirements came to €17,205 million and the preliminary coverage ratio to 174.6 percent.

The year-on-year rise in own funds and in the solvency requirements calculated for the DZ BANK financial conglomerate was attributable to the change in own funds and in the solvency requirements at the level of the DZ BANK banking group and the R+V Versicherung AG insurance group (for details, see sections 5.3.3 and 5.3.4 of this risk report).

The preliminary coverage ratio calculated for the financial conglomerate as at December 31, 2020 was higher than both the internal threshold value (110.0 percent) and the external minimum target (100.0 percent). According to current projections, the requirements are also expected to be satisfied in 2021.

5.3.3 DZ BANK banking group

Procedure for determining regulatory risk-weighted assets

The entities in the DZ BANK banking group use the following methods to calculate the regulatory risk-weighted assets in accordance with the CRR:

- **Credit risk**: Primarily the foundation internal ratings-based (IRB) approach and the IRB approach for the retail business (the regulatory credit risk measurement methods used by DVB are based on the advanced IRB approach)
- **Market risk**: Predominantly the group's own internal models and, to a minor extent, the Standardized Approaches
- **Operational risk**: Primarily the Standardized Approach.

Regulatory minimum capital requirements specified by the SREP

The minimum capital requirements that the **DZ BANK banking group** had to comply with in 2020 comprised those components of Pillar 1 laid down as mandatory by law and those individually specified by the banking supervisor. Institution-specific requirements under the additional capital requirements in Pillar 2, determined in the outcome of the SREP conducted for the DZ BANK banking group in 2019, also had to be satisfied. In this process, the banking supervisor specified a mandatory add-on (**Pillar 2 requirement**) that is factored into the basis of calculation used to determine the threshold for the maximum distributable amount (MDA). Distributions are restricted if capital falls below the MDA threshold.

In addition to this mandatory component, there is a recommended own funds amount under Pillar 2 (**Pillar 2 guidance**), which likewise is determined from the SREP, but unlike the mandatory component relates only to common equity Tier 1 capital. Failure to comply with the own funds guidance under Pillar 2 does not constitute a breach of regulatory capital requirements. Nevertheless, this figure is relevant as an early warning indicator for capital planning.

BaFin has classified DZ BANK as an other systemically important institution (O-SII). The DZ BANK banking group had to comply with an **O-SII capital buffer** (comprising common equity Tier 1 capital) as defined in section 10g (1) KWG at a level of 1.0 percent in 2020.

The minimum capital requirements applicable to **DZ BANK** comprised those components of **Pillar 1** laid down as mandatory by law and those individually specified by the banking supervisor. Pillar 2 add-ons are currently not relevant to DZ BANK.

The mandatory minimum capital requirements relevant to the DZ BANK banking group and DZ BANK, and their components, are shown in Fig. 17. Based on current knowledge, the minimum capital requirements shown are also expected to apply for 2021.

FIG. 17 – REGULATORY MINIMUM CAPITAL REQUIREMENTS FOR THE DZ BANK BANKING GROUP[1]

	DZ BANK banking group			DZ BANK	
%	2020 (after adjustment)[3]	2020 (before adjustment)[3]	2019	2020	2019
Minimum requirement for common equity Tier 1 capital	4.50	4.50	4.50	4.50	4.50
Additional Pillar 2 capital requirement	0.98	1.75	1.75		
Capital conservation buffer	2.50	2.50	2.50	2.50	2.50
Countercyclical capital buffer	0.01	0.01	0.04	0.01	0.04
O-SII capital buffer	1.00	1.00	1.00		
Mandatory minimum requirement for common equity Tier 1 capital	**9.00**	**9.76**	**9.79**	**7.01**	**7.04**
Minimum requirement for additional Tier 1 capital[1]	1.50	1.50	1.50	1.50	1.50
Additional Pillar 2 capital requirement	0.33				
Mandatory minimum requirement for Tier 1 capital	**10.82**	**11.26**	**11.29**	**8.51**	**8.54**
Minimum requirement for Tier 2 capital[2]	2.00	2.00	2.00	2.00	2.00
Additional Pillar 2 capital requirement	0.44				
Mandatory minimum requirement for total capital	**13.26**	**13.26**	**13.29**	**10.51**	**10.54**

Not available

1 The value for the countercyclical capital buffer is recalculated at each reporting date. Unlike the other reported values, which apply to the entire financial year, the countercyclical capital buffers shown for 2020 and 2019 relate solely to the reporting dates.
2 The minimum requirement can also be satisfied with common equity Tier 1 capital.
3 'Before adjustment': minimum requirements originally planned for 2020. 'After adjustment': minimum requirements after factoring in the relief measures introduced by the supervisory authorities due to the COVID-19 pandemic.

Relaxation of the minimum capital requirements in response to the COVID-19 pandemic

Because of the COVID-19 pandemic, the supervisory authorities introduced various relief measures for banks, including in relation to the binding minimum capital requirements. For example, a bank can temporarily use up its capital conservation buffer and O-SII capital buffer without incurring sanctions. In such an eventuality, it must submit a capital conservation plan to the supervisory authorities. If, as a result, the combined capital buffer requirement and thus the threshold for the maximum distributable amount are no longer met, the rules regarding the limits for distributions continue to apply. These relief measures are therefore not taken into account in Fig. 17.

However, Fig. 17 does take account of the relief measures resulting from early application of the changes to the composition of the additional capital requirements under Pillar 2. Until December 31, 2019, the additional Pillar 2 capital requirement had to be met entirely with common equity Tier 1 capital. In view of the COVID-19 pandemic, the use of additional Tier 1 instruments and of Tier 2 instruments is now partially permitted along with common equity Tier 1 capital. This rule had originally been planned for early 2021, but the supervisory authorities decided on April 8, 2020 to bring its implementation forward. This change applies retrospectively from March 12, 2020.

The supervisory authorities in some countries reduced the capital buffer rates used to calculate the countercyclical capital buffer, in some cases lowering them right down to 0 percent. In a general administrative act dated March 31, 2020, BaFin lowered the domestic countercyclical capital buffer rate for Germany to 0 percent (it was originally supposed to be raised to 0.25 percent with effect from July 1, 2020).

Banks are also temporarily not required to comply with the Pillar 2 capital recommendation. Applying the CRR in full, the mandatory minimum capital requirements stipulated by the supervisory authorities and the recommended minimum capital requirements were complied with on every reporting date in the first half of 2020.

Compliance with the minimum capital requirements

As at December 31, 2020, the internal threshold values applicable at the level of the DZ BANK banking group for the common equity Tier 1 capital ratio, the Tier 1 capital ratio, and the total capital ratio were exceeded at the level of the DZ BANK banking group and DZ BANK, both before and after application of the relief measures introduced in connection with COVID-19. The internal threshold values are shown in Fig. 6 in section 2.5 of this risk report.

Applying CRR I in full, the regulatory minimum capital requirements stipulated by law and by the supervisory authorities were also complied with on the reporting date at the level of the DZ BANK banking group and at DZ BANK. Again, this applied both before and after the application of the pandemic-related relief measures. According to current projections, the requirements will also be satisfied in 2021.

Regulatory capital ratios

The regulatory **own funds** of the **DZ BANK banking group** as at December 31, 2020 determined in accordance with full application of CRR I amounted to a total of €28,616 million (December 31, 2019: €25,690 million).

This equates to a **rise in own funds** of €2,927 million compared with the end of 2019, comprising an increase in common equity Tier 1 capital of €1,635 million and in Tier 2 capital of €1,292 million.

In the case of **common equity Tier 1 capital**, net profits eligible for retention had a particularly positive impact. The profit calculated as at December 31, 2020 was included in common equity Tier 1 capital in accordance with article 26 (2) CRR in the amount of €635 million. Furthermore, other comprehensive income rose by €372 million.

Tier 2 capital advanced from €2,875 million as at December 31, 2019 to €4,167 million as at December 31, 2020, a year-on-year increase of €1,292 million that was essentially attributable to the issuance of Tier 2 capital instruments amounting to €1,477 million. The increase was partly offset by the reduced level of eligibility under CRR rules for Tier 2 capital instruments in the last five years before their maturity date.

Regulatory **risk-weighted assets** in the DZ BANK banking group went up from €143,800 million as at December 31, 2019 to €147,173 million as at December 31, 2020, a rise of €3,373 million. This increase was mainly due to a higher level of credit risk and application of the new securitization framework to the entire portfolio of the DZ BANK banking group.

As at December 31, 2020, the DZ BANK banking group's **common equity Tier 1 capital ratio** was 15.2 percent and therefore higher than the ratio of 14.4 percent at the end of 2019. The **Tier 1 capital ratio** of 16.6 percent calculated as at the reporting date was also up compared with the figure at December 31, 2019. The figure as at December 31, 2019 was 15.9 percent. The **total capital ratio** also went up year on year from 17.9 percent as at December 31, 2019 to 19.4 percent as at the reporting date.

Fig. 18 provides an overview of the regulatory capital ratios for the DZ BANK banking group and for DZ BANK.

FIG. 18 – REGULATORY CAPITAL RATIOS WITH FULL APPLICATION OF CRR I[1]

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Capital				
Common equity Tier 1 capital (€ million)	22,340	20,705	13,601	13,665
Additional Tier 1 capital (€ million)	2,109	2,109	2,150	2,150
Tier 1 capital	**24,449**	**22,814**	**15,751**	**15,815**
Total Tier 2 capital (€ million)	4,167	2,875	3,849	2,649
Own funds	**28,616**	**25,690**	**19,600**	**18,464**
Risk-weighted assets				
Credit risk including long-term equity investments (€ million)	128,177	124,734	83,571	83,908
Market risk (€ million)	8,388	8,350	7,502	7,240
Operational risk (€ million)	10,608	10,716	3,249	3,333
Total	**147,173**	**143,800**	**94,322**	**94,480**
Capital ratios				
Common equity Tier 1 capital ratio (%)	15.2	14.4	14.4	14.5
Tier 1 capital ratio (%)	16.6	15.9	16.7	16.7
Total capital ratio (%)	19.4	17.9	20.8	19.5

1 Full application of CRR I means that the current rules are applied, disregarding the transitional guidance in Regulation (EU) No. 575/2013.

Leverage ratio

The leverage ratio shows the ratio of a bank's Tier 1 capital to its total exposure. In contrast to credit-risk-related capital requirements for which the assumptions are derived from models, the individual exposures in the calculation of the leverage ratio are not allocated their own risk weight but are generally included in the total exposure without any risk weight at all.

In the reporting period, the leverage ratio of the **DZ BANK banking group** determined with **full application of the CRR I regulations** went up by 0.7 percentage points from 4.9 percent as at December 31, 2019 to 5.6 percent as at December 31, 2020. This increase resulted primarily from the decline in the total exposure, combined with an increase of €1.6 billion in Tier 1 capital. The fall in the total exposure was largely due to the ECB's decision dated September 17, 2020 that permits the banks supervised directly by the ECB to exclude certain central bank exposures from the leverage ratio. This relief measure is available until June 27, 2021. As a result of this measure, the total exposure contracted by €62.0 billion.

DZ BANK's leverage ratio as at December 31, 2020 was calculated at 4.1 percent (December 31, 2019: 3.9 percent). This rise was also mainly due to the decrease in the total exposure as a result of the aforementioned ECB decision. The reduction at DZ BANK amounted to €57.9 billion. Another reason for the increase in the leverage ratio was the €63 million fall in Tier 1 capital.

The internal **threshold value** of 3.5 percent applicable to the leverage ratio of the DZ BANK banking group was exceeded as at the reporting date. According to current projections, the requirements will also be satisfied in 2021.

From **June 2021**, both the DZ BANK banking group and DZ BANK will have to comply with a **minimum target** for the leverage ratio of 3 percent, which has been set externally by the banking supervisor.

At the same time, the **calculation of total exposure** will be adjusted as part of the introduction of CRR II. As a consequence, the leverage ratio for the DZ BANK banking group and DZ BANK is expected to increase based on full application of CRR I. The expected rise in the ratio comprises two countervailing effects. Firstly, the total exposure measure is predicted to fall substantially because more exposures within the cooperative financial network will not have to be included. Secondly, the temporary exclusion of certain central bank exposures will

end in mid-2021. Overall, the DZ BANK banking group's leverage ratio is expected to rise by 0.4 percentage points.

Minimum requirement for own funds and eligible liabilities

The BRRD, Regulation (EU) No. 806/2014 establishing a Single Resolution Mechanism, and the transposition of the BRRD into German law in the form of the SAG have created the legal basis at European and national level for a single resolution mechanism for banks and the MREL regulatory ratio.

The MREL is intended to ensure that banks hold a sufficiently large volume of own funds and liabilities that can be 'bailed-in' to make it possible at all times to carry out an orderly resolution. 'Bail-in-able' liabilities are those that provide for creditors to take an interest in losses incurred and recapitalization if a bank gets into financial difficulties, enabling resolution to take place on the basis of the bail-in and other instruments without recourse to government help and without jeopardizing the stability of the financial system.

The MREL ratio is the ratio of the total of own funds and eligible bail-in-able liabilities of the DZ BANK banking group to the total liabilities and own funds of the DZ BANK banking group.

DZ BANK's Board of Managing Directors set the **internal threshold value** for the **DZ BANK banking group's** MREL ratio for 2020 at 8.3 percent (2019: 8.5 percent). In April 2020, BaFin notified DZ BANK that the Single Resolution Board had set an MREL ratio (**external minimum target**) of 8.0 percent for the DZ BANK banking group (2019: 8.2 percent). The internal threshold value and the external minimum target were not adjusted in light of the COVID-19 pandemic. They therefore applied for the entire financial year.

The **MREL ratio** measured for the DZ BANK banking group was 12.2 percent as at September 30, 2020 (December 31, 2019: 11.0 percent). The latest MREL ratio relates to September 30, 2020 because the figure as at December 31, 2020 was not yet available at the deadline date for the publication of this risk report. The MREL reported as at December 31, 2019 is the figure determined retrospectively for this reporting date. The increase in the ratio compared with the figure at the end of 2019 was attributable to the rise in both own funds and the eligible bonds and deposits used in the calculation of the MREL. The MREL ratio measured as at September 30, 2020 was therefore above the internal threshold value and the external minimum target. It is reasonable to assume that the requirements were also met as at December 31, 2020 and – according to current projections – will be satisfied in 2021.

5.3.4 R+V Versicherung AG insurance group

The regulatory solvency requirements for insurance companies and insurance groups provide a means of evaluating the overall risk position in the R+V Versicherung AG insurance group.

The group's risk-bearing capacity for regulatory purposes is defined as the eligible own funds at group level in relation to the risks arising from operating activities. The changes in the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group as a whole and each of its constituent entities are analyzed at least once a quarter.

Fig. 19 shows how the solvency requirements are covered by eligible own funds.

FIG. 19 – REGULATORY CAPITAL ADEQUACY OF THE R+V VERSICHERUNG AG INSURANCE GROUP[1]

	Dec. 31, 2020	Dec. 31, 2019
Own funds (€ million)	14,897	12,025
Solvency requirements (€ million)	8,599	7,568
Coverage ratio (%)	**173.2**	**159.0**

1 December 31, 2020: Preliminary figures; December 31, 2019: Final figures.

As at December 31, 2020, the preliminary figure for the **regulatory risk-bearing capacity** of the R+V Versicherung AG insurance group was 173.2 percent (final figure as at December 31, 2019: 159.0 percent). The main reason for the rise in own funds was the use of the volatility adjustment and the transitional measure on technical provisions. The higher solvency requirements can be explained by the increase in non-life actuarial risk and in market risk. The reasons for the increase in these risks are set out in sections 14.7 and 15.5 of this risk report.

The recalculation of the overall solvency requirement described in section 5.2.3 of this risk report also affected the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group and led to retrospective changes in the solvency requirements as at the end of 2019. The figures as at December 31, 2019 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2019 opportunity and risk report.

The project accounting applied in the internal planning shows that the R+V Versicherung AG insurance group's coverage ratio will continue to exceed the minimum statutory requirement as at December 31, 2021.

5.4 Stress tests for types of risk covered by capital

5.4.1 Adverse stress tests

Adverse stress tests are used to examine the impact on capital and risk from potential **crisis scenarios** that are exceptional, but plausible, and particularly relevant to the DZ BANK Group's value and risk drivers. The **KPIs** relating to economic and regulatory capital adequacy are analyzed in this context. However, the stress tests also reflect events that go beyond the methods established for calculating capital adequacy. The term 'adverse stress tests' encompasses those stress scenarios that represent negative macroeconomic trends or events from the perspective of the DZ BANK Group. In this context, 'adverse' indicates that the scenarios may be particularly disadvantageous or even harmful.

Adverse stress tests can provide information on whether the level of capital resources – especially the buffer held to cover crisis situations – is also sufficient to cover various types of moderate to serious crisis scenario. The stress test results also facilitate an assessment of the extent to which the analyzed value and risk drivers are material for the DZ BANK Group.

The methods used are designed so that the specific features of R+V's business model and its risk and capital management systems are taken into account when determining the results of stress testing in the DZ BANK Group.

For the adverse stress tests, DZ BANK has put in place a system of threshold values as an **early-warning mechanism**. The threshold values for the scenarios across all risk types are monitored in the ongoing reporting system. These early-warning signals trigger various risk management processes so that there can be an early response to the potential risks highlighted by the stress tests. Control measures potentially available for the crisis scenario in question are also taken into account so that there is a comprehensive, critical evaluation of the stress test results.

The adverse stress tests are carried out quarterly. The results are submitted in the DZ BANK Group stress tests report and are noted by the **Board of Managing Directors** and by the DZ BANK Supervisory Board's **Risk Committee**.

Specific **COVID-19 scenarios** were also analyzed as adverse scenarios in 2020. They included one-year and two-year scenarios. The one-year scenario modeled a serious evolution of the first wave of the pandemic in 2020 and analyzed the resulting effects on the normative internal perspective. The two-year scenario assumed severe economic disruption during a second wave of the pandemic and extended the analysis to include the economic perspective. Both scenarios were included in the stress tests reports.

5.4.2 Reverse stress tests

Reverse stress tests complement the adverse stress tests and are used to investigate which of the hypothetical scenarios could conceivably be sufficiently plausible and relevant to jeopardize the ability of the DZ BANK Group to **continue as a going concern**.

'Reverse' indicates that the tests are in the opposite direction and distinguishes them from the adverse stress tests. In adverse stress tests, scenarios are defined and the corresponding KPIs determined in order to assess whether there is a sufficient level of capital resources available to cover moderate or serious crisis scenarios. Reverse stress tests, on the other hand, examine which scenarios would have to occur to jeopardize the survival of the bank as a going concern.

In reverse stress tests, the risk particularly to the regulatory KPIs is simulated with scenarios in which it would no longer be feasible to **continue the business model** or in which the business model would prove to be no longer sustainable. In the case of reverse stress tests, the priorities are therefore as follows: firstly, to identify relevant scenario approaches that could have the potential to jeopardize the bank's survival as a going concern, and secondly, to estimate the probability and plausibility of a specific, sufficiently serious scenario of this nature.

The reverse stress tests are carried out annually. The results are noted by the **Board of Managing Directors** and by the DZ BANK **Supervisory Board's Risk Committee**. No reverse stress tests were carried out in 2020 by agreement with the supervisory authorities.

5.4.3 Scenario analyses in the risk types

In the economic perspective, the quarterly report on stress tests in the DZ BANK Group is supplemented by various scenario analyses in the risk types. These analyses serve as a link between risk drivers and sensitivities, and between potential events and adverse scenarios. The scenario analyses also enhance the risk quantification for each risk type by including an alternative perspective.

In the scenario analyses, specific risk drivers, risk concentrations, or events are examined in detail for each type of risk by simulating economic losses and comparing them against the relevant risk limit.

Scenario analyses in the risk types are carried out quarterly. The results are submitted in the DZ BANK Group stress tests report and are noted by the **Board of Managing Directors** and by the DZ BANK **Supervisory Board's Risk Committee**.

Bank sector

6 Credit risk

6.1 Definition

Credit risk is defined as the risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) and from the migration of the credit ratings of these counterparties.

Credit risk may arise in traditional lending business and also in trading activities. **Traditional lending business** is for the most part commercial lending, including financial guarantee contracts and loan commitments. In the context of credit risk management, **trading activities** refers to capital market products such as securities (in both the banking book and the trading book), promissory notes, derivatives, secured money market business (such as repo transactions), and unsecured money market business.

In **traditional lending business**, credit risk arises mainly in the form of default risk and migration risk. In this context, default risk refers to the risk that a customer may be unable to settle receivables arising from loans or advances made to the customer (including lease receivables) or make overdue payments, or that losses may arise from contingent liabilities or from lines of credit committed to third parties. Migration risk is a sub-risk within traditional credit risk and reflects changes in the fair value of types of exposure subject to credit risk caused by a change in the rating for a borrower (rating migration).

Credit risk in connection with **trading activities** arises in the form of default risk, which can be subdivided into issuer risk, replacement risk, and settlement risk, depending on the type of transaction involved.

Issuer risk is the risk of incurring losses from the default of issuers of tradable debt or equity instruments (such as bonds, shares, profit-participation certificates), losses from a default in connection with the underlying instrument in derivatives (for example, credit or equity derivatives), or losses from a default in connection with fund components.

Replacement risk on derivatives is the risk of a counterparty defaulting during the term of a trading transaction.

Transaction processing risk forms part of replacement risk and is considered as ‘extended’ replacement risk. Transaction processing risk arises in connection with both delivery-versus-payment (DVP) settlement and unilateral payments in a trading transaction (for example in an interest-rate swap). Transaction processing risk arises when the counterparty in a trading transaction fails to perform its contractual obligation. For the purposes of determining economic capital, the amount of the transaction processing risk is the net present value of the reciprocally required performance in favor of the entities in the Bank sector.

Recovery risk forms part of credit risk. It cannot be determined as an exposure amount but increases the risk capital requirement for traditional credit risk, issuer risk, and replacement risk. Recovery risk arises from uncertainty relating to the recovery rates for collateral received. It also reflects the uncertainty regarding the recovery rate for unsecured receivables and a potential cure following counterparty default.

Settlement risk arises when there are two mutually conditional payments and there is no guarantee that when the outgoing payment is made the incoming payment will be received. Settlement risk is the risk of a loss if counterparties do not meet their obligations, counter-performance already having taken place.

Country risk is also included within credit risk. Country risk in the narrower sense of the term refers to conversion, transfer, payment prohibition, or moratorium risk. It is the risk that a foreign government may impose restrictions preventing a debtor in the country concerned from transferring funds to a foreign creditor. This type of risk is taken into account by means of the ratings used in credit risk measurement and specific modeling in the credit portfolio model. It increases the risk capital requirement for traditional credit risk, issuer risk, and replacement risk. In the broader sense of the term, country risk forms part of credit risk. In this case, it refers to the risk arising from exposure to the government itself (sovereign risk) and the risk that the quality of the overall exposure in a country may be impaired as a result of country-specific events.

6.2 Business background and risk strategy

The DZ BANK Group is exposed to considerable credit risk in the Bank sector. The lending business is one of the most important core activities of the entities in the Bank sector. In its role as the central institution, DZ BANK covers the **entire range of lending business**, either in partnership with the local cooperative banks or in direct business, and provides its customers with financing solutions. Its customers include the local cooperative banks themselves, corporate customers, international companies, and banks and institutions both in Germany and abroad.

Default risk from traditional lending business arises primarily at DZ BANK, BSH, DVB, DZ HYP, and TeamBank. The risk results from the specific transactions in each management unit and therefore has varying characteristics in terms of diversification and size in relation to the volume of business.

Default risk relating to trading transactions arises from issuer risk, particularly in connection with the trading activities and investment business of DZ BANK and DZ HYP. Replacement risk arises for the most part at DZ BANK and DZ PRIVATBANK.

The entities in the Bank sector pursue a strictly decentralized business policy aimed at promoting the cooperative banks and are bound by the core strategic guiding principle of a **'network-oriented central institution and financial services group'**. The business and risk policy for the credit-risk-bearing core businesses in the group is formulated on the basis of risk-bearing capacity. The credit risk strategy therefore forms the basis for credit risk management and reporting across the whole group and ensures that there is a standard approach to credit risk within the group. It takes into account the business models of each of the management units.

Lending throughout the group is predominantly based on the **VR rating** system, a rating procedure developed by DZ BANK in collaboration with the BVR.

The management units aim to ensure that their credit portfolios always have **a sound credit quality and risk structure**. In the future, the portfolios will continue to be characterized by a high degree of diversification.

Where required, the Board of Managing Directors of DZ BANK makes decisions during the course of the year to ensure that the rules for the medium-term and long-term credit risk strategy are adjusted in line with changing circumstances and current developments.

The disclosures covering the sustainability review in connection with lending activities, which were included in the 2019 opportunity and risk report, have now been moved to the Sustainability Report.

6.3 Risk factors

6.3.1 General credit risk factors

Key values used in determining credit risk include the concentrations of lending volume in terms of counterparties, sectors, country groups, and residual maturities, and the credit quality structure of the credit portfolio. **Significant concentrations of volume** in counterparties, sectors, or countries increase the risk that an accumulation of credit risk will become critical, for example if there are defaults among greater concentrations of counterparties or, in economic crises, defaults in sectors or countries with significant concentrations in the credit portfolio.

The term of loan agreements is also a key credit risk factor because the probability of a deterioration in credit rating and therefore of a counterparty default during the term of an agreement generally increases over time. Particularly in the case of an **accumulation of exposures that have longer terms to maturity** and a non-investment-grade rating, there is a danger that the credit risk will materialize and the recognition of impairment losses will become necessary.

6.3.2 Specific credit risk factors

Definition

In addition to the general risk factors, the **macroeconomic and environmental trends** described below could lead to higher credit risk, more defaults among individual counterparties, and therefore to a greater requirement for the recognition of impairment losses in the lending business.

The following sections explain risk factors that are directly relevant to distinct subportfolios in the lending business and have a material measurable effect in those subportfolios. Information is also provided on risk factors that are potentially significant for the whole of the credit portfolio, but that do not at the moment have any material impact on portfolio quality.

Credit risk factors of material importance to individual credit portfolios

DZ BANK and DZ HYP hold investments in Italian, Spanish, and Portuguese bonds. DZ BANK has also entered into lending, derivatives, and money market business with Italian and Spanish counterparties. The prolonged **economic divergence in the eurozone**, combined with the ECB's expansionary monetary policy, thus leads to heightened risk in the Bank sector's lending business. The macroeconomic background to this risk factor is described in section 2.3.3. Disclosures on the lending volume and credit value-at-risk in relation to the exposures in Italy, Spain, and Portugal can be found in sections 6.8.1 and 6.10.2 of this risk report.

DVB and DZ BANK provide shipping finance. DVB is also involved in offshore finance. There has been no change to the **challenging conditions in the shipping and offshore markets** and this is leading to a greater level of credit risk in the Bank sector. The situation in the industry, the significance of this business to the Bank sector, and the associated lending volume are described in sections 6.8.2 and 6.8.4 of this risk report. Disclosures on the credit value-at-risk relating to shipping and offshore finance are included in section 6.10.2.

DZ BANK finances the purchase of cruise ships by shipping companies. The **COVID-19 pandemic** is having a direct impact on this business. The risk factor is explained in chapters V.1.1 to V.1.4 in the outlook. The lending volume related to cruise ship finance and the associated credit value-at-risk are presented in sections 6.8.3 and 6.10.2.

Credit risk factors of significance to the entire lending business

The COVID-19 pandemic and international trade disputes constitute **risks for the global economy**. The background to these risk factors is described in chapters V.1.1 to V.1.4 in the outlook. If the pandemic persists for a while longer yet, or the international trade disputes cannot be resolved, there is a risk that the Bank sector's credit risk will rise significantly.

There is also a risk that **climate change** will give rise to credit risk if, for example, the recoverability of collateral for loan exposures is adversely impacted by climate events. In addition, as a result of transition effects such as the transformation to a carbon-neutral economy, there is a risk in the lending business that the profitability of corporate finance borrowers (mainly at DZ BANK) and of real estate finance borrowers (mainly at BSH and DZ HYP) could be decreased. These effects could lead to a deterioration of the borrowers' credit quality and thus to a higher requirement for the recognition of impairment losses.

6.4 Organization, responsibility, and reporting

Responsibilities in the lending process have been laid down and are documented in a written set of procedural rules. These responsibilities cover loan applications, approvals, and processing, including periodic credit control with regular analysis of ratings. Decision-making authority levels are specified by the relevant **rules** based on the risk content of lending transactions.

Established **reporting and monitoring processes** help to provide decision-makers with information about changes in the risk structure of credit portfolios and form the basis for managing credit risk.

The **credit risk report** keeps the Board of Managing Directors, the Group Risk and Finance Committee, and the Supervisory Board's Risk Committee informed of the economic capital required to cover credit risk. In addition to providing management with recommendations for action, internal reporting also includes an in-depth analysis of the portfolio structure in regard to risk concentrations based on key risk characteristics such as credit rating class, industry, country group, and the lending volume to single borrowers. In addition, the reports include details on specific exposures. In the context of the risk limit, the credit value-at-risk is also included in the credit risk report.

6.5 Risk management

6.5.1 Rating systems

Use and characteristics of the rating systems

The generation of internal credit ratings for the counterparties of entities in the Bank sector helps to provide a solid basis for lending decisions in the management of transactions, in that the expected losses from defaults in the lending business are then factored into pricing. In addition, internal ratings are used to incorporate the credit quality of the counterparties when calculating unexpected losses in the credit portfolio.

The **VR rating system** used as standard throughout the cooperative financial network ensures that all the entities in the network apply a sophisticated uniform methodology producing ratings that are comparable.

DZ BANK primarily uses VR rating systems in its credit risk management system to assess large and medium-sized companies, major corporate customers, banks, investment funds, and project finance (slotting approach). The internal assessment approach is also used to evaluate the liquidity lines and credit enhancements made available by DZ BANK to programs for the issuance of asset-backed commercial paper (ABCP). These rating systems have been approved by the competent supervisory authority for the purposes of calculating regulatory capital using the **foundation IRB approach** or the **slotting approach**.

For **internal management purposes**, DZ BANK uses further rating systems to assess SMEs (German Mittelstand), countries, asset finance, acquisition financing, agricultural businesses, public-sector entities, not-for-profit organizations, foreign SMEs, and insurance companies.

Most of the other entities in the Bank sector use the DZ BANK rating systems for banks, countries, and major corporate customers. Rating systems for specific business segments are also used by individual subsidiaries.

Development and expansion of rating systems

All internal rating systems and those approved by the banking supervisor for solvency reporting were validated in 2020. The revised rating system for project finance and the slotting approach for project finance were introduced in March 2020.

The overhaul of the rating system for major corporations has been completed. The testing phase began in November of the reporting year. The supervisory review of this rating system is scheduled for the end of 2021.

DZ BANK credit rating master scale

The credit rating master scale serves as a groupwide rating benchmark with which to standardize the different rating systems used by the entities in the Bank sector as a result of differences in their business priorities. It thereby provides all management units with a uniform view of counterparties’ credit ratings.

Fig. 20 shows DZ BANK’s credit rating master scale, in which internal credit ratings are matched to the ratings used by Moody’s, Standard & Poor’s, and Fitch Ratings. Some internal ratings cannot be matched with a particular external rating because of the greater degree of refinement in the credit rating master scale. The ratings for securitization exposures are matched to various different external ratings depending on the asset class and region.

In DZ BANK’s master scale, the default bands remain unchanged to ensure comparability over the course of time, whereas some fluctuation in default rates can be seen in external ratings. Therefore, it is not possible to map the internal ratings directly to the ratings used by the rating agencies. Consequently, the scale can only be used as a starting point for comparison between internal and external credit ratings.

DZ BANK rating desk

The VR rating systems for banks and countries are also available to DZ BANK subsidiaries and the cooperative banks. Users can enter into a master agreement to access the ratings via an IT application (Rating Desk), which is available throughout the cooperative financial network, in return for the payment of a fee. Any accessed ratings are first validated by the entities in the Bank sector or the cooperative banks before they are included in the user's credit procedures.

FIG. 20 – BANK SECTOR: DZ BANK'S VR CREDIT RATING MASTER SCALE AND EXTERNAL CREDIT RATINGS

Internal rating class	Average default probability	External rating classes			Rating category
		Moody's	Standard & Poor's	Fitch	
1A	0.01%	Aaa to Aa2	AAA to AA	AAA to AA	Investment grade
1B	0.02%	Aa3	AA-	AA-	
1C	0.03%				
1D	0.04%	A1	A+	A+	
1E	0.05%				
2A	0.07%	A2	A	A	
2B	0.10%	A3	A-	A-	
2C	0.15%	Baa1	BBB+	BBB+	
2D	0.23%	Baa2	BBB	BBB	
2E	0.35%				
3A	0.50%	Baa3	BBB-	BBB-	
3B	0.75%	Ba1	BB+	BB+	Non-investment grade
3C	1.10%	Ba2	BB	BB	
3D	1.70%				
3E	2.60%	Ba3	BB-	BB-	
4A	4.00%	B1	B+	B+	
4B	6.00%	B2	B	B	
4C	9.00%	B3	B-	B-	
4D	13.50%				
4E	30.00%	Caa1 or lower	CCC+ or lower	CCC+ or lower	
5A	DPD default				Default
5B	Specific loan loss allowance / internal neutralization of interest / rating-related sale with significant loss / further bank-internal criteria				
5C	Distressed restructuring				
5D	Insolvency				
5E	Direct impairment / workout				
NR	Not rated				

6.5.2 Lending business pricing

The management units in the Bank sector use the risk-adjusted pricing of the financing as a criterion in lending decisions. Adequate standard risk costs and risk-adjusted capital costs are taken into account. The methods used by the management units to manage transactions reflect the particular features of the product or business concerned.

To ensure that lending business remains profitable, **standard risk costs** are determined in the management of individual transactions in many parts of the **Bank sector**. The purpose of these costs is to cover average expected losses from borrower defaults. The aim is to ensure that the net loss allowances recognized in the

financial statements are covered on average over the long term in an actuarial-type approach by the standard risk costs included in the pricing.

In addition to standard risk costs, **an imputed economic and regulatory cost of capital** based on the capital requirement is integrated into **DZ BANK's** contribution margin costing. This enables DZ BANK to obtain a return on the capital tied up that is in line with the risk involved and that covers any unexpected losses arising from the lending business. Pricing also includes an appropriate amount to cover the costs of risk concentration.

6.5.3 Credit-portfolio management

Credit portfolio models are used together with value-at-risk methods to quantify unexpected losses that may arise from the credit portfolio for lending and for trading business. Credit value-at-risk reduced by the expected loss describes the risk of unexpected losses arising should a default or migration event occur in the credit portfolio. This calculation is based on one-year default probabilities, taking into account additional transaction-specific features and reflecting the current rating of the borrower.

When determining credit value-at-risk, recovery risk is taken into account as the amount by which the actual loss deviates from the expected recovery rate or – in the case of transactions already in default – from the specific loan loss allowances. Existing netting agreements are included in the measurement of trading exposures subject to default risk. The risk capital requirement is determined in the management units on a decentralized basis.

The credit portfolio is managed by restricting the credit value-at-risk to the limit set for credit risk. A traffic light system is used to monitor Bank sector management units' compliance with the limits specified for credit risk.

6.5.4 Management of exposure in traditional lending business

Measuring exposure in traditional lending business

Individual lending exposures are managed on the basis of an analysis of gross lending exposure. The period taken into account in this case is equivalent to the monitoring cycle of one year. Together with risk-related credit-portfolio management, volume-oriented credit risk management is one of the components in the management of risk concentrations in the lending business.

In traditional lending business, the credit exposure or lending volume is generally the same as the nominal value of the total loan book and reflects the maximum volume at risk of default. The credit exposure is a gross value because risk-bearing financial instruments are measured before the application of any credit risk mitigation and before the recognition of any loss allowances.

In building society operations, nominal amounts are used as a basis for measuring the gross lending volume. In addition, loans and advances to customers in building society operations are reduced by the associated deposits. The maximum credit exposure comprises the total lines of credit committed to third parties, or in the case of limit overruns, the higher amounts already drawn.

Limit system for managing exposures in traditional lending business

Limits are set in the relevant entities in the Bank sector for individual borrowers and groups of connected customers. Counterparties are also managed centrally at the level of the Bank sector, depending on the limit level and credit rating.

As a prerequisite for prompt monitoring of limits, suitable **early-warning processes** have been established in the management units that are of material significance for the Bank sector's credit risk. In this context, financial covenants are often incorporated into loan agreements to act as early-warning indicators for changes in credit standing and as a tool for the proactive risk management of lending exposures.

In addition, processes have been set up in the Bank sector to handle instances in which limits are **exceeded**. Such excess exposures must be approved by the relevant level of authority in the management units concerned and in accordance with applicable internal requirements, and must be reduced if necessary.

Country exposure in the traditional lending business is managed by setting **country limits** for industrialized countries and emerging markets at the Bank sector level.

6.5.5 Management of credit exposure in trading transactions

Measuring credit exposure in trading transactions

Issuer risk, replacement risk, and settlement risk are exposure-based measurements of the potential loss in trading transactions. These are determined without taking into account the likelihood of a default. In order to determine the credit exposure, securities in the banking book and trading book are predominantly measured at fair value (nominal amounts are used in building society operations), while derivatives are measured at fair value and, in respect of settlement risk, at the cash-flow-based accepted value.

The fair value of a securities exposure is used to determine the **issuer risk**. Risks relating to the underlying instruments in derivative transactions are also included in issuer risk.

At the level of the **Bank sector**, **replacement risk** is generally determined on the basis of fair value, taking into account appropriate add-ons. At **DZ BANK**, which is of particular significance as far as replacement risk is concerned, these add-ons are determined primarily according to each individual transaction as part of a portfolio simulation. The portfolio simulation models future exposures, taking into account a large number of risk factors. The add-ons for the remaining derivatives not included in the portfolio simulation are determined on the basis of a product-specific allocation, which also takes into account specific risk factors and residual maturities. Transaction processing risk is additionally factored into the exposure calculation for replacement risk. This risk is largely determined as the net present value of the reciprocally required performance.

With regard to exchange-traded derivatives, the replacement risk vis-à-vis the customer in customer brokerage business consists of the actual collateral exchanged (the variation margin for the daily settlement of profits and losses, and the initial margin as the collateral to be provided in advance to cover the loss risk), the fair value, and additional collateral requirements. To calculate the replacement risk vis-à-vis stock exchanges, additional potential for changes in value or add-ons for individual transactions are also taken into consideration. Where legally enforceable, netting agreements and collateral agreements are used at counterparty level for all derivatives in order to reduce exposure. In the case of repos and securities lending transactions, haircuts are applied instead of add-ons. Unsecured money market transactions are measured at fair value.

As regards **settlement risk**, the risk amount is the expected payment due. Settlement risk is recognized for the specified settlement period. It takes into account the amount and timing of outstanding cash flows for the purposes of managing the risk associated with mutual settlement at some point in the future. These future cash flows are already factored into the replacement risk through the fair value measurement and are therefore included in the risk capital requirement. As a result, settlement risk does not need to be covered with risk capital in addition to that for the other types of credit risk related to trading activities.

Limit system for managing trading exposure

DZ BANK has established an exposure-oriented **limit system** related to credit ratings to limit the default risk arising from trading business. Replacement risk is managed via a structure of limits broken down into maturity bands. Unsecured money market transactions are subject to separate limits. The transaction processing risk forming part of the replacement risk is included in the shortest maturity band. A daily limit is set in order to manage settlement risk. A specific limit for each issuer or, in certain circumstances, a general limit is determined as the basis for managing issuer risk. Covered bonds are subject to separate limits. The main subsidiaries have their own comparable limit systems.

The issuer risk in treasury's investment book is restricted by means of portfolio limits in addition to the individual issuer limits.

Exposure in connection with DZ BANK's trading business is measured and monitored using a standard method and two IT-supported limit monitoring systems to which all relevant trading systems are directly or indirectly connected. Furthermore, the trading exposure in the Bank sector is managed on a decentralized basis at management unit level.

As in the traditional lending business, appropriate processes have also been established for the trading business to provide **early warnings and notification of limit overruns**. The member of the Board of Managing Directors responsible for risk monitoring is sent a daily list of significant exceeded trading limits. A monthly report is prepared covering the utilization of replacement and issuer risk in connection with trading activities.

Country exposure in the trading business is managed in the same way as in the traditional lending business by setting **limits for countries** at the Bank sector level.

6.5.6 Management of risk concentrations and correlation risks

Identifying risk concentrations

In order to highlight concentrations of credit risk, the exposure at portfolio level is categorized by, among other things, rating, industry sector, country group, term to maturity, and size category. In addition, risks resulting from large exposures to individual single borrower units are closely monitored and managed. The key factor to be considered when determining concentrations of credit risk is the possibility of a simultaneous default by a number of borrowers who share the same characteristics. This is why determining the correlated exposure to loss as a part of the calculation of the risk capital required for credit risk is essential for managing risk concentrations.

Risk concentrations in credit and collateral portfolios

In managing the traditional lending business and its trading business, DZ BANK takes into account the correlation between collateral and the borrower pledging the collateral or between the collateral and the counterparty whose replacement risk the collateral is intended to mitigate. If there is a significant positive correlation between the collateral and the borrower or the counterparty pledging the collateral, the collateral is disregarded or accorded a reduced value as collateral. This situation arises, for example, where a guarantor, garnishee, or issuer forms a group of connected clients or a similar economic entity with the borrower or counterparty.

Wrong-way risk

General wrong-way risk can arise as a result of DZ BANK's trading activities. This is defined as the risk of a positive correlation between the default probability of a counterparty and the replacement value (replacement risk exposure) of a (hedging) transaction entered into with this counterparty because of a change in the macroeconomic market factors of the traded underlying instrument (e.g. price changes for exchange rates).

Specific wrong-way risk can also occur. This is the risk of a positive correlation between the default probability of a counterparty and the replacement value (replacement risk exposure) of a (hedging) transaction entered into with this counterparty because of an increase in the default probability of the issuer of the traded underlying instrument. This type of risk largely arises in connection with OTC equity and credit derivatives in which the underlying instrument is a (reference) security or (reference) issuer.

The measures described below are used to appropriately monitor these risks and significantly reduce them. As a result, wrong-way risk, in particular, is not material at DZ BANK.

Measures to prevent concentration risk and wrong-way risk

In order to prevent unwanted risks that may arise from the concentration or correlation of collateral in the trading business or from general wrong-way risk, DZ BANK has brought into force a **collateral policy** and its own internal 'minimum requirements for bilateral reverse repo transactions and securities lending transactions'.

These requirements are based on the Credit Support Annex (ISDA Master Agreement) and the Collateralization Annex (German Master Agreement for Financial Futures) and stipulate that, in accordance with the collateral policy, only collateral in the form of cash (mainly in euros or US dollars), investment-grade government bonds, and/or Pfandbriefe can be used for mitigating risks arising from **OTC derivatives**. Exceptions to this rule are permitted, mainly for local cooperative banks, although a very good credit rating (at least 2B on DZ BANK's credit rating master scale) is still required for the relevant securities collateral. The collateral must also be eligible for use as collateral at the ECB.

High-grade collateral is also required for **repo and securities lending transactions** in compliance with DZ BANK's own internal minimum requirements and the generally accepted master agreements, although the range of collateral is somewhat broader here than in the case of OTC derivatives. Furthermore, the 'minimum requirements for bilateral reverse repos and securities lending transactions' exclude prohibited correlations and specify collateral quality depending on the credit rating of the counterparties. The relevant rules are monitored on a daily basis and any infringements of the requirements are reported each month to the Risk Committee.

If material specific wrong-way risk arises in connection with a bilateral OTC trading transaction, it is taken into account when the exposure is calculated.

The **Risk Committee** receives quarterly reports on relevant wrong-way risk and concentration risk arising in connection with derivatives and securities financing, including any necessary exposure adjustments.

6.5.7 Mitigating credit risk

Collateral strategy and secured transactions

In accordance with the credit risk strategy, customer credit quality forms the main basis for any lending decision; collateral has no bearing on the borrower's credit rating. However, depending on the structure of the transaction, collateral may be of material significance in the **assessment of risk** in a transaction.

Collateral in line with the level of risk in medium-term or long-term financing arrangements is generally sought. In particular, recoverable collateral equivalent to 50 percent of the finance volume is required for new business with SME customers in rating category 3E or below on the credit rating master scale.

Collateral is used as an appropriate tool for the management of risk in export finance or structured trade finance transactions. In the case of project finance, the financed project itself or the assignment of the rights in the underlying agreements typically serve as collateral.

Secured transactions in traditional lending business encompass commercial lending including financial guarantee contracts and loan commitments. In order to protect transactions against default risk, traditional collateral is obtained, the decision being made on a case-by-case basis.

Types of collateral

The entities in the Bank sector use all forms of **traditional loan collateral**. Specifically, these include mortgages on residential and commercial real estate, registered ship and aircraft mortgages, guarantees (including sureties, credit insurance, and letters of comfort), financial security (certain fixed-income securities, shares, and investment fund units), assigned receivables (blanket and individual assignments of trade receivables), and physical collateral.

Privileged mortgages, registered ship and aircraft mortgages, guarantees, and financial collateral are the main sources of collateral recognized for regulatory purposes under the CRR.

In accordance with DZ BANK's collateral policy, only cash, investment-grade government bonds, and/or Pfandbriefe are normally accepted as **collateral for trading transactions** required by the collateral agreements used to mitigate the risk attaching to OTC derivatives. DZ BANK also enters into netting agreements to reduce the credit risk arising in connection with OTC derivatives. The prompt evaluation of collateral within the agreed margining period also helps to limit risk.

Credit derivatives, such as credit default swaps, are used to reduce the issuer risk arising on bonds and derivatives. Macro hedges are used dynamically to mitigate spread risk and migration risk as well as risks attaching to underlying assets. In isolated cases, transactions are conducted on a back-to-back basis. For risk management purposes, the protection provided by credit derivatives is set against the reference entity risk, thereby mitigating it. The main protection providers/counterparties in credit derivatives are financial institutions, mostly investment-grade banks in the VR rating classes 1A to 2C.

Management of traditional loan collateral

Collateral management is the responsibility mainly of **specialist units**, generally outside the front-office divisions. The core tasks of these units include providing, inspecting, measuring, recording, and managing collateral and providing advice to all divisions in related matters.

To a large extent, standardized contracts are used for the provision of collateral and the associated declarations. Specialist departments are consulted in cases where customized collateral agreements are required. Collateral is managed in separate IT systems.

Collateral **is measured** in accordance with internal guidelines and is usually the responsibility of back-office units. As a minimum, carrying amounts are normally reviewed annually or on the agreed submission date for documents relevant to measurement of the collateral. Shorter monitoring intervals may be specified for critical lending exposures. Regardless of the specified intervals, collateral is tested for impairment without delay if any indications of impairment become evident.

The workout units are responsible for **recovering collateral**. In the case of non-performing loans, it is possible to depart from the general measurement guidelines and measure collateral on the basis of its likely recoverable value and time of recovery. Contrary to the general collateralization criteria, collateral involved in restructuring exposures can be measured using market values or the estimated liquidation proceeds.

Collateral management

In addition to **netting agreements** (ISDA Master Agreement and German Master Agreement for Financial Futures), **collateral agreements** (Credit Support Annex to the ISDA Master Agreement and Collateralization Annex to the German Master Agreement for Financial Futures) are entered into as instruments to reduce credit exposure in OTC transactions.

DZ BANK's **collateral policy** regulates the content of collateral agreements and the responsibilities and authorities for implementing the rights and obligations they confer within the bank. This policy specifies contractual parameters, such as the quality of collateral, frequency of transfer, minimum transfer amounts, and thresholds. DZ BANK regularly uses bilateral collateral agreements. Exceptions apply to cover assets and special-purpose entities, as the special legal status of the counterparties means that only unilateral collateral agreements can be usefully enforced, and to supranational or government entities. Any decision not to use a bilateral collateral agreement for counterparties not subject to the European Market Infrastructure Regulation (EMIR) rules must be approved by a person with the relevant authority.

Netting and collateralization generally result in a significant reduction in the exposure from trading business. IT systems are used to measure exposures and collateral. **Margining** is carried out on a daily basis for the vast majority of collateral agreements in accordance with the collateral policy.

Collateral agreements generally include minimum transfer amounts and, in some cases, also **thresholds** that are independent of the credit rating. There are also some agreements with triggers based on the credit rating. In these agreements, for example, the unsecured part of an exposure is reduced in the event of a ratings downgrade or the borrower is required to make additional payments (for example, payments known as 'independent amounts'). Because of the EMIR collateral agreement obligation, the supervisory authorities have specified these contractual provisions as standard.

EMIR requires the exchange of an initial margin in bilateral OTC derivatives transactions in addition to the variation margin. For the entities in the Bank sector, the start of the mandatory initial margin exchange has been postponed for one year until September 2021.

Central counterparties

EMIR has permanently changed the environment in which banks, insurance companies, and investment funds conduct OTC derivative transactions. Under this regulation, market players must report all exchange-traded and OTC derivatives to central trade repositories and use predefined steps to settle certain standardized OTC derivatives via central counterparties (known as clearing houses). Furthermore, risk mitigation methods have to be used for OTC derivatives that are not settled centrally through a clearing house. This is intended to minimize counterparty risk.

Any market players not exempted from this new clearing obligation must be connected to a central counterparty. The market player concerned may be a direct member of a clearing house or may process its derivative contracts using a bank that is a member of a central counterparty.

DZ BANK is a direct member of the London Clearing House, which is Europe's largest clearing house for interest-rate derivatives, and of Eurex Clearing AG. The bank therefore has direct access to central counterparties for derivatives for the purposes of clearing derivative transactions. In the case of credit derivatives, it also has indirect access to the Intercontinental Exchange clearing house via clearing broker Deutsche Bank.

6.5.8 Management of non-performing lending exposures

Management and monitoring of exposures subject to heightened risk

Exposures subject to heightened risk are transferred to the **workout units** at an early stage. By providing intensified loan management for critical exposures and applying tried-and-tested solutions, these special units lay the basis for securing and optimizing exposures with heightened risk.

In its traditional lending business, DZ BANK has a comprehensive range of tools at its disposal for the early identification, support, and monitoring of non-performing exposures. The subportfolio of non-performing loans is reviewed, updated, and reported on a quarterly basis. The process is also carried out at shorter intervals if required. This process is supported by IT systems. Prompt internal reporting focused on target groups is a key component of this approach. If necessary, the intensified loan management put in place for individual borrowers is transferred to task forces specially set up for this purpose. The risks in subportfolios are monitored and analyzed by means of regular reports.

Where required, similar procedures have been implemented in the main subsidiaries, which adapt them to the characteristics of the risks faced in their particular business.

Policies and procedures for the recognition of loss allowances

The description required by GAS 20 A1.7(c) of the methods used for recognizing loss allowances is included in note 5 of the notes to the consolidated financial statements.

Non-performing loans

The entities in the Bank sector classify a loan as non-performing if it has been rated between 5A and 5E on the VR credit rating master scale. This corresponds to the definition of default specified by the CRR. These non-performing loans (NPLs) are thus exposures that are in default.

The following key figures are used to manage non-performing loans:

– Coverage ratio (specific loan loss allowances plus collateral as a proportion of the volume of non-performing loans)
– NPL ratio (volume of non-performing loans as a proportion of total lending volume).

The management of non-performing loans at DZ BANK is currently being updated in line with the requirements specified in the NPL guidance issued by the ECB.

6.6 Lending volume

6.6.1 Changes to the presentation of lending volume

In a departure from the previous procedure, the disclosures on lending volume in this risk report are no longer broken down by credit-risk-bearing instrument – traditional lending, securities business, and derivatives and money market business. This change is designed to ensure that the published disclosures reflect the approach used by the internal management of credit risk. For the purposes of implementing the requirements specified in IFRS 7.6 and GAS 20.A1.6 sentence 1, the breakdown by credit-risk-bearing instrument is retained in Fig. 21 (Bank sector: Reconciliation of the lending volume) and Fig. 29 (Bank sector: Factors determining the credit value-at-risk).

6.6.2 Reconciliation of lending volume to the consolidated financial statements

To reconcile the lending volume managed at Bank sector level with the lending volume reported on the balance sheet, the volume is broken down by traditional lending business, securities business, derivatives business, and money market business, because this breakdown corresponds to the classes of risks from financial instruments used for external reporting purposes.

Fig. 21 shows a reconciliation of the gross lending volume on which the risk management is based to individual balance sheet items in order to provide a transparent illustration of the link between the consolidated financial statements and risk management. There are discrepancies between the internal management and external consolidated financial reporting measurements for some products owing to the focus on the risk content of the items. The other main reasons for the discrepancies between the internal management figures and those

FIG. 21 – BANK SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion			Reconciliation							
Lending volume for internal management accounts			Scope of consolidation		Carrying amount and measurement					
	2020	2019	2020	2019	2020	2019	Dec. 31, 2020		Dec. 31, 2019	
								87.6		81.3
								87.6		81.3
								-		-
Traditional lending business	321.5	299.6	3.8	2.3	24.2	26.2	349.5	184.6	328.1	181.0
								186.9		183.2
								-2.2		-2.2
								77.3		65.8
								68.2		66.5
Securities business	83.0	82.7	0.3	0.3	-15.0	-16.5	68.2	10.1	66.5	11.7
								1.2		1.0
								56.9		53.8
								-0.3		-0.7
								0.2		0.2
Derivatives business	12.4	11.4	-0.2	-0.1	-12.5	-12.0	-0.3	22.3	-0.7	19.3
								-2.6		-1.3
								-20.1		-18.9
								27.2		31.3
								15.4		16.2
Money market business	5.8	4.6	0.0	0.0	21.4	26.6	27.2	3.4	31.3	3.1
								0.4		1.0
								7.4		10.6
								0.5		0.4
Total	422.6	398.3	3.9	2.5	18.0	24.3	444.5		425.1	
							Balance as at Dec. 31, 2020		21.9	5.2%
							Balance as at Dec. 31, 2019		26.8	6.7%

Not relevant

in the external consolidated financial statements are differences in the scope of consolidation and differences in recognition and measurement methods.

Differences in the **scope of consolidation** result from the fact that, in internal credit risk management, only the entities in the Bank sector that contribute significantly to the aggregate risk of the sector are included.

The discrepancy in the **securities business** is mainly due to the variations in carrying amounts that arise because credit derivatives are offset against the issuer risk attaching to the underlying transaction in the internal management accounts, whereas such derivatives are recognized at their fair value as financial assets or financial liabilities held for trading in the consolidated financial statements.

The differences between the measurements in the **derivatives business** and those in the **money market business** arise because of differences in the treatment of offsetting items in internal risk management and in external financial reporting. Offsetting items are actually netted for the purposes of risk management, whereas netting of this nature is not permitted in the consolidated financial statements. In addition, add-ons are attached to the current fair values of derivative positions in the internal management accounts to take account of potential future changes in their fair value. By contrast, the external (consolidated) financial statements focus exclusively on the fair values determined on the valuation date, and, unlike in the internal accounts, collateral must not be recognized for risk mitigation purposes.

Lending volume for the consolidated financial statements	Note
Loans and advances to banks	
of which: loans and advances to banks excluding money market placements	52
of which: loss allowances for loans and advances to banks	61
Loans and advances to customers	
Loans and advances to customers excluding money market placements	53
of which: loss allowances for loans and advances to customers	61
Financial guarantee contracts and loan commitments	89
Bonds and other securities	
of which: financial assets held for trading/bonds excluding money market placements	55
of which: financial assets held for trading/promissory notes, registered bonds, and loans and advances	55
of which: investments/bonds excluding money market placements	56
Derivatives	
of which: derivatives used for hedging (positive fair values)	54
of which: financial assets held for trading/derivatives (positive fair values)	55
of which: derivatives used for hedging (negative fair values)	67
of which: financial liabilities held for trading/derivatives (negative fair values)	68
Money market placements	
of which: loans and advances to banks/money market placements	52
of which: loans and advances to customers/money market placements	53
of which: financial assets held for trading/money market instruments	55
of which: financial assets held for trading/money market placements	55
of which: investments/money market instruments	56

In money market business, further discrepancies arise between the consolidated financial statements and internal risk management due to the method used for the recognition of repo transactions. In contrast to the treatment in the consolidated financial statements, securities provided or received as collateral are offset against the corresponding assets or liabilities for the purposes of the internal analysis.

6.6.3 Sector structure of the credit portfolio

The total lending volume of the **Bank sector** increased by 6 percent overall in the year under review, from €398.3 billion as at December 31, 2019 to €422.6 billion as at December 31, 2020. At **DZ BANK**, the total lending volume rose by 10 percent, from €216.5 billion as at December 31, 2019 to €238.8 billion as at December 31, 2020.

The year-on-year rise in lending volume in the Bank sector was mainly due to an increase in volume in the traditional lending business, which went up from €299.6 billion as at the prior-year reporting date to €321.5 billion as at December 31, 2020. DZ BANK accounted for most of the increase, which was driven by liquidity support provided under government financing programs to cushion the consequences of the COVID-19 pandemic (see section 6.7.2) and by other lending business with entities in the cooperative financial network and corporates.

Fig. 22 shows the breakdown of the credit portfolio by sector, in which the lending volume is classified according to the industry codes used by Deutsche Bundesbank. This also applies to the other sector breakdowns related to credit risk in this risk report.

FIG. 22 – BANK SECTOR: LENDING VOLUME, BY SECTOR

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Financial sector	158.9	142.8	144.8	128.3
Public sector	48.5	49.5	13.8	12.9
Corporates	123.2	120.4	71.2	66.4
Retail	77.1	71.4	1.0	1.2
Industry conglomerates	14.5	13.6	8.0	7.7
Other	0.3	0.6	-	-
Total	**422.6**	**398.3**	**238.8**	**216.5**

As at December 31, 2020, a significant proportion (38 percent) of the lending volume in the **Bank sector** continued to be concentrated in the financial sector (December 31, 2019: 36 percent). In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other sectors of the banking industry and other financial institutions.

As at December 31, 2020, a significant proportion (61 percent) of **DZ BANK's** lending volume was also concentrated in the financial sector (December 31, 2019: 59 percent). The composition of this customer segment is the same both at DZ BANK and in the Bank sector.

In its role as central institution for the Volksbanken Raiffeisenbanken cooperative financial network, DZ BANK provides funding for the entities in the Bank sector and for the cooperative banks. For this reason, the cooperative banks account for one of the largest receivables items in the DZ BANK Group's credit portfolio. DZ BANK also supports the cooperative banks in the provision of larger-scale funding to corporate customers. The resulting syndicated business, the direct business of DZ BANK and DZ HYP, the real-estate lending business brought together in BSH, and DZ HYP's local authority lending business determine the industry breakdown for the remainder of the portfolio.

6.6.4 Geographical structure of the credit portfolio

Fig. 23 shows the geographical distribution of the credit portfolio by country group. The lending volume is assigned to the individual country groups using the International Monetary Fund's breakdown, which is updated annually.

FIG. 23 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Germany	351.6	327.8	189.1	170.4
Other industrialized countries	57.4	56.7	38.2	35.5
Advanced economies	2.2	2.8	1.7	1.7
Emerging markets	8.3	8.5	7.6	6.9
Supranational institutions	3.0	2.6	2.2	2.0
Total	**422.6**	**398.3**	**238.8**	**216.5**

As at December 31, 2020, 97 percent of the total lending in the Bank sector and 95 percent of the total lending by DZ BANK (in both cases the figures being unchanged compared with those as at December 31, 2019), i.e. by far the greatest proportion of lending, was concentrated in Germany and other industrialized countries.

Other than Germany, the following **industrialized countries** accounted for the largest exposures at Bank sector level as at the reporting date (prior-year figures in parentheses):
– United States: €8.7 billion (€8.5 billion)
– France: €7.1 billion (€6.2 billion)
– Netherlands: €5.6 billion (€5.5 billion).

The corresponding breakdown at DZ BANK was as follows:
– United States: €7.4 billion (€6.7 billion)
– France: €4.9 billion (€4.0 billion)
– Netherlands: €4.1 billion (€4.1 billion).

6.6.5 Residual maturity structure of the credit portfolio

Fig. 24 shows the breakdown of the credit portfolio by residual maturity. The proportion accounted for by each maturity band as at the reporting date was largely unchanged compared with the corresponding figure as at December 31, 2019.

FIG. 24 – BANK SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
≤ 1 year	101.7	92.4	83.4	74.2
> 1 year to ≤ 5 years	103.8	104.0	64.0	63.2
> 5 years	217.2	201.9	91.4	79.2
Total	**422.6**	**398.3**	**238.8**	**216.5**

6.6.6 Rating structure of the credit portfolio

Fig. 25 shows the lending volume in the Bank sector and at DZ BANK by rating class according to the VR credit rating master scale.

FIG. 25 – BANK SECTOR: LENDING VOLUME, BY RATING CLASS

		Bank sector		DZ BANK	
€ billion		Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Investment grade	1A	39.8	38.6	16.3	13.2
	1B	5.3	5.6	2.8	2.9
	1C	127.2	112.1	119.6	105.1
	1D	12.7	10.2	6.6	3.1
	1E	15.9	16.5	4.8	5.2
	2A	15.3	16.8	5.9	7.8
	2B	24.2	20.9	9.0	10.2
	2C	17.6	19.1	9.3	7.7
	2D	21.1	22.6	10.4	10.9
	2E	27.5	23.8	13.5	12.4
	3A	27.3	25.4	10.9	10.3
Non-investment grade	3B	25.4	26.3	7.6	8.6
	3C	22.2	22.0	5.0	5.6
	3D	14.5	13.8	6.1	4.7
	3E	7.4	6.2	2.9	2.3
	4A	4.6	3.5	2.1	1.3
	4B	3.5	3.3	1.5	0.4
	4C	1.5	1.8	0.5	0.6
	4D	0.7	0.5	0.3	0.1
	4E	1.8	1.8	0.5	0.3
Default		4.4	4.5	2.1	2.1
Not rated		2.7	3.2	1.3	1.6
Total		**422.6**	**398.3**	**238.8**	**216.5**

In the **Bank sector**, the proportion of the total lending volume accounted for by rating classes 1A to 3A (investment grade) was 79 percent as at December 31, 2020 (December 31, 2019: 78 percent). Rating classes 3B to 4E (non-investment grade) represented 19 percent of the total lending volume as at the reporting date (December 31, 2019: 21 percent). Defaults, represented by rating classes 5A to 5E, accounted for 1.0 percent of the total lending volume in the Bank sector as at December 31, 2020 (December 31, 2019: 1.1 percent).

Rating classes 1A to 3A (investment grade) also dominated lending at **DZ BANK**, where they accounted for 88 percent of the total lending volume (December 31, 2019: 87 percent). Rating classes 3B to 4E (non-investment grade) represented 11 percent of the total lending volume as at the reporting date, which was unchanged compared with the end of 2019. Defaults (rating classes 5A to 5E) accounted for 0.9 percent of the total lending volume as at December 31, 2020 (December 31, 2019: 1.0 percent). This figure was also more or less unchanged compared with the corresponding prior-year figure.

As at December 31, 2020, the **ten counterparties associated with the largest lending volumes** accounted for 6 percent of total lending in the **Bank sector**, which was unchanged year on year. The equivalent proportion for **DZ BANK** was also 6 percent (December 31, 2019: 5 percent). In this case, these counterparties largely comprised borrowers from the financial sector (including the cooperative banks) and public sector with investment-grade ratings.

6.6.7 Collateralized lending volume

Fig. 26 shows the breakdown of the collateralized lending volume at overall portfolio level by type of collateral.

FIG. 26 – BANK SECTOR: COLLATERAL VALUE, BY TYPE OF COLLATERAL

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Guarantees, indemnities, risk subparticipation	7.4	7.0	1.9	1.6
Credit insurance	4.2	4.0	4.2	3.7
Land charges, mortgages, registered ship and aircraft mortgages	111.4	107.4	2.7	3.2
Pledged loans and advances, assignments, other pledged assets	2.8	3.5	1.8	1.7
Financial collateral	1.9	2.3	1.3	1.6
Other collateral	0.3	0.1	0.2	-
Total collateral	**128.0**	**124.3**	**12.1**	**11.9**
Lending volume	339.6	315.6	191.2	170.7
Uncollateralized lending volume	**211.6**	**191.3**	**179.1**	**158.8**
Collateralization rate (%)	**37.7**	39.4	**6.3**	7.0

In the case of **traditional lending business**, lending volume is generally reported as a gross figure before the application of any offsetting agreements, whereas the gross lending volume in the **derivatives and money market business** is shown on a netted basis. In the derivatives and money market business, collateral values are relatively low and are in the form of personal and financial collateral. In the **securities business**, there is generally no further collateralization to supplement the collateral already taken into account. For this reason, securities business is not included in the presentation of the collateralized lending volume.

Total collateral value in the **Bank sector** rose from €124.3 billion as at December 31, 2019 to €128.0 billion as at December 31, 2020. The collateralization rate was 37.7 percent as at the reporting date (December 31, 2019: 39.4 percent).

At €12.1 billion, **DZ BANK's** total collateral value as at December 31, 2020 was up year on year (December 31, 2019: €11.9 billion). The collateralization rate had declined to 6.3 percent as at the reporting date (December 31, 2019: 7.0 percent).

6.6.8 Securitizations

Within the securitizations business, the entities in the Bank sector act in different capacities, for example as investors in asset-backed security (ABS) portfolios, sponsors of ABCP programs, or sponsors of receivables purchasing programs.

The Bank sector's ABS portfolio, in which its entities act as **investors**, is predominantly held by DZ BANK and DZ HYP. This portfolio at **Bank sector** level had a nominal amount of €2,368 million as at the reporting date (December 31, 2019: €2,797 million). The nominal amount for **DZ BANK** was €1,973 million as at the reporting date (December 31, 2019: €2,323 million).

The significant fall in the nominal amount was mainly attributable to redemptions in the wind-down portfolio. The COVID-19 pandemic also led to a lower level of ABS trading.

In the Bank sector, the highest internal rating class 1A accounted for 60 percent of the nominal amount as at December 31, 2020 (December 31, 2019: 57 percent). The equivalent proportion for DZ BANK was 72 percent (December 31, 2019: 67 percent). One of the reasons for the improvement in credit quality was the reduction of the wind-down portfolio as a result of redemptions. New investments in unencumbered high-quality liquid assets (HQLAs) in accordance with the requirements of the credit risk strategy also helped to raise the quality of the securitization portfolio.

The above figures included the **wind-down portfolio** from the period before the financial crisis with a nominal amount of €918 million (December 31, 2019: €1,178 million) at **Bank sector** level and €523 million (December 31, 2019: €705 million) in respect of **DZ BANK**. As in the previous year, the volume of the wind-down portfolio contracted during the reporting year, primarily because of regular redemptions.

In addition, **DZ BANK acts as a sponsor in ABCP programs** that are funded by issuing money market-linked ABCP or liquidity lines. The ABCP programs are made available for DZ BANK customers who then securitize their own assets via these companies. As at December 31, 2020, the securitization exposures arising from DZ BANK's activities in which it acts as a sponsor amounted to €1,703 million (December 31, 2019: €1,442 million). The increase in these exposures was due to new business and to fluctuations in the drawdown of liquidity lines.

DZ BANK also sponsors a **program for the purchase of commercial customer receivables**, the aim of which is to generate fee and commission income. The purchased receivables predominantly consist of invoice receivables and receivables arising from agreements for payment by installment. The provisions in the master agreements for this purchase program are designed such that division of the credit risk into two or more tranches is agreed between the seller of the assets and DZ BANK at the time that the assets are purchased. As at December 31, 2020, DZ BANK's securitization exposure arising from the purchase of receivables amounted to €279 million (December 31, 2019: €320 million). The year-on-year decline in the exposure arose because the settlement of receivables in existing transactions exceeded the new business.

6.7 Exposures particularly affected by the COVID-19 pandemic

The following sections describe material lending exposures in which the effects of the COVID-19 pandemic were more noticeable than in the rest of the credit portfolio. However, no significant heightened risk was as yet evident in connection with these exposures as at the reporting date. They are described solely for reasons of transparency. The figures specified below are included in the disclosures for the lending volume as a whole (see section 0 of this risk report).

6.7.1 Sectors

The **automotive sector** is in a state of upheaval and faced with a number of issues, notably low margins and huge capital requirements. The COVID-19 pandemic is accelerating the transformation process. Overall, DZ BANK's automotive finance portfolio is still deemed to be stable despite rating downgrades for a few counterparties and a comparatively high NPL ratio. At the end of 2020, the credit quality of this subportfolio remained sound even though some ratings had been downgraded because of the COVID-19 pandemic. This was also attributable to the stabilization resulting from government support and buyers' incentives for individual segments of the automotive industry. The volume of lending in DZ BANK's automotive finance portfolio came to €4.5 billion as at December 31, 2020 (December 31, 2019: €4.4 billion). Automotive finance is assigned to the corporate segment. DZ BANK's corporate portfolio as at December 31, 2020 amounted to €71.2 billion (December 31, 2019: €66.4 billion).

DZ HYP's lending business with corporates includes financing for **hotels and department stores**. In view of the potential evolution of the pandemic and the safeguards that have been initiated, DZ HYP came to the conclusion at the end of 2020 that there was heightened uncertainty in relation to the operating activities of these businesses. Nevertheless, it did not identify any notable negative impact on individual exposures as at the reporting date. As at December 31, 2020, the volume of corporate loans extended by DZ HYP amounted to €46.4 billion (December 31, 2019: €44.6 billion). Of this total, €2.8 billion (December 31, 2019: €3.0 billion) related to hotel financing and €0.6 billion (December 31, 2019: €0.6 billion) to department store financing.

The **tourist cruise ship business** was also significantly impacted by the COVID-19 pandemic. The effects on DZ BANK's cruise ship financing operations are described in section 6.8.3.

6.7.2 Liquidity support, payment deferrals, and other credit contract modifications

By December 31, 2020, the entities in the Bank sector had granted existing customers **liquidity support** amounting to approximately €9 billion as part of the government support measures introduced to mitigate the

consequences of the COVID-19 pandemic for borrowers. This mainly concerned DZ BANK, although VR Smart Finanz was also involved to a lesser extent. At DZ BANK, these activities also included the provision of liquidity support under government financing programs; it worked together with the local cooperative banks to pass on this support to the customers of these banks.

In the Bank sector, relief measures in the form of **payment deferrals and other credit contract modifications** were also granted to borrowers to help them cope with the consequences of the pandemic. These measures included statutory requirements, banking federation measures, and voluntary assistance provided by the entities in the Bank sector. The lending volume involved amounted to €4.2 billion as at December 31, 2020. The relief measures were introduced mainly by DZ BANK, BSH, DVB, DZ HYP, and TeamBank.

6.8 Credit portfolios with increased risk content

The credit portfolios with increased risk content are analyzed separately because of their significance for the risk position. The figures presented below are included in the disclosures for the lending volume as a whole (see section 0 of this risk report).

The classification of credit portfolios as subject to heightened risk is based on the credit risk factors of material importance to individual credit portfolios described in section 6.3.2 'Credit risk factors of material importance to individual credit portfolios', as follows:

- The risk factor 'economic divergence in the eurozone' is relevant to the loans and advances to borrowers in the eurozone periphery countries.
- The risk factor 'challenging shipping and offshore markets' is relevant to the shipping and offshore financing activities.
- The risk factor 'COVID-19 pandemic' is significant for the cruise ship financing business.

6.8.1 Loans and advances to borrowers in eurozone periphery countries

As at December 31, 2020, loans and advances to borrowers in the countries directly affected by the **economic divergence in the eurozone** attributable to the **Bank sector** and to **DZ BANK** amounted to €7,276 million (December 31, 2019: €7,505 million) and €1,956 million (December 31, 2019: €2,175 million) respectively. This mainly consisted of securities business.

Fig. 27 shows the borrower structures for the lending volume in the eurozone periphery countries.

FIG. 27 – BANK SECTOR: LOANS AND ADVANCES TO BORROWERS IN EUROZONE PERIPHERY COUNTRIES[1]

	Bank sector		DZ BANK	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Portugal	**1,150**	1,146	**144**	153
of which: public sector	1,057	1,030	67	67
of which: non-public sector	93	116	77	87
of which: financial sector	-	-	-	-
Italy	**3,181**	3,256	**888**	965
of which: public sector	2,929	2,856	649	609
of which: non-public sector	252	400	239	356
of which: financial sector	100	172	100	172
Spain	**2,945**	3,104	**923**	1,057
of which: public sector	2,022	2,012	323	300
of which: non-public sector	922	1,091	601	757
of which: financial sector	321	393	140	224
Total	**7,276**	7,505	**1,956**	2,175
of which: public sector	6,008	5,898	1,039	975
of which: non-public sector	1,268	1,607	917	1,200
of which: financial sector	421	566	240	397

1 Unlike the other presentations of lending volume, traditional lending business in this case includes long-term equity investments.

6.8.2 Shipping finance

Significance for the Bank sector

Within the DZ BANK Group's **Bank sector**, the business involving the financing of ships is mainly operated by DVB and, to a lesser degree, by DZ BANK. Shipping finance in the narrow sense refers to capital investment in mobile assets involving projects that are separately defined, both legally and in substance, in which the borrower is typically a special-purpose entity whose sole business purpose is the construction and operation of ships. In such arrangements, the debt is serviced from the cash flows generated by the ship. The assessment of the credit risk is therefore based not only on the recoverability of the asset, but also in particular on the capability of the ship to generate earnings. To reduce risk, the finance must be secured by a first mortgage on the vessel and the assignment of insurance claims and proceeds. A distinction is made between shipping finance in the narrow sense and finance provided for cruise liners (see section 6.8.3).

The non-core asset strategy initiated by **DVB** at the start of 2018 to wind down the shipping finance business, which was no longer a strategic priority, in a way that preserved value was replaced by a **run-off strategy** in January 2020. The aim of the run-off strategy is to scale back the entire shipping finance portfolio in an orderly way as the individual exposures mature. Key components of this strategy are the discontinuation of new business and a run-off plan designed to preserve value. Separately from the above, DVB will participate in necessary restructuring measures to improve the collection of outstanding loans and receivables.

As at December 31, 2020, the main segments of the shipping finance business at DVB included tankers, bulk carriers, and container ships, which accounted for 49 percent (December 31, 2019: 51 percent), 31 percent (December 31, 2019: 31 percent), and 10 percent (December 31, 2019: 10 percent) of the shipping finance portfolio respectively.

DZ BANK finances ships as part of its joint credit business with the local cooperative banks.

Industry situation

The long-standing challenging conditions in shipping markets were exacerbated in 2020 by the COVID-19 pandemic. For a short time, collateral values in all the main segments fell sharply as a consequence of the pandemic. However, there were signs of recovery in individual shipping segments toward the end of the year. For example, a reduction in the oversupply of tonnage, which had still been at a high level at the start of the

COVID-19 pandemic, was evident, especially in the container and bulk carrier segments, and this relieved some of the pressure in freight markets. Tanker tonnage – previously frequently used as floating storage – is increasingly being switched to the transport of crude oil again. A recovery in demand for oil to the level prior to the onset of the pandemic is anticipated in the medium term. However, both asset values and customer credit quality remain under pressure to varying degrees, depending on the market segment. Despite some positive trends, the overall situation in shipping markets remains challenging.

Lending volume
As at December 31, 2020, the **Bank sector's** shipping finance portfolio had a total value of €3,698 million (December 31, 2019: €6,334 million). The breakdown of the lending volume between the two management units as at December 31, 2020 was as follows (corresponding figures as at December 31, 2019 in parentheses):

– **DVB**: €3,123 million (€5,648 million)
– **DZ BANK**: €575 million (€686 million).

The run-off strategy at **DVB** that has been in place since the start of 2020 has resulted in changes to the way in which DVB's portfolio is defined. Consequently, the shipping finance lending volume shown for DVB as at December 31, 2020 is not directly comparable with the figures as at December 31, 2019 disclosed in the 2019 opportunity and risk report. The figures as at December 31, 2019 given in this risk report have been restated accordingly. To improve comparability with the prior-year figures, the information below includes both the total shipping portfolio for DVB and the portfolio subject to close monitoring on the basis of watch and default lists. The non-core-asset portfolio, to which the disclosures in the 2019 opportunity and risk report related, had largely consisted of these closely monitored counterparties.

DVB's lending volume related to shipping finance amounted to €3,123 million as at December 31, 2020 (December 31, 2019: €5,648 million). Of this amount, €507 million was attributable to closely monitored exposures (December 31, 2019: €372 million). The sharp rise in the volume of closely monitored exposures was primarily due to the deterioration in customers' financial circumstances and a decrease in collateral values owing to the effects of the COVID-19 pandemic.

As at December 31, 2020, the closely monitored portion of DVB's shipping finance portfolio included 66 financed vessels (December 31, 2019: 38 vessels). The average exposure as at the reporting date was €23 million (December 31, 2019: €18 million) and the largest single exposure was €71 million (December 31, 2019: €66 million).
The lending volume in **DZ BANK's** entire shipping finance portfolio as at December 31, 2020 amounted to €575 million (December 31, 2019: €686 million).

Of this amount, €253 million was attributable to exposures closely monitored on the basis of watch and default lists (December 31, 2019: €415 million). These figures are not directly comparable with the figures as at December 31, 2019 disclosed in the 2019 opportunity and risk report, because the prior-year data was limited to rating classes 5A–5E on the VR credit rating master scale.

The contraction in lending volume was mainly attributable to the workout of individual exposures on the default list. As in 2019, DZ BANK's shipping finance portfolio in 2020 was mainly concentrated in Germany but broadly diversified by type of vessel, borrower, charterer, and shipping activity.

6.8.3 Cruise ship finance
The COVID-19 pandemic paralyzed the tourist cruise ship business in 2020. Because of the adverse trend in the industry, borrower credit ratings were downgraded. The exposures are now subject to a further level of intensive monitoring as part of the early identification process for risk.

Cruise ship finance, which is brought together under **DZ BANK**, is predominantly covered by export credit insurance. The remaining risk arises mainly from working capital facilities and the underwriting provided for one acquisition finance transaction.

As at December 31, 2020, the volume of cruise ship finance amounted to €1,099 million (December 31, 2019: €722 million). The rise in the lending volume was attributable to an acquisition finance transaction and a KfW COVID-19 support loan. A further reason was that there were transactions posted in 2020 that had already been approved or were in the process of being approved in 2019.

A distinction is made between cruise ship finance and the financing of shipyards that construct cruise ships. This subsegment, which likewise only affects DZ BANK in the Bank sector, was not classified as a portfolio with increased risk content as at the reporting date, mainly because credit ratings remained good and capacity utilization was generally secured (with the option to make order books last longer). The lending volume related to shipyard finance stood at €410 million as at December 31, 2020 (December 31, 2019: €371 million).

6.8.4 Offshore finance

Within the Bank sector, only **DVB** has offshore finance business in its maritime credit portfolio. This business consists of various financing arrangements with broad links to the shipping sector. The portfolio includes finance for drilling platforms, drill ships, offshore construction ships, and supply ships for oil platforms. No further new business has been taken on since 2017.

The low price of oil is adversely affecting global offshore oil production, leading to lower demand for supply ships and other floating offshore equipment. The dramatic fall in the oil price caused the already difficult situation in the offshore sector to deteriorate still further in the reporting year. Market volatility means that market values continue to be subject to significant fluctuation.

As at December 31, 2020, the lending volume related to offshore finance in the Bank sector was measured at €594 million (December 31, 2019: €921 million). The reason for the year-on-year decline was the further reduction in the size of the portfolio as part of DVB’s run-off strategy.

6.9 Volume of non-performing loans

As at December 31, 2020, the volume of non-performing loans in the **Bank sector** had fallen to €4.4 billion from €4.5 billion as at December 31, 2019. As a result of this decrease, the NPL ratio went down from 1.1 percent to 1.0 percent.

The volume of non-performing loans at **DZ BANK** came to €2.1 billion as at December 31, 2020. This was the same as the figure at the end of 2019. Combined with a rise in the total lending volume from €216.5 billion to €238.8 billion, this resulted in a lower NPL ratio of 0.9 percent (December 31, 2019: 1.0 percent).

Fig. 28 shows key figures relating to the volume of non-performing loans.

FIG. 28 – BANK SECTOR: KEY FIGURES FOR THE VOLUME OF NON-PERFORMING LOANS

	Bank sector		DZ BANK	
	Dec. 31, 2020	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019
Total lending volume (€ billion)	**422.6**	398.3	**238.8**	216.5
Volume of non-performing loans (€ billion)[1]	**4.4**	4.5	**2.1**	2.1
Balance of loss allowances (€ billion)[2]	**2.0**	2.7	**1.0**	1.2
Coverage ratio (%)[3]	**81**	59	**76**	60
NPL ratio (%)[4]	**1.0**	1.1	**0.9**	1.0

1 Volume of non-performing loans excluding collateral.
2 IFRS specific loan loss allowances at stage 3, including provisions.
3 Loss allowances as specified in the footnote 2, plus collateral, as a proportion of the volume of non-performing loans.
4 Volume of non-performing loans as a proportion of total lending volume.

An adjustment has been made to the calculation of the coverage ratio to match the internal risk reporting. Only the loss allowances directly assignable to the NPLs (IFRS specific loan loss allowances at stage 3, including provisions) are now taken into account, instead of the total loss allowances. Collateral is also taken into account. As a result of these changes, the coverage ratios as at December 31, 2020 are not fully comparable with the corresponding figures as at December 31, 2019. The coverage ratios as at December 31, 2019 calculated using the new method would have been 82 percent for the Bank sector and 75 percent for DZ BANK.

6.10 Risk position

6.10.1 Risks in the entire credit portfolio

The risk capital requirement (including capital buffer requirement) for credit risk is based on a number of factors, including the size of single-borrower exposures, individual ratings, and the industry sector of each exposure.

As at December 31, 2020, the credit value-at-risk including capital buffer requirement in the **Bank sector** was €5,496 million (December 31, 31: €5,484 million) with a limit of €6,978 million (December 31, 2019: €7,189 million).

As at December 31, 2020, the credit value-at-risk including capital buffer requirement at **DZ BANK** was €2,227 million (December 31, 2019: €2,297 million) with a limit of €2,730 million (December 31, 2019: €2,674 million).

Fig. 29 shows the credit value-at-risk together with the average probability of default and expected loss. Because of the breakdown by credit-risk-bearing instrument, the risk capital requirement is presented without the capital buffer requirement.

FIG. 29 – BANK SECTOR: FACTORS DETERMINING THE CREDIT VALUE-AT-RISK

	Average probability of default (%)				Expected loss (€ million)				Credit value-at-risk[1] (€ million)			
	Bank sector		DZ BANK		Bank sector		DZ BANK		Bank sector		DZ BANK	
	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Traditional lending business	0.5	0.5	0.2	0.2	430	418	142	138	2,547	2,493	1,118	1,168
Securities business	0.2	0.1	0.2	0.2	48	48	30	28	1,757	1,733	331	299
Derivatives and money market business	0.2	0.1	0.2	0.2	14	11	13	10	262	226	192	148
Total					492	477	185	176	4,565	4,452	1,641	1,614
Average	0.4	0.4	0.2	0.2								

Not relevant

1 Excluding capital buffer requirement.

6.10.2 Risks in the credit portfolios with increased risk content

The risk capital required in the **Bank sector** and at **DZ BANK** for credit portfolios exposed to increased credit risk is shown in Fig. 30, again without the capital buffer requirement.

FIG. 30 – BANK SECTOR: CREDIT VALUE-AT-RISK[1] FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Bank sector		DZ BANK	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Eurozone periphery countries	1,255	1,288	22	21
Shipping finance[2]	248	132	26	50
Cruise ship finance	15	-	15	-
Offshore finance	25	73		

Not relevant

1 Excluding capital buffer requirement.
2 The reported figures relate to the entire shipping finance portfolio. In the 2019 opportunity and risk report, the disclosures were limited to the closely monitored shipping finance. For better comparability between the prior-year figures and the figures as at December 31, 2020, the figures as at December 31, 2019 have been restated to reflect the new broader definition of the portfolio. The figures disclosed for December 31, 2019 are therefore not directly comparable with the corresponding figures in the 2019 opportunity and risk report.

The decline in the credit value-at-risk for the Bank sector entities' exposure in the **peripheral countries of the eurozone** was in line with the change in the loans and advances to borrowers in these countries.

As at December 31, 2020, the Bank sector's credit value-at-risk for **shipping finance** amounted to €248 million (December 31, 2019: €132 million) and was mainly attributable to DVB. The rise was due to a decrease in collateral values, which in turn was attributable to adjustments to the useful life of ships to reflect the impact of the COVID-19 pandemic. The contraction in risk capital requirement at DZ BANK was mainly attributable to the workout of individual exposures on the default list.

As at December 31, 2020, the credit value-at-risk for the **cruise ship finance portfolio** in the Bank sector amounted to €15 million (December 31, 2019: under €1 million) and was attributable in full to DZ BANK.

The year-on-year decline in the credit value-at-risk for **offshore finance** was caused by the scaling back of this business operated by DVB in line with the strategy.

7 Equity investment risk

7.1 Definition and business background

Equity investment risk is defined as the risk of losses arising from negative changes in the fair value of that portion of the long-term equity investments portfolio for which the risks are not included in other types of risk. Equity investment risk also encompasses the risk of losses arising from negative changes in the fair value of the portfolio of real estate held by the entities in the Bank sector. The losses in value could be caused by a deterioration in the general real estate situation or specific factors relating to individual properties (such as a vacancy period, tenant default, loss of use).

In the Bank sector, equity investment risk arises primarily at DZ BANK, BSH, and DVB.

The entities in the Bank sector hold long-term equity investments largely for strategic reasons, especially to cover markets, market segments, or parts of the value chain in which they themselves or the cooperative banks are not active. These investments therefore support the sales activities of the cooperative banks or help reduce costs by bundling functions. The investment strategy is continuously aligned with the needs of cooperative financial network policy.

7.2 Risk strategy, responsibility, and reporting

Risk strategy requirements must be observed in the management of long-term equity investments. Such management is subject to the principle that equity investment risk (measured as risk capital requirement) may be taken on only if the risk remains below the existing limits.

Decisions on whether to acquire or dispose of **long-term equity investments** are made by the Board of Managing Directors of the entities in the Bank sector in consultation with the relevant committees.

At DZ BANK, the Group Finance division is responsible for **supporting these investments**, whereas at BSH the task falls within the scope of the Central Services/Policy/International division and the Financial Controlling division. At DVB, the investments are the responsibility of the Accounting and Legal Affairs departments.

Equity investment risk is **measured** and **monitored** at Bank sector level by DZ BANK. The Board of Managing Directors is kept up to date through the overall risk reports.

7.3 Risk factors

Key factors when determining equity investment risk are the equity investment's industry sector, the location of its registered office, and the nominal amount of the investment. The possibility cannot be ruled out that a future impairment test on the long-term equity investments held by the entities in the Bank sector could lead to a significant reduction in the carrying amounts of these investments reported on the balance sheet. In the case of non-controlling interests, there is also a risk that key information may not be available or cannot be obtained promptly by virtue of the fact that the investment is a minority stake and this could result in a need to recognize impairment losses.

7.4 Risk management

The carrying amounts of the long-term equity investments are regularly tested for possible impairment in the last quarter of the financial year. If there are any indications during the course of the year of possible impairment, more frequent impairment tests are also carried out. In the impairment tests, the carrying amounts of the long-term equity investments are compared against the amount that could be realized on the market on the same date.

The risk capital requirement for the vast majority of the long-term equity investments in the **Bank sector** is determined using a Monte Carlo simulation. In this method, portfolio concentrations in sectors and individual counterparties are taken into account by simulating industry-wide and individual investment-related risk factors.

The risk capital requirement is influenced, in particular, by the market values of the long-term equity investments, the volatility of the market values, and the correlations between the market values, with market price fluctuations mainly derived from reference prices listed on an exchange.

At **DVB**, the risk capital requirement for long-term equity investments in the transport sector is determined using an earnings-at-risk approach.

The measurement of equity investment risk takes into account both the equity-accounted investments and the fully consolidated investees. As part of acquisition accounting and during the course of preparing the consolidated financial statements, the investment carrying amounts for consolidated subsidiaries are offset against the relevant share of net assets. Consequently, the investment carrying amounts disclosed in the notes to the consolidated financial statements are considerably lower than the carrying amounts used for determining risk.

7.5 Risk position

The **carrying amounts of long-term equity investments** in the **Bank sector** relevant for the measurement of equity investment risk amounted to €2,893 million as at December 31, 2020 (December 31, 2019: €2,392 million). As at December 31, 2020, the carrying amounts of the long-term equity investments of **DZ BANK** came to €1,930 million (December 31, 2019: €1,509 million).

The **risk capital requirement (including capital buffer requirement)** for equity investment risk in the **Bank sector** was measured at €936 million as at the reporting date (December 31, 2019: €850 million). The limit was €1,090 million (December 31, 2019: €1,063 million).

As at December 31, 2020, the **risk capital requirement including capital buffer requirement** for equity investment risk at **DZ BANK** amounted to €634 million (December 31, 2019: €503 million). The limit as at December 31, 2020 was €725 million (December 31, 2019: €640 million).

The rise in the carrying amounts of the long-term equity investments, the equity investment risk, and the limit was largely attributable to the transfer of directly held real estate from market risk to equity investment risk.

8 Market risk

8.1 Definition

Market risk in the Bank sector comprises market risk in the narrow sense of the term, and market liquidity risk.

Market risk in the narrow sense of the term – referred to below as market risk – is the risk of losses arising from adverse movements in market prices or in the parameters that influence prices. Market risk in the Bank sector is broken down into general market risk, spread and migration risk, and asset-management risk. General market risk comprises the following components: interest-rate risk, equity risk, fund price risk, currency risk, and commodity risk.

Market liquidity risk is the risk of losses that could arise from adverse changes in market liquidity – for example, because of market disruption or a reduction in market depth – such that assets can only be liquidated in markets if they are discounted and that it is only possible to carry out active risk management on a limited basis.

8.2 Business background and risk strategy

8.2.1 Business background

The DZ BANK Group is exposed to considerable market risk in the Bank sector. Market risk arises mainly in connection with BSH, DZ HYP, and UMH in addition to DZ BANK. The assumption of market risk by these entities in the Bank sector is primarily attributable to the DZ BANK Group's strategic focus on the cooperative financial network. This strategy means that each entity in the DZ BANK Group specializes in certain types of product with a corresponding impact on the respective entity's risk profile.

Market risk thus arises mainly from DZ BANK's own trading activities and its traditional lending business with non-retail customers, BSH's traditional lending business and building society operations aimed at financing privately owned real estate, DZ HYP's traditional lending business involving finance for real estate and local authorities, together with its portfolios of securities held to manage liquidity and cover assets, and UMH's own-account investing activities and its guarantee obligations to customers contained in Riester fund-linked savings plans and guarantee funds.

Liabilities and – where present in a group entity – assets related to direct pension commitments are a further source of market risk. Market liquidity risk arises primarily in connection with securities already held in the portfolio as well as funding and money market business.

8.2.2 Risk strategy

The following principles for managing market risk apply to the entities in the **Bank sector**:

- Market risk is only taken on to the extent that it is necessary to facilitate attainment of business policy objectives.
- The assumption of market risk is only permitted within the existing limits.
- Statutory restrictions, provisions in the Articles of Association, or other limitations enshrined in the risk strategy that prohibit the assumption of certain types of market risk for individual management units are observed.

The entities in the Bank sector pursue the following strategies in relation to the individual **types of market risk**:
- Spread and migration risk is assumed.
- Interest-rate risk associated with the original business purpose of the management units is largely eliminated.
- In contrast, interest-rate risk from pension obligations is accepted and included in the calculation of risk-bearing capacity.
- Virtually all currency risk is eliminated.
- Commodity risk is assumed only to a very small degree.

Market liquidity risk is consciously assumed following an analysis that takes into account the prevailing liquidity.

8.3 Risk factors

8.3.1 General market risk factors
Interest-rate risk, spread and migration risk, equity risk, fund price risk, and currency risk are caused by changes in the **yield curve**, **credit spreads**, **exchange rates**, and **share prices**. Credit spreads are the key risk factor for all the market risk in the Bank sector.

Spread risk, including migration risk, is the most significant type of market risk for the entities in the Bank sector. A proportion of the spread and migration risk is attributable to securities issued by southern eurozone periphery countries and held by the entities in the Bank sector. **Wider credit spreads** are an indication that markets believe credit quality has deteriorated. If credit spreads were to widen, this would therefore lead to a fall in the fair value of the government and corporate bonds affected. Fair value losses of this nature could have a temporary or permanent adverse impact on capital.

8.3.2 Specific market risk factors
Because of the long period of **low interest rates**, the challenge faced by the asset management activities brought together under UMH is to ensure that the guarantee commitments given to customers in respect of individual products can actually be met from the investment instruments in those products. This particularly affects the pension products and the guarantee fund product group. The pension products mainly consist of UniProfiRente, a retirement pension solution certified and subsidized by the German government. The amounts paid in during the contributory phase and the contributions received from the government are guaranteed to be available to the investor at the pension start date. The pension is then paid out under a payment plan with a subsequent life annuity. Guarantee funds are products for which UMH guarantees that a minimum percentage of capital is preserved, depending on the precise product specification. If UMH is unable to draw some of the management fees, or has to inject fresh capital, so that it can meet its guarantee commitments, this could have a substantial detrimental impact on the financial performance of the DZ BANK Group. Information on the economic background to this risk factor can be found in chapter V.1.5 in the outlook.

The widening of credit spreads can be triggered by macroeconomic risk factors. These factors are currently the **risks to the global economy** from the COVID-19 pandemic (see chapters V.1.1 to V.1.4 in the outlook) and international trade disputes (see chapter V.1.2 in the outlook).

Another source of heightened risk is the **economic divergence in the eurozone**. The investments in Italian and Spanish bonds held by DZ BANK and DZ HYP, and in Portuguese bonds held by DZ HYP, mean that continued economic divergence in the eurozone, combined with the ECB's expansionary monetary policy, could lead to greater market risk in the Bank sector. The economic scenarios relevant to this risk factor are described in section 2.3.3 of this risk report.

8.4 Organization, responsibility, and reporting
Market risk in the **Bank sector** is managed on a decentralized basis by the individual management units within the centrally specified limits for the capital requirement for market risk. Each unit bears responsibility for the risk

and performance associated with each portfolio. Responsibility for managing risk within a management unit is normally brought together under a local treasury unit.

One exception is **DZ BANK**, where portfolios are managed at the level of subordinate organizational units (group, department, division). In this case, the relevant traders bear direct responsibility for risk and performance. The organizational units are structured in such a way that the responsibility for the marketing of certain types of product is assigned in each case to a trading division with product responsibility.

Key figures for market risk are reported at sector level and for DZ BANK to the **Group Risk and Finance Committee** in the quarterly overall risk report.

8.5 Management of market risk

8.5.1 Central market risk measurement

Central market risk measurement in the overall portfolio

Various components are used to quantify market risk in the Bank sector from a present value perspective. These components are combined to determine the aggregate risk capital requirement for market risk, taking into account the effects of concentration and diversification. The risks arising in connection with the assets and liabilities associated with direct pension commitments are also factored in. The models are operated centrally by DZ BANK and are fed with input data provided by the management units on each trading day. Sector-wide standards and rules are in place to ensure that the modeling is appropriate.

The first component of the measurement approach creates a spread and migration risk model based on a **Monte Carlo simulation**. It determines the combined spread and migration risk over a longer-term (strategic) horizon of one year with a confidence level of 99.9 percent. Whereas spread risk quantifies credit-risk-related losses from financial instruments in a short-term view of value-at-risk, this becomes the combined spread and migration risk in the risk capital requirement over a longer-term perspective. For this reason, migration risk is not shown in the table of values-at-risk in Fig. 31.

The second component is a value-at-risk model based on a **historical simulation** in which the general market risk is determined from a short-term (operational) perspective over 1 day and with a confidence level of 99.0 percent. The model calculated day by day is based on a historical observation period of 250 trading days and includes a number of risk factors. The most important risk factor groups include money market and swap interest rates, basis and credit spreads, share prices, exchange rates, and commodity prices. The model also includes implied volatility in the risk measurement. Drawing on the results of the value-at-risk measurement, a transformation model scales up the operational key risk indicators (also taking account of stress events) to a strategic perspective in which a one-year holding period and a confidence level of 99.9 percent are assumed.

In the last step, the results from the spread and migration risk model and from the transformation model are then combined to give the **aggregate risk capital requirement** for market risk.

Central market risk measurement for interest-rate risk in the banking book

For internal sector-wide management purposes, the banking book and trading book are treated in the same way in terms of the models used, key risk indicators, frequency of risk measurement, and main risk measurement parameters. To supplement this risk management approach in which the banking and trading books are analyzed holistically, interest-rate risk in the banking books of the entities in the Bank sector and at DZ BANK from a regulatory perspective is managed separately using a present-value approach.

On behalf of the other management units in the Bank sector, DZ BANK also operates a partially centralized model for quantifying periodic interest-rate risk. Overall, these methods are used to record the impact from changes in interest rates, both from an economic perspective (based on present value) and from the angle of net interest income.

Concentrations of market risk

Concentrations in the portfolio affected by market risk are identified by classifying the exposure in accordance with the risk factors associated with interest rates, spreads, migration, equities, currencies, and commodities. This incorporates the effects of correlation between these different risk factors, particularly in stress phases.

8.5.2 Decentralized market risk measurement

Decentralized measurement of general market risk and spread risk

In addition to the models specified in section 8.5.1 of this risk report, the main **management units** operate their own risk models to satisfy ICAAP requirements from the perspective of the individual institution. With the exception of asset-management risk at UMH, the results from these models are not used to manage market risk in the Bank sector and therefore do not form part of this risk report.

Decentralized measurement of asset-management risk

The risk capital requirement for asset-management risk is determined locally by **UMH** and then added to the risk capital requirement for general market risk and spread risk calculated centrally for the Bank sector. Following the approach used for the central measurement of market risk, the risk capital requirement for asset-management risk is calculated using a one-year holding period and a confidence level of 99.9 percent. The risk calculation makes a distinction between static guarantee fund, dynamic guarantee fund, and Riester pension products. In the case of the Riester pension product, which is the most significant product in terms of risk capital requirement, the measurement of the risk is based on a Monte Carlo simulation, taking into account the specific investment selections made in the customer investment account.

8.5.3 Backtesting and stress tests

The central value-at-risk model is subject to **backtesting**, the purpose of which is to verify the predictive quality of the model. Changes in the value of portfolios on each trading day are usually compared against the value-at-risk calculated using risk modeling.

Risks arising from extreme market situations are primarily recorded using **stress tests**. The crisis scenarios underlying the stress tests include the simulation of significant fluctuations in risk factors and serve to highlight potential losses not generally recognized in the value-at-risk approach. Stress tests are based on extreme market fluctuations that have actually occurred in the past together with crisis scenarios that – regardless of market data history – are considered to be economically relevant. The crisis scenarios used in this case are regularly reviewed to ensure they are appropriate. The following are deemed to be risk factors: interest-rate risk, spread risk, migration risk, equity risk, and currency risk.

8.5.4 Management of limits for market risk

The starting point for limiting market risk is a limit for the capital requirement for market risk in the **Bank sector** specified as part of operational planning. This limit is broken down into an individual limit for the market risk capital requirement in each management unit.

Within **DZ BANK**, this limit is then further subdivided into a system of limits for the divisions, departments, and groups to appropriately reflect the decentralized portfolio responsibility assigned to these units and the nature of the bank from a regulatory perspective as a trading book institution. Limits are monitored on every trading day.

8.5.5 Mitigating market risk

The entities in the Bank sector use various approaches to mitigate market risk. For example, some market risk from the assets-side business (such as traditional lending business) or from the liabilities-side business (such as home savings deposits) is offset by suitable countervailing liability or asset transactions (such as own issues or securities). These activities are carried out as part of asset/liability management. In other cases, financial derivatives are used for hedging purposes.

As the measurement of market risk is based on the inclusion of the individual items subject to market risk, there is no need to monitor the economic effectiveness of hedges.

8.5.6 Managing the different types of market risk

Management of spread risk and migration risk

Most of the spread and migration risk in the **Bank sector** arises from non-trading portfolios and is consciously assumed within the established limits in accordance with the associated long-term investment strategy. Hedging instruments are also used in carefully selected trading book portfolios. The central measurement of this risk means that the level of the risk on every trading day is transparent. If there is any indication that the ability to bear the spread and migration risk is in jeopardy, Group Treasury at DZ BANK will initiate corrective measures across the sector.

Management of interest-rate risk

Interest-rate risk arising from operating activities at **DZ BANK** and **DZ HYP** is mitigated primarily by means of hedging using interest-rate derivatives, on the basis of either individual transactions or portfolios. At **BSH**, an asset/liability management approach based on the maturities of the securities in the investment portfolio is used to manage interest-rate risk arising from the collective building society operations and the traditional lending business, including the interest-rate risk associated with direct pension commitments. Interest-rate derivatives are of minor significance.

DZ BANK is notably exposed to significant **interest-rate risk from direct pension commitments** in addition to the interest-rate risk arising from operating activities. This risk is consciously assumed within the existing limits.

Management of equity risk and fund price risk

Equity risk and fund price risk from the non-trading portfolios are managed first and foremost by directly changing the underlying exposure. Derivative products are also used within the trading portfolio to keep the type of risk involved within the allocated limits. Some funds are broken down into their constituent parts for the purposes of measuring the risk. In such cases, the risk is not treated as part of fund price risk, but is managed within the type of market risk determined for the constituent part concerned.

Management of asset-management risk

Asset-management risk arises from minimum payment commitments given by **UMH** and/or its subsidiaries for guarantee products. The risks from these guarantee products are managed mainly by using asset allocation. Asset-management risk is reported using a separate internal system and is monitored regularly by UMH.

8.6 Management of market liquidity risk

The calculation of general market risk in the Bank sector using the transformation model and the spread and migration risk model takes market liquidity risk into account.

Within the transformation model, stress events are expressly integrated into the analysis when market risk is transferred from an operating perspective to a strategic perspective. The change in risk factors in these events is based on the assumption that it is not possible to make changes to the exposures in the portfolio of the Bank sector over a specified period.

The spread and migration risk model implicitly factors in phases of diminishing market liquidity via the calibration of the credit spread volatility included in the model. The estimation of volatility based on market data from the recent past also uses a lower limit determined from longer-term data. This prevents any low level of credit spread volatility in a calm market environment with normal liquidity from being transferred directly into the model parameters.

8.7 Risk position

8.7.1 Value-at-risk

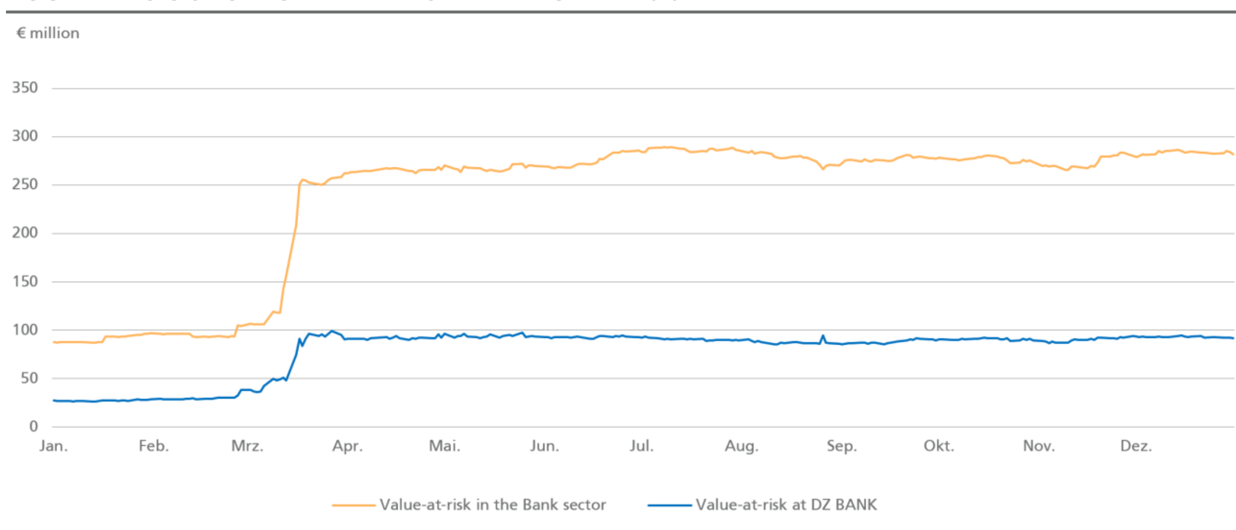
Fig. 31 shows the average, maximum, and minimum values-at-risk measured for the **Bank sector** and **DZ BANK** over the reporting year, including a further breakdown by type of market risk. In addition, Fig. 32 shows the change in market risk for the **Bank sector** by trading day in the reporting year.

FIG. 31 – BANK SECTOR: CHANGE IN MARKET RISK BY TYPE OF RISK[1, 2, 3]

€ million	Interest-rate risk		Spread risk		Equity risk[4]		Currency risk		Commodity risk		Diversification effect[5]		Total	
	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK
Dec. 31, 2020	17	12	283	93	29	4	3	2	3	2	-52	-21	282	92
Average	18	14	237	81	20	2	4	3	2	1	-43	-23	237	78
Maximum	30	22	288	105	31	5	6	6	3	3	-68	-41	289	99
Minimum	10	8	88	21	6	1	2	1	-	-	-18	-5	87	26
Dec. 31, 2019	11	9	88	21	6	2	4	4	-	-	-21	15	88	27

1 The disclosures relate to general market risk and spread risk. A value-at-risk is not determined for asset-management risk.
2 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.
3 The minimum and maximum amounts for the different subcategories of market risk may stem from different points in time during the reporting period. Consequently, they cannot be aggregated to produce the minimum or maximum aggregate risk due to the diversification effect.
4 Including funds, if not broken down into constituent parts.
5 Total effects of diversification between the types of market risk for all consolidated management units.

FIG. 32 – BANK SECTOR: CHANGE IN MARKET RISK BY TRADING DAY IN 2020[1]



1 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.

The following value-at-risk figures were measured as at December 31, 2020 for the **interest-rate risk in the banking book for regulatory purposes** (corresponding figures as at December 31, 2019 in parentheses):

- **Bank sector**: €19 million (€11 million)
- **DZ BANK**: €12 million (€8 million).

The increase in market risk evident in all the presented figures primarily resulted from the rise in general market volatility in connection with the COVID-19 pandemic.

8.7.2 Risk capital requirement

As at December 31, 2020, the **risk capital requirement (including capital buffer requirement)** for market risk in the **Bank sector** and at **DZ BANK** amounted to €4,310 million (December 31, 2019: €3,860 million) and €1,908 million (December 31, 2019: €1,698 million) respectively, with **limits** of €5,725 million (December 31, 2019: €5,646 million) and €2,600 million (December 31, 2019: €2,220 million) respectively. The increase in both the risk and the limits was mainly due to the rise in general market volatility as a consequence of the COVID-19 pandemic.

The Bank sector's risk capital requirement (including capital buffer requirement) encompasses the **asset-management risk of UMH**. The asset-management risk of the Bank sector as at December 31, 2020 amounted to €319 million (December 31, 2019: €208 million). This increase was primarily due to capital market movements. DZ BANK is not exposed to any asset-management risk.

9 Technical risk of a home savings and loan company

9.1 Definition

Technical risk of a home savings and loan company is subdivided into two components: new business risk and collective risk. **New business risk** is the risk of a negative impact from possible variances compared with the planned new business volume. **Collective risk** refers to the risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates.

BSH's business risk and reputational risk are included within the technical risk of a home savings and loan company.

9.2 Business background and risk strategy

Technical risk of a home savings and loan company arises in the Bank sector in connection with the business activities of BSH. This risk represents the entity-specific business risk of BSH. A home savings arrangement is a system in which the customer accumulates savings earmarked for a specific purpose. The customer enters into a home savings contract with fixed credit balance and loan interest rates, so that when the savings phase (which may be subsidized under statutory arrangements) is completed at a later point and a loan is allocated under the contract, he/she can receive a home savings loan at a favorable interest rate. A home savings agreement is therefore a combined asset/liability product with a long maturity.

Technical risk of a home savings and loan company is closely linked with the BSH business model and cannot therefore be avoided. Against this backdrop, the **risk strategy** aims to prevent an uncontrolled increase in risk.

9.3 Risk factors

A variance between the actual and planned new business volume (**new business risk**) could lead to lower deposits from banks and customers over the short to medium term. Over the medium to long term, the lower level of new business could also lead to a decrease in loans and advances to banks and customers. Variances between the actual and forecast performance of the collective building society business caused by significant long-term changes in customer behavior unrelated to changes in interest rates (**collective risk**) could also lead to lower loans and advances to banks and customers and to lower deposits from banks and customers. Over the medium to long term, there is a risk that a lower level of new business and change in customer behavior could lead to a fall in earnings and therefore to a decline in capital.

9.4 Responsibility, reporting, and risk management

BSH is **responsible** for managing the technical risk of a home savings and loan company within the Bank sector. This includes measuring the risk and communicating risk information to the risk management committees at BSH

and to the Board of Managing Directors and Supervisory Board of BSH. Technical risk of a home savings and loan company forms an integral part of the DZ BANK Group's internal **risk reporting system**.

A special collective simulation, which includes the integrated effects of a (negative) change in customer behavior and a drop in new business, is used to **measure the technical risk of a home savings and loan company** on a quarterly basis. The results from the collective simulation for the technical risk of a home savings and loan company are fed into a long-term forecast of earnings. The variance between the actual earnings in the risk scenario and the earnings in a base forecast with the same reference date is used as a risk measure. The variance is discounted to produce a present value. The total present value of the variances represents the technical risk of a home savings and loan company and therefore the risk capital requirement for this type of risk. **Concentrations** of this risk are most likely to arise from new business risks.

Technical risk of a home savings and loan company is **managed** in particular through a forward-looking policy for products and scales of rates and charges, and through appropriate marketing activities and sales management.

9.5 Risk position

As at December 31, 2020, the **capital requirement** for the technical risk of a home savings and loan company amounted to €545 million (December 31, 2019: €397 million) with a **limit** of €550 million (December 31, 2019: €706 million). A capital buffer requirement was not calculated for the technical risk of a home savings and loan company as at the reporting date. The greater level of risk was largely due to model parameter updates.

10 Business risk

10.1 Definition and business background

Business risk denotes the risk of losses arising from earnings volatility for a given business strategy and not covered by other types of risk. In particular, this comprises the risk that, as a result of changes in material circumstances (for example, the regulatory environment, economic conditions, product environment, customer behavior, market competitors) corrective action cannot be taken at an operational level to prevent the losses.

Business risk mainly affects DZ BANK. DZ BANK's core functions as a **central institution**, **corporate bank**, and **holding company** mean that it focuses closely on the local cooperative banks, which are its customers and owners. In this context, business risk can arise from corporate banking, retail banking, capital markets business, and transaction banking.

10.2 Risk strategy

The objective of the business risk strategy is to specify how business risk is to be managed, taking into account the relevant **business drivers**, and thus contribute to achieving the targets set out in the business strategy. The focus is on preventing both an unplanned increase in risk and potential losses arising from a slump in income or from increases in staff expenses or operating costs.

The following **instruments** are used to support the attainment of targets:

- Forward-looking assessment of success factors and specification of targets as part of the strategic planning process
- Groupwide coordination of risk management, capital allocation, and corporate strategy, together with the leveraging of synergies
- Setting of limits and monitoring.

10.3 Risk factors

10.3.1 Regulatory risk factors

DZ BANK is exposed to changes in the regulatory environment. This applies especially to regulation of the financial services sector, which is undergoing rapid change. The term 'regulation' refers to all aspects of intervention in the financial services industry involving the imposition of rules. Regulation may involve standards related to supervisory law, commercial law, capital markets law, company law, or tax law. Changes in the regulatory environment could have a negative impact on the business activities of DZ BANK.

Costs of regulation

Over the next few years, the DZ BANK Group is likely to continue to face increased costs, and thus reduced profits, in connection with implementing the requirements resulting from regulatory legislative initiatives.

Basel IV

In the next years, DZ BANK and the other management units subject to banking supervision must implement the European rules and regulations amended as a result of the international regulatory reforms referred to as Basel III finalization (also known as Basel IV). Overall, the implementation of Basel IV will represent a huge challenge for the DZ BANK banking group, although the first elements of the reforms have already been introduced in CRR II. In response to the COVID-19 pandemic, the Group of Central Bank Governors and Heads of Supervision of the BCBS decided in the reporting year to postpone the initial application date for the other components of Basel IV by one year until January 1, 2023. It is not yet known when the rules will be subject to mandatory application in the EU because no draft CRR III has been prepared yet.

The objective of the new regulations is to limit the use of internal models for determining regulatory capital adequacy and apply a higher degree of standardization to ensure that banks use uniform, comparable processes throughout the industry. One of the main aspects of the reforms is that they provide for a comprehensive revision of the procedures used to determine **credit risk exposures**, including credit valuation adjustments. As part of the reporting system, DZ BANK makes considerable use of methods approved by the supervisor to model credit risk using the IRB approach.

Following the implementation of Basel IV, the current benefits for the affected entities in the DZ BANK banking group from using internal models could diminish because capital adequacy would be based to a greater extent on the revised standardized approaches. A core component of this revision is the introduction of an output floor for the amount of risk-weighted assets determined with internal models. This **output floor** would restrict the benefit from using internal models to 72.5 percent of the risk-weighted assets computed using the credit risk standardized approaches. The schedule for the application of this requirement has also now been postponed by one year. According to the latest BCBS details, this rule is expected to be introduced in stages from January 1, 2023, the final target level of the output floor coming into force in full on January 1, 2028.

The capital requirements for market risk and operational risk are also affected by Basel IV in addition to those for credit risk. For example, DZ BANK has the status of an internal model bank and in the future will not only have to calculate and report the capital requirement for **market risk** on the basis of the internal model, but will also have to ensure that the reporting to the supervisor includes the capital requirement for market risk in the trading book calculated according to the new standardized approach. Implementation of the new rules entails extensive and time-consuming changes to the calculation of the capital requirement for market risk in the trading book at DZ BANK.

Under Basel IV, a new standardized approach will be introduced for measuring **operational risk** for regulatory purposes. The new approach will supersede all regulatory measurement methods previously used for this type of risk. The entities in the DZ BANK banking group will therefore have to convert the methods used to determine the capital requirement for operational risk to the new standardized approach for reporting purposes.

The planned new regulations could lead to a substantial rise in risk-weighted assets and capital requirements as well as to a fall in the capital ratios for the DZ BANK banking group and DZ BANK. There is a risk that DZ BANK would not be able to obtain the necessary additional own funds (or would only be able to obtain them at a higher cost) or would have to reduce its risk-weighted assets. This could limit the flexibility enjoyed by DZ BANK in the operation of its business.

Switch in interest-rate benchmarks

To implement Regulation (EU) No. 2016/1011 (Benchmarks Regulation) and to respond to international market developments, the German and European financial industry is currently pressing ahead with the replacement of the present interest-rate benchmarks (some of which do not comply with the EU Benchmarks Regulation) with (virtually) risk-free interest-rate benchmarks.

The reformed interest-rate benchmarks and the new risk-free interest-rate benchmarks are provided by central banks or administrators. Such administrators must be entered in the benchmarks register maintained by ESMA. This means that Euribor and – until its scheduled discontinuation at the end of 2021 – EONIA can continue to be used. In the case of Libor rates, which are already compliant with the EU benchmark requirements, the banks involved are expected to continue supplying the necessary data only up to the end of 2021. In these circumstances, market participants are assuming that Libor rates will no longer be published going forward.

The main reformed interest-rate benchmarks of significance for the entities in the Bank sector are Euribor, EONIA, and Libor; the new risk-free interest-rate benchmarks designated as the replacements under the IBOR reforms and of significance are €STR, SOFR, SONIA, and SARON. Assets and liabilities of entities in the Bank sector in national and international interbank and customer business are linked to these interest-rate benchmarks. There is a lack of clarity about numerous aspects of the switch in interest-rate benchmarks in the transition phase, particularly concerning new market practices and the establishment of the interest-rate benchmarks in the markets.

The transitional period for critical interest-rate benchmarks runs until December 31, 2021. If IT system upgrades and the changeover of the relevant contracts to the successor interest-rate benchmarks are not completed on time, there is a risk that the ability of the entities in the Bank sector to handle the transactions concerned may be constrained. The transactions affected are, for example, the issuance of floating-rate securities referencing a Libor rate or interest-rate derivatives. In addition to the acquisition of new business, the calculation and billing of interest payments in connection with securities already issued and the valuation of these securities could be adversely affected. This could give rise to business risks (such as withdrawal from profitable areas of business), legal risks (such as compensation claims), and reputational risks.

The risks described above also apply in relation to interest-rate benchmarks from administrators based in third countries, in respect of which the European Commission has not yet made any decision regarding equivalence. Such administrators have thus not yet been able to obtain approval or register as third-country administrators with the ESMA. In this regard, Libor is relevant for DZ BANK. For supervised entities such as DZ BANK, a reference to these third-country interest-rate benchmarks is only permitted in respect of financial instruments, financial contracts, and the measurement of the performance of investment funds if the reference to the interest-rate benchmark concerned has been completed by the end of the transitional period on December 31, 2023. If, as a result of Brexit, administrators based in the UK no longer have the necessary EU registration from January 1, 2021, the interest-rate benchmarks that they offer will be treated as third-country interest-rate benchmarks and the transitional period referred to above applies.

10.3.2 Competition-related risk factors

Business risk is affected by the competition-related factors described below. If these risks were to materialize, they could have a negative impact on DZ BANK's financial performance.

Competition based on pricing and terms

Fiercer competition in **retail and corporate banking** based on pricing and terms could give rise to margins that are economically unattractive for the entities in the Bank sector or that do not adequately cover the risk arising from the corresponding transactions.

Greater competition in capital markets business

DZ BANK's capital markets business is faced with the ongoing challenges presented by **low interest rates**, accompanied by a fall in market liquidity and historically low risk premiums (see chapter V.1.5 in the outlook). In DZ BANK's own-account investing activities with the local cooperative banks, there is an evident rise in price sensitivity caused by a contraction in operating profits and increases in the size of the banks resulting from mergers.

DZ BANK's customers have the option of conducting transactions in selected financial instruments using **electronic trading platforms**. For certain products, this is likely to lead to a shift in trading volume to such trading platforms. It is predicted that this will bring about a change in competitor structure, with competition becoming fiercer in the trading of certain financial instruments for customer account, resulting in the risk of a reduction in margins and revenue going forward.

New competitors in transaction banking

In transaction banking, DZ BANK is increasingly finding itself up against less regulated global competitors, often from **outside the banking sector** and offering innovative solutions to meet the changes in customer needs. These developments are changing the role played by the management units as product providers and are likely to affect fee and commission income from DZ BANK's transaction banking activities.

10.3.3 Rating downgrades

For the entities in the Bank sector, their own credit rating is an important element in any comparison with competitor banks. A downgrade or even just the possibility of a downgrade in the rating for a management unit could have a detrimental effect in all entities in the Bank sector on the relationship with customers and on the sale of products and services.

If **DZ BANK's credit rating** or the **network rating** for the cooperative financial network were to be downgraded, this would have a negative impact on DZ BANK's costs of raising equity and borrowing. In the event of a rating downgrade, new liabilities could also arise, or liabilities dependent on the maintenance of a specific credit rating could become due for immediate payment.

Furthermore, if a rating downgrade were to occur, the management units in the Bank sector could face a situation in which they had to furnish additional collateral in connection with rating-linked collateral agreements for derivatives (regulated by a credit support annex to an appropriate master agreement for financial futures) or in which they were no longer considered suitable counterparties for derivative transactions at all.

If the credit rating for a management unit were to fall out of the range covered by the top four rating categories (investment-grade ratings, disregarding rating subcategories), the operating businesses of all the entities in the Bank sector could be adversely affected. This could also lead to an increase in the liquidity requirement in relation to derivatives and to a rise in funding costs. There would be an additional risk that these negative effects could spread to the other entities in the DZ BANK Group. The effect from downgrades of long-term ratings are discussed in the section covering the measurement of liquidity risk (see section 4.2.5 of this risk report).

In 2020, the credit ratings for DZ BANK issued by rating agencies Standard & Poor's, Moody's, and Fitch Ratings were given a negative outlook. The reasons were the deteriorating economic conditions for German banks

owing to a number of factors, including the consequences of the COVID-19 pandemic, the low interest rates, and the accompanying decline in profitability. It is not possible to predict with any degree of certainty whether the negative outlook will actually result in a rating downgrade for DZ BANK.

10.4 Organization, responsibility, and reporting

The management of business risk is a primary responsibility of the **Board of Managing Directors of DZ BANK** and is carried out in consultation with the senior management of the main subsidiaries and the heads of the DZ BANK divisions involved. Group management is integrated into a committee structure, headed by the **Group Coordination Committee**. The Group Finance division supports the Board of Managing Directors as part of its role in supervising the activities of the subsidiaries. Details of the committee structure and the supervision of subsidiaries can be found in chapter I.2.2 in 'DZ BANK Group fundamentals' in this (group) management report.

Business risk is **reported** to the Board of Managing Directors quarterly as part of the overall risk report. The Board of Managing Directors is also updated monthly about the income situation from an HGB perspective.

10.5 Risk management

The management of business risk is closely linked with the tools used in the **strategic planning process**. It is based on setting targets for the subsidiaries involved in active management and for the divisions of DZ BANK. The strategic planning process is described in chapter I.2.4 in 'DZ BANK Group fundamentals' in this (group) management report.

To identify regulatory initiatives with a material impact on the DZ BANK Group and its entities, a centralized **regulation management** office has been set up at DZ BANK. This office establishes direct contact with the relevant units at DZ BANK and in the other management units, organizes regular bank-wide and groupwide dialog on identified and new strategic regulatory initiatives, and uses a 'regulatory map' to report to the responsible steering committees, the Board of Managing Directors, and the Supervisory Board of DZ BANK.

Business risk is **quantified** using a risk model based on an earnings-at-risk approach. Risk concentrations may arise if business activities are focused on a small number of areas. Concentrations of business risk are limited by using qualitative criteria in strategic management.

The broad diversification and sustainability of the business models used by the entities in the Bank sector are intended to prevent excessive **concentrations of income**. As part of a groupwide risk concentration analysis, which itself forms part of the risk inventory check, a review is carried out annually, and on an ad hoc basis as required, to identify concentrations of income and assess their materiality. This aims to ensure that income concentrations are appropriately taken into account in risk-bearing capacity.

10.6 Risk position

As at December 31, 2020, the **risk capital requirement (including capital buffer requirement)** for business risk in the **Bank sector** and at **DZ BANK** amounted to €382 million (December 31, 2019: €837 million) and €356 million (December 31, 2019: €673 million) respectively. The **limits** as at the reporting date were €550 million (December 31, 2019: €1,016 million) and €500 million (December 31, 2019: €770 million) respectively. Reputational risk is included in the figures shown. The decrease in the risk and the limits was due to the introduction of the centralized business risk model.

11 Reputational risk

11.1 Definition and business background

Reputational risk refers to the risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer. Reputational risk can arise either as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk (secondary reputational risk).

Reputational risk can arise in connection with any of the business activities in the entities within the Bank sector.

11.2 Risk strategy

Reputational risk is incorporated into the risk strategy by pursuing the following **objectives**:

- Avoiding loss resulting from reputation-damaging incidents by taking preventive action
- Mitigating reputational risk by taking preventive and responsive action
- Raising awareness of reputational risk within the Bank sector, e.g. by defining the people responsible for risk and establishing a sector-wide reporting system and set of rules for reputational risk.

These objectives are applicable both at the Bank sector level and in the management units. The management units are responsible for complying with the rules and for deciding what suitable preventive and responsive action to take.

The reputational risk strategy is based on the **business strategies** in each management unit and to this end is reviewed at least once a year and adjusted as necessary.

11.3 Risk factors

If the Bank sector as a whole or the individual management units acquire a negative reputation, there is a risk that existing or potential customers will be unsettled with the result that existing **business relationships** might be terminated or it might not be possible to carry out planned transactions. There is also a risk that it will no longer be possible to guarantee the **backing** of stakeholders, such as shareholders and employees, necessary to conduct business operations.

11.4 Responsibility and risk management

Each management unit is responsible for managing its reputational risk and must comply with the requirements laid down in the set of rules for reputational risk. The principle of **decentralized** responsibility applies equally within all the management units. Based on this approach, responsibility for managing reputational risk lies with each division with the involvement of other functions such as communications & marketing, corporate security, and compliance.

Reputational risk in the Bank sector is generally taken into account within **business risk** and is therefore implicitly included in the measurement of risk and assessment of capital adequacy. At BSH, reputational risk is measured and the capital requirement determined mainly as part of the technical risk of a home savings and loan company. In addition, the risk that obtaining funding may become more difficult as a consequence of reputational damage is specifically taken into account in liquidity risk management.

Crisis communications aimed at mitigating reputational risk are designed to prevent greater damage to the entities in the Bank sector if a critical event occurs. The management units therefore follow a stakeholder-based approach in which reputational risk is identified and evaluated from a qualitative perspective depending on the stakeholder concerned.

12 Operational risk

12.1 Definition

Operational risk refers to the risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events.

In 2020, the following subtypes of operational risk were material for the Bank sector:
- Compliance risk including conduct risk
- Legal risk
- Information risk including ICT risk
- Security risk
- Outsourcing risk
- Project risk.

Other subtypes of operational risk that are not material when viewed in isolation are brought together under ‘Other operational risk’. Examples of these subtypes are HR risk and the risk of non-compliance with accounting requirements.

12.2 Business background and risk strategy

Operational risk can arise in any division of the entities in the Bank sector. DZ BANK as well as DZ HYP, DZ PRIVATBANK, and UMH are particularly subject to operational risk.

The Bank sector entities aim to manage operational risk efficiently. They apply the following principles:
- Reinforce risk awareness
- Handle operational risk openly and largely without penalties
- Avoid, reduce, transfer, or accept risk as optional courses of action
- Manage operational risk on a decentralized basis but within the limits set out in the framework for operational risk
- Ensure that the impact of corporate policy decisions on operational risk is taken into account.

12.3 Organization, responsibility, and reporting

Each management unit is responsible for managing its operational risk. The principle of **decentralized** responsibility applies equally within the management units.

One of the purposes of the **framework for operational risk** is to harmonize risk management throughout the sector. The sector-wide coordinated approach to operational risk is also managed by a **committee** assigned to the Group Risk Management working group.

A **DZ BANK** organizational unit responsible for controlling operational risk located within the Group Risk Controlling division develops the management and control methods based on regulatory requirements and business needs applicable to the Bank sector. This organizational unit ensures that operational risk is monitored independently and is responsible for central reporting on operational risk in the Bank sector and at DZ BANK. Similar organizational units are also in place at the other main entities in the **Bank sector**.

Specialist divisions with central risk management functions also manage some operational risk tasks. As part of their overarching responsibility, these specialist divisions also perform an advisory and guiding function for the matters within their remit in the relevant entities of the Bank sector.

Because operational risk can affect all divisions in the management units, **local operational risk coordinators** are located in each division and they liaise with Central Risk Controlling.

Regular **reports** on loss data, risk self-assessments, risk indicators, and risk capital are submitted to the Board of Managing Directors, the Group Risk and Finance Committee, the Risk Committee, and operational management with the aim of facilitating effective management of operational risk on a timely basis.

12.4 Central risk management

12.4.1 Identifying operational risk

The main tools used to manage and control operational risk in the DZ BANK Group's Bank sector are described below.

Loss database

The collation of loss data in a central database allows the Bank sector to identify, analyze, and evaluate loss events, highlighting patterns, trends, and concentrations of operational risk. In particular, data is recorded for operational risk that materializes and results in a gross loss of €1,000 or more.

Risk self-assessment

All management units assess operational risk using a scenario-supported risk self-assessment process in order to identify and evaluate all material operational risks and ensure maximum possible transparency regarding the risk position. The main potential risks for all first-level risk categories as defined by the CRR are calculated and described using risk scenarios. The scenarios also enable risk concentrations to be identified.

Risk indicators

In addition to the loss database and risk self-assessment, risk indicators help the Bank sector to identify risk trends and concentrations at an early stage and detect weaknesses in business processes. A system of warning lights is used to indicate risk situations based on specified threshold values. Risk indicators within the Bank sector are collected systematically and regularly on a wide scale.

12.4.2 Measurement of operational risk

An **economic portfolio model** that takes into account loss data and the results from the risk self-assessments is used to determine the risk capital requirement for operational risk in the Bank sector. The results from the model, combined with the tools used to identify risk, are used to manage operational risk centrally. Alongside the economic risk capital requirement, the model also calculates specific risk contributions for each management unit.

In addition, **risk concentrations** are identified by using separate model-based analyses, taking into account event categories and areas of business specified by regulatory requirements. These risk concentrations could occur in the different areas of business within the entities of the Bank sector.

In addition, a simplified procedure based on the allocation mechanism in the capital model is used to identify **risk drivers**. The risk driver analysis is carried out for all standard scenarios. The list of standard scenarios is maintained for use throughout the group and contains a list of general scenario descriptions that are relevant to operational risk in the Bank sector entities.

12.4.3 Limiting operational risk

The limits for operational risk are used as the basis for central monitoring of the risk capital requirement at the Bank sector level. The risk capital requirement for the Bank sector is broken down into risk contributions for each management unit using a risk-sensitive allocation procedure so that the management units in the Bank sector

can be monitored centrally. These risk contributions are then monitored centrally using limits for each management unit.

12.4.4 Mitigating and avoiding operational risk

Continual improvement of business processes is one of the methods used with the aim of **mitigating** operational risk. The transfer of risk by means of insurance or outsourcing as permitted by liability regulations provides further protection.

Operational risk is **avoided**, for example, by rejecting products that can be identified during the new product process as entailing too much risk.

12.5 Operational risk subtypes

12.5.1 Compliance risk including conduct risk

Risk factors

Compliance risk could arise if the compliance and risk management systems implemented in the Bank sector entities prove insufficient to completely prevent or detect breaches of obligations to third parties. Such obligations include legal requirements (laws, regulations) as well as both internal and external agreements. Examples are misuse of confidential information, failure to comply with sanctions or embargoes, data protection infringements, or support for money laundering, terrorist financing, or other criminal offenses. Wrongdoing by employees (conduct risk) forms part of compliance risk.

Effects if risk materializes

Violations of internal rules or legal provisions could render contracts null and void or have legal implications for the entity concerned, for the members of its decision-making bodies, or for its employees. They may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. The reputation of individual entities in the Bank sector and the DZ BANK Group as a whole could also suffer as a result. These effects could reduce the Bank sector entities' appeal as partners in business transactions and consequently lead to losses in value.

Risk management

The basic principles for managing compliance risk are described in section 3.5.4 of this risk report. Details of the data protection measures in place and the code of conduct applicable for the entities in the Bank sector are also set out in the section referred to above. Measures such as the strict separation of functions, the requirement for verification by second person, restrictions on IT and building access authorizations, and a sustainability-oriented remuneration system aim to contain risk, in particular the risk of internal fraud.

12.5.2 Legal risk

Risk factors

Legal risk can arise from legal violations or incorrect application of legal provisions. Legal risk can also arise from changes to the legal position (laws or judgments by the courts) relating to transactions completed in the past.

Effects if risk materializes

If legal risk were to materialize, this could result in official sanctions or the need to pay damages. It is also possible that existing contractual rights could be lost retrospectively or could otherwise not be enforced for legal reasons. These effects could lead to losses and reduce the Bank sector entities' appeal as partners in business transactions.

Risk management

The entities in the Bank sector pursue a strategy of avoiding legal risk. Identified risks are limited and mitigated by means of legal or procedural organizational measures. If the legal position is uncertain, the management units generally adopt a defensive approach.

In the entities of the Bank sector, responsibility for managing legal disputes normally lies with their organizational units responsible for dealing with legal issues. These units continuously monitor proposed legislation and regulatory requirements that are legally relevant, as well as developments in decisions by the courts. In the Bank sector entities, the legal affairs units are responsible for reviewing and assessing circumstances from a legal perspective and also for coordinating any legal proceedings. The latter consists of both defending claims pursued against the entities in the Bank sector and enforcing claims by the management units against third parties. If any legal risk is identified, the management unit concerned assesses the risk parameters in terms of their probability of occurrence and possible impact.

The legal affairs divisions in the Bank sector entities also submit reports on risk-related issues to the member(s) of the Board of Managing Directors with relevant responsibility, independently of the established regular reports on cases pending before the courts.

Provisions for risk

If identified legal risks cannot be fully excluded, the potential associated losses are accounted for by the recognition of provisions in the financial statements. The relevant (consolidated) financial reporting requirements apply. Disclosures covering the provisions recognized for risks arising from ongoing legal disputes, in particular in connection with capital market and credit products, are included in note 69 of the notes to the consolidated financial statements under ‘Other provisions’.

12.5.3 Information risk including ICT risk

Risk factors

Information risk arises from a failure to maintain the confidentiality, integrity, availability, or authenticity of information or data. If the risk is in connection with the use of information or communication technology (data media), it is referred to as ICT risk.

Effects if risk materializes

Malfunctions or breakdowns in IT systems or in the programs used on these systems, or the misuse or manipulative use of IT systems (such as hacker attacks or malware installation), could have an adverse impact on the ability of the entities in the Bank sector to efficiently maintain the processes necessary to carry out operating activities, protect saved data, ensure sufficient control, or continue to develop products and services. Furthermore, such malfunctions or breakdowns could lead to the temporary or permanent loss of data or to unauthorized data access, modification, or publication. This could restrict operating activities and have a negative impact on reputation.

Risk management

The entities in the Bank sector use computers and IT systems to carry out their operating activities. Practically all business transactions and activities are processed electronically using appropriate IT systems. The supporting IT systems are networked with each other and are operationally interdependent.

Processes in the IT units of the entities in the Bank sector are designed with risk issues in mind and are monitored using a variety of control activities in order to ensure that information risk is appropriately managed. The starting point is to determine which risks are unavoidable in certain aspects of IT. Detailed requirements can then be specified. These requirements determine the extent to which checks need to be carried out and are intended to ensure that all activities are conducted in compliance with the previously defined risk appetite.

IT units apply comprehensive physical and logical precautionary measures to guarantee the security of data and applications and to ensure that day-to-day operations are maintained. Measures used by the Bank sector to counter the risk of a partial or complete loss of IT systems include segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators. Regular exercises are carried out to test defined restart procedures to be used in emergency or crisis situations with the aim of checking the efficacy of these procedures. Data is backed up and held within highly secure environments in different buildings.

DZ BANK's risk assessment methodology for information risk is made available centrally by information security management and applied locally by the managers responsible for the various IT systems using tool-supported control processes. All variances identified in these processes are assessed from the perspective of the associated risks. All information risks classified as material are included in regular information security reports to the Board of Managing Directors.

12.5.4 Security risk

Risk factors

Security risk can arise from inadequate protection of individuals, premises, assets, or time-critical processes. Examples are epidemics or pandemics resulting from the spread of pathogens over a huge area, restrictions on access to workplaces caused by natural disasters or demonstrations, or limitations on the use of resources because of a power outage or other interruption to energy supply. Climate change could lead to more frequent and more severe natural disasters.

Effects if risk materializes

If security risk were to materialize, this could lead to a range of problems from staff shortages to restrictions, or even the loss, of the use of buildings and resources such as IT systems. In such eventualities, it is possible that mission-critical processes could not be carried out or could not be carried out on time, which could lead to loss of business and/or compensation claims from customers. Furthermore, such scenarios could also have a negative impact on reputation.

Risk management

The relevant organizational units in the management units prepare requirements for the protection of time-critical business processes, people, premises, and other assets. These requirements are implemented by the departments responsible in each case. In all relevant management units, a comprehensive contingency and crisis management system (with business continuity plans covering critical processes) has been established to ensure the continuation of business in the event of process disruption or IT system breakdown. These business continuity plans are regularly reviewed and simulated to ensure they are fully functional.

12.5.5 Outsourcing risk

Risk factors

The entities in the Bank sector have outsourced activities and processes to third-party service providers to a considerable extent. Outsourcing risk can arise if the service provider fails to comply with the strategic principles established by the management units or the related operational requirements when carrying out the outsourced activities.

The reasons may be as follows:

- The relevant service provider fails to comply with regulatory requirements
- Lack of transparency regarding the delivery of the services and little opportunity for control over outsourcing outside the home market
- Highly complex outsourced processes that are far from a standard service
- Need to outsource core competencies or knowledge processes because of a loss of expertise
- Defective performance caused by service provider failures or the loss of service provider

– Inadequate management or monitoring of service providers, in particular as a result of a lack of transparency regarding service delivery.

Effects if risk materializes

If these risk factors were to materialize, they could lead to a loss of business and to claims for damages from customers. They could also result in a negative impact on reputation.

Risk management

The process of assessing the risk and determining the degree to which an outsourcing arrangement is material is carried out as part of the analysis of outsourcing risk by the division responsible for the outsourcing with the involvement of a number of corporate and reviewing units, including compliance, legal affairs, information security, and business continuity management, and in consultation with the local coordinators for operational risk. Internal audit is also involved as part of its auditing activities.

At DZ BANK, external service providers are managed by the department responsible for the outsourcing in accordance with the currently applicable policy for external procurement management. Service meetings are regularly held with service providers to facilitate communication and coordinate the IT services and other services to be provided by the third parties concerned. Compliance with contractually specified service level agreements is monitored by means of status reports and uptime statistics. The external service providers submit annual audit reports in which they evaluate and confirm the effectiveness of the general controls and procedures.

Business continuity plans, specific contractual liability provisions, and exit strategies are some of the approaches used to reduce outsourcing risk.

12.5.6 Project risk

Risk factors

Project risk refers to the risk that project requirements will not be completed on schedule. Project risk could arise, for example, from the inadequate clarification of project targets or orders, from deficiencies in subsequent implementation, from communication shortcomings both inside and outside the project, or from unexpected changes in the general parameters applicable to a project.

Effects if risk materializes

If project risk were to materialize, this could mean that the implementation of the project could require exceptional additional funds in excess of the budget (primary project risk). It could also give rise to further costs attributable to the failure to complete project requirements on schedule (secondary project risk). Examples of such costs are additional costs in the line organization, impairment losses on capital investment related to the project, and penalty payments.

Risk management

In accordance with the statutory requirements that need to be observed, the project organization serves as the framework for implementing projects. The projects as a whole are broken down into portfolios with shared characteristics to enable the projects to be managed in a focused, efficient manner. A committee structure with defined roles and responsibilities is designed to look after the detailed management of the portfolios and the projects assigned to them.

The management of project risk is an ongoing process over the lifecycle of a project and is a component of project portfolio management. Accepting a project risk is a valid option if the project customer believes that the measures to eliminate, reduce, or mitigate the risk are not reasonable in relation to their expected benefit.

12.6 Losses

Losses from operational risk do not follow a consistent pattern. Instead, the overall risk profile can be seen from the total losses incurred over the long term and is shaped by a small number of large losses. Over the course of

time, regular fluctuations are evident in the pattern of losses as the frequency of relatively large losses in each individual case is very low. Presenting the change in losses meaningfully therefore requires a sufficiently long and unchanging time horizon for reporting purposes. The data is therefore selected from the loss history for the past four quarters and on the basis of the date on which the expense is recognized in the income statement.

Fig. 33 shows the internal net losses from loss events reported in the last four quarters, i.e. in the period from January 1 to December 31, 2020, classified by operational risk subtype.

FIG. 33 – BANK SECTOR: NET LOSSES[1] BY OPERATIONAL RISK SUBTYPE

	Bank sector		DZ BANK	
Proportion of total net losses (%)	Jan. 1, 2020–Dec. 31, 2020	Long-term mean[2]	Jan. 1, 2020–Dec. 31, 2020	Long-term mean[2]
Compliance risk	11.8	46.6	1.8	47.6
Legal risk	5.0	35.3	5.0	39.7
Information risk including ICT risk	16.2	6.1	26.8	4.4
Security risk	5.2	1.6	6.5	0.5
Outsourcing risk	12.0	0.5	29.0	0.3
Project risk	-	0.4	-	0.5
Other operational risk	49.8	9.5	30.9	7.0

1 Internal losses.
2 The long-term mean is derived from loss data recorded since 2006.

In a long-term analysis, the compliance risk and legal risk subtypes account for the most significant components of internal net losses in the **Bank sector**. However, losses related to these risk subtypes were well below the long-term mean in the last four quarters.

In the four quarters of 2020, the largest proportion of net losses was attributable to other operational risk, which accounted for 49.8 percent of the total. This figure was therefore much higher than the long-term mean of 9.5 percent for this risk subtype. It was caused mainly by one loss event attributable to inconsistent parameterization.

With a proportion of 16.2 percent, net losses related to information risk including ICT risk were mainly attributable to loss events that resulted from failures in process implementation or in process design. Again, the losses recorded in the last four quarters in this case exceeded the long-term mean.

The same applied to outsourcing risk, which represented 12.0 percent of the total internal net losses in the last four quarters. These losses arose because service providers failed to perform as required or dropped out.

At **DZ BANK**, internal net losses in the last four quarters were also concentrated in other operational risk (30.9 percent of the total), although the proportions for outsourcing risk (29.0 percent) and information risk including ICT risk (26.8 percent) were significant.

Losses did not reach a critical level relative to the expected loss from operational risk at any point during 2020, either in the Bank sector or at DZ BANK.

12.7 Risk position

Using the internal portfolio model, the **Bank sector's** risk capital requirement (including capital buffer requirement) for operational risk as at December 31, 2020 was calculated at €844 million (December 31, 2019: €859 million) with a limit of €1,020 million (December 31, 2019: €926 million).

As at December 31, 2020, the corresponding requirement at **DZ BANK** was €467 million (December 31, 2019: €459 million). The limit as at December 31, 2020 was €547 million (December 31, 2019: €472 million).

Insurance sector

13 Basic principles of risk management in the Insurance sector

13.1 Risk strategy

The principles of risk management in the Insurance sector are based on the risk strategy of the DZ BANK Group for the Insurance sector, which is closely interlinked with the business strategy. Under its risk strategy, R+V aims to assume risk on a conscious, calculated basis within the constraints of the specified risk appetite.

Life actuarial risk is managed with the objectives of holding a broadly diversified product portfolio and of developing existing products while designing new ones. Pension, endowment and risk insurance, working life and semi-retirement products, index-linked products, and unit-linked products are underwritten in order to diversify the life insurance and pension provision portfolios.

The objectives of managing **health actuarial risk** are a risk-conscious underwriting policy, cost/benefit management, the development of existing products, and the design of new products.

The management of **non-life actuarial risk in direct business** aims to optimize portfolios in terms of risk and reward. R+V focuses on business in Germany, offering a full range of non-life insurance products.

In **inward non-life reinsurance business**, R+V also aims to achieve a broad balance of risk across all sectors, diversify geographically around the globe, and optimize the portfolio from a risk/reward perspective.

The management of **market risk** is connected with the following fundamental objectives of risk policy: ensuring competitive returns on investments taking into account individual risk-bearing capacities, achieving defined minimum investment returns in stress scenarios, and securing a certain hidden asset level to ensure consistent earnings. The aim is also to guarantee that there is a sufficient proportion of fungible investments.

In line with the risk strategy for **counterparty default risk**, R+V aims to maintain a high average credit rating for its portfolios, avoid concentrations of issuers at portfolio level, and comply with the limits that have been set for counterparties and debtors of insurance and reinsurance companies.

The risk strategy for **operational risk** aims to further raise awareness of operational risk.

The objective of the **reputational risk strategy** is to promote the image of the R+V brand with due regard to the need for transparency and credibility.

13.2 Organization, responsibility, and reporting

As specified in the own risk and solvency assessment (ORSA), the risk management process encompasses all the steps involved in identifying, analyzing, assessing, managing, monitoring, reporting, and communicating risk. Risk-bearing capacity is reviewed and measured at least once a quarter and the process includes a review of binding key performance indicators and threshold values. Corrective action must be initiated if a specified index value is exceeded. Risk-bearing capacity and all material risks are then finally evaluated each quarter by the Risk Committee.

Reports are submitted to the Board of Managing Directors of R+V in the event of material changes in risk. Company information that has a bearing on risk exposure is passed to the relevant supervisory bodies at R+V, both quarterly and on an ad hoc basis.

14 Actuarial risk

14.1 Definition and business background

14.1.1 Definition

Actuarial risk is the risk that the actual cost of claims and benefits deviates from the expected cost as a result of chance, error, or change. It is broken down into the following categories defined by Solvency II:
- Life actuarial risk
- Health actuarial risk
- Non-life actuarial risk.

Life actuarial risk

Life actuarial risk refers to the risk arising from the assumption of life insurance obligations, in relation to the risks covered and the processes used in the conduct of this business. Life actuarial risk is calculated as the combination of capital requirements for, as a minimum, the following sub-modules:

- **Mortality risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of mortality rates, where an increase in the mortality rate leads to an increase in the value of insurance liabilities.

- **Longevity risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of mortality rates, where a decrease in the mortality rate leads to an increase in the value of insurance liabilities.

- **Disability-morbidity risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of disability, sickness, or morbidity rates.

- **Life catastrophe risk** describes the risk of loss or adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and assumptions when recognizing provisions related to extreme or unusual events.

- **Lapse risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level or volatility of the rates of policy lapses, cancellations, renewals, and surrenders.

- **Life expense risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of the expenses incurred in servicing insurance or reinsurance contracts.

Health actuarial risk

Health actuarial risk refers to the risk arising from the assumption of health and casualty insurance obligations, in relation to the risks covered and the processes used in the conduct of this business.

Non-life actuarial risk

Non-life actuarial risk refers to the risk arising from the assumption of non-life insurance obligations, in relation to the risks covered and the processes used in the conduct of this business. It is calculated as the combination of capital requirements for the following submodules:

- **Premium and reserve risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from fluctuations in the timing, frequency, and severity of insured events, and in the timing and amount of claim settlements.

- **Non-life catastrophe risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and assumptions when recognizing provisions related to extreme or unusual events.

- **Lapse risk** describes uncertainty about the continuation of the direct insurance and reinsurance contracts. It results from the fact that the lapse of contracts that are profitable for the insurance company will lead to a reduction in own funds.

14.1.2 Business background
In the DZ BANK Group, considerable actuarial risk arises from the business activities of R+V. The risk arises from the direct life insurance and health insurance business, the direct non-life insurance business, and the inward reinsurance business.

14.2 Risk factors
In the case of long-term products, which constitute the bulk of R+V's **direct life insurance business**, there is a risk of negative variances over the term of the contracts compared with calculation assumptions because of the length of time covered by the contracts. The relevant risk factors include changes in life expectancy, increasing rates of disability-morbidity, and disproportionately sharp cost increases. If the actual trends in life expectancy, disability-morbidity, and costs vary from the calculation assumptions, there is a risk over the medium to long term that the gross profit generated from life insurance will decline.

In **health insurance** at R+V, which accounts for a substantial proportion of health actuarial risk, there is a risk of higher claims caused by the behavior of the policyholders and service providers. Subject to certain legal requirements, there is a possibility of adjusting the premiums in the health insurance business, a process in which all actuarial assumptions can be reviewed and modified. Significant premium adjustments could have a negative impact on future new business if rate scales lose their appeal because of high premiums. The number of lapses in the portfolio could also increase as a result.

R+V's **direct non-life insurance and inward non-life reinsurance business** involves the provision of cover for a range of disasters. This includes both natural disasters, such as earthquakes, storms, and floods, and man-made disasters. These events cannot be predicted. Generally speaking, there is both the risk of particularly significant individual loss events and also the risk of a large number of loss events that are each not necessarily significant in themselves. As a result, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact. Climate change represents an additional risk factor in connection with the occurrence of natural disasters. It is reasonable to expect that climate change will lead to an increase in weather-related natural disasters over the long term.

14.3 Management of life actuarial risk

14.3.1 Risk measurement
The risk for insurance contracts subject to **mortality risk** is modeled as a permanent 15 percent increase in mortality.

The risk for insurance contracts subject to **longevity risk** is modeled as a 20 percent increase in longevity.

The overall solvency requirement for **disability-morbidity risk** is analyzed on the basis of a permanent 35 percent rise in the disability rates expected for the next 12 months, a permanent 25 percent rise in the disability rates expected for the period after those 12 months, and a permanent 20 percent decrease in all expected likely cases of policyholders being able to return to work.

The risk for insurance contracts affected by **life catastrophe risk** is modeled as an immediate increase of 0.15 percentage points in mortality rates in the next 12 months.

The risk for insurance contracts subject to **lapse risk** is modeled for the following scenarios: for an increase in lapses, a 50 percent rise in the lapse rate; for a decrease in lapses, a 50 percent reduction in the lapse rate; for a mass lapse event, lapse of 40 percent of the contracts.

The overall solvency requirement for **life expense risk** is based on the following stress scenarios: a permanent 10 percent rise in the costs reflected in the measurement of the insurance liabilities; an increase of 1 percentage point in the cost inflation rate.

14.3.2 Risk management in direct life insurance business

Actuarial risk is taken into account by carrying out a prudent cost calculation while products are still in development. This applies to the development of existing products as well as the design of new types of insurance. Safety margins are included in the actuarial assumptions to achieve this. The assumptions are structured in such a way that they not only withstand the current risk situation, but should also accommodate potential changes in the risk position. Actuarial control systems are used to decide whether the cost calculation for future new business needs to be changed. The calculation is also adjusted on an ongoing basis in line with the latest actuarial findings. The appointed actuary carries out reviews as part of product development and during the course of the term of contracts to verify that the actuarial assumptions used are appropriate.

A number of measures are taken to prevent a concentration of risks in the portfolio. Before contracts are signed, extensive risk reviews are carried out to limit **mortality and disability-morbidity risks**. In general, risk is only assumed in compliance with fixed underwriting guidelines. High levels of individual or cumulative risk are limited by reinsurance.

Generally speaking, the risk is mitigated if the insured risks are diversified. For example, an increase in mortality has an adverse impact on endowment life and risk insurance policies, but at the same time has a positive impact on the **longevity risk** associated with pension insurance.

Cost control tools are used to manage **life expense risk**.

Lapse risk is mitigated by structuring life insurance contracts to provide maximum flexibility should policyholders’ circumstances change. A range of different options during the term of an insurance contract enables customers to maintain their contract instead of canceling it. Appropriate design of policyholder participation and, in particular, the final bonus also counteracts lapse risk.

In addition, advance notice of **policyholder participation** in the form of declarations of future bonuses is also a key instrument with which to reduce actuarial risk relating to life insurance.

14.4 Management of health actuarial risk

14.4.1 Risk measurement

Health actuarial risk is calculated by combining the capital requirements for the subcategories ‘similar to life techniques, health actuarial risk’ (risk on health insurance pursued on a similar technical basis to that of life insurance), ‘non-similar to life techniques, health actuarial risk’ (risk on health insurance pursued on a similar technical basis to that of non-life insurance), and ‘health catastrophe risk’.

The methods described in the sections on life actuarial risk (section 14.3) and non-life actuarial risk (section 14.5) are used to measure risk in the subcategories.

Health actuarial risk also includes significant parts of the group’s casualty insurance business as well as its health and occupational disability insurance business.

14.4.2 Risk management in health and casualty insurance

Risk management in health insurance business

In the health insurance business, the Insurance sector aims to manage actuarial risk by means of an **underwriting policy**, the features of which are underwriting guidelines and selection of risk, and management of benefits and costs. The risk exposure in the case of large individual risks may be limited by taking out appropriate reinsurance. In many of the health insurance rate scales, deductibles are used to control the extent of claims. Provisions are recognized to ensure that all benefit obligations under insurance contracts can be met. The appointed actuary carries out monitoring as part of product development and over the course of time to verify that the actuarial assumptions used are appropriate.

In accordance with VAG provisions, R+V carries out an annual comparison of its calculations with the insurance benefits it is required to pay. If this comparison of claims for an observation unit within a particular scale of insurance rates reveals a variance that is other than temporary, the relevant **premiums** are adjusted. All actuarial assumptions are reviewed and specified in consultation with an independent trustee. A safety margin factored into premiums is also intended to ensure that obligations can be met if claims are higher than the level provided for in cost calculations.

In the health insurance business, the **decrement tables** include assumptions regarding mortality and the probability of other relevant withdrawal factors. Under the requirements set out in the German Health Insurance Supervision Regulation (KVAV), these assumptions must be specified and reviewed from the perspective of prudent risk assessment. It is for this reason that a new mortality table is developed annually by the Verband der privaten Krankenversicherung e.V. (PKV) [Association of German private healthcare insurers] in consultation with BaFin. In accordance with statutory provisions, R+V carries out an annual comparison of its calculations with the most recently published mortality tables.

When determining **lapse probabilities** for the purposes of its calculations, R+V uses both its own observations and the latest figures published by BaFin.

Where premiums were adjusted on January 1, 2020, R+V used the new PKV mortality table valid for 2020 to determine both new business premiums and those **premium adjustments** in existing business.

Unisex insurance rate scales are offered in R+V's **new business**. The cost calculation for these rates is not only based on the existing gender breakdown, but also takes into account the expected pattern of switching by existing policyholders to the new rates. The appropriateness of the composition of the portfolio resulting from the calculations is reviewed by actuaries using comparable calculations.

Risk management in casualty insurance business

The risk situation in the casualty insurance division is characterized by the fact that it is fixed-sum insurance and not indemnity insurance. Consequently, the maximum benefit per insured person is restricted to the sum insured.

A risk review also forms part of the underwriting policy in the case of casualty insurance. Premiums are reviewed on an ongoing basis to ensure that they remain appropriate. Claims are assessed on a case-by-case basis.

14.5 Management of non-life actuarial risk

14.5.1 Risk measurement

The capital requirements for **premium and reserve risk** are calculated on the basis of risk factors and volume measures for all branches of insurance in which business is conducted. The risk factors (e.g. the standard deviation as a percentage of the volume measure) describe the degree of threat posed by the risk. The volume measure for the **premium risk** is essentially the net premium income earned in the financial year and in the first and second years after that. The net claims provisions in the form of a best-estimate valuation constitute the volume measure for the **reserve risk**.

The capital requirement for **catastrophe risk** is calculated as an aggregation of four risk modules. These are natural catastrophe risk (broken down into the following natural hazards: hail, storm, flood, earthquake, and subsidence), the catastrophe risk of non-proportional reinsurance in non-life insurance, risk of man-made catastrophe, and other catastrophe risk in non-life insurance. Catastrophe risk is calculated using the volume measures of sums insured and premiums. Risk mitigation through reinsurance is taken into consideration.

To determine the overall solvency requirement as part of internal risk assessment, empirical distributions are generated for the relevant parameters for parts of the **direct insurance portfolio**, such as the claim amount and the number of claims per sector and claim type (e.g. basic claims, major claims, catastrophe claims). The value-at-risk can then be determined with the required confidence level directly from the underwriting result modeled in this way, recorded as a loss function. The parameters for the analyzed distributions are set using historical portfolio data and related planning data. They are therefore intended to reflect the actual risk position of the entity concerned.

The risk modeling for calculating basic claims relating to the natural hazard earthquake and basic claims and minor cumulative events relating to the natural hazards hail, storm, and flood is based on mathematical/statistical methods. The minimum and maximum claim amounts for minor cumulative events are derived from the group's own claims history. Modeling is based on the group's own claims data.

The risk modeling for major cumulative events relating to the natural hazards hail, storm, flood, and earthquake uses probability-based natural hazard models. This approach uses catastrophe claims that have been modeled by external providers for each natural hazard and take account of the specific risk profile.

In its **inward reinsurance business**, R+V deploys a simulation tool for stochastic modeling of catastrophe risk. To model the natural catastrophe risk on an individual contract basis, event catalogs from external providers containing predefined scenarios based on historical observations are used. The event catalogs cover the main countries and natural hazards related to the underwritten risk in the inward reinsurance concerned. In the case of countries and natural hazards for which there is no event catalog, modeling is based on R+V's own claims history. This involves generating scenarios for the current portfolio on the basis of historical major claims.

For inward reinsurance purposes, modeling based on the group's own claims history is also used to determine the overall solvency requirement for the risk of **man-made catastrophe**. This involves generating scenarios for the current portfolio on the basis of the historical major claims.

The overall solvency requirement for **lapse risk** is determined on the basis of a stress scenario involving the lapse of 40 percent of those insurance contracts whose lapse would lead to an increase in the best-estimate valuation for the premium provision.

14.5.2 Risk management in direct non-life insurance business

Premium and reserve risk is managed through risk selection, risk-oriented premiums and products, and profit-oriented underwriting guidelines. In order to maintain a balanced risk profile, R+V ensures it has reinsurance cover for major individual risks. Managers use planning and control tools to ensure they are in a position at an early stage to identify unexpected or adverse portfolio or claim trends and to initiate appropriate corrective action in response to the changes in the risk situation. To make these risks manageable, pricing is based on a calculation that uses mathematical/statistical modeling.

The measurement of the overall solvency requirement for **natural catastrophe risk** is supplemented by analysis of the policy portfolio. This analysis carried out with the aid of tools such as the ZÜRS Geo information system (zoning system for flooding, backwater flooding, and heavy rainfall) investigates risk concentrations and changes in these concentrations over time. The use of geographical diversification and the deployment of underwriting guidelines form the basis for managing risks arising from natural disasters.

R+V uses a prospective limit system to verify whether prescribed limits for the risk from natural disasters will be adhered to. The risk exposure reached on the basis of projected business growth is compared against a limit determined from the allocated internal risk capital.

To reduce actuarial risk, R+V purchases facultative and obligatory reinsurance cover, formulates risk exclusions, and designs risk-appropriate deductible models. Risk-bearing capacity is reviewed as part of the reinsurance decision-making process. This is used as the basis for reinsurance structures and liability layers.

14.5.3 Risk management in inward non-life business

R+V counters **premium and reserve risk** by continuously monitoring the market as well as the economic and political situation, by managing risk in accordance with its corporate strategy, and by setting insurance rates appropriate to the risk involved. The risk is managed on the basis of an earnings-driven underwriting policy. The assumption of risk is circumscribed by mandatory underwriting guidelines and limits that restrict potential liability arising from both individual and cumulative claims. R+V takes account of economic capital costs when underwriting risk. Compliance with these requirements is monitored.

The material actuarial risks in the inward reinsurance portfolio are **catastrophe risk**, long tail risk, reserve risk and also far-reaching changes in the trends underlying the main markets. The actual and potential losses arising from the level and frequency of claims under natural disaster insurance are recorded and assessed using industry-standard software and R+V’s own additional verification systems. The portfolio is continuously monitored for possible concentrations of natural disaster risk.

Limits are set to support central management and limitation of cumulative risks arising from individual natural hazards. One of the mechanisms for managing risk is a systematic check on the cumulative authorized limits for natural disaster risks. The monitoring and management of limits may include the reallocation or adjustment of capacities. The modeled exposures remained within the authorized limits.

Action that can be taken to mitigate the risk includes management of deductibles and retrocession taking into account risk-bearing capacity and the effective costs of retrocession. Minimum requirements apply in relation to the credit rating of retrocessionaires. To minimize peak risk in connection with natural disasters in Europe, R+V has entered into a retrocession agreement as part of its inward reinsurance business.

R+V monitors the claims rate trend promptly and continuously, allowing it to initiate preventive measures so that it always has a sufficient level of reserves. The reserves position is monitored in a number of ways, including by means of an expert report, which is prepared once a year.

14.6 Claims rate trend in non-life insurance

In **direct non-life insurance**, claims expenses remained within normal limits despite the COVID-19 pandemic, such that the claims rate fell below the prior-year level. Classes of insurance that were particularly affected by the pandemic included event cancellation insurance, business shutdown insurance, and guarantee insurance. The impact was offset by the effect of a significant fall in claims under vehicle insurance. The total charge for 2020 attributable to the COVID-19 pandemic was €58 million.

The claims rate in the **inward reinsurance business** went up year on year. The increase was largely due to the consequences of the COVID-19 pandemic and involved business shutdown insurance, guarantee insurance, and other classes of non-life insurance. In 2020, the total charge resulting from the COVID-19 pandemic came to €263 million.

Changes in claims rates and settlements (net of reinsurance) in direct non-life insurance and inward non-life reinsurance business are shown in Fig. 34.

FIG. 34 – INSURANCE SECTOR: CLAIMS RATE AND SETTLEMENTS (NET OF REINSURANCE)[1]

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Claims rate (net) as percentage of premiums earned										
Including major/natural disaster claims	76.5	76.3	76.2	76.6	76.1	76.2	75.5	78.2	75.6	77.7
Excluding major/natural disaster claims	70.4	72.7	71.1	72.8	72.3	74.0	73.8	69.1	72.7	71.4
Settlements (net) as percentage of provision for incoming claims										
Non-life	1.9	0.6	1.1	3.1	3.6	1.6	2.1	0.5	0.3	1.9

1 Direct non-life insurance business and inward non-life reinsurance.

14.7 Risk position

As at December 31, 2020, the overall solvency requirement for **life actuarial risk** amounted to €1,058 million (December 31, 2019: €1,049 million). As at the reporting date, the limit was set at €1,400 million (December 31, 2019: €1,200 million).

As at December 31, 2020, the overall solvency requirement for **health actuarial risk** was measured at €286 million (December 31, 2019: €245 million) with a **limit** of €700 million (December 31, 2019: €410 million).

As at December 31, 2020, the overall solvency requirement for **non-life actuarial risk** amounted to €3,979 million (December 31, 2019: €3,724 million). The increase arose primarily from the rise in premium and reserve risk in connection with the growth in business volume and from higher claims incurred attributable to the consequences of the COVID-19 pandemic. As at the reporting date, the limit was set at €4,500 million (December 31, 2019: €3,960 million).

15 Market risk

15.1 Definition and business background

15.1.1 Definition

Market risk describes the risk arising from fluctuation in the level or volatility of market prices of assets, liabilities, and financial instruments that have an impact on the value of the assets and liabilities of the entity. It reflects the structural mismatch between assets and liabilities, in particular with respect to their maturities. In accordance with the breakdown specified in Solvency II, the bulk of credit risk within market risk is assigned to spread risk. The other parts of credit risk are measured within counterparty default risk and other risk types.

Market risk is broken down into the following subcategories:

– **Interest-rate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the term structure of interest rates or to the volatility of interest rates.

– **Spread risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of credit spreads above the risk-free interest rate term structure. Default risk and migration risk are also included in this subcategory. The credit spread is the difference in interest rates between a high-risk and a risk-free fixed-income investment. Changes in the credit risk premiums lead to changes in the market value of the corresponding securities.

– **Equity risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of equities. Equity investment risk is also a part of equity risk. Equity risk arises from existing equity exposures as a result of market volatility.

– **Currency risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of exchange rates. Currency risk arises as a result of exchange rate volatility either from investments held in a foreign currency or the existence of a currency imbalance between insurance liabilities and investments.

– **Real-estate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of real estate. Real-estate risk can arise as a result of negative changes in the fair value of real estate held directly or indirectly. This may be the result of a deterioration in the specific characteristics of the real estate or a general change in market prices (for example in connection with a real-estate crash).

– **Concentration risk** represents the additional risk for an insurance or reinsurance company stemming either from lack of diversification in the asset portfolio or from a large exposure to the risk of default by a single issuer of securities or a group of related issuers.

15.1.2 Business background

Market risk arises in the insurance business as a result of investing activities. It is caused by the timing difference between the payment of premiums by the policyholder and the payments for claims and benefits by the insurance company, and by endowment-type business in personal insurance.

15.2 Risk factors

R+V could face additional challenges caused by the requirement to generate guaranteed returns in the life insurance business if **interest rates remain low over the long term** or turn negative and **spreads on investments remain narrow**. Whereas the low interest rates are largely caused by the ECB's expansionary monetary policy, lower spreads could reflect a number of factors, including a view in the markets that the credit quality of the issuers of investments has improved. Information on the anticipated trend in interest rates in 2021 can be found in chapter V.1.5 in the outlook.

On the other hand, if **interest rates were to rise sharply and rapidly** or **risk premiums on bonds widen**, this would lead to a substantial fall in the fair values of R+V's investments. The widening of spreads could be triggered by macroeconomic risk factors. These factors are currently the **risks to the global economy** from the COVID-19 pandemic (see chapters V.1.1 to V.1.4 in the outlook) and international trade disputes (see chapter V.1.2 in the outlook). Falls in fair value caused by a rapid rise in interest rates or the widening of spreads could have a temporary impact on operating profit at R+V, or a permanent impact if investments have to be sold. A negative change in the fair values of investments associated with a widening of spreads in isolation could also have an adverse impact on R+V's solvency situation.

Because of R+V's investments in Italian and Spanish bonds, the **economic divergence in the eurozone**, combined with the **ECB's expansionary monetary policy**, (see section 2.3.3 of this risk report) represents a risk to the recoverability of these investments. Details of R+V's investments in the eurozone periphery countries can be found in section 15.4.3.

15.3 Risk management

15.3.1 Market risk measurement

The measurement of market risk involves analyzing shock scenarios specified in **Solvency II** requirements, in some cases supplemented by the group's own parameterization.

The capital requirements for **interest-rate risk** are determined on the basis of shock scenarios calculated for an increase in interest rates and a decrease in interest rates. R+V uses the shock factors in the standard formula to calculate the overall solvency requirement for interest-rate risk. It also includes a capital buffer that takes into account changes in the direction of interest-rate trends.

The capital requirements for **spread risk** are calculated using a factor approach based on the relevant lending volume. The level of the shock factor is determined by the security's rating and the modified duration of the investment. With loan securitizations, a distinction is made between single, double, and multiple securitization structures. Depending on which is applicable, different rating-dependent shock factors are used. R+V uses its own shock factors, based on a portfolio model and with particular regard to concentration risk, to calculate the overall solvency requirement.

The capital requirements for **equity risk** are determined on the basis of stress scenarios calculated for a decrease in market value. The stress amounts depend on the equity type, e.g. whether it is listed on a regulated market in a member state of the European Economic Area or Organisation for Economic Co-operation and Development (OECD). The capital requirement for equity risk is based on the relevant equity exposure. It is determined using modeling and risk quantification based on observable data. The parameters are increased in order to take account of default risk and concentration risk. Default risk describes the risk of loss resulting from issuer insolvency.

Currency risk is calculated using a scenario approach that reflects the impact of a decrease or increase in the exchange rate for a foreign currency. The shock factor for determining the overall solvency requirement is based on the individual currency portfolio of R+V. Lower factors are applied for currencies that are pegged to the euro than for those that are not pegged to the euro.

The calculation of **real-estate risk** looks at both property held directly (e.g. land and buildings) and real-estate funds. The shock factor for determining the overall solvency requirement for real-estate risk is a stress scenario adapted from the standard formula and reflects the fact that direct holdings consist overwhelmingly of investments in German real estate and fund holdings consist primarily of European real estate.

The overall solvency requirement for **concentration risk** is not calculated separately because this risk is taken into account in the calculations for equity risk, spread risk, and counterparty default risk.

15.3.2 Principles of market risk management

The risk attaching to investments is managed in accordance with the guidelines specified by EIOPA, the stipulations in the VAG, the information provided in regulatory circulars, and internal investment guidelines (for details, see 'Market risk strategy' in section 13.1 of this risk report). R+V aims to ensure compliance with the internal provisions in the risk management guidelines for investment risk and with other regulatory investment principles and regulations by means of investment management, internal control procedures, a forward-looking investment policy, and organizational measures. The management of risk encompasses both economic and accounting aspects.

R+V counters investment risk by observing the principle of achieving the greatest possible security and profitability while safeguarding liquidity. By maintaining a mix and diversification of investments, R+V's investment policy aims to take into account the objective of mitigating risk.

In addition to natural diversification via maturity dates, issuers, countries, counterparties, and asset classes, limits are also applied in order to mitigate risk.

Asset/liability management investigations are carried out at R+V. The necessary capital requirement to maintain solvency is reviewed on an ongoing basis with the support of stress tests and scenario analyses. Specifically, reviews are carried out to assess the effects of a long period of low interest rates and volatile capital markets. R+V uses derivatives to manage market risk.

15.3.3 Management of individual market risk categories

In the management of **interest-rate risk**, R+V adheres to the principle of a mix and diversification of investments, combined with balanced risk-taking in selected asset classes and duration management that takes account of the structure of obligations. Furthermore, the use of pre-emptive purchases helps to provide a constant return from investments and to manage changes in interest rates and duration. A portion of the fixed-income investment portfolio has also been protected against a fall in prices.

In the management of **spread risk**, R+V pays particular attention to high credit ratings for investments, with the overwhelming majority of its fixed-income portfolio being held in investment-grade paper (see also Fig 40 in section 15.4.2 of this risk report). The use of third-party credit risk evaluations and internal expert assessments, which are often more rigorous than the credit ratings available in the market, serves to further minimize risk.

Mortgage lending is also subject to internal rules that help to limit default risk.

Equity risk is mitigated by diversifying holdings across different equity asset classes and regions. Asymmetric strategies are also used to reduce or increase equity exposure under a rules-based approach. At R+V, equities are used as part of a long-term investment strategy to guarantee that obligations to policyholders can be satisfied; generating profits by exploiting short-term fluctuations to sell shares is not its objective. The risk of having to sell equities at an inopportune moment is mitigated by the broadly diversified portfolio of investments. In the reporting year, short futures relating to the EURO STOXX 50 index were used for hedging purposes.

Currency risk is controlled by systematic foreign-exchange management. Virtually all reinsurance assets and liabilities are denominated in the same currency.

Real-estate risk is mitigated by diversifying holdings across different locations and types of use.

Concentration risk is reduced by mixing and diversifying investments. This is particularly apparent from the granular structure of the issuers in the portfolio.

15.3.4 Distinctive features of managing market risk in personal insurance business

Due to the persistently low level of interest rates, there is a risk that the guaranteed minimum return agreed for certain products when contracts are signed cannot be generated on the capital markets over the long term. This particularly applies to life insurance contracts and casualty insurance contracts with premium refund clauses that guarantee minimum returns. In the case of products with long-term guarantees, there is a risk of negative variances over the term of the contracts compared with calculation assumptions because of the length of time covered by the contracts. The main reasons for variances are the change in the capital market environment and maturity mismatches between investments and insurance contracts. A protracted period of low interest rates increases the market risk arising from investments. Chapter V.1.5 in the outlook describes the anticipated trend in interest rates in 2021.

Market risk can be countered by writing new business that takes into account the current capital market situation and by taking the following action to boost the portfolio’s risk-bearing capacity. It is crucial to ensure that there is enough free capital that can be made available even in adverse capital market scenarios. The necessary capital requirement to maintain solvency is reviewed on an ongoing basis with the aid of stress tests and scenario analyses as integral components of asset/liability management.

Risk is essentially mitigated by recognizing a supplementary change-in-discount-rate reserve as specified in the Regulation on the Principles Underlying the Calculation of the Premium Reserve (DeckRV) and adding to the discount rate reserves for existing contracts, thereby reducing the average interest liabilities. In 2020, R+V added a total of €738 million to these supplementary reserves in its life insurance business, bringing the overall amount to €4,658 million. The addition to these reserves for casualty insurance with premium refund was €3 million, bringing the total to €40 million. Following the amendment to the DeckRV at the end of 2018, there will be a further increase in the supplementary change-in-discount-rate reserve, although this will be in smaller steps over a longer period (using the ‘corridor method’).

Policyholder participation in the form of future declarations of bonuses is also a key instrument used to reduce market risk attaching to life insurance.

The breakdown of benefit reserves by discount rate for the main life and casualty insurance portfolios is shown in Fig. 35.

FIG. 35 – INSURANCE SECTOR: BENEFIT RESERVES BY DISCOUNT RATE FOR THE MAIN INSURANCE PORTFOLIOS[1]

Discount rate	Proportion of total benefit reserve in 2020[2]		Proportion of total benefit reserve in 2019[2]	
	€ million	%	€ million	%
0.00%	6,254	8.9	5,938	9.1
0.08%	4	-	2	-
0.10%	46	0.1	-	-
0.25%	928	1.3	891	1.4
0.30%	159	0.2	-	-
0.35%	308	0.4	23	-
0.40%	18	-	2	-
0.50%	163	0.2	118	0.2
0.75%	8	-	24	-
0.90%	7,555	10.7	4,850	7.4
1.00%	116	0.2	75	0.1
1.10%	59	0.1	-	-
1.25%	2,589	3.7	2,467	3.8
1.50%	31	-	24	-
1.55%	22	-	29	-
1.75%	5,999	8.5	5,723	8.7
1.80%	361	0.5	315	0.5
2.00%	765	1.1	654	1.0
2.25%	11,791	16.7	11,251	17.2
2.50%	92	0.1	88	0.1
2.75%	8,675	12.3	8,238	12.6
3.00%	2,004	2.8	2,326	3.5
3.25%	7,310	10.4	7,172	10.9
3.50%	3,321	4.7	3,564	5.4
3.75%	182	0.3	215	0.3
4.00%	7,233	10.3	7,294	11.1

1 The table covers the following insurance products that include a guaranteed rate of return:
- Casualty insurance policies with premium refund
- Casualty insurance policies with premium refund as pension insurance
- Pension insurance policies
- Endowment insurance policies, including capital accumulation, risk and credit insurance policies, pension plans with guaranteed insurance-based benefits
- Capital deposit products.

2 The share of the total benefit reserve attributable to supplementary insurance policies is listed under the relevant actuarial assumptions for the associated main insurance policy.

A summary of the actuarial assumptions for calculating the benefit reserves for the main life and casualty insurance portfolios is presented in note 11 of the notes to the consolidated financial statements. It forms part of the notes on the accounting policies applicable to the 'Benefit reserve' line item on the balance sheet.

The company actuarial discount rate calculated in accordance with the procedure developed by the Deutsche Aktuarvereinigung e.V. (DAV) [German Actuarial Association] is used in determining the health insurance discount rate. This procedure is based on a fundamental professional principle issued by the DAV for determining an appropriate discount rate. As a result of these calculations, the discount rate was reduced in 2020 for observation units with a premium adjustment effective January 1, 2020.

15.3.5 Managing risk arising from defined benefit pension obligations

The R+V entities have pension obligations (defined benefit obligations) to their current and former employees. By entering into such direct defined benefit obligations, they assume a number of risks, including risks associated with the measurement of the amounts recognized on the balance sheet, in particular risk arising from a change in the discount rate, risk of longevity, inflation risk, and risk in connection with salary and pension increases. A requirement may arise to adjust the existing provisions for pensions and other post-employment benefits as a result of decisions by the courts, legislation, or changes in the (consolidated) financial reporting. All the plan assets at R+V without exception are assets in reinsured pension schemes and are subject to interest-rate risk. The strategy adopted for the pension assets is predominantly driven by the defined benefit obligations.

15.4 Lending volume

15.4.1 Reconciliation of the lending volume

The amount and structure of the lending volume are key factors for the aspects of credit risk reflected in market risk and counterparty default risk. To identify possible risk concentrations, the volume liable to credit risk is broken down by rating class, industry sector, and country group.

Fig. 36 shows a reconciliation of the lending volume on which the risk management is based to individual balance sheet items in order to provide a transparent illustration of the link between the consolidated financial statements and risk management. There are discrepancies between the internal management and external consolidated financial reporting measurements for some portfolios owing to the focus on the risk content of the items. Other main reasons for the discrepancies between the two sets of figures are differences in the scope of consolidation, differences in the definition of lending volume, and various differences in recognition and measurement methods.

FIG. 36 – INSURANCE SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion		Reconciliation						Lending volume for the consolidated financial statements		
Lending volume for internal management accounts		Scope of consolidation		Definition of the lending volume		Carrying amount and measurement				
Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Investments held by insurance companies (note 57 to the consolidated financial statements)
								10.9	9.7	of which: mortgage loans
								7.0	7.2	of which: promissory notes and loans
								9.1	9.1	of which: registered bonds
								0.9	0.7	of which: other loans
								11.6	11.3	of which: variable-yield securities
								61.5	55.8	of which: fixed-income securities
								0.6	0.4	of which: derivatives (positive fair values)
								0.6	0.4	of which: deposits with ceding insurers
103.0	98.0	-1.2	-1.2	0.5	0.4	-0.1	-2.4	102.2	94.8	Total
				Balance as at Dec. 31, 2020				-0.8	-0.8%	
				Balance as at Dec. 31, 2019				-3.2	-3.2%	

Not relevant (shaded cells)

15.4.2 Change in lending volume

As at December 31, 2020, the total lending volume of R+V had increased by 5 percent to €103.0 billion (December 31, 2019: €98.0 billion). This increase was attributable to higher fair values because of changes in interest rates and to the expansion of the investment portfolios in connection with the growth in the insurance business.

The volume of lending in the **home finance** business totaled €11.9 billion as at December 31, 2020 (December 31, 2019: €10.8 billion). Of this amount, 88 percent was accounted for by loans for less than 60 percent of the value of the property (December 31, 2019: 89 percent).

The volume of home finance was broken down by finance type as at the reporting date as follows (figures as at December 31, 2019 shown in parentheses):
– Consumer home finance: €10.8 billion (€9.9 billion)
– Commercial home finance: €0.1 billion (€0.1 billion)
– Commercial finance: €1.0 billion (€0.7 billion).

In the home finance business, the entire volume disbursed is usually backed by traditional **loan collateral**.

The financial sector and the public sector, which are the dominant **sectors**, together accounted for 69 percent of the total lending volume as at December 31, 2020 (December 31, 2019: 71 percent). This lending mainly comprised loans and advances in the form of German and European Pfandbriefe backed by collateral in accordance with statutory requirements. Loans and advances to the public sector and consumer home finance (retail) highlight the safety of this investment. Fig. 37 shows the sectoral breakdown of the lending volume in the Insurance sector.

FIG. 37 – INSURANCE SECTOR: LENDING VOLUME, BY SECTOR

€ billion	Dec. 31, 2020	Dec. 31, 2019
Financial sector	47.2	47.2
Public sector	23.7	22.5
Corporates	20.0	17.3
Retail	10.8	9.9
Industry conglomerates	1.4	1.0
Other	-	-
Total	**103.0**	**98.0**

An analysis of the **geographical breakdown** of the lending volume in Fig. 38 reveals that Germany and other industrialized countries accounted for the lion's share – 91 percent – of the lending volume as at the balance sheet date (December 31, 2019: 90 percent).

FIG. 38 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Dec. 31, 2020	Dec. 31, 2019
Germany	37.8	35.7
Other industrialized countries	55.5	52.9
Advanced economies	1.3	1.2
Emerging markets	5.1	5.1
Supranational institutions	3.3	3.1
Total	**103.0**	**98.0**

Other than Germany, the following **industrialized countries** accounted for the largest exposures as at the reporting date (prior-year figures in parentheses):
– France: €12.6 billion (€11.9 billion)
– United States: €6.6 billion (€6.4 billion)
– Netherlands: €5.3 billion (€4.9 billion).

Obligations in connection with the life insurance business require investments with longer maturities. This is also reflected in the breakdown of **residual maturities** shown in Fig. 39.

FIG. 39 – INSURANCE SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

€ billion	Dec. 31, 2020	Dec. 31, 2019
≤ 1 year	2.7	2.6
> 1 year to ≤ 5 years	13.5	13.7
> 5 years	86.8	81.7
Total	**103.0**	**98.0**

As at December 31, 2020, 84 percent (December 31, 2019: 83 percent) of the total lending volume had a residual maturity of more than 5 years. By contrast, just 3 percent of the total lending volume was due to mature within one year as at the reporting date (unchanged on the value as at December 31, 2019).

The **rating structure** of the lending volume in the Insurance sector is shown in Fig 40. Of the total lending volume as at December 31, 2020, 80 percent continued to be attributable to investment-grade borrowers (December 31, 2019: 79 percent). The lending volume that is not rated, which made up 19 percent of the total lending volume (December 31, 2019: 18 percent), essentially comprised consumer home finance for which external ratings were not available. The unrated lending volume is deemed to be low-risk because the lending is based on a selective approach and the mortgageable value of the assets is limited.

FIG 40 – INSURANCE SECTOR: LENDING VOLUME, BY RATING CLASS

€ billion		Dec. 31, 2020	Dec. 31, 2019
Investment grade	1A	27.4	26.2
	1B	14.8	14.3
	1C	-	-
	1D	10.2	9.0
	1E	-	-
	2A	9.2	8.2
	2B	7.3	6.9
	2C	6.5	6.2
	2D	3.2	2.8
	2E	-	-
	3A	3.7	4.0
Non-investment grade	3B	0.4	1.0
	3C	0.3	0.7
	3D	-	-
	3E	0.4	0.4
	4A	0.1	0.2
	4B	0.3	0.2
	4C	0.1	0.1
	4D	-	-
	4E	-	-
Default		-	-
Not rated		19.1	17.8
Total		**103.0**	**98.0**

To rate the creditworthiness of the lending volume, R+V uses external ratings that have received general approval. It also applies its own expert ratings in accordance with the provisions of Credit Rating Agency Regulation III to validate the external credit ratings. R+V has defined the external credit rating as the maximum, even in cases where its own rating is better. The ratings calculated in this way are matched to the DZ BANK credit rating master scale using the methodology shown in Fig. 20 (section 6.5.1 of this risk report).

As at the reporting date, the **ten counterparties associated with the largest lending volumes** continued to account for 18 percent of R+V's total lending volume.

15.4.3 Credit portfolios with increased risk content

R+V's exposure in credit portfolios with increased risk content is analyzed separately because of its significance for the risk position in the Insurance sector. The figures presented here are included in the above analyses of the total lending volume.

Investments in **eurozone periphery countries** totaled €6,328 million as at December 31, 2020 (December 31, 2019: €6,812 million), which constituted a decrease of 7 percent. Fig. 41 shows the country breakdown of the exposure. In contrast to the situation as at the prior-year reporting date, R+V held exposures involving Portuguese counterparties as at December 31, 2020.

FIG. 41 – INSURANCE SECTOR: EXPOSURE IN EUROZONE PERIPHERY COUNTRIES

€ million	Dec. 31, 2020	Dec. 31, 2019
Portugal	**46**	-
of which: public sector	42	-
of which: non-public sector	4	-
of which: financial sector	4	-
Italy	**3,190**	**3,897**
of which: public sector	2,104	2,814
of which: non-public sector	1,086	1,083
of which: financial sector	826	782
Spain	**3,092**	**2,915**
of which: public sector	1,562	1,524
of which: non-public sector	1,529	1,391
of which: financial sector	1,295	1,128
Total	**6,328**	**6,812**
of which: public sector	3,708	4,338
of which: non-public sector	2,620	2,474
of which: financial sector	2,125	1,910

15.5 Risk position

As at December 31, 2020, the **overall solvency requirement** for market risk amounted to €3,869 million (December 31, 2019: €3,789 million) with a **limit** of €5,750 million (December 31, 2019: €3,850 million). The change in market risk was caused by the market turmoil triggered by the COVID-19 pandemic, which affected interest rates, spreads, and share prices, and by the expansion of investment portfolios in line with the growth in the insurance business. It was also due to the fall in the potential for risk mitigation arising from the projection of lower future policyholder participation, which in turn was caused by the fall in interest rates in 2020.
Fig. 42 shows the overall solvency requirement for the various types of market risk.

FIG. 42 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK

€ million	Dec. 31, 2020	Dec. 31, 2019
Interest-rate risk	890	1,223
Spread risk	1,812	1,473
Equity risk	2,177	2,025
Currency risk	247	207
Real-estate risk	442	397
Total (after diversification)	**3,869**	**3,789**

The overall solvency requirement includes a **capital buffer requirement** for market risk. This capital buffer requirement covers the spread and migration risk arising from subportfolios of Italian government bonds. Since the recalculation of the overall solvency requirement as at December 31, 2019, it has also taken account of the increase in market risk stemming from a further refinement of the method for measuring interest-rate risk. R+V is currently working in cooperation with DZ BANK to establish whether there is any need for changes in connection with the supervisory review process carried out by EIOPA under Commission Delegated Regulation (EU) 2015/35 (Solvency II Regulation). The capital buffer relating to the refinement of the measurement of interest-rate risk will be removed again once the new methodology has been implemented. As at December 31, 2020, the capital buffer requirement for market risk totaled €127 million (December 31, 2019: €393 million).

16 Counterparty default risk

16.1 Definition and business background

Counterparty default risk reflects losses that could arise from unexpected default or deterioration in the credit standing of counterparties and debtors of insurance and reinsurance companies over the following 12 months. It covers risk-mitigating contracts, such as reinsurance arrangements, securitizations and derivatives, and receivables from intermediaries, as well as any other credit risk that is not otherwise covered by risk measurement.

Counterparty default risk takes account of collateral or other security that is held by the insurance or reinsurance company and any associated risks.

16.2 Risk factors

Counterparty default risk can arise as a result of unexpected default or deterioration in the credit standing of mortgage loan borrowers, counterparties of derivatives, reinsurance counterparties or policyholders, or insurance brokers.

16.3 Risk management

16.3.1 Measurement of counterparty default risk and management of limits

The capital requirements for counterparty default risk are determined on the basis of the relevant exposure and the expected losses per counterparty. R+V manages counterparty default risk at individual entity level.

Volume and counterparty limits apply to transactions involving derivatives. The various risks are monitored and transparently presented as part of the reporting system. Only economic hedges are used and they are not reported on a net basis in the consolidated financial statements.

R+V uses the views expressed by the international rating agencies in conjunction with its own credit ratings to help it to assess counterparty and issuer risk. Compliance with the limits for major counterparties is reviewed on an ongoing basis, with checks on limit utilization and compliance with investment guidelines.

16.3.2 Mitigating counterparty default risk

Default management mitigates the risks arising from defaults on receivables relating to direct insurance operations with policyholders and insurance brokers. The risk of default on receivables is also addressed by recognizing general loan loss allowances, which are calculated on the basis of past experience. The average ratio of defaults to gross premiums written over the past three years was 0.1 percent, which was unchanged on the figure as at December 31, 2019.

The default risk for receivables arising from inward and ceded reinsurance business is limited by constantly monitoring credit ratings and making use of other sources of information in the market.

16.4 Risk position

As at December 31, 2020, the **overall solvency requirement** for counterparty default risk was €188 million (December 31, 2019: €88 million) with a **limit** of €220 million (December 31, 2019: €100 million). The increase was primarily attributable to an adjustment of the calculation basis.

17 Reputational risk

17.1 Definition and business background

Reputational risk is defined as the risk of losses that could arise from damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public (for example, customers, business partners, shareholders, authorities, media).

Reputational risk can arise as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk, such as operational risk (secondary reputational risk).

17.2 Risk factors

If R+V acquires a negative reputation, there is a risk that existing or potential customers will be unsettled with the result that existing business relationships might be terminated or it might not be possible to carry out planned transactions. There is also a risk that R+V's adverse reputation is then transferred to the entities in the Bank sector and it may no longer be possible to guarantee the backing of stakeholders, such as network partners and employees, necessary to conduct business operations.

17.3 Risk management

R+V's corporate communications are coordinated centrally so that any inaccurate presentation of circumstances can be countered. Media reports about the insurance industry in general and R+V in particular are monitored and continuously analyzed across all R+V departments.

R+V's reputational risk is not specifically quantified within the Solvency II framework. However, it is implicitly included in the overall solvency requirement for life actuarial risk (lapse risk).

18 Operational risk

18.1 Definition and business background

Operational risk is defined as the risk of loss arising from inadequate or failed internal processes, personnel, or systems, or from external events.

Operational risk in the Insurance sector is broken down into the following components:
- Legal and compliance risk
- Information risk
- Security risk

- Outsourcing risk
- Project risk.

Operational risk could arise in any division of R+V.

18.2 Central risk management

The **risk capital requirement** for operational risk in the Insurance sector is determined in accordance with the standard formula in Solvency II. The risk calculation uses a factor approach, taking account of premiums, provisions and, in the case of unit-linked business, costs.

R+V uses scenario-based risk self-assessments and risk indicators to manage and control operational risk. In the **risk self-assessments**, operational risk is assessed in terms of the probability of occurrence and the level of loss. Qualitative assessments can be used in exceptional cases.

Risk indicators are intended to help the Insurance sector to identify risk trends and concentrations at an early stage and to detect weaknesses in business processes. A system of warning lights is used to indicate risk situations based on specified threshold values.

To support the management of operational risk, all R+V's business processes are structured in accordance with the requirements of the **framework guidelines** for employee authority and power of attorney in R+V companies. Divisions not covered by these guidelines are subject to other policy documents, including policies on new business and underwriting.

The **internal control system** is a key instrument used by R+V to **limit operational risk**. Rules and controls in each department and reviews of the use and effectiveness of the internal control system carried out by Group Audit at R+V aim to avert the risk of errors and fraud. Payments are largely automated. Powers of attorney and authorizations stored in user profiles, as well as automated submissions for approval based on a random generator, are also used. Manual payments are approved by a second member of staff.

18.3 Operational risk components

18.3.1 Legal and compliance risk

Risk factors

Legal risk may arise from changes in the legal environment, including changes in the way that the authorities or the courts interpret legal provisions. In particular, there is a risk that the implemented compliance and risk management systems could be inadequate for completely preventing or uncovering violations of legal provisions, for identifying and assessing all relevant risks, or for initiating appropriate corrective measures.

Violations of legal provisions may have legal implications for R+V, for the members of its decision-making bodies, or for its employees. They may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. These effects could reduce R+V's appeal as a partner in business transactions and lead to losses in value.

Risk management

Legal disputes arising from the processing of insurance claims or benefit payments are covered by insurance liabilities, and therefore do not form part of operational risk. R+V monitors and analyzes relevant decisions by the courts with a view to mitigating legal risk by identifying any need for action in good time and implementing specific corrective measures. The compliance function has also implemented systems, processes, and controls in order to counter compliance risks.

18.3.2 Information risk

Risk factors

Malfunctions or breakdowns in data processing systems or in the programs used on these systems, including attacks from external sources – such as hackers or malware –, could have an adverse impact on the ability of the Insurance sector to efficiently maintain the processes necessary to carry out operating activities, protect saved data, ensure sufficient control, or continue to develop products and services. Furthermore, such malfunctions or breakdowns could lead to temporary or permanent loss of data.

Risk management

A core focus of R+V's IT risk strategy is to ensure that the operation of the information and communications infrastructures and application systems is stable, secure, and efficient. This is achieved through a high degree of inhouse input into the development and operation of IT solutions, systematic identification of protection requirements, appropriate security strategies based on defined IT security standards, and business continuity planning.

Quality assurance in IT follows best practice. A daily meeting is held to discuss current topics and assign people to work on them. In addition, measures relating to adherence to service level agreements (e.g. system availability) are decided upon at monthly meetings attended by the IT divisional managers.

Physical and logical precautionary measures have been established for the purpose of data and application security and to ensure that day-to-day operations are maintained. A particular risk would be a partial or total breakdown in data processing systems. R+V counters this risk by using two segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators. Exercises are carried out to test a defined restart procedure to be used in disaster situations with the aim of checking the efficacy of this procedure. Data is backed up and held within highly secure environments in different buildings. Furthermore, data is mirrored to a tape library at a remote, off-site location.

Various IT security management procedures are used to identify, assess, and document cyber risks and then to systematically allocate these risks for processing. The processing status and risk treatment are tracked and reported centrally each month.

18.3.3 Security risk

Risk factors

Business interruptions could mean that processes and workflows are disrupted over several days. Moreover, sensitive internal and external interfaces could be jeopardized by long-term business interruptions.

Risk management

To ensure that it is operational at all times, R+V has a business continuity management (BCM) system. This also includes the contingency and crisis management system and is documented in internal corporate guidelines. The R+V security and BCM conference with representatives from all divisions provides specialist support and is intended to ensure that activities within the R+V subgroup are coordinated. Reports on significant findings relevant to risk and on any exercises and tests that have been carried out are also submitted to the R+V Risk Committee.

The purpose of BCM is to ensure that R+V's operating activities can be maintained in the event of an emergency or crisis. To this end, (time-)critical business processes are recorded with the necessary resources. Any necessary documentation (such as business continuity planning) is prepared and reviewed. Special organizational structures, such as the R+V crisis management team and the individual business continuity teams in the divisions, have also been set up to deal with emergency and crisis situations.

18.3.4 Outsourcing risk

Risk factors

R+V aims to provide high-quality services at competitive terms and conditions based on efficient internal organization of its business activities. In this context, the outsourcing of activities to third-party service providers can bring benefits in terms of quality and costs. Outsourcing risk can arise if the service provider fails to comply with the strategic principles established by R+V or the related operational requirements when carrying out the outsourced activities. If a service provider is not suitable for the task or does not have the requisite financial stability, this could lead to defective performance or even loss of the service. Moreover, inappropriate management of operational risk by the service provider could have an adverse impact on business operations. This could also give rise to strategic and reputational risk.

Risk management

A number of approaches are used to provide protection against potential outsourcing risk, including a structured categorization of outsourced activities, identification of potential risk factors as part of risk analysis, the imposition of conditions on the service provider to mitigate risk, including contractually agreed standards, and integration into business continuity management.

18.3.5 Project risk

Risk factors

Project risk could arise from the inadequate clarification of project targets or orders, from deficiencies in subsequent implementation, from communication shortcomings both inside and outside the project, or from unexpected changes in the general parameters applicable to a project.

Risk management

To provide a regulating framework for secure, efficient execution of projects, R+V has set up a Capital Investment Committee, which submits proposals for decision or approval and provides support for large-scale projects. After projects have been approved, project managers of all large-scale projects must report to the Capital Investment Committee. This ensures that projects are then subject to independent, close monitoring and control. The Capital Investment Committee is kept informed of adjustments to project targets and can intervene to provide guidance by becoming involved in discussions on targets.

18.4 Risk position

As at December 31, 2020, the **overall solvency requirement** for operational risk amounted to €709 million (December 31, 2019: €637 million). The rise in the overall solvency requirement compared with the prior year resulted first and foremost from business growth. The **limit** applicable at the reporting date was set at €800 million (December 31, 2019: €680 million).

19 Risks from entities in other financial sectors

All entities that form part of the regulatory R+V Versicherung AG insurance group are generally included in the calculation of group solvency. This also applies to non-controlling interests in insurance companies and to entities in other financial sectors.

The **non-controlling interests in insurance companies** mainly relate to reinsurance and insurance companies over which R+V can exercise significant influence but without having complete control. The risk capital requirement for non-controlling interests in insurance companies is included on a pro-rata basis in accordance with Solvency II. As at December 31, 2020, no non-controlling interests in insurance companies were included in the risk measurement.

At R+V, the entities in other financial sectors mainly consist of pension funds and occupational pension schemes. Their **risk factors** generally correspond to the risk factors for risks backed by capital pursuant to Solvency II.

Risk is quantified for the pension funds and occupational pension schemes in accordance with the requirements currently specified by the insurance supervisor. This means applying the capital requirements in Solvency I, which are essentially calculated by applying a factor to the volume measures of benefit reserves and capital at risk.

R+V Pensionskasse AG is exposed to risks comparable with those faced by the life insurance entities in the R+V subgroup. The main risk management activities applicable in this case are those relating to life actuarial risk (see section 14.3.2 of this risk report), market risk (section 15.3), counterparty default risk (section 16.3), and operational risk (section 18.2). R+V Pensionskasse AG largely stopped taking on new business on January 1, 2021. It is continuing to manage existing contracts as before.

The risk situation in a **pension fund** is determined to a significant degree by the nature of the pension plans offered. In pension plans offered by R+V involving defined contributions with a minimum benefit, it must be ensured that at least the sum of the contributions paid into the plan (net of any contributions covering biometric risk assumed by R+V) is available on the agreed pension start date.

R+V also offers pension plans that include guaranteed insurance-based occupational incapacity cover as well as pension benefits and benefits for surviving dependants. Market risk and all the risk types covered by actuarial risk are relevant as far as occupational pension provision is concerned. Longevity risk is also important in relation to pensions because of the guaranteed benefits involved. Again, the risk management activities relating to life actuarial risk, market risk, counterparty default risk, and operational risk apply in this case. R+V aims to ensure that the ongoing pension plan contributions and the benefit reserve include sufficient amounts to cover the costs of managing pension fund contracts.

In the pension plans involving a benefit commitment without any insurance-based guarantees, R+V does not assume responsibility for any of the pension fund risk or investment risk because the benefits promised by the pension fund are subject to the proviso that the employer will also make up any difference required. This also applies to the period in which pensions are drawn. If the employer fails to make up the difference required, R+V's commitment is reduced to insurance-based guaranteed benefits based on the amount of capital still available.

As at December 31, 2020, the **overall solvency requirement** for risks in connection with entities in other financial sectors remained unchanged at €119 million. The **limit** was €140 million (December 31, 2019: €112 million).

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Income statement for the period January 1 to December 31, 2020

€ million	(Note)	2020	2019
Net interest income	(34)	2,797	2,738
Interest income		5,111	6,272
Interest income calculated using the effective interest method		5,087	5,725[1]
Interest income not calculated using the effective interest method		24	547
Current income and expense		82	83
Interest expense		-2,396	-3,617[1]
Net fee and commission income	(35)	2,121	1,975
Fee and commission income		4,267	4,044
Fee and commission expenses		-2,146	-2,069
Gains and losses on trading activities	(36)	552	472
Gains and losses on investments	(37)	166	182
Other gains and losses on valuation of financial instruments	(38)	-22	255
Gains and losses from the derecognition of financial assets measured at amortized cost	(39)	-2	15
Premiums earned	(40)	18,741	17,249
Gains and losses on investments held by insurance companies and other insurance company gains and losses	(41)	2,047	6,157
of which interest income calculated using the effective interest method		1,474	1,561
Insurance benefit payments	(42)	-17,499	-19,394[1]
Insurance business operating expenses	(43)	-2,922	-2,823
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	(44)	-20	-15
Loss allowances	(45)	-678	-329
Administrative expenses	(46)	-4,036	-4,074
Other net operating income	(47)	210	250
Profit before taxes		1,455	2,658
Income taxes	(48)	-475	-778[1]
Net profit		**980**	**1,880**
Attributable to:			
Shareholders of DZ BANK		872	1,700[1]
Non-controlling interests		108	180

1 Amount restated (see note 2).

APPROPRIATION OF PROFITS

€ million	2020	2019
Net profit	980	1,880
Non-controlling interests	-108	-180
Appropriation to retained earnings	-293	-1,376
Unappropriated earnings	**579**	**324**

Statement of comprehensive income for the period January 1 to December 31, 2020

€ million	(Note)	2020	2019
Net profit		980	1,880
Other comprehensive income		521	1,422
Items that may be reclassified to the income statement		**748**	**1,170**
Gains and losses on debt instruments measured at fair value through other comprehensive income	(49)	1,143	1,700[1]
Exchange differences on currency translation of foreign operations	(49)	-32	-1
Gains and losses on hedges of net investments in foreign operations	(49)	3	3
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	(49)	-6	1
Income taxes	(50)	-360	-533[1]
Items that will not be reclassified to the income statement		**-227**	**252**
Gains and losses on equity instruments for which the fair value OCI option has been exercised		-97	476[1]
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk		-60	-96
Gains and losses arising from remeasurement of defined benefit plans		-119	-175
Income taxes	(50)	49	47[1]
Total comprehensive income		**1,501**	**3,302**
Attributable to:			
Shareholders of DZ BANK		1,346	2,978
Non-controlling interests		155	324

1 Amount restated (see note 2).

Balance sheet as at December 31, 2020

ASSETS

€ million	(Note)	Dec. 31, 2020	Dec. 31, 2019
Cash and cash equivalents	(14, 51)	68,354	52,545
Loans and advances to banks	(15, 52)	103,020	97,544
Loans and advances to customers	(15, 53)	190,294	186,224
Hedging instruments (positive fair values)	(16, 54)	161	211[1]
Financial assets held for trading	(17, 55)	42,846	44,771[1]
Investments	(18, 56)	60,232	56,927
Investments held by insurance companies	(57, 62)	121,668	113,549
Property, plant and equipment, investment property, and right-of-use assets	(19, 58, 62)	1,744	1,632
Income tax assets	(20, 59)	879	1,018
Other assets	(21, 60, 62)	5,516	5,444
Loss allowances	(22, 61)	-2,320	-2,277
Non-current assets and disposal groups classified as held for sale	(23, 63)	199	516
Fair value changes of the hedged items in portfolio hedges of interest-rate risk		1,980	1,368[1]
Total assets		**594,573**	**559,472**

1 Amount restated (see note 2).

EQUITY AND LIABILITIES

€ million	(Note)	Dec. 31, 2020	Dec. 31, 2019
Deposits from banks	(24, 64)	177,852	141,121
Deposits from customers	(24, 65)	133,925	131,516
Debt certificates issued including bonds	(25, 66)	70,500	85,123
Hedging instruments (negative fair values)	(16, 67)	2,638	2,018[1]
Financial liabilities held for trading	(17, 68)	50,404	51,050[1]
Provisions	(26, 69)	4,003	3,843[1]
Insurance liabilities	(11, 70)	111,213	104,346
Income tax liabilities	(20, 59)	1,229	1,069
Other liabilities	(21, 71)	10,243	9,165[1]
Subordinated capital	(27, 72)	3,090	2,187
Liabilities included in disposal groups classified as held for sale	(23, 63)	2	1
Fair value changes of the hedged items in portfolio hedges of interest-rate risk		315	237[1]
Equity	(73)	29,159	27,796
Shareholders' equity		26,066	24,787
Subscribed capital		4,926	4,926
Capital reserve		5,551	5,551
Retained earnings		10,553	10,055[1]
Reserve from other comprehensive income		2,212	1,686[1]
Additional equity components		2,245	2,245
Unappropriated earnings		579	324
Non-controlling interests		3,093	3,009
Total equity and liabilities		**594,573**	**559,472**

1 Amount restated (see note 2).

Statement of changes in equity

€ million	Subscribed capital	Capital reserve	Equity earned by the group	Reserve from other comprehensive income	Additional equity components	**Shareholders' equity**	Non-controlling interests	**Total equity**
Equity as at Jan. 1, 2019	4,926	5,551	8,854	599	845	20,775	2,737	23,512
Restatements according to IAS 8	-	-	1	-1	-	-	-	-
Equity restated as at Jan. 1, 2019	4,926	5,551	8,855	598	845	20,775	2,737	23,512
Net profit	-	-	1,700[1]	-	-	1,700	180	1,880
Other comprehensive income/loss	-	-	-114	1,392[1]	-	1,278	144	1,422
Total comprehensive income	**-**	**-**	**1,586**	**1,392**	**-**	**2,978**	**324**	**3,302**
Capital increase/capital repaid	-	-	-	-	1,400	1,400	9	1,409
Changes in scope of consolidation	-	-	3	-7	-	-4	-	-4
Acquisition/disposal of non-controlling interests	-	-	-7	1	-	-6	-7	-13
Reclassifications within equity	-	-	298	-298	-	-	-	-
Dividends paid	-	-	-322	-	-	-322	-54	-376
Distribution of dividend on additional equity components	-	-	-34	-	-	-34	-	-34
Equity as at Dec. 31, 2019	4,926	5,551	10,379	1,686	2,245	24,787	3,009	27,796
Net profit	-	-	872	-	-	872	108	980
Other comprehensive income/loss	-	-	-95	569	-	474	47	521
Total comprehensive income	**-**	**-**	**777**	**569**	**-**	**1,346**	**155**	**1,501**
Capital increase/capital repaid	-	-	-	-	-	-	-22	-22
Changes in scope of consolidation	-	-	-	-	-	-	5	5
Acquisition/disposal of non-controlling interests	-	-	3	-1	-	2	-12	-10
Reclassifications within equity	-	-	42	-42	-	-	-	-
Dividends paid	-	-	-	-	-	-	-42	-42
Distribution of dividend on additional equity components	-	-	-69	-	-	-69	-	-69
Equity as at Dec. 31, 2020	**4,926**	**5,551**	**11,132**	**2,212**	**2,245**	**26,066**	**3,093**	**29,159**

1 Amount restated (see note 2).

The composition of equity is explained in note 73.

Statement of cash flows

€ million	2020	2019
Net profit	**980**	**1,880**[1]
Non-cash items included in net profit and reconciliation to cash flows from operating activities		
Depreciation, amortization, impairment losses, reversals of impairment losses on assets, and other non-cash changes in financial assets and liabilities	879	-3,977
Non-cash changes in provisions	730	812[1]
Changes in insurance liabilities	6,612	10,815
Other non-cash income and expenses	837	1,531
Gains and losses on the disposal of assets and liabilities	-419	-619
Other adjustments (net)	-2,686	-2,564
Subtotal	6,933	7,878
Cash changes in assets and liabilities arising from operating activities		
Loans and advances to banks	-5,389	-5,883
Loans and advances to customers	-4,637	-6,505
Other assets from operating activities	1,341	238
Hedging instruments (positive and negative fair values)	-1,342	-1,892[1]
Financial assets and financial liabilities held for trading	1,763	73[1]
Deposits from banks	36,739	-734
Deposits from customers	2,617	-1,043
Debt certificates issued including bonds	-14,732	20,809
Other liabilities from operating activities	717	1,136[1]
Interest, dividends, and operating lease payments received	5,864	6,714[1]
Interest paid	-2,578	-3,672[1]
Income taxes paid	-394	-469
Cash flows from operating activities	**26,902**	**16,650**
Proceeds from the sale of investments	10,483	9,464
Proceeds from the sale of investments held by insurance companies	21,454	19,419[1]
Proceeds from the sale of property, plant and equipment, and investment property (excluding assets subject to operating leases)	37	7
Proceeds from the sale of intangible non-current assets	3	2
Payments for the acquisition of investments	-13,188	-17,730
Payments for the acquisition of investments held by insurance companies	-30,044	-27,523
Payments for the acquisition of property, plant and equipment, and investment property (excluding assets subject to operating leases)	-88	-74
Payments for the acquisition of intangible non-current assets	-316	-154
Changes in scope of consolidation	-85	131
of which proceeds from the sale of investments in consolidated subsidiaries net of cash divested	-	128
of which payments for the acquisition of investments in consolidated subsidiaries net of cash acquired	-85	-
Cash flows from investing activities	**-11,744**	**-16,458**
Proceeds from capital increases by shareholders of DZ BANK	-	1,400
Proceeds from capital increases by non-controlling interests	-	9
Dividends paid to shareholders of DZ BANK	-	-322
Dividends paid to non-controlling interests	-42	-54
Distribution of dividend on additional equity components	-69	-34
Other payments to non-controlling interests	-22	-
Net change in cash and cash equivalents from other financing activities (including subordinated capital)	784	-491[1]
Cash flows from financing activities	**651**	**508**

1 Amount restated (see note 2).

€ million	2020	2019
Cash and cash equivalents as at January 1	52,545	51,845
Cash flows from operating activities	26,902	16,650[1]
Cash flows from investing activities	-11,744	-16,458[1]
Cash flows from financing activities	651	508[1]
Cash and cash equivalents as at December 31	**68,354**	**52,545**

1 Amount restated (see note 2).

The statement of cash flows shows the changes in cash and cash equivalents during the financial year. Cash and cash equivalents consist of cash on hand and balances with central banks. The cash and cash equivalents do not include any financial investments with maturities of more than 3 months at the date of acquisition. Changes in cash and cash equivalents are broken down into operating, investing, and financing activities.

Cash flows from operating activities comprise cash flows mainly arising in connection with the revenue-producing activities of the group and other activities that cannot be classified as investing or financing activities. Cash flows related to the acquisition and disposal of non-current assets are allocated to investing activities. Cash flows from financing activities include cash flows arising from transactions with equity owners and from other borrowing to finance business activities, in particular from subordinated capital.

Cash payments from lessees in repayment of lease liabilities, which are included in cash flows from financing activities, amounted to €99 million (2019: €111 million) (amount restated, see note 2)).

In 2020, there were no cash inflows as a result of the first-time consolidation of subsidiaries (2019: cash inflow of €3 million).

Notes

A General disclosures

>> 01 Basis of preparation

Pursuant to *Regulation (EC) 1606/2002 of the European Parliament and of the Council of July 19, 2002*, the consolidated financial statements of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK) for the 2020 financial year have been prepared in accordance with the provisions of the International Financial Reporting Standards (IFRS), as adopted by the European Union (EU).

The provisions specified in section 315e (1) of the German Commercial Code (HGB) for companies whose securities are admitted to trading on a regulated market in the EU have also been applied in the consolidated financial statements of DZ BANK. In addition, further standards adopted by Deutsches Rechnungslegungs Standards Committee e.V. [German Accounting Standards Committee] have generally been taken into account where such standards have been published in the German Federal Gazette by the Bundesministerium der Justiz und für Verbraucherschutz [Federal Ministry of Justice and Consumer Protection] pursuant to section 342 (2) HGB.

DZ BANK is entered in the commercial register at the Frankfurt am Main local court under the number HRB 45651.

The DZ BANK Group's financial year is the same as the calendar year. In the interest of clarity, some items on the income statement, the statement of comprehensive income, and the balance sheet have been aggregated and are explained by additional disclosures in the notes. Unless stated otherwise, all amounts are shown in millions of euros (€ million). All figures are rounded to the nearest whole number. This may result in very small discrepancies in the calculation of totals and percentages.

The consolidated financial statements of DZ BANK have been released for publication by the Board of Managing Directors following approval by the Supervisory Board on March 25, 2021.

>> 02 Accounting policies and estimates

Changes in accounting policies

The financial statements of the entities consolidated in the DZ BANK Group have been prepared using uniform accounting policies.

First-time application in 2020 of changes in IFRS
The following amendments to IFRS are applied for the first time in DZ BANK's consolidated financial statements for the 2020 financial year:

- *Amendments to References to the Conceptual Framework in IFRS Standards*,
- *Definition of a Business* (Amendments to IFRS 3),
- *Definition of Material* (Amendments to IAS 1 and IAS 8),
- *Interest Rate Benchmark Reform – Phase I* (Amendments to IFRS 9, IAS 39 and IFRS 7),
- *COVID-19-Related Rent Concessions* (Amendment to IFRS 16 Leases).

The changes contained in *Amendments to References to the Conceptual Framework in IFRS Standards* became necessary because the Conceptual Framework had been revised, which meant that quotations from, and references to, the Conceptual Framework included in numerous standards and other pronouncements issued by the IASB had to be updated. Besides these changes, some of which are simply editorial, the amendments also include, in particular, clarification as to which version of the Conceptual Framework needs to be applied in individual cases. Depending on the matter concerned, users must comply with the 2001, 2010, or 2018 version of the Conceptual Framework. Where necessary, the amendments include an initial application date, which has been set in all cases as annual periods beginning on or after January 1, 2020. The implementation of the amendments had no material impact on the consolidated financial statements.

The aim of *Definition of a Business* (Amendments to IFRS 3) is to establish a better distinction between the acquisition of a business and the acquisition of a group of assets. To satisfy the new definition of the term 'business', an acquisition must include inputs and a substantive process that together significantly contribute to the ability to create outputs. The amended definition must be applied to all acquisitions for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2020. There was no material impact on the consolidated financial statements.

The objective of *Definition of Material* (Amendments to IAS 1 and IAS 8) is to tighten up the definition of the term 'material' without fundamentally altering the application of the principle of materiality. In particular, the amendments introduce the new notion of 'obscuring information' and place 'obscuring' on a par with omitting or misstating information. The amendments are to be applied prospectively to financial years beginning on January 1, 2020. There was no impact on the consolidated financial statements.

Interest-Rate Benchmark Reform – Phase I (Amendments to IFRS 9, IAS 39 and IFRS 7) provides for temporary exceptions in relation to the accounting treatment of hedges in the period before the initiated reform of key interest-rate benchmarks, such as Euribor, Libor, and EONIA (interbank offered rate (IBOR) reform). The scope of the exceptions covers those hedges directly affected by the IBOR reform. A hedge is only directly affected if the reform leads to uncertainties in relation to the interest rate designated as the hedged risk or in relation to the timing or amount of the cash flows from the hedged item or hedging instrument based on interest-rate benchmarks.

When, in accordance with IFRS 9 or IAS 39, an entity determines whether the cash flows arising from a forecast transaction in a cash flow hedge are highly probable, the exceptions specify that the entity must assume that the interest-rate benchmark on which the hedged cash flows are based is not altered as a result of the reform. Correspondingly, when assessing the need to reclassify the cash flow hedge reserve to profit or loss, an entity must assume that the hedged cash flows will still materialize at the end of the hedging relationship. If an entity hedges a component of interest-rate risk, the risk component concerned must be separately identifiable. The entity only needs to ensure that this requirement is satisfied once when the component is first designated as a hedged item. When assessing the economic relationship between the hedged item and the hedging instrument in accordance with the requirements of IFRS 9, an entity must also assume that the interest-rate benchmark on which the designated cash flows and/or the hedged risk in the hedged item are based, or the interest-rate benchmark on which the cash flows from the hedging instrument are based, is not altered as a result of the interest-rate benchmark reform.

Prospective assessments of hedge effectiveness in accordance with the requirements of IAS 39 must be based on an unchanged interest-rate benchmark. If the retrospective assessment of a hedge in accordance with IAS 39 determines ineffectiveness outside the range of 80 percent to 125 percent, hedge accounting is not discontinued.

The amendments require disclosures containing information on the extent to which the reform of interest-rate benchmarks have an impact on existing hedges. The application of the exceptions is mandatory until the uncertainty arising from the switch in interest-rate benchmarks is eliminated or, if earlier, the hedge is terminated. In addition, the exception regarding the reclassification of the cash flow hedge reserve no longer needs to be applied if the reserve has been reclassified in full to profit or loss. The rules are required to be applied for the first time to financial years beginning on or after January 1, 2020.

The DZ BANK Group only accounts for hedges of interest-rate risk (fair value hedges). In this accounting treatment, it applies the rules of IAS 39 to hedges using a portfolio approach. The hedging instruments reference interest rates of the Euribor and Libor group. Euribor is expected to be retained in its current form as an interest-rate benchmark for the foreseeable future. Libor is expected to be replaced with effect from January 1, 2022, although major USD Libor tenors (overnight, 1-month, 3-month, 6-month, and 12-month) are not likely to be replaced until June 2023. Further disclosures on the IBOR reform are presented in note 84.

COVID-19-Related Rent Concessions (Amendment to IFRS 16) gives lessees an option that enables them to simplify the accounting treatment of concessions, such as the deferral or reduction of rental payments, that are granted in connection with the COVID-19 pandemic. By exercising this option, lessees do not account for these rent concessions as lease modifications. This eliminates the need for preparers of financial statements to review all of their leases and rental agreements, carry out a legal assessment of the individual rent concessions in the context of the specific contractual arrangements and, if necessary, determine new discount rates.

Full retrospective application for reporting periods beginning on or after June 1, 2020 is envisaged. The DZ BANK Group is not making use of this relief.

Changes in IFRS endorsed by the EU but not yet adopted

The DZ BANK Group has decided against voluntary early adoption of the following amendments to IFRS:

- *Interest Rate Benchmark Reform – Phase 2* (Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4, and IFRS 16),
- *Extension of the Temporary Exemption from Applying IFRS 9* (Amendments to IFRS 4 Insurance Contracts).

Interest Rate Benchmark Reform – Phase 2 (Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4, and IFRS 16) follows on from the amendments in 2019 and apply if, because of the reform, a reporting entity replaces an interest-rate benchmark with an alternative, nearly risk-free interest rate. The amendments provide a practical expedient in the event of contract modifications or cash flow modifications that are required as a direct consequence of the IBOR reform and made on an economically equivalent basis. Under these circumstances, the modification required as a result of the IBOR reform has to be accounted for as a modification of a variable interest rate in accordance with IFRS 9.B5.4.5 and not recognized in the modification gain or loss. Instead, application of IFRS 9.B5.4.5 permits subsequent measurement on the basis of the updated effective interest rate and thus recognition of the effect of the economically equivalent modification over the remaining term. For all other modifications made at the same time but not as a direct consequence of the IBOR reform, the effect of derecognizing the modifications has to be analyzed. Derecognition is required in the event of substantial modifications. Where modifications are not substantial, the updated effective interest rate is used to recalculate the carrying amount of the financial instrument.

In addition, temporary relief is offered that enables the continuation of hedge accounting after transition to the new interest-rate benchmarks if the modifications are made solely as a result of the benchmark interest-rate reform. Relief is also offered where there are separately identifiable risk components. The amendments do not offer relief for hedge ineffectiveness caused by the IBOR reform, which has to be recognized in profit or loss in accordance with IFRS 9. Furthermore, the amendments contain minor changes to IFRS 16 and IFRS 4 and additional disclosure requirements in accordance with IFRS 7.

The amendments must be applied retrospectively to financial years beginning on or after January 1, 2021. A hedge has to be reinstated if it was discontinued solely due to changes required by the interest-rate benchmark reform and would not have been discontinued if the phase 2 amendments had been applied at that time. The DZ BANK Group has decided against early application of these amendments. No material impact on the consolidated financial statements is expected.

The objective of *Extension of the Temporary Exemption from Applying IFRS 9* (Amendments to IFRS 4 Insurance Contracts) is to address temporary accounting consequences that arise because of the different effective dates of IFRS 9 *Financial Instruments* and the forthcoming IFRS 17 *Insurance Contracts*.

According to the EU regulation specifying adoption for financial years beginning on or after January 1, 2021, entities that predominantly undertake insurance activities – including the insurance divisions of financial conglomerates – can opt to be exempt from IFRS 9 until January 1, 2023. The insurance companies in the DZ BANK Group are not exercising this option.

Changes in IFRS that have not been endorsed by the EU

The following new accounting standard issued by the IASB, the listed amendments to a number of accounting standards, and improvements to IFRS have not yet been endorsed by the EU:

- IFRS 17 *Insurance Contracts*,
- Amendments to IFRS 17 *Insurance Contracts*,
- Amendments to IAS 1 *Presentation of Financial Statements – Classification of Liabilities as Current or Non-current*,
- Amendments to IFRS 3 *Business Combinations*,
- Amendments to IAS 16 *Property, Plant and Equipment*,
- Amendments to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets*,
- Amendments to IAS 1 *Presentation of Financial Statements* and IFRS Practice Statement 2 – *Disclosure of Accounting Policies*,
- Amendments to IAS 8 *Accounting policies, Changes in Accounting Estimates and Errors – Definition of Accounting Estimates*,
- *Annual Improvements to IFRSs 2018–2020 Cycle.*

IFRS 17 *Insurance Contracts* supersedes IFRS 4 *Insurance Contracts* and has the objective of ensuring consistent, principles-based accounting treatment of all insurance contracts. It includes principles for recognition, measurement, presentation, and disclosures in respect of insurance contracts and requires insurance liabilities to be measured using the latest amount equating to the fulfillment cash flows. In the general model, measurement is based on a '3 building blocks' approach. Insurance contracts with a term of less than a year can be recognized using a simplified method, the premium allocation approach.

The amendments to IFRS 17 *Insurance Contracts* contain a number of individual changes with which the IASB wants to help entities implement the standard without significantly reducing the usefulness of disclosed information. As a result of the amendments, the date of mandatory initial application of IFRS 17 was postponed

by two years to January 1, 2023. The group companies are currently examining the impact of IFRS 17 on DZ BANK's consolidated financial statements.

The objective of Amendments to IAS 1 *Presentation of Financial Statements* and IFRS Practice Statement 2 – *Disclosure of Accounting Policies* is to clarify that the classification of liabilities as current or non-current should be based on the entity's rights that are in existence at the end of the reporting period. The amendments must be applied retrospectively to financial years beginning on or after January 1, 2023. No material impact on DZ BANK's consolidated financial statements is expected.

The amendments to IFRS 3 *Business Combinations* update the references therein to the revised IFRS Conceptual Framework. The amendments also specify that when assumed liabilities and contingent liabilities within the scope of IAS 37 or IFRIC 21 are recognized, the definitions in these standards should be used rather than the different definitions in the revised Conceptual Framework. The rules on contingent assets are also clarified.

The amendments to IAS 16 *Property, Plant and Equipment* clarify that proceeds from selling items produced using an asset during a test run are recognized directly in profit or loss.

The amendments to IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* relate to costs that an entity should include as the cost of fulfilling a contract when assessing whether a contract is onerous. When determining the cost of fulfilling a contract, the entity must include all costs that relate directly to the contract.

As a result of the *Annual Improvements to IFRSs 2018–2020 Cycle*, the '10 percent test' for present value, which has to be carried out according to IFRS 9 as part of the derecognition assessment for financial liabilities, will only be able to include those fees paid or received between the entity and the lender.

The amendments to IFRS 3, IAS 16, and IAS 37 and the *Annual Improvements to IFRSs 2018–2020 Cycle* must be applied for the first time to financial years beginning on January 1, 2022. No material impact on DZ BANK's consolidated financial statements is expected.

The amendments to IAS 1 *Presentation of Financial Statements* and IFRS Practice Statement 2 – *Disclosure of Accounting Policies* require entities to disclose their material accounting policies. The amendments to IAS 1 must be applied for the first time to financial years beginning on or after January 1, 2023; early adoption is permitted. No material impact on DZ BANK's consolidated financial statements is expected.

The objective of Amendments to IAS 8 *Accounting policies, Changes in Accounting Estimates and Errors – Definition of Accounting Estimates* is to provide clarification in order to help entities to distinguish between changes to accounting policies and changes to accounting estimates. The amendments to IAS 8 must be applied for the first time to financial years beginning on or after January 1, 2023; early adoption is permitted. The DZ BANK Group will take the clarification into consideration when assessing accounting matters after the date of initial application.

The initial application dates for the issued amendments to IFRS are subject to the proviso that the amendments must first be incorporated into EU law.

Changes in presentation

In accordance with the provisions of IAS 8.41 et seq., amounts relating to the recognition of portfolio hedges, which were previously netted in the income statement and on the balance sheet, are presented without being netted from the 2020 financial year onward. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Income statement for the period January 1 to December 31, 2019

€ million	2019 before restatement	Amount of restatement	2019 after restatement
Net interest income	2,738	-	2,738
Interest income	6,281	-9	6,272
Interest income calculated using the effective interest method	5,734	-9	5,725
(…)			
Interest expense	-3,626	9	-3,617
(…)			
Profit before taxes	2,712	-	2,712
Income taxes	-839	-	-839
Net profit	**1,873**	**-**	**1,873**

Balance sheet as at December 31, 2019

ASSETS

€ million	Dec. 31, 2019 before restatement	Amount of restatement	Dec. 31, 2019 after restatement
(…)			
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	1,275	93	1,368
(…)			
Total assets	**559,379**	**93**	**559,472**

EQUITY AND LIABILITIES

€ million	Dec. 31, 2019 before restatement	Amount of restatement	Dec. 31, 2019 after restatement
(…)			
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	144	93	237
(…)			
Total equity and liabilities	**559,379**	**93**	**559,472**

The amounts did not need to be restated as at January 1, 2019 because the accounting rule did not apply.

For fully consolidated special funds of the personal insurance providers, deferred taxes on measurement differences in respect of equity instruments and debt instruments are recognized, not in profit or loss as was previously the case, but in other comprehensive income from the 2020 financial year onward, in accordance with the provisions of IAS 8.41 et seq. As a result, the amounts shown for insurance benefit payments and income taxes in the income statement have been restated. The amounts shown for retained earnings and the reserve from other comprehensive income on the balance sheet have also been restated. The adjusted amounts within the comparative figures are indicated by the footnote ‘Amount restated’.

Income statement for the period January 1 to December 31, 2019

€ million	2019 before restatement	Amount of restatement	2019 after restatement
(...)			
Insurance benefit payments	-19,340	-54	-19,394
(...)			
Profit before taxes	2,712	-54	2,658
Income taxes	-839	61	-778
Net profit	**1,873**	**7**	**1,880**

Balance sheet as at January 1, 2019

EQUITY AND LIABILITIES

€ million	Jan. 1, 2019 before restatement	Amount of restatement	Jan. 1, 2019 after restatement
(...)			
Equity	23,512	-	23,512
Shareholders' equity	20,775	-	20,775
(...)			
Retained earnings	8,530	1	8,531
Reserve from other comprehensive income	599	-1	598
(...)			
Total equity and liabilities	**518,733**	**-**	**518,733**

Balance sheet as at December 31, 2019

EQUITY AND LIABILITIES

€ million	Dec. 31, 2019 before restatement	Amount of restatement	Dec. 31, 2019 after restatement
(...)			
Equity	27,796	-	27,796
Shareholders' equity	24,787	-	24,787
(...)			
Retained earnings	10,047	8	10,055
Reserve from other comprehensive income	1,694	-8	1,686
(...)			
Total equity and liabilities	**559,379**	**-**	**559,379**

In accordance with the provisions of IAS 8.41 et seq., upfront payments for acquired financial instruments with a positive or negative fair value, which were previously recognized under financial assets held for trading and financial liabilities held for trading, are treated in a more nuanced way on the balance sheet from the 2020 financial year onward. The upfront payments attributable to hedging instruments will now be recognized as

hedging instruments (positive fair values) and hedging instruments (negative fair values). The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Balance sheet as at December 31, 2019

ASSETS

€ million	Dec. 31, 2019 before restatement	Amount of restatement	Dec. 31, 2019 after restatement
(…)			
Hedging instruments (positive fair values)	201	10	211
Financial assets held for trading	44,781	-10	44,771
(…)			
Total assets	**559,379**	-	**559,379**

EQUITY AND LIABILITIES

€ million	Dec. 31, 2019 before restatement	Amount of restatement	Dec. 31, 2019 after restatement
(…)			
Hedging instruments (negative fair values)	1,306	712	2,018
Financial liabilities held for trading	51,762	-712	51,050
(…)			
Total equity and liabilities	**559,379**	-	**559,379**

In accordance with the provisions of IAS 8.41 et seq., various amounts relating to collateral are restated in the disclosures on maximum credit risk in note 81 (Collateral) and note 85 (Nature and extent of risks arising from financial instruments and insurance contracts) from the 2020 financial year onward. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

In accordance with the provisions of IAS 8.41 et seq., various amounts are restated within the maturity bands in note 86 (Maturity analysis) from the 2020 financial year onward. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

There are other minor presentation changes in the statement of cash flows and in notes 59 (Income tax assets and liabilities), 62 (Changes in non-current assets), 78 (Financial liabilities designated as at fair value through profit or loss), and 92 (Leases). There are also minor presentation changes in the information on BSH, TeamBank, DZ HYP, and VR Smart Finanz in note 99 (Share-based payment transactions) and related presentation changes in notes 69 (Provisions) and 71 (Other liabilities). The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Sources of estimation uncertainty

It is necessary to make assumptions and estimates in accordance with the relevant financial reporting standards in order to determine the carrying amounts of assets, liabilities, income, and expenses recognized in the

consolidated financial statements. These assumptions and estimates are based on historical experience, planning, and expectations or forecasts regarding future events.

Assumptions and estimates are used primarily in determining the fair value of financial assets and financial liabilities and in identifying any impairment of financial assets. Estimates also have a material impact on determining the impairment of goodwill or intangible assets acquired as part of business combinations. Furthermore, assumptions and estimates affect the measurement of right-of-use assets, insurance liabilities, provisions for employee benefits, provisions for share-based payment transactions, provisions relating to building society operations, and other provisions as well as the recognition and measurement of income tax assets and income tax liabilities.

Fair values of financial assets and financial liabilities

If there are no prices available for certain financial instruments from active markets, the fair values of such financial assets and financial liabilities have to be determined on the basis of estimates, resulting in some uncertainty. Uncertainties associated with estimates arise primarily if fair values are determined using valuation techniques involving significant valuation parameters that are not observable in the market. This affects both financial instruments measured at fair value and financial instruments measured at amortized cost whose fair values are disclosed in the notes. The measurement parameter assumptions and measurement methods used to determine fair values are described in the financial instruments disclosures in notes 76 and 77.

Impairment of financial assets

When an impairment test (as described in note 5) is carried out for financial assets that constitute debt instruments or for loan commitments and financial guarantee contracts, it is necessary to determine estimated future cash flows from interest payments and the repayment of principal as well as from any recovery of collateral. This requires estimates and assumptions regarding the amount and timing of future cash flows, in turn giving rise to some uncertainty. The factors influencing impairment that are defined on a discretionary basis include economic conditions, the financial performance of the counterparty, and the value of the collateral held. When an impairment test for portfolios is carried out, parameters such as probability of default, which are calculated with the help of statistical models, are used in the estimates and assumptions.

Goodwill and intangible assets

The recognition of goodwill is largely based on estimated future income, synergies, and non-recognizable intangible assets generated by business combinations or acquired as part of business combinations. The recoverability of the carrying amount is verified by means of budget accounts that are largely based on estimates. Identifiable intangible assets acquired as part of business combinations are recognized on the basis of their future economic benefits. These benefits are assessed by management using reasonable, well-founded assumptions. The estimates applied in the case of business combinations are described in note 91.

Right-of-use assets

The measurement of right-of-use assets (as described in note 12) involves the use of assumptions and estimates, especially in relation to estimated future cash flows, term, and discount rate. Estimates also have a material impact on determining the impairment of right-of-use assets.

Insurance liabilities

The measurement of insurance liabilities involves the exercise of discretion, estimates, and assumptions, especially in relation to mortality, rates of return on investment, cancellations, and costs. Actuarial calculation methods, statistical estimates, blanket estimates, and measurements based on past experience are used. The basic approaches used in the measurement of insurance liabilities are described in the insurance business disclosures in note 11.

Provisions for employee benefits, provisions for share-based payment transactions, and other provisions

Uncertainty associated with estimates in connection with provisions for employee benefits arises primarily from the measurement of defined benefit obligations, on which actuarial assumptions have a material effect. Actuarial assumptions are based on a large number of long-term, forward-looking factors, such as salary increases, annuity trends, and average life expectancy.

In the case of provisions for share-based payment transactions, estimation uncertainty arises from the way in which fair value is determined. This fair value is based on assumptions regarding the payout amount, which in turn depends on the performance of the variables specified in the underlying agreements.

In order to measure provisions relating to building society operations, building society simulations (collective simulations) that forecast home savings customers' future behavior are used that are available for evaluation of the options. These options available to home savings customers include, for example, drawing down the home savings loan, waiving the loan after allocation, or continuing with the home savings contract. Uncertainty in connection with the measurement of the provisions may arise depending on the extent to which the assumptions about future customer behavior – taking account of various interest-rate scenarios and management measures – that were forecast using collective simulation actually materialize in the future. The main inputs for the collective simulations are presented in note 26.

Actual cash outflows in the future related to items for which other provisions have been recognized may differ from the forecast utilization of the provisions.

The basis for measurement and the assumptions and estimates underlying the calculation of provisions are described in note 26.

Income tax assets and liabilities

The deferred tax assets and liabilities described in note 59 are calculated on the basis of estimates of future taxable income in taxable entities. In particular, these estimates have an effect on any assessment of the extent to which it will be possible to make use of deferred tax assets in the future. In addition, the calculation of current tax assets and liabilities for the purposes of preparing financial statements involves estimates of details relevant to income tax.

The COVID-19 pandemic has not given rise to any further sources of estimation uncertainty with regard to the calculation of the carrying amounts of assets, liabilities, income, and expenses. The pandemic particularly affects the familiar assumptions and estimates used to calculate the fair values of investments, investments held by insurance companies, and financial liabilities held for trading. COVID-19 also impacts on the calculation of loss allowances and on the assumptions and estimates used in this calculation, which are described in note 45.

>> 03 Scope of consolidation

In addition to DZ BANK as the parent, the consolidated financial statements for the year ended December 31, 2020 include 26 subsidiaries (2019: 25) and 6 subgroups (2019: 6) comprising a total of 151 subsidiaries (2019: 159). An investee is included in the scope of consolidation as a subsidiary from the date on which DZ BANK obtains control over it. DZ BANK controls an investee when DZ BANK directly or indirectly has power over the investee, is therefore exposed to significant variable returns from its involvement with the investee, and has the ability to affect the variable returns from the investee through this power. In some cases, discretion is required to be exercised when deciding whether DZ BANK controls an investee. All the relevant facts and circumstances are considered when making this decision. This is particularly applicable to principal/agent relationships, which require an assessment of whether DZ BANK or other parties with decision-making rights are acting as principal or as an agent. With regard to principal/agent relationships, a considerable amount of discretion has to be exercised in order to assess the appropriateness of contractually agreed remuneration and of the level of the variable returns received.

The main change to the scope of consolidation in 2020 was the addition in the UMH subgroup of ZBI Partnerschafts-Holding GmbH, Erlangen, which had previously been accounted for using the equity method, and its 3 subsidiaries.

The consolidated financial statements include 6 joint arrangements in the form of joint ventures with at least one other entity outside the group (2019: 12) and 25 associates (2019: 29) over which DZ BANK has significant influence. These entities are accounted for using the equity method. There are currently no joint arrangements classified as joint operations. DZ BANK has joint control over an arrangement when there is a contractual agreement in place that requires decisions about the arrangement's relevant activities to be reached with the unanimous consent of all the parties sharing control. DZ BANK has a significant influence over an investee if it can participate in the financial and operating policy decisions of the investee without having control or joint control over it. This is assumed to be the case where between 20 and 50 percent of the voting shares are held.

The shareholdings of the DZ BANK Group are listed in full in note 105.

>> 04 Procedures of consolidation

Financial information in the consolidated financial statements contains data from the parent company, which incorporates data from its consolidated subsidiaries. The parent company and the consolidated subsidiaries are presented as a single economic entity.

The subsidiaries of the DZ BANK Group are the directly or indirectly controlled entities. An entity is deemed to be controlled by DZ BANK if the bank is exposed to variable returns from its relationship with the entity and can affect those returns through its power over the entity.

Unless otherwise contractually agreed, DZ BANK controls an entity if it holds more than half of the voting rights, either directly or indirectly. The assessment of whether control exists also takes account of potential voting rights, provided they are considered substantial.

DZ BANK also considers itself to have control over an entity in cases where it does not hold the majority of the voting rights but does have the ability to unilaterally direct the relevant activities of the entity concerned.

A review is carried out at least once every six months to decide which subsidiaries are to be consolidated.

When preparing the consolidated financial statements, uniform accounting policies are used for like transactions.

The consolidated subsidiaries prepared their financial statements on the basis of a financial year ended December 31, 2020. In 2019, one subsidiary had been included in the consolidated financial statements that had a different reporting date for its annual financial statements. With 20 (2019: 21) exceptions, the separate financial statements of the entities accounted for using the equity method are prepared to the same balance sheet date as that of the parent company. There is no resulting material impact in respect of the subsidiaries and associates concerned, and therefore no interim financial statements have been prepared.

Intragroup assets and liabilities, as well as intragroup income and expenses, are eliminated in full. Intragroup profits or losses resulting from transactions within the group are also eliminated in full.

When a subsidiary is consolidated, the carrying amount of the investment in the subsidiary is offset against the proportionate equity of the subsidiary. Any share of a subsidiary's equity not attributable to the parent company is reported under equity as non-controlling interests.

Goodwill resulting from offsetting the acquisition cost of a subsidiary against the equity remeasured at fair value on the acquisition date is recognized as goodwill when the acquisition method is applied. It is recognized under other assets. Goodwill is tested for impairment at least once a year. Any negative goodwill is recognized in profit or loss on the acquisition date.

If DZ BANK loses control over a subsidiary, the assets and liabilities of this former subsidiary, together with the carrying amount of any non-controlling interests in the former subsidiary, are derecognized when control is lost. The fair value of any consideration received is recognized at the same time. The gain or loss arising in connection with the loss of control is also recognized.

Investments in joint ventures and associates are accounted for using the equity method and reported on the balance sheet under investments or investments held by insurance companies.

Under the equity method, the DZ BANK Group's investments in associates and joint ventures are initially recognized at cost. Subsequently, the carrying amount is increased (or decreased) to recognize the group's share of the profit/loss or other changes to the net assets of the associate or joint venture after the acquisition.

If significant influence over an associate or joint venture is lost, the gain or loss arising from the disposal of the long-term equity investment accounted for under the equity method is recognized.

>> 05 Financial instruments

Categories of financial instruments

Financial assets measured at fair value through profit or loss (fair value PL)

Financial assets that are not measured at amortized cost or at fair value through other comprehensive income are classified as 'financial assets measured at fair value through profit or loss'. This category is broken down into the following subcategories:

Financial assets mandatorily measured at fair value through profit or loss

The subcategory 'financial assets mandatorily measured at fair value through profit or loss' covers financial assets that do not meet the IFRS 9 SPPI criterion or that were acquired for the purpose of selling them in the near term. To this end, these financial assets must be part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking, or must be derivatives, except for derivatives that are designated hedging instruments.

Contingent considerations in a business combination

This subcategory covers contingent considerations that the acquirer has classified as financial assets in the context of a business combination.

Financial assets designated as at fair value through profit or loss (fair value option)

Financial assets may be assigned to the subcategory 'financial assets designated as at fair value through profit or loss' by exercising the fair value option, provided that the application of this option eliminates or significantly reduces measurement or recognition inconsistencies (accounting mismatches). The fair value option is applied to eliminate or significantly reduce accounting mismatches that arise if non-derivative financial instruments and related derivatives used to hedge such instruments are measured differently. Derivatives are measured at fair value through profit or loss, whereas non-derivative financial instruments are measured at amortized cost or changes in fair value may be recognized in other comprehensive income. If no hedge accounting takes place, this gives rise to accounting mismatches that can be significantly reduced by applying the fair value option. The fair value option is used in the context of financial assets to prevent accounting mismatches that could arise in connection with loans and advances to banks and customers and bearer bonds.

Financial assets measured at fair value through other comprehensive income (fair value OCI)

This category is broken down into the following subcategories:

Financial assets mandatorily measured at fair value through other comprehensive income

A financial asset is assigned to this subcategory if it is held in accordance with a business model aimed both at collecting contractual cash flows and at selling financial assets. Moreover, the contractual terms of the financial asset must give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding (SPPI criterion).

Because of the SPPI criterion, these financial assets only comprise debt instruments. They are measured at fair value. Interest income, loss allowances, and currency translation effects must be recognized in profit or loss. Differences between the amortized cost and the fair value are recognized in other comprehensive income. The amounts recognized in other comprehensive income must be recycled to the income statement upon derecognition.

Financial assets designated as at fair value through other comprehensive income (fair value OCI option)

There is an irrevocable option to designate equity instruments as 'financial assets designated as at fair value through other comprehensive income' (fair value OCI option) upon initial recognition. Changes in fair value are recognized in other comprehensive income, except in the case of dividends that do not constitute repayment of capital. The cumulative other comprehensive income is not subsequently recycled to the income statement, e.g. due to derecognition of the instrument. After derecognition of these equity instruments, the cumulative other comprehensive income is reclassified to retained earnings. The fair value OCI option can generally only be

exercised for equity instruments that are not held for trading and do not constitute contingent consideration recognized by the acquirer in a business combination pursuant to IFRS 3.

Financial assets measured at amortized cost (AC)

A financial asset is assigned to this category if it is held in accordance with a business model aimed at holding financial assets for the purpose of collecting contractual cash flows. The contractual terms of the financial asset must give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Because of the SPPI criterion, financial assets in this category only comprise debt instruments. They are measured at amortized cost using the effective interest method. Interest income, loss allowances, and currency translation effects must be recognized in profit or loss.

Financial liabilities measured at fair value through profit or loss (fair value PL)

Financial liabilities that are not measured at amortized cost are classified as 'financial liabilities measured at fair value through profit or loss'. This category is broken down into the following subcategories:

Financial liabilities mandatorily measured at fair value through profit or loss

The subcategory 'financial liabilities mandatorily measured at fair value through profit or loss' covers financial liabilities that are issued with the intention of repaying them in the near term. To this end, these financial liabilities must be part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking, or must be derivatives, except for derivatives that are designated hedging instruments.

Contingent considerations in a business combination

This subcategory covers contingent considerations that the acquirer has classified as financial liabilities in the context of a business combination.

Financial liabilities designated as at fair value through profit or loss (fair value option)

Financial liabilities may be assigned to the 'financial instruments designated as at fair value through profit or loss' subcategory by exercising the fair value option, provided that the application of this option eliminates or significantly reduces measurement or recognition inconsistencies (accounting mismatches), the financial liabilities are managed as a portfolio on a fair value basis, or they include one or more embedded derivatives required to be separated from the host contract. In the case of financial liabilities, the fair value option is exercised to eliminate or significantly reduce accounting mismatches for loan liabilities to banks and customers, issued registered or bearer Pfandbriefe, other bonds and commercial paper, and registered or bearer subordinated liabilities. Some of the promissory notes and bonds are structured financial instruments containing derivatives (in the form of caps, floors, collars, or call options) for which bifurcation is not required. The derivative components of these instruments are subject to economic hedging that does not meet the criteria for the application of hedge accounting.

The fair value option is also applied to structured financial liabilities containing embedded derivatives requiring bifurcation, provided that the embedded derivatives cannot be measured separately and the financial liabilities are not designated as held for trading. The issued financial instruments in this case are primarily guarantee

certificates, discount certificates, profit-participation certificates, variable-rate bonds, inflation-linked notes, collateralized loan obligations, and credit-linked notes.

As regards financial liabilities designated as at fair value through profit or loss, any gains/losses resulting from a change in the fair value of a financial liability that is attributable to a change in the liability's credit risk must be recognized in other comprehensive income. The rest of the change in the fair value of this liability is recognized in profit or loss. The amounts recognized in other comprehensive income are reclassified to retained earnings on derecognition of the relevant financial liability.

Financial liabilities measured at amortized cost (AC)

For measurement subsequent to initial recognition, financial liabilities are generally categorized as 'financial liabilities measured at amortized cost', except in the following cases: financial liabilities measured at fair value through profit or loss, financial liabilities that arise when a transfer of a financial asset does not satisfy the condition for derecognition or accounting treatment is based on a continuing involvement, financial guarantee contracts, loan commitments with an interest rate below the market interest rate, and contingent consideration recognized by the acquirer in a business combination pursuant to IFRS 3.

In accordance with IAS 32, shares in partnerships are normally categorized as debt instruments. Given their subordinated status compared with the liabilities of the partnerships concerned, non-controlling interests in partnerships are reported as subordinated capital. Profit attributable to non-controlling interests is recognized under other liabilities, provided that the resulting liability is not of a subordinated nature. Non-controlling interests in partnerships are classified as 'share capital repayable on demand' and are assigned to the 'financial liabilities measured at amortized cost' category.

This category also includes liabilities under compensation payment obligations owed to non-controlling interests in consolidated subsidiaries. These liabilities arise if DZ BANK or some other entity controlled by DZ BANK has concluded a profit transfer agreement with a subsidiary in accordance with section 291 (1) of the German Stock Corporation Act (AktG) under which there are non-controlling interests. Liabilities under compensation payment obligations are recognized at the amount of the discounted obligation.

In addition, this category includes liabilities from capitalization transactions that are not designated as unit-linked insurance products. There is no significant transfer of insurance risk in these transactions and they do not therefore satisfy the criteria for an insurance contract under IFRS 4. As a consequence, such transactions need to be treated as financial instruments in accordance with IFRS 9.

Other financial instruments

Hedging instruments

The designation of derivative and non-derivative financial assets and liabilities as hedging instruments is governed by IFRS 9. The recognition and measurement of these hedging instruments is described in note 16.

Liabilities from financial guarantee contracts

Liabilities from financial guarantee contracts measured in accordance with IFRS 9 must be recognized as a liability at fair value by the issuer of the guarantee at the date of issue. The fair value is normally equivalent to the present value of the consideration received for issuing the financial guarantee contract. In any subsequent measurement, the obligation must be measured at the higher of the amount determined in accordance with the

impairment model and the amount initially recognized less, where appropriate, the cumulative amount of income recognized in accordance with the principles of IFRS 15. In the presentation of financial guarantee contracts, the guarantee commission receivables due from the beneficiary to the DZ BANK Group as the issuer of the guarantee are offset against guarantee obligations (net method).

Finance lease receivables and lease liabilities

Finance lease receivables and lease liabilities fall within the scope of IFRS 16.

Financial assets and financial liabilities specific to insurance business

In addition to financial instruments that fall within the scope of IFRS 9, financial assets and financial liabilities arising from the insurance business are recognized and measured in accordance with the provisions of the HGB and other German accounting provisions applicable to insurance companies, as required by IFRS 4.25(c).

Deposits with ceding insurers are recognized at their nominal amounts. Receivables arising out of direct insurance operations and receivables arising out of reinsurance operations are recognized at their nominal amounts net of payments made. Impairment losses on receivables arising out of direct insurance operations and on receivables arising out of reinsurance operations are recognized directly in the carrying amounts. Assets related to unit-linked contracts are measured at fair value through profit or loss on the basis of the underlying investments.

Deposits received from reinsurers, payables arising out of direct insurance operations, and payables arising out of reinsurance operations are recognized at their nominal amounts.

Deposits with ceding insurers as well as assets related to unit-linked contracts are reported on the balance sheet under investments held by insurance companies. Deposits received from reinsurers, receivables and payables arising out of direct insurance operations, and receivables and payables arising out of reinsurance operations are recognized under other assets or other liabilities.

Initial recognition and derecognition of financial assets and financial liabilities

Derivatives are initially recognized and derecognized on the trade date. Regular way purchases and sales of non-derivative financial assets are generally recognized and derecognized using settlement date accounting. In the case of consolidated investment funds and the issue of certain securities, the financial instruments are also recognized on the trade date. Changes in fair value between the trade date and settlement date are recognized in accordance with the category of the financial instrument.

All financial instruments are generally measured at fair value on initial recognition. In the case of financial assets or financial liabilities not measured at fair value through profit or loss, transaction costs directly attributable to the acquisition of the financial asset or issue of the financial liability concerned are added or deducted on initial recognition.

Differences between transaction prices and fair values are recognized in profit or loss on initial recognition if the fair values correspond to the price quoted in an active market for an identical asset or identical liability or are based on a valuation technique that only uses data from observable markets. If the fair value is derived from transaction prices at the time of acquisition and this value is then used as a basis for any subsequent measurement, any changes in fair value are only recognized in profit or loss if they can be attributed to a change

in observable market data. Any differences not recognized at the time of initial recognition are allocated over the maturity of the financial instruments concerned and recognized in profit or loss accordingly.

Financial assets are derecognized if the contractual rights to the cash flows from the financial assets have expired or these rights have been transferred to third parties, and substantially no risks or rewards of ownership in the financial assets remain. If the criteria for derecognizing financial assets are not satisfied, the transfer to third parties is recognized as a secured loan. Financial liabilities are derecognized when the contractual obligations have been settled, extinguished or have expired.

Gains and losses from the derecognition of financial assets measured at amortized cost are reported as a separate line item in the income statement.

Loss allowances for financial assets

Under IFRS 9, loss allowances are recognized for those financial assets that constitute debt instruments and for loan commitments and financial guarantee contracts. Equity instruments do not fall within the scope of the IFRS 9 impairment model. Loss allowances are recognized in respect of the following financial assets:

- Financial assets in the IFRS 9 category ‘financial assets measured at amortized cost’,
- Financial assets (only debt instruments) in the IFRS 9 category ‘financial assets measured at fair value through other comprehensive income’,
- Undrawn loan commitments where there is a current legal obligation to grant credit (irrevocable loan commitments), provided they are not measured at fair value through profit or loss,
- Financial guarantee contracts, provided they are not measured at fair value through profit or loss,
- Lease receivables, and
- Trade receivables and contract assets that fall within the scope of IFRS 15.

Upon initial recognition, all financial assets are assigned to stage 1 with the exception of financial assets that are purchased or originated credit-impaired assets (POCI assets). Loss allowances for assets in stage 1 must be recognized in an amount equal to the 12-month expected credit loss.

At each balance sheet date, assets are assigned to stage 2 if their credit risk has significantly increased since initial recognition but there is no objective evidence of impairment. For these assets, the loss allowances are measured at the amount of the lifetime expected credit losses.

Trade receivables and contract assets that fall within the scope of IFRS 15 are allocated directly to stage 2 (simplified approach).

To simplify matters, it can be assumed that the credit risk of a financial instrument has not increased significantly since initial recognition if the financial instrument has a low credit risk at the balance sheet date (low credit risk exemption). The DZ BANK Group does not exercise the low credit risk exemption for loans and, consequently, not for promissory notes either.

Financial assets deemed to be impaired on the basis of objective evidence are assigned to stage 3. For these assets, the loss allowances are measured at the amount of the lifetime expected credit losses.

Financial assets subject to the IFRS 9 impairment rules must be reviewed at every balance sheet date to ascertain whether one or more events have occurred with an adverse impact on the estimated future cash flows of these financial assets.

Financial assets that are purchased or originated credit-impaired assets (POCI assets) are initially recognized at their carrying amount less the lifetime expected credit losses and amortized using a risk-adjusted effective interest rate. At the balance sheet date, only the cumulative changes to the lifetime expected credit losses since initial recognition are recognized as a loss allowance. Stage allocation is not required for these assets. Please refer to note 85 for more detailed information on loss allowances for financial assets.

Embedded derivatives

An embedded derivative is a component of a hybrid contract that also includes a non-derivative financial instrument (host contract), with the effect that some of the cash flows of the combined financial instrument vary in a way similar to those of a standalone derivative. A derivative that is attached to a financial instrument but is contractually transferable independently of that instrument, or has a different counterparty, is not an embedded derivative, but a separate financial instrument.

If a hybrid contract contains a host contract that is a financial asset, the categorization rules for financial assets are applied to the entire hybrid contract.

If a hybrid contract contains a host contract that is a financial liability, an embedded derivative is separated from the host contract and accounted for separately if:

- the economic characteristics and risks of the derivative are not closely related to the economic characteristics and risks of the host contract,
- a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative, and
- the hybrid contract is not measured at fair value through profit or loss.

If the embedded derivative does not meet all of these conditions, it may not be separated from the host contract. When an embedded derivative is separated, the host contract is accounted for in accordance with the pertinent standards.

If a contract includes one or more embedded derivatives and the host contract is not a financial asset, the entire hybrid contract can be categorized as measured at fair value through profit or loss. This is not the case where embedded derivatives only have an insignificant impact on the contractually specified cash flows or, upon initial comparison with similar hybrid instruments, it is evident without – or with only minor – analysis that separation of the embedded derivative is not permitted.

Classes of financial instruments

For the purposes of the disclosures on the importance of financial instruments to financial position and financial performance, financial instruments falling within the scope of IFRS 7 are classified using the 7 classes of financial instruments described below.

Classes of financial assets

Financial assets measured at fair value

The class of financial assets measured at fair value comprises the following categories defined by IFRS 9:

- ‘Financial assets measured at fair value through profit or loss’ with the subcategories ‘financial assets mandatorily measured at fair value through profit or loss’, ‘contingent considerations in a business combination’, and ‘financial assets designated as at fair value through profit or loss’ (fair value option), and
- ‘Financial assets measured at fair value through other comprehensive income’ with the subcategories ‘financial assets mandatorily measured at fair value through other comprehensive income’ and ‘financial assets designated as at fair value through other comprehensive income’ (fair value OCI option).

In addition to the financial assets in the categories specified above, this class of financial assets measured at fair value includes derivatives used for hedging (positive fair values).

Financial assets measured at amortized cost

The ‘financial assets measured at amortized cost’ class includes, in particular, loans and advances to banks and customers measured at amortized cost and investments measured at amortized cost.

Finance leases

The ‘finance leases’ class comprises solely finance lease receivables.

Classes of financial liabilities

Financial liabilities measured at fair value

The ‘financial liabilities measured at fair value’ class comprises financial liabilities in the category ‘financial liabilities measured at fair value through profit or loss’ with the subcategories ‘financial liabilities mandatorily measured at fair value through profit or loss’, ‘contingent considerations’, ‘financial liabilities designated as at fair value through profit or loss’ (fair value option), and derivatives used for hedging (negative fair values).

Financial liabilities measured at amortized cost

The class known as ‘financial liabilities measured at amortized cost’ is identical to the category of financial liabilities of the same name.

Leases

The ‘leases’ class comprises solely lease liabilities.

Financial guarantee contracts and loan commitments

Provisions for financial guarantee contracts and provisions for loan commitments within the scope of IAS 37 are aggregated in the class ‘financial guarantee contracts and loan commitments’.

>> 06 Hedge accounting

General information on hedge accounting

As an integral part of its risk management strategy, the DZ BANK Group hedges against risks arising in connection with financial instruments.

If the hedging of risk in connection with financial instruments gives rise to accounting mismatches between the hedged item and the hedging instrument used, the DZ BANK Group designates the hedging transaction as a hedge in accordance with the hedge accounting requirements of IFRS 9 in order to eliminate or reduce such mismatches. In exercise of the option available under IFRS 9.6.1.3, the DZ BANK Group continues to account for portfolio hedges in application of the rules under IAS 39.

Fair value hedges

A fair value hedge is intended to ensure that changes in the fair value of the hedged item are offset by countervailing changes in the fair value of the hedging instrument. Changes in the fair value of the hedged item attributable to the hedged risk and changes in the fair value of the hedging instrument are recognized in profit or loss. Where equity instruments are hedged whose changes in fair value are recognized in other comprehensive income, the changes in the fair value of the hedging instruments are also recognized in other comprehensive income. Risks may be hedged by designating hedges either on an individual or on a portfolio basis.

Hedged items categorized as ‘financial assets measured at amortized cost’ or ‘financial liabilities measured at amortized cost’ are measured in accordance with the general measurement principles for these financial instruments. The values are adjusted for the change in fair value attributable to the hedged risk. Hedged items categorized as ‘financial assets measured at fair value through other comprehensive income’ are measured at fair value, although only changes not attributable to the hedged changes in fair value are recognized in other comprehensive income. Interest income and interest expense arising from hedged items or hedging instruments are recognized under net interest income.

If the fair value is hedged against interest-rate risks on a portfolio basis, the cumulative changes in fair value attributable to the hedged risk are reported on the balance sheet under fair value changes of the hedged items in portfolio hedges of interest-rate risk, either under assets or liabilities depending on whether the portfolio comprises financial assets or financial liabilities.

In fully effective hedges, the changes in fair value (attributable to the hedged risk) recognized in profit or loss over the lifetime of the hedge completely cancel each other out. Any changes in fair value recognized in the carrying amount of the hedged items are amortized through profit or loss by the time the hedge has been terminated.

Cash flow hedges

The purpose of cash flow hedges is to ensure that changes in uncertain future cash flows from hedged items are offset by changes in cash flows from hedging instruments.

Hedging instruments are measured at fair value. Changes in fair value attributable to the effective portion of the hedge are recognized in other comprehensive income. Changes in fair value attributable to the ineffective portion of the hedge are recognized in profit or loss. Hedged items are recognized and measured in accordance with the general principles for the relevant measurement category. At the end of a hedging relationship, any changes in fair value recognized in other comprehensive income must be reclassified to profit or loss on the date on which the hedged items or transactions are also recognized in profit or loss.

Hedges of net investments in foreign operations

The purpose of hedges of net investments in foreign operations is to offset exchange differences resulting from net investments denominated in foreign currency.

Hedges of net investments in foreign operations are accounted for in the same way as cash flow hedges.

>> 07 Currency translation

All monetary assets and liabilities, together with unsettled spot transactions, are translated at the closing rate into the relevant functional currency of the entities in the DZ BANK Group. Cash in foreign currency is translated using the buying rate for cash on the balance sheet date. The translation of non-monetary assets and liabilities depends on the way in which these assets and liabilities are measured. If non-monetary assets are measured at amortized cost, they are translated using the historical exchange rate. Non-monetary assets measured at fair value are translated at the closing rate. Income, expenses, gains, and losses are translated on the date they are recognized either in profit or loss or in other comprehensive income.

If the functional currency of subsidiaries consolidated in the DZ BANK Group is different from the group’s reporting currency (euros), all assets and liabilities are translated at the closing rate. Equity is translated at the historical rate. Income and expenses are translated at the spot rate on the transaction date or, in a simplified procedure, at the average rate. The closing rate can also be used if there is no material impact compared with the use of average rates. Any differences arising from currency translation are reported in the currency translation reserve. In most cases, the functional currency of the entities included in the consolidated financial statements is the euro, i.e. the group reporting currency.

>> 08 Offsetting of financial assets and financial liabilities

Financial assets and financial liabilities are offset and reported as a net amount on the balance sheet if the group currently has a legally enforceable right to set off the amounts and intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

The legal right of set-off cannot be contingent on a future event and must be exercisable in the normal course of business, in the event of default, and in the event of insolvency of the entity or any of the counterparties.

>> 09 Sale and repurchase agreements, securities lending

Sale and repurchase agreements (repos) are transactions in which the parties agree the sale and subsequent repurchase of securities at a fixed price and time. The risks and rewards of ownership of the sold securities

remain in full with the original seller, provided that the buyer is under an obligation to sell back the securities. If the DZ BANK Group enters into repos as the original seller, the securities sold continue to be recognized on the balance sheet because the derecognition criteria in IFRS 9 are not satisfied. A liability corresponding to the amount of the purchase price received is recognized. If the group enters into reverse repos as a buyer, the securities purchased must not be recognized on the balance sheet. A receivable corresponding to the amount of the purchase price paid is recognized.

Securities lent as part of securities lending transactions remain on the balance sheet. Where collateral is received in this regard, and this collateral is in cash, a liability is recognized. Borrowed securities do not meet the recognition criteria set out in IFRS 9 and must therefore not be recognized on the balance sheet. Any cash collateral furnished in connection with borrowed securities is reported as a receivable.

Sale and repurchase agreements and securities lending transactions result in transfers in which the transferred assets remain on the balance sheet in their entirety. The DZ BANK Group is not involved in any transfers in which the transferred assets are recognized according to the extent of continuing involvement or transfers of financial assets with a continuing involvement that are fully derecognized.

>> 10 Collateral

Receivables are recognized for assets pledged as collateral in the form of cash deposits. Other assets pledged as collateral continue to be reported on the balance sheet unchanged. Where collateral is received, and this collateral is in cash, a liability for a corresponding amount is recognized. Other financial or non-financial assets received as collateral are not recognized on the balance sheet unless the assets are obtained in connection with the recovery of collateral or a purchase of real estate that was previously held as collateral.

>> 11 Insurance business

General information on the accounting treatment of insurance business

The DZ BANK Group's insurance business comprises insurance contracts, capitalization transactions, and service contracts. It also includes financial guarantee contracts with insured parties.

Insurance contracts govern the transfer of significant insurance risk from the insured party to the insurer and the payment of compensation if a future contingent event materializes and adversely impacts the insured party. Insurance contracts are recognized in accordance with the requirements of IFRS 4. Capitalization transactions comprise, in particular, fund-linked or index-linked life insurance contracts without policyholder participation, pension fund contracts based on defined benefit plans, and contracts to protect semi-retirement employment models. Capitalization transactions are classified as financial instruments within the scope of IFRS 9. Service contracts comprise, in particular, separable and transferable administrative components of insurance and capitalization contracts. Such service contracts are subject to the revenue recognition requirements specified in IFRS 15. Any financial guarantee contracts in connection with insurance business are recognized in accordance with the accounting requirements applicable to insurance contracts.

The insurance business of the DZ BANK Group is reported under specific insurance items on the income statement and balance sheet. Material components of the specific insurance items are described below.

Financial assets and financial liabilities

Financial assets and financial liabilities held or acquired as part of insurance business are accounted for in accordance with the accounting policies for financial instruments described in note 5. These financial assets and financial liabilities are reported under investments held by insurance companies, other assets held by insurance companies, and other liabilities of insurance companies. Any loss allowances related to financial assets reported under investments held by insurance companies or other assets held by insurance companies are recognized for the categories 'financial assets measured at amortized cost' and 'financial assets measured at fair value through other comprehensive income' and are applied as a deduction on the assets side of the balance sheet. Within the investments held by insurance companies and other assets held by insurance companies balance sheet items, carrying amounts are presented on a net basis. However, the loss allowances are shown separately (gross presentation) in the balance sheet disclosures.

Other liabilities of insurance companies include the benefit obligations under capitalization transactions for which no material insurance risk is assumed when the policy is concluded. They are reported under liabilities from capitalization transactions. The underlying financial instruments in these transactions are reported as part of assets related to unit-linked contracts under investments held by insurance companies.

Investment property

The investment property included in the investments held by insurance companies is measured at amortized cost in accordance with the cost model. In subsequent years, straight-line depreciation is applied over the asset's useful life on the basis of cost.

Any expenditure that increases value and extends the useful life of real estate or results in a significant improvement in the fabric of a building is capitalized. Maintenance and repair costs are expensed as incurred.

Recoverable amounts are determined for real estate so that this information can be used in impairment tests and provided in the disclosures required in the notes to the financial statements in accordance with the provisions of IFRS 13. For this purpose, standard valuation methods are generally used that are based on the requirements of the German Real Estate Valuation Guidelines (WertR 2006) and the German Building Code (BauGB). Accordingly, the current value of real estate is determined by using the sales comparison approach, income approach, or cost approach and taking into account the provisions of any relevant contracts.

Non-interest-bearing, low-interest, or forgivable loans are recognized in the same way as government grants. The amount of financial assistance or any government grant is deducted when the carrying amount of the asset is identified and is then recognized in profit or loss over the period covered by the assistance or grant by means of a reduced depreciation charge.

Insurance liabilities

Insurance companies are permitted to continue applying existing accounting policies to certain insurance-specific items during a transition period. Insurance liabilities are therefore recognized and measured in accordance with HGB and other German accounting provisions applicable to insurance companies. Insurance liabilities are shown before the deduction of the share of reinsurers, which is reported as an asset.

Provision for unearned premiums

The provision for unearned premiums represents premiums that have already been collected but that relate to future periods.

The provision for unearned premiums from direct non-life insurance operations is calculated from the gross premiums using the 360-day system. Calculation of non-transferable income components is based on the letter from the Bundesministerium der Finanzen (BMF) [German Federal Ministry of Finance] dated April 30, 1974.

Unearned premiums from life insurance are calculated taking into account the starting date and maturity date of each individual policy after deduction of non-transferable premium components. The letter from the BMF dated April 30, 1974 was followed.

The provision for unearned premiums in health insurance predominantly relates to international travel healthcare insurance business.

The proportion of the provision for unearned premiums relating to ceded insurance business is calculated as specified in the individual reinsurance contracts.

Benefit reserve

The purpose of the benefit reserve is to ensure that guaranteed entitlements to future insurance benefits can be satisfied on a permanent basis. Guaranteed entitlements for insured persons in respect of life insurance and casualty insurance with premium refund as well as the provision for increasing age in health insurance are reported under the benefit reserve.

The benefit reserve for life insurance and casualty insurance with premium refund is generally calculated in Germany on the basis of individual policies taking into account starting dates in accordance with approved business plans and the principles declared to the relevant regulatory authorities. The prospective method is used for life insurance (except for unit-linked insurance products and account management arrangements) and for casualty insurance (with the exception of premium-based policies that started prior to 1982). The retrospective method is used for other types of insurance. Negative benefit reserves on an individual policy basis are generally recognized with an amount of zero.

The assumptions used in calculations are determined in accordance with current recommendations issued by the Deutsche Aktuarvereinigung e.V., Cologne, (DAV) [German Actuarial Association] and the regulator and in accordance with other national statutory provisions and regulations. As a rule, calculation of the benefit reserve is based on interest rates of between 0.0 percent and 4.0 percent, as was the case in the previous year. These interest rates are generally determined by the legally prescribed maximum discount rates. The calculation assumptions apply from the date on which the policy is written until the policy expires.

For policies entered into before or in 2014, calculation of the benefit reserve is generally based on the Zillmer method. Following the introduction of the German Life Insurance Reform Act (LVRG), zillmerizing has not been applied to most new business entered into since 2015. In particular, zillmerizing is not applied to subsidized pension insurance policies under the German Personal Pension Plan Act (AVmG) or to pension insurance policies under reinsured pension plans.

The benefit reserve implicitly includes administrative expenses for contracts with ongoing payment of premiums. A provision for administrative costs has been recognized to cover premium-free years under insurance policies, fully paid-up insurance, and some legacy insurance commitments.

In health insurance, benefit reserves are computed prospectively on an individual policy basis using the technical parameters for calculating rates. Negative benefit reserves and positive benefit reserves are netted. The parameters for the computation of the reserves involve, in particular, assumptions regarding rates of return on investment, mortality, cancellations, and other costs. The company actuarial discount rate calculated in accordance with the procedure developed by the DAV is used in determining the health insurance discount rate. This procedure is based on a fundamental professional principle issued by the DAV for determining an appropriate discount rate. The discount rate was reduced for observation units with a premium adjustment effective January 1, 2020. The reason for this action is the persistently low level of interest rates. The group uses mortality tables issued by the Verband der Privaten Krankenversicherung e.V., Cologne, (PKV) [Association of German private healthcare insurers], entity-specific probability rates for policy cancellations, and profiles of benefit drawdown. These assumptions are regularly reviewed in accordance with actuarial principles and updated, where appropriate.

When the benefit reserves are prospectively calculated, the parameters used are generally retained throughout the term of the policy. If the actuarial analyses conducted once a year reveal that the level of cover offered is inadequate in terms of either biometric parameters or discount rate, appropriate adjustments are made. The biometric parameters used in such computations are based primarily on the mortality and invalidity tables published by the DAV.

In accordance with the German Regulation on the Principles Underlying the Calculation of the Premium Reserve (DeckRV), supplementary change-in-discount-rate reserves have been recognized for new policies with a discount rate in excess of the reference rate. With the approval of the Bundesanstalt für Finanzdienstleistungsaufsicht, Bonn, (BaFin) [German Federal Financial Supervisory Authority], the supplementary change-in-discount-rate reserve has been increased for existing policies. Entity-specific probabilities for cancellation and lump-sum payments are used for both new and existing policies.

Provision for claims outstanding

The provision for claims outstanding represents benefit obligations arising from claims in which it is not yet possible to reliably determine the amount and/or the timing of the payment. The provision is recognized for claims that have already been reported and also for insured events that have occurred but have not yet been reported. It includes both internal and external expenses as well as the cost of settling claims.

The provision for claims outstanding in direct non-life insurance business is determined on a case-by-case basis for all known claims. Recourse claims, excess proceeds, and claims under loss sharing agreements are netted. Based on the level of delayed claims reports observed in previous years, an additional claims provision is recognized for claims that occur or are caused before the balance sheet date but have not yet been reported by this date. Statistical estimates are used in this measurement. The provision for claims outstanding is not discounted, except in the case of the pension benefits reserve. The provisions for claims settlement expenses, which are also included in this item, have been calculated in accordance with the requirements set out in the coordinated regulations issued by the German federal states on February 2, 1973 and in accordance with the flat-rate calculation method (including claims incurred but not reported, IBNR) developed by the Gesamtverband der Deutschen Versicherungswirtschaft e.V., Berlin, (GDV) [German Insurance Association].

The provision for claims outstanding as regards life insurance and pension funds is determined on a case-by-case basis. The provision is recognized for claims that have already been incurred and reported by the balance sheet date, but have not yet been settled.

The provision for settlement expenses was determined in accordance with the letter from the BMF dated February 2, 1973.

In health insurance, the provision for claims outstanding is determined on the basis of the costs paid out in the financial year in connection with claims during the year. The calculation is based on claims experience over the previous 3 financial years. Recourse claims are deducted from the provision for claims outstanding, as are reimbursements due under the German Act on the Reform of the Pharmaceuticals Market (AMNOG). The recognized provision includes the costs of settling claims, calculated in accordance with tax rules. The reinsurers' share of the provision is determined in accordance with reinsurance treaties. Where appropriate, provisions for claims outstanding are recognized on a case-by-case basis for claims relevant to reinsurance.

Provision for premium refunds

The provision for premium refunds represents obligations not yet due for settlement on the balance sheet date relating to premium refunds to insured parties. It includes amounts allocated to policyholders under statutory or contractual arrangements for bonuses and rebates. In addition, the provision for premium refunds includes provisions resulting from time-restricted cumulative recognition and measurement differences between items in the financial statements prepared in accordance with IFRS and those prepared in accordance with HGB. In the case of measurement differences recognized in other comprehensive income, such as unrealized gains and losses on financial assets measured at fair value through other comprehensive income, corresponding expenses for deferred premium refunds are recognized in other comprehensive income; otherwise, changes in the provision are recognized in profit or loss.

The expenses for deferred premium refunds in the non-life insurance business are recognized in an amount equivalent to 90 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

The provision for premium refunds related to life insurance policies and pension funds is recognized to cover the entitlement of policyholders to profit-related premium refunds. Funds earmarked in this way are therefore made available for future allocation of bonuses to policyholders on an individual policy basis. Within the overall provision for premium refunds, a distinction is made between provisions attributable to bonuses already declared but not yet allocated (including participation in valuation reserves in accordance with HGB), the funding used to finance future terminal bonuses, and the free provision for premium refunds. Under section 140 of the German Act on the Supervision of Insurance Undertakings (VAG), that element of the provision for premium refunds not attributable to bonuses already declared but not yet allocated may be used to avert an imminent crisis and may therefore be seen as mitigating risk. Expenses for deferred premium refunds are recognized in an amount equivalent to 90 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

The provision for premium refunds related to health insurance includes amounts allocated to policyholders under statutory or contractual arrangements for bonuses and rebates. Expenses for deferred premium refunds are recognized in an amount equivalent to 80 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

Other insurance liabilities

Other insurance liabilities relating to non-life insurance include obligations arising from membership of the Verein Verkehrsopferhilfe e.V. (VOH) [road casualty support organization], Berlin, in line with the object of this organization and the provision for unearned premiums under dormant vehicle insurance policies, the provision being determined on an individual policy basis. The cancellation provision is calculated on the basis of past

experience. The provision for onerous contracts is calculated on the basis of prior-year figures and a forecast of other insurance gains and losses, taking into account interest income and residual maturities.

Other insurance liabilities for life insurance are computed on the basis of individual policies from premiums that are already due but have yet to be paid and have not yet been included in the life insurance liability to the extent that the investment risk is borne by the policyholders.

Other insurance liabilities for health insurance contain a cancellation provision. It contains the expected losses arising from the premature loss, not previously accounted for, of the negative portions of the provision for increasing age in health insurance.

Reinsurance business

In the case of reinsurance business, the insurance liabilities are recognized in accordance with the requirements specified by the ceding insurers. If no such details are available as at the balance sheet date, the provision for the financial year is estimated. The critical factors in estimating the provision are the contractual terms and conditions and the pattern of this business to date. In a few instances, loss provision details provided by ceding insurers are deemed to be too low in the experience of DZ BANK; in such cases, appropriate increases are applied, the increases having been determined in accordance with prudent business practice, past experience, and actuarial calculation methods.

Reserve for unit-linked insurance contracts

The reserve for unit-linked insurance contracts is an item largely corresponding to assets related to unit-linked contracts. This item is used to report policyholders’ entitlements to their individual investment fund units where the related investments arise out of contracts to be reported in accordance with IFRS 4. The reserve is measured at fair value on the basis of the underlying investments. Gains and losses on the fund assets result in corresponding changes on the equity and liabilities side of the balance sheet.

Adequacy test for insurance liabilities

Insurance liabilities must be regularly reviewed and subjected to an adequacy test. The adequacy test determines, on the basis of a comparison with estimated future cash flows, whether the carrying amount of insurance liabilities needs to be increased.

To review the insurance liabilities in the health insurance companies, a regular comparison is made between the present values of estimated future insurance benefits and costs, on the one hand, and the present values of estimated future premium payments on the other. In the event of any deficits, the insurance company has the option of adjusting premiums.

>> 12 Leases

DZ BANK Group as lessor

A lease is classified as a finance lease if substantially all the risks and rewards incidental to the ownership of an asset are transferred to the lessee. If the risks and rewards remain substantially with the lessor, the lease is an operating lease.

If a lease is classified as a finance lease, a receivable due from the lessee must be recognized. The receivable is measured at an amount equal to the net investment in the lease at the inception of the lease. Lease payments are apportioned into a payment of interest and repayment of principal. The interest portion based on the lessor's internal discount rate for a constant periodic rate of return is recognized as interest income, whereas the repayment of principal reduces the carrying amount of the receivable.

If a lease is classified as an operating lease, the entities in the DZ BANK Group retain beneficial ownership of the leased asset. These leased assets are reported as assets. The leased assets are measured at cost less depreciation and any impairment losses. Unless another systematic basis is more representative of the pattern of income over time, lease income is recognized in profit or loss on a straight-line basis over the term of the lease and is included in the current income from operating leases reported under net interest income. Gains on disposal, reversals of impairment losses, depreciation, losses on disposal, and impairment losses relating to the underlying leased assets are also included in the current income from operating leases.

DZ BANK Group as lessee

For every lease, the lessee recognizes a right-of-use asset for a leased asset as well as a corresponding lease liability. The only exceptions are short-term leases (term of less than one year from the commencement date) and leases for low-value assets (cost of new purchase of up to €5,000 net); in these cases, the lease payments are recognized as an expense.

The amount of the right-of-use asset initially corresponds to the amount of the lease liability. In subsequent periods, the right-of-use asset is measured at amortized cost. Depreciation is recognized on a straight-line basis over the entire lease term and reported as an administrative expense.

The lease liability is measured as the present value of the future lease payments and is shown under other liabilities. Lease payments must be broken down into an interest portion and a repayment portion. The interest portion based on the internal discount rate or the incremental borrowing rate of interest is recognized as interest expense, whereas the repayment of principal reduces the liability.

The DZ BANK Group uses the practical expedient that enables a lessee to elect not to separate non-lease components from lease components and instead account for all components as a lease.

>> 13 Income

Interest and dividends received

Interest is recognized in the relevant period. If the effective interest method is used to calculate interest income, such income is reported under interest income calculated using the effective interest method.

The cash flows used to calculate the effective interest rate take into account contractual agreements in connection with the financial assets and financial liabilities concerned.

Premiums and discounts are allocated over the expected life of financial instruments using the effective interest method. Any additional costs incurred that are directly connected with the acquisition or sale of a financial asset or financial liability, and thus can be directly assigned to the transaction, are factored into the calculation of the effective interest rate. Such costs include sales charges directly associated with the origination of home savings contracts and commitment fees for loans.

Dividends are recognized as soon as a legal entitlement to the payment of such a dividend is established.

Interest income and interest expense arising in connection with derivatives that were not entered into for trading purposes or are used to hedge financial instruments for which the fair value option has been exercised are reported under net interest income. Interest income and interest expense on overnight money and fixed-term deposits arranged for economic management purposes between different organizational units and timing effects from currency swaps used for economic management of net interest income are recognized under net interest income or under gains and losses on trading activities, depending on their economic classification.

Revenue from contracts with customers

Revenue from contracts with customers is recognized when the underlying services have been performed, it is probable that the economic benefits will flow to the group, and the amount of the revenue can be reliably measured.

In the DZ BANK Group, revenue from contracts with customers primarily consists of fee and commission income. Revenue from contracts with customers is also included in gains and losses on investments held by insurance companies and other insurance company gains and losses as well as in other net operating income. The main components of fee and commission income are fee and commission income from securities business, fee and commission income from payments processing (including card processing), fee and commission income from lending and trust activities, and fee and commission income from asset management.

Fee and commission income from securities business is generated from funds business and brokerage, and also includes custody charges. The income is generally recognized as soon as the service has been performed. Fee and commission income from payments processing (including card processing) and fee and commission income from lending and trust activities is recognized immediately after the service has been provided.

Fees and commissions earned over the period in which a service is performed include certain types of fees for administration and safe custody as part of the securities business and asset management, and fees in connection with the furnishing of financial guarantees. In the case of performance-related management fees, income is recognized when the contractually agreed performance criteria have been satisfied. This is either when the

service is contracted (brokering of life insurance or fund contracts, or brokering of home savings loans) or when the service is performed (fee and commission income from building society operations).

Fees and charges that form an integral part of the effective interest rate do not fall within the scope of IFRS 15 and are accounted for in accordance with IFRS 9 regardless of whether the financial assets are measured at fair value or at amortized cost.

The DZ BANK Group applies the following practical expedients as permitted by IFRS 15: it applies the standard to a portfolio of contracts, does not adjust the promised amount of consideration for the effects of a significant financing component, recognizes the incremental costs of obtaining a contract as an expense when incurred, and does not disclose certain information for some performance obligations.

Insurance business

For each insurance contract, gross premiums written are calculated pro rata for an exact number of days based on the actual start date of the insurance. These premiums comprise all amounts that become due in the financial year in connection with insurance premiums, premium installments, and single premiums for direct insurance and reinsurance business. Premiums for unit-linked life insurance, except capitalization transactions without policyholder participation, are also recognized as gross premiums written.

The components of premiums covering administration fees are reported pro rata as income in the income statement. In the case of index-linked policies and service contracts, additional administration charges, fees, and commissions from the service and brokerage business are deferred in accordance with IFRS 15 and apportioned over the relevant periods for the duration of the policy or contract concerned in line with the service performed.

>> 14 Cash and cash equivalents

Cash and cash equivalents are cash on hand and balances with central banks.

Cash on hand comprises euros and foreign currencies. Cash in euros is measured at nominal value; foreign currency cash is translated at the buying rate. Balances with central banks are allocated to the ‘financial assets measured at amortized cost’ category. Interest income on cash and cash equivalents is recognized as interest income from lending and money market business.

>> 15 Loans and advances to banks and customers

All receivables attributable to registered debtors that are categorized as ‘financial assets measured at amortized cost’, ‘financial assets measured at fair value through profit or loss’, or ‘financial assets measured at fair value through other comprehensive income’ are recognized as loans and advances to banks and customers. To eliminate or significantly reduce accounting mismatches, certain loans and advances are designated as at fair value through profit or loss. In addition to fixed-term receivables and receivables payable on demand in connection with lending, lease, and money market business, loans and advances to banks and to customers include promissory notes and registered bonds.

Loans and advances to banks and customers are measured predominantly at amortized cost using the effective interest method. In fair value hedges, the carrying amounts of hedged receivables are adjusted for the change in

fair value attributable to the hedged risk. The resulting hedge adjustments are recognized within other gains and losses on valuation of financial instruments under gains and losses arising on hedging transactions. Finance lease receivables are recognized and measured in accordance with the requirements for the accounting treatment of leases.

Loss allowances for loans and advances to banks and customers are determined on the basis of the IFRS 9 requirements applicable to the relevant category of financial assets. Depending on these requirements, the loss allowances are reported as a separate line item deduction on the assets side of the balance sheet or in the reserve from other comprehensive income. Finance lease receivables are also subject to the IFRS 9 impairment requirements.

Interest income on loans and advances to banks and customers is recognized as interest income from lending and money market business. This also includes the amortization of hedge adjustments to carrying amounts due to fair value hedges. Realized gains and losses on loans and advances to banks and customers that are categorized as financial assets measured at amortized cost are included in the gains and losses from the derecognition of financial assets measured at amortized cost. Gains and losses on the valuation of loans and advances for which the fair value option has been exercised are shown under the item of the same name as part of other gains and losses on valuation of financial instruments.

>> 16 Hedging instruments (positive and negative fair values)

The carrying amounts of financial instruments designated as hedging instruments in effective and documented hedging relationships are reported under either hedging instruments (positive fair values) or hedging instruments (negative fair values).

These financial instruments are measured at fair value. Changes in the fair value of hedging instruments in the category ‘financial assets measured at fair value through profit or loss’ used in fair value hedges are recognized in the income statement as an element of other gains and losses on valuation of financial instruments under gains and losses from hedge accounting. If the hedged item is an equity instrument in which changes in fair value are recognized in other comprehensive income, the changes in the fair value of the hedging instruments are also recognized in other comprehensive income.

In the case of financial instruments used for cash flow hedges or hedges of net investments in foreign operations, changes in fair value attributable to the effective portion of the hedges are recognized in other comprehensive income. The cumulative amounts are recognized in the reserve from other comprehensive income as part of equity. Changes in fair value attributable to the ineffective portion of hedges are included in other gains and losses on valuation of financial instruments under gains and losses from hedge accounting.

>> 17 Financial assets and financial liabilities held for trading

Financial assets and financial liabilities held for trading comprise solely financial assets and financial liabilities that are held for trading.

Derivatives with positive fair values are classified as financial assets held for trading if they were entered into for trading purposes or, despite being intended to be used as hedges, do not meet the requirements for an accounting treatment as hedging instruments. Financial assets held for trading also include bonds and other fixed-income securities, shares and other variable-yield securities, and receivables held for trading purposes.

Financial liabilities held for trading include short positions, bonds and other debt certificates issued, and liabilities held for trading purposes. The procedure for classifying derivatives with negative fair values as financial liabilities held for trading is the same as that used for financial assets held for trading.

Financial instruments reported as financial assets or financial liabilities held for trading are always measured at fair value through profit or loss. Gains and losses on valuation, interest income and expense, and dividends arising from financial assets and financial liabilities held for trading are recognized under gains and losses on trading activities, provided that there is an actual intent to trade the instruments concerned.

Gains and losses on valuation of derivatives that are entered into for hedging purposes, but are not recognized as hedging transactions, are recognized under other gains and losses on valuation of financial instruments as gains and losses on derivatives used for purposes other than trading. If, to avoid accounting mismatches, hedged items are allocated to the category 'financial assets designated as at fair value through profit or loss', valuation gains and losses on the related hedging derivatives are recognized under gains and losses on financial instruments designated as at fair value through profit or loss. Interest income and interest expense arising in connection with derivatives that were not entered into for trading purposes or are used to hedge financial instruments designated as at fair value through profit or loss are reported under net interest income.

>> 18 Investments

The following are recognized as investments: bearer bonds and other fixed-income securities, shares and other variable-yield securities, and other bearer or registered shareholdings in entities in which the DZ BANK Group has no significant influence, provided that these securities or shares are not held for trading purposes. Investments also include investments in subsidiaries, joint ventures, and associates.

Investments are initially recognized at fair value. Investments in joint ventures and associates that are accounted for using the equity method are initially recognized at cost. These investments are subsequently measured in accordance with the principles applicable to the relevant measurement category. In the case of investments in joint ventures and associates, the equity method is used for subsequent measurement.

Impairment losses on investments are determined on the basis of the IFRS 9 requirements applicable to the relevant category of financial assets or on the basis of accounting standards relevant to the financial assets concerned. They are generally reported as a separate line item on the assets side of the balance sheet or in the reserve from other comprehensive income.

Interest and any investment premiums or discounts amortized over the maturity of the investment using the effective interest method are recognized under net interest income. Dividends derived from equity instruments are recognized as current income under net interest income. Gains or losses on investments accounted for using the equity method are also reported under net interest income.

Gains and losses realized on the sale of investments that are not categorized as financial assets measured at amortized cost, as well as impairment losses and reversals thereof on investments in associates and joint ventures that are accounted for using the equity method, are reported under gains and losses on investments. Realized gains and losses on investments that are categorized as financial assets measured at amortized cost are included in the gains and losses from the derecognition of financial assets measured at amortized cost.

Fair value gains and losses on investments that are measured at fair value through profit or loss are reported under other gains and losses on valuation of financial instruments.

>> 19 Property, plant and equipment, investment property, and right-of-use assets

Property, plant and equipment, investment property, and right-of-use assets comprises land and buildings as well as office furniture and equipment with an estimated useful life of more than one year used by the entities in the DZ BANK Group. This item also includes assets subject to operating leases and right-of-use assets arising from leases. Investment property is real estate held for the purposes of generating rental income or capital appreciation.

Property, plant and equipment, and investment property is measured at cost less cumulative depreciation and cumulative impairment losses in subsequent financial years. Depreciation is largely recognized on a straight-line basis over the useful life of the asset. In most cases, external valuations are used to measure recoverability.

Right-of-use assets arising from leases are measured in accordance with the lease accounting provisions and reduced by cumulative depreciation and cumulative impairment losses in subsequent financial years. Depreciation is largely recognized on a straight-line basis over the useful life of the asset.

If facts or circumstances give rise to indications that assets might be impaired, the recoverable amount is determined. An impairment loss is recognized if the recoverable amount is lower than the asset's carrying amount. The recoverable amount is the higher of fair value less costs to sell and value in use.

Borrowing costs directly assignable to property, plant and equipment, and investment property are capitalized as part of the asset cost, provided that the asset concerned is a qualifying asset.

Depreciation on property, plant and equipment, investment property, and right-of-use assets is reported as an administrative expense. Impairment losses and reversals of impairment losses are reported under other net operating income.

>> 20 Income tax assets and liabilities

Current and deferred tax assets are shown under the income tax assets balance sheet item; current and deferred tax liabilities are reported under income tax liabilities. Current income tax assets and liabilities are recognized in the amount of any expected refund or future payment.

Deferred tax assets and liabilities are recognized for temporary differences between the carrying amounts recognized in the financial statements in accordance with IFRS and those in the financial statements for tax purposes. Deferred tax assets are also recognized in respect of as yet unused tax loss carryforwards, provided that utilization of these loss carryforwards is sufficiently probable. Deferred tax assets are measured using the national and entity-specific tax rates expected to apply at the time of recovery. A uniform tax rate is applied in the case of group companies forming a tax group with DZ BANK.

Deferred tax assets and liabilities are not discounted. Where temporary differences arise in relation to items recognized in other comprehensive income, the resulting deferred tax assets and liabilities are also recognized in other comprehensive income. Current and deferred tax income and expense to be recognized through profit or loss are reported under income taxes in the income statement.

>> 21 Other assets and other liabilities

Other assets also include intangible assets and contract assets. Intangible assets are recognized at cost. In the subsequent measurement of software, acquired customer relationships, and other intangible assets with a finite useful life, carrying amounts are reduced by cumulative amortization and cumulative impairment losses. Goodwill and other intangible assets with an indefinite useful life are not amortized but are subject to an impairment test at least once during the financial year.

If the group has satisfied its performance obligation in respect of a customer, but the customer has not yet paid the consideration and payment of the consideration still depends on a condition other than simply a due date, then the group recognizes a contract asset on the balance sheet in place of a receivable. As soon as an unconditional right to the consideration arises, the contract asset is reclassified as a receivable. Contract assets are not amortized, but are included in the calculation of the loss allowances in accordance with IFRS 9.

Other liabilities include other liabilities of insurance companies, accrued expenses, and lease liabilities.

The other assets and other liabilities line items are used to report assets and liabilities that cannot be allocated to any of the other asset or liability line items.

>> 22 Loss allowances

Loss allowances for cash and cash equivalents, loans and advances to banks and customers, investments, and other assets that are measured at amortized cost or designated as finance leases are reported as a separate line item on the assets side of the balance sheet. Additions to loss allowances for these balance sheet items, and any reversals of such allowances, are recognized under loss allowances in the income statement.

Loss allowances for investments held by insurance companies and other assets held by insurance companies measured at amortized cost are netted with the carrying amounts of these assets within the investments held by insurance companies and other assets held by insurance companies line items on the balance sheet. Additions to loss allowances for these balance sheet items, and any reversals of such allowances, are recognized under gains and losses on investments held by insurance companies and other insurance company gains and losses in the income statement.

Loss allowances for loans and advances to banks and customers, for investments, and for investments held by insurance companies that are measured at fair value through other comprehensive income are not reported on the assets side of the balance sheet but instead in the reserve from other comprehensive income.

Any additions to, or reversals of, provisions for loan commitments and financial guarantee contracts and other provisions for loans and advances are also recognized in profit or loss under loss allowances.

>> 23 Non-current assets and disposal groups classified as held for sale

The carrying amount of non-current assets or disposal groups for which a sale is planned is recovered principally through a sale transaction rather than through their continuing use. These assets and disposal groups therefore need to be classified as held for sale if the criteria set out below are satisfied.

To be classified as held for sale, the assets or disposal groups must be available for immediate sale in their present condition subject only to terms that are usual and customary for sales of such assets or disposal groups, and it must be highly probable that a sale will take place. A sale is deemed to be highly probable if there is a commitment to a plan to sell the asset or disposal group and an active program to locate a buyer and complete the plan has been initiated. In addition, the asset or disposal group must be actively marketed for sale at a price that is reasonable in relation to the current fair value. A sale must be expected to be completed within one year of the date on which the asset or disposal group is classified as held for sale.

Assets classified as held for sale are measured at the lower of carrying amount and fair value less costs to sell. The assets are no longer depreciated from the date on which they are classified as held for sale.

Assets and disposal groups classified as held for sale are shown separately on the balance sheet under non-current assets and disposal groups classified as held for sale and liabilities included in disposal groups classified as held for sale. Gains and losses arising on measurement as well as gains and losses on the sale of these assets or disposal groups that do not belong to a discontinued operation are recognized in the income statement under other net operating income. If the assets or disposal groups belong to discontinued operations, all gains and losses arising from these assets and disposal groups must be shown separately as ‘profit/loss from discontinued operations, net of tax’.

>> 24 Deposits from banks and customers

All liabilities attributable to registered creditors not classified as ‘financial liabilities mandatorily measured at fair value through profit or loss’ are recognized as deposits from banks and customers. In addition to fixed-maturity liabilities and liabilities repayable on demand arising from the deposit, home savings and loan, and money market businesses, these liabilities also include, in particular, registered bonds and promissory notes issued.

Deposits from banks and customers are measured at amortized cost using the effective interest method. Where deposits from banks and customers are designated as a hedged item in an effective fair value hedge, the carrying amount is adjusted for any change in the fair value attributable to the hedged risk. If, to eliminate or significantly reduce accounting mismatches, the fair value option is applied for deposits from banks and customers, the liabilities are measured at fair value as at the balance sheet date.

Interest expense on deposits from banks and customers is recognized separately under net interest income. Interest expense also includes gains and losses on early redemptions and the amortization of hedge adjustments to carrying amounts due to fair value hedges. Hedge adjustments to the carrying amount due to fair value hedges are reported within other gains and losses on valuation of financial instruments under gains and losses from hedge accounting. If the fair value option has been exercised for deposits from banks and customers, valuation gains and losses are recognized under gains and losses on non-derivative financial instruments and embedded derivatives within other gains and losses on valuation of financial instruments.

>> 25 Debt certificates issued including bonds

Debt certificates issued including bonds cover ‘Pfandbriefe’, other bonds, and commercial paper for which transferable bearer certificates have been issued.

Debt certificates issued including bonds and gains and losses thereon are measured and recognized in the same way as deposits from banks and customers.

>> 26 Provisions

Provisions for employee benefits

Pension plans agreed with the employees of the entities in the DZ BANK Group are based on various types of pension schemes that depend on the legal, economic, and tax situation in each country and include both defined contribution plans and defined benefit plans.

Where a commitment is made to defined contribution plans, fixed contributions are paid to external pension providers. The amount of the contributions and the income earned from the pension assets determine the amount of future pension benefits. The risks arising from the obligation to pay such benefits in the future lie with the pension provider. No provisions are recognized for these indirect pension commitments. The contributions paid are recognized as pension and other post-employment benefit expenses under administrative expenses.

Under a defined benefit plan, the employer promises a specific benefit and bears all the risks arising from this promise. Defined benefit obligations are measured on the basis of the projected unit credit method. The measurement depends on various actuarial assumptions. These include, in particular, assumptions about long-term salary and pension trends and average life expectancy. Assumptions about salary and pension trends are based on past trends and take into account expectations regarding future changes in the labor market. Generally accepted biometric tables (2018 G mortality tables published by Professor Dr. Klaus Heubeck) are used to estimate average life expectancy. The discount rate used to discount future payment obligations is an appropriate market interest rate for investment-grade fixed-income corporate bonds with a maturity equivalent to that of the defined benefit obligations. The discount rate depends on the obligation structure (duration) and is determined using a portfolio of high-quality corporate bonds that must satisfy certain quality criteria. One of the notable quality criteria is a credit rating of at least AA from the two rating agencies with the greatest coverage in the currency area in question. For the eurozone, these are Moody’s Investors Service and Standard & Poor’s, both New York. Bonds with existing call options in the form of embedded derivatives are not included in this process. The process for determining the discount rate was refined in June 2020 owing to a change to Bloomberg’s bond classification system. The discount rate would have been 33 basis points lower without this refinement. Note 69 contains disclosures on the sensitivity of the present value of the defined benefit obligations to changes in the actuarial parameters.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions regarding the defined benefit obligations, together with gains and losses arising from the remeasurement of plan assets and reimbursement rights, are recognized in other comprehensive income in the reporting period in which they occur.

The plan assets for the DZ BANK Group’s defined benefit plans consist to a significant extent of the plan assets of DZ BANK.

In addition to the provisions for defined benefit pension plans, the provisions for employee benefits include provisions for other long-term employee benefits, provisions for termination benefits, and provisions for short-term employee benefits.

Provisions for other long-term employee benefits are recognized, in particular, to cover semi-retirement (Altersteilzeit) and long-service bonuses. Provisions for early retirement are included under the provisions for termination benefits.

Provisions for termination benefits linked with restructuring are reported separately from other restructuring provisions. The provisions for restructuring assigned to the provisions for employee benefits have been derived from a number of strategies, including DZ BANK's forward-looking 'Verbund First 4.0' initiative, VR Smart Finanz's strategy to transform itself into a digital provider of finance for the self-employed and small businesses, and the strategic agenda for DVB's business model.

Provisions for employee benefits are generally recognized as a charge to administrative expenses, although reversals of such provisions are reported under other net operating income. As an exception to the rule, provisions for restructuring are recognized under other net operating income.

Provisions for share-based payment transactions

The entities in the DZ BANK Group have entered into various agreements covering variable remuneration components to be paid to members of the Board of Managing Directors and certain other executives. The amount and timing of such remuneration depends on a number of factors, not least the performance of the entity concerned. These agreements are classified as cash-settled share-based payment transactions.

Provisions for share-based payment transactions are recognized (at fair value) if it is sufficiently probable that the remuneration will be paid out in the future. The timing of initial recognition is therefore before the grant date and before any payout in subsequent years. This results in discrepancies compared with the nominal amounts disclosed in note 99 for share-based payments granted but not yet paid out.

Provisions for share-based payment transactions are also subsequently measured at fair value. Any changes in fair value are recognized in profit or loss.

Other provisions

Provisions are liabilities in which the amounts or due dates are uncertain. Provisions are recognized for present obligations arising out of past events, in which it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and the amount of the obligation can be reliably estimated.

The provisions are recognized and measured using the best estimate of the present value of their anticipated utilization. This estimate takes account of future events as well as the risks and uncertainties relating to the issue concerned.

Provisions for irrevocable loan commitments and provisions for financial guarantee contracts are recognized with the same model used for financial assets and in the amount of the expected credit losses.

Other provisions for loans and advances factor in the usual sector-specific level of uncertainty. The underlying assumptions and estimates used include figures based on past experience as well as expectations and forecasts relating to future trends and developments.

Subject to various criteria being met, the building society's terms and conditions provide for bonuses for home savings customers in the form of a reimbursement of some of the sales charge or in the form of interest bonuses on deposits. The bonuses constitute independent payment obligations and must be measured and recognized in accordance with IAS 37. Various options are available to home savings customers, for example drawing down the home savings loan, waiving the loan after allocation, or continuing with the home savings contract. In order

to measure provisions relating to building society operations, building society simulations (collective simulations) that forecast home savings customers' future behavior are used to evaluate these options. The parameters for collective simulation, including the probabilities of the options being exercised by home savings customers, are set using the exercise rate determined by observing customer behavior in the past. The collective simulations form the basis for cash flow projections that are used to measure the provisions relating to building society operations. These cash flow projections are carried out at portfolio level for a projection period of 15 years. For validation purposes, an additional process is used and the results are compared against those obtained using the measurement method. Uncertainty in connection with the measurement of the provisions may arise depending on the extent to which the assumptions about future customer behavior – taking account of various interest-rate scenarios and management measures – that were forecast using collective simulation actually materialize in the future. Unconditional bonuses in the form of additional interest credit are recognized as part of the amortized cost of the home savings deposits in accordance with IFRS 9.5.2.1 in conjunction with IFRS 9.4.2.1.

Provisions are recognized for risks arising from ongoing legal disputes and cover the possible resulting losses. Such provisions are recognized when the reasons indicating that a legal dispute will result in a payment obligation for an entity in the DZ BANK Group are stronger than those indicating the opposite. Any concentration risk owing to similarities between individual cases is taken into consideration.

The amount in which provisions are recognized for risks arising from ongoing legal disputes is based on the information available at the time and is subject to assumptions and discretion in how a dispute is assessed. For example, this may be because the entity in the DZ BANK Group does not yet have at its disposal all the information required to make a final assessment of the legal dispute, particularly during the early stages of proceedings. Moreover, predictions made by entities in the DZ BANK Group in relation to changes to legal circumstances, changes to official interpretations, or – in the case of court cases – to procedural orders, decisions by the courts, or the arguments expected to be put forward by the opponent in the case may later turn out to be unfounded.

The expense incurred by the unwinding of the discount on provisions is recognized as interest expense under net interest income.

>> 27 Subordinated capital

Subordinated capital comprises all registered or bearer debt instruments that, in the event of insolvency or liquidation, are repaid only after settlement of all unsubordinated liabilities but before distribution to shareholders of any proceeds from the insolvency or liquidation.

Subordinated liabilities largely comprise subordinated bearer bonds and promissory notes. Profit-sharing rights outstanding comprise registered and bearer profit-participation certificates in issue. Regulatory Tier 1 capital that does not meet IFRS equity criteria is recognized as other hybrid capital. The share capital repayable on demand comprises the non-controlling interests in partnerships controlled by entities in the DZ BANK Group. These non-controlling interests must be classified as subordinated.

Subordinated capital and gains and losses on this capital are measured and recognized in the same way as deposits from banks and customers.

>> 28 Contingent liabilities

Contingent liabilities are possible obligations arising from past events. The existence of these obligations will only be confirmed by future events outside the control of the entities in the DZ BANK Group. Present obligations arising out of past events but not recognized as provisions because of the improbability of an outflow of resources embodying economic benefits or because the amount cannot be measured with sufficient reliability also constitute contingent liabilities.

The amount of contingent liabilities is disclosed in the notes unless the probability of an outflow of resources embodying economic benefits is remote. Contingent liabilities are measured at the best estimate of possible future outflows of resources embodying economic benefits.

Contingent liabilities in respect of litigation risk are reported when the reasons indicating that there is no current obligation are stronger than those indicating the opposite, but there is still a likelihood that a legal dispute will result in a payment obligation for an entity in the DZ BANK Group. Risks arising from legal disputes are assessed according to how likely they are to occur.

B Disclosure of interests in other entities

>> 29 Investments in subsidiaries

Proportion of the DZ BANK Group's activities and cash flow attributable to non-controlling interests

In the DZ BANK Group, material non-controlling interests in the capital and net income exist in the following subsidiaries:

€ million	Dec. 31, 2020	Dec. 31, 2019
Bausparkasse Schwäbisch Hall subgroup	239	238
DZ PRIVATBANK	64	64
R+V Versicherung subgroup	1,237	1,168
Union Asset Management Holding subgroup	62	46
DZ BANK Capital Funding Trust I	285	296
DZ BANK Capital Funding Trust II	490	499
DZ BANK Capital Funding Trust III	348	350
DZ BANK Perpetual Funding Issuer (Jersey) Limited	240	241
Other	128	107
Total	**3,093**	**3,009**

Bausparkasse Schwäbisch Hall

Bausparkasse Schwäbisch Hall AG – Bausparkasse der Volksbanken und Raiffeisenbanken, Schwäbisch Hall (BSH) is the parent company of the BSH subgroup. BSH is headquartered in Schwäbisch Hall. DZ BANK directly holds 97.1 percent of the shares in BSH (December 31, 2019: 96.9 percent). The share of voting rights is equal to the shareholding. Non-controlling interests account for 2.9 percent of the voting rights and shares (December 31, 2019: 3.1 percent). As was the case a year earlier, most of these non-controlling interests are held by local cooperative banks.

The net income for the year attributable to the non-controlling interests was €8 million (2019: €17 million). This included the net income for the year attributable to non-controlling interests in the BSH subgroup of €6 million (2019: €11 million). The carrying amount of the non-controlling interests in the DZ BANK Group was €239 million (December 31, 2019: €238 million). Of this amount, €74 million was attributable to non-controlling interests within the BSH subgroup (December 31, 2019: €79 million). DZ BANK has entered into a profit-transfer agreement with BSH. This guarantees a cash settlement of €6.97 per non-par-value share (after corporation tax and ancillary taxes) for the outside shareholders of BSH until the end of the 2020 financial year. Guaranteed dividends of €1 million were paid to outside shareholders of BSH in 2020 (2019: €1 million). In the BSH subgroup, dividends of €4 million were paid to non-controlling interests (2019: €4 million).

Aggregated financial information for the BSH subgroup:

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	81,673	77,469
Liabilities	75,608	71,769

€ million	2020	2019
Interest income and fee and commission income	1,606	1,681
Net profit	51	150
Other comprehensive income	318	408
Total comprehensive income	369	558
Cash flow	405	101

DZ PRIVATBANK

DZ PRIVATBANK S.A., Strassen, Luxembourg, (DZ PRIVATBANK S.A.), headquartered in Luxembourg, together with its wholly owned subsidiaries DZ PRIVATBANK (Schweiz) AG, Zurich, Switzerland, IPConcept (Luxemburg) S.A., Strassen, Luxembourg, and IPConcept (Schweiz) AG, Zurich, Switzerland, is the cooperative center of excellence for the private banking business of the local cooperative banks in Germany.

DZ BANK directly holds 91.7 percent (December 31, 2019: 91.5 percent) of the shares in DZ PRIVATBANK S.A. The share of voting rights is equal to the shareholding. The other shares are held by local cooperative banks and cooperative investors.

The net income for the year attributable to the non-controlling interests was €2 million (2019: €2 million). The carrying amount of the non-controlling interests was €64 million (December 31, 2019: €64 million). The dividend distributed to the non-controlling interests came to €1 million in 2020 (2019: €1 million).

Aggregated financial information for DZ PRIVATBANK:

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	17,691	19,464
Liabilities	16,836	18,622

€ million	2020	2019
Interest income and fee and commission income	519	544
Net profit	28	28
Other comprehensive income/loss	-4	6
Total comprehensive income	24	34
Cash flow	-1,914	640

R+V Versicherung

The R+V Group is a subgroup of the DZ BANK Group that, with its individual companies, offers all types of insurance in all of the non-life, life, and health insurance sectors. It also takes on inward reinsurance business in the international market.

R+V Versicherung AG, Wiesbaden, (R+V) is the parent company of the R+V subgroup. R+V is headquartered in Wiesbaden. DZ BANK directly holds 92.2 percent of the shares in R+V (December 31, 2019: 92.1 percent). The share of voting rights is equal to the shareholding. Non-controlling interests account for 7.8 percent of the voting rights and shares (December 31, 2019: 7.9 percent). Within this figure, local cooperative banks hold 6.0 percent (December 31, 2019: 6.1 percent). The other 1.8 percent (December 31, 2019: 1.8 percent) is held by other entities in the cooperative sector.

The net income for the year attributable to the non-controlling interests was €35 million (2019: €97 million). This included the net income for the year attributable to non-controlling interests in the R+V subgroup of €28 million (2019: €47 million). The carrying amount of the non-controlling interests in the DZ BANK Group was €1,237 million (December 31, 2019: €1,168 million). Of this amount, €631 million was attributable to non-controlling interests within the R+V subgroup (December 31, 2019: €583 million). DZ BANK has entered into a profit-transfer agreement with R+V. This guarantees an annual cash settlement of €6.30 per non-par-value share (after corporation tax and ancillary taxes) for the outside shareholders of R+V until the end of the 2021 financial year. Guaranteed dividends of €7 million were paid to outside shareholders of R+V in 2020 (2019: €7 million). In the R+V subgroup, dividends of €8 million were paid to non-controlling interests (2019: €8 million).

Aggregated financial information for the R+V subgroup:

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	130,027	121,973
Liabilities	121,539	113,761

€ million	2020	2019
Premiums earned	18,741	17,249
Net profit	43	607[1]
Other comprehensive income	241	945[1]
Total comprehensive income	284	1,552

1 Amount restated (see note 2).

Union Asset Management Holding

Union Asset Management Holding AG, Frankfurt am Main, (UMH) is the parent company of the UMH subgroup. UMH is headquartered in Frankfurt am Main. Other major locations are Hamburg and Luxembourg. DZ BANK's aggregated shareholding in UMH is 96.6 percent (December 31, 2019: 96.6 percent). The share of voting rights is equal to the aggregated shareholding. Non-controlling interests account for 3.4 percent of the shares (December 31, 2019: 3.4 percent). Most of these non-controlling interests are held by local cooperative banks. The proportion held indirectly by DZ BANK is 95.8 percent (December 31, 2019: 95.8 percent).

The carrying amount of the non-controlling interests within the DZ BANK Group was €62 million (December 31, 2019: €46 million) and related to the multiplicative share of the capital of UMH. Of this amount, €31 million was attributable to non-controlling interests within the UMH subgroup (December 31, 2019: €24 million). The net

income for the year attributable to the non-controlling interests was €24 million (2019: €23 million). This included the net income for the year attributable to non-controlling interests in the UMH subgroup of €9 million (2019: €8 million). The dividend distributed to the non-controlling interests totaled €12 million in 2020 (2019: €14 million). €7 million of this amount was paid as dividends to non-controlling interests in the UMH subgroup (2019: €7 million).

Aggregated financial information for the UMH subgroup:

€ million	**Dec. 31, 2020**	Dec. 31, 2019
Assets	3,561	3,012
Liabilities	1,721	1,406

€ million	**2020**	2019
Interest income and fee and commission income	2,791	2,671
Net profit	460	478
Other comprehensive income/loss	-22	-2
Total comprehensive income	438	476

DZ BANK Capital Funding Trust I, II, and III and DZ BANK Perpetual Funding Issuer (Jersey) Limited

DZ BANK has established companies in Delaware, USA, and Jersey, Channel Islands, in order to increase own funds in accordance with section 10a of the German Banking Act (KWG). The business activities of these companies are limited to the issuance of open-ended equity instruments without redemption incentives. These equity instruments that have been issued are held by non-voting non-controlling interests in the DZ BANK Group. The companies in question are:

- DZ BANK Capital Funding Trust I, Wilmington, Delaware,
- DZ BANK Capital Funding Trust II, Wilmington, Delaware,
- DZ BANK Capital Funding Trust III, Wilmington, Delaware,
- DZ BANK Perpetual Funding Issuer (Jersey) Limited, St. Helier, Jersey.

The companies were established at their current registered office. The Delaware companies are headquartered in New York, USA. The Channel Islands company is headquartered in Frankfurt am Main. Virtually 100 percent of the issued share capital of each of the companies is attributable to non-voting non-controlling interests, while the voting rights in the companies are attached to only a small proportion of the shares. As a result, virtually all of the profits and losses of the companies are attributable to the non-controlling interests.

The companies' net income for the year is shown in the following table:

€ million	**2020**	2019
DZ BANK Capital Funding Trust I	6	7
DZ BANK Capital Funding Trust II	6	6
DZ BANK Capital Funding Trust III	4	4
DZ BANK Perpetual Funding Issuer (Jersey) Limited	1	1

Distributions of dividends to the non-controlling interests generally take the form of a variable or fixed-rate coupon whose actual payment is not subject to a contractual obligation.

The dividends paid to the non-controlling interests in the financial year are shown in the following table:

€ million	**2020**	2019
DZ BANK Capital Funding Trust I	6	7
DZ BANK Capital Funding Trust II	6	6
DZ BANK Capital Funding Trust III	4	4
DZ BANK Perpetual Funding Issuer (Jersey) Limited	1	1

Aggregated financial information for the DZ BANK Capital Funding Trust companies and the DZ BANK Perpetual Funding Issuer company:

€ million	**Dec. 31, 2020**	Dec. 31, 2019
Non-current assets	1,410	1,410
Liabilities	-	-

€ million	**2020**	2019
Interest income and fee and commission income	17	18
Net profit	17	18
Total comprehensive income	17	18

Nature and extent of significant restrictions

National regulatory requirements, contractual provisions, and provisions of company law restrict the DZ BANK Group’s ability to transfer assets within the group. Where these restrictions can be specifically assigned to individual line items on the balance sheet, the carrying amounts of the assets and liabilities subject to restrictions on the balance sheet date are shown in the following table:

€ million	**Dec. 31, 2020**	Dec. 31, 2019
Assets	**95,445**	**89,997**
Loans and advances to customers	2,714	2,699
Investments	5	5
Investments held by insurance companies	92,723	87,290
Other assets	3	3
Liabilities	**156,261**	**148,690**
Deposits from banks	1,711	1,788
Deposits from customers	64,673	63,226
Provisions	1,443	1,406
Insurance liabilities	88,434	82,270

Nature of the risks associated with interests in consolidated structured entities

Risks arising from interests in consolidated structured entities largely result from loans to fully consolidated funds, some of which are extended in the form of junior loans.

>> 30 Interests in joint arrangements and associates

Nature, extent, and financial effects of interests in joint arrangements

Prvá stavebná sporiteľňa

Prvá stavebná sporiteľňa a.s., Bratislava, Slovakia, (PSS) is a joint venture between BSH and its partners Raiffeisen Bausparkasse Holding GmbH, Vienna, Austria, Slovenská sporiteľňa a.s., Bratislava, Slovakia, and Erste Group Bank AG, Vienna, Austria. PSS is headquartered in Bratislava, Slovakia. PSS is the market leader for building society operations in Slovakia. BSH's shareholding in PSS was 32.5 percent on the balance sheet date, as it had been at December 31, 2019. In the DZ BANK Group, the interests in PSS are accounted for using the equity method. PSS did not pay any dividend to BSH in 2020 (2019: no dividend).

Aggregated financial information for PSS:

€ million	**Dec. 31, 2020**	Dec. 31, 2019
Current assets	570	625
of which cash and cash equivalents	76	13
Non-current assets	2,413	2,405
Current liabilities	664	690
of which financial liabilities	650	670
Non-current liabilities	2,053	2,082
of which financial liabilities	2,042	2,068

€ million	**2020**	2019
Interest income	95	101
Interest expense	-33	-38
Fee and commission income	13	16
Fee and commission expenses	-1	-1
Administrative expenses	-36	-34
Income taxes	-3	-5
Profit from continuing operations, net of tax	8	15
Total comprehensive income	8	15

Reconciliation from the aggregated financial information to the carrying amount of the interests in PSS:

€ million	Dec. 31, 2020	Dec. 31, 2019
Total net assets	**266**	258
Share of net assets	**87**	84
Cumulative impairment losses on the carrying amount of the investment	-11	-11
Carrying amount under the equity method	**76**	73

Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse)

Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse), Tianjin, China, (SGB) is a joint venture between BSH and China Construction Bank Corporation, Beijing, China. SGB is headquartered in Tianjin, China. Its business activities are concentrated in the regions of Tianjin (population of approx. 13 million) and Chongqing (population of approx. 30 million). BSH's shareholding in this Chinese building society was 24.9 percent on the balance sheet date, as it had been at December 31, 2019. In the DZ BANK Group, the interests in SGB are accounted for using the equity method. SGB did not pay a dividend in 2020, as had also been the case in the previous year.

Aggregated financial information for SGB:

€ million	Dec. 31, 2020	Dec. 31, 2019
Current assets	1,105	578
of which cash and cash equivalents	417	502
Non-current assets	2,017	2,332
Current liabilities	2,062	1,931
of which financial liabilities	1,883	1,743
Non-current liabilities	685	602
of which financial liabilities	680	598

€ million	2020	2019
Interest income	107	84
Interest expense	-44	-47
Fee and commission income	5	9
Fee and commission expenses	-14	-13
Administrative expenses	-34	-36
Income taxes	-3	-2
Profit from continuing operations, net of tax	8	6
Other comprehensive income/loss	-10	3
Total comprehensive income/loss	-2	9

Reconciliation from the aggregated financial information to the carrying amount of the interests in SGB:

€ million	Dec. 31, 2020	Dec. 31, 2019
Total net assets	**375**	377
Share of net assets	**93**	94
Cumulative impairment losses on the carrying amount of the investment	-63	-64
Carrying amount under the equity method	**30**	30

Deutsche WertpapierService Bank

Deutsche WertpapierService Bank AG, Frankfurt am Main, (dwpbank) is a joint venture of DZ BANK with Westfälisch-Lippische Sparkassen- und Giroverband, Münster, Rheinischer Sparkassen- und Giroverband, Düsseldorf, and 3 other banks in Germany and is accounted for in the DZ BANK Group's financial statements using the equity method. dwpbank is headquartered in Frankfurt am Main. Its capital is divided into 20,000,000 voting registered shares with transfer restrictions. DZ BANK holds a 50.0 percent stake in dwpbank, as it did at December 31, 2019. The equity method is applied to dwpbank on the basis of financial statements prepared in accordance with HGB.

The shares in dwpbank are not traded in an active market. dwpbank did not pay any dividend to DZ BANK in 2020 (2019: no dividend).

Aggregated financial information for dwpbank:

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	693	583
Liabilities	423	373
of which financial liabilities	208	150

dwpbank only has a small amount of cash and cash equivalents.

€ million	2020	2019
Interest income	3	4
Interest expense	-3	-3
Fee and commission income	400	321
Fee and commission expenses	-90	-76
Administrative expenses	-228	-211
Income taxes	-11	-10
Profit from continuing operations, net of tax	60	6
Total comprehensive income	60	6

Reconciliation from the aggregated financial information to the carrying amount of the interests in dwpbank:

€ million	Dec. 31, 2020	Dec. 31, 2019
Total net assets	**270**	210
Share of net assets	**135**	105
Capitalization of goodwill	29	29
Carrying amount under the equity method	**164**	134

Other joint ventures

The carrying amount of the equity-accounted joint ventures that, individually, are not material totaled €59 million on the balance sheet date (December 31, 2019: €76 million).

Aggregated financial information for equity-accounted joint ventures that, individually, are not material:

€ million	2020	2019
Share of profit from continuing operations, net of tax	5	4
Share of other comprehensive income	8	-
Share of total comprehensive income	13	4

Nature, extent, and financial effects of investments in associates

Other associates

The carrying amount of the equity-accounted associates that, individually, are not material totaled €112 million on the balance sheet date (December 31, 2019: €201 million).

Aggregated financial information for equity-accounted associates that, individually, are not material:

€ million	2020	2019
Share of profit/loss from continuing operations, net of tax	-2	21
Share of profit from discontinued operations, net of tax	1	7
Share of total comprehensive income/loss	-1	28

>> 31 Interests in unconsolidated structured entities

Structured entities are entities that have been designed so that voting rights or similar rights are not the dominant factor in deciding who controls the entity. The DZ BANK Group distinguishes between the following types of interests in unconsolidated structured entities, based on their design and the related risks:

- Interests in investment funds issued by the DZ BANK Group,
- Interests in investment funds not issued by the DZ BANK Group,
- Interests in securitization vehicles,
- Interests in asset-leasing vehicles.

Interests in investment funds issued by the DZ BANK Group

The interests in the investment funds issued by the DZ BANK Group largely comprise investment funds issued by entities in the Union Investment Group in accordance with the contractual form model without voting rights and, to a lesser extent, those that are structured as a company with a separate legal personality. The number of unit/share types and volume of investment funds issued and managed by the UMH subgroup can be broken down as follows:

	Dec. 31, 2020		Dec. 31, 2019	
€ million	Volume	Number	Volume	Number
Mutual funds	198,732	341	184,703	334
of which guarantee funds	790	14	1,703	25
Special funds	125,070	426	116,299	418
of which guarantee funds	-	-	-	-
Total	**323,802**	**767**	**301,002**	**752**

Furthermore, DVB Bank SE, Frankfurt am Main, (DVB) makes subordinated loans available to fully consolidated funds for the purpose of transport finance. In turn, these funds make subordinated loans or direct equity investments available to unconsolidated entities.

The maximum exposure of the investment funds issued and managed by the DZ BANK Group is shown in the following tables as a gross value, excluding deduction of available collateral:

AS AT DECEMBER 31, 2020

€ million	Mutual funds	of which guarantee funds	Special funds	of which guarantee funds	Total
Assets	**2,077**	**-**	**5,241**	**-**	**7,318**
Loans and advances to customers	3	-	5	-	8
Investments	1,673	-	6	-	1,679
Investments held by insurance companies	136	-	5,128	-	5,264
Property, plant and equipment, investment property, and right-of-use assets	71	-	-	-	71
Other assets	155	-	22	-	177
Non-current assets and disposal groups classified as held for sale	39	-	80	-	119
Liabilities	**84**	**12**	**-**	**-**	**84**
Hedging instruments (negative fair values)	12	12	-	-	12
Other liabilities	72	-	-	-	72
Net exposure recognized on the balance sheet	1,993	-12	5,241	-	7,234
Contingent liabilities	**-**	**-**	**-**	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**745**	**745**	**-**	**-**	**745**
Financial guarantee contracts	-	-	-	-	-
Loan commitments	-	-	-	-	-
Other obligations	745	745	-	-	745
Actual maximum exposure	**2,738**	**733**	**5,241**	**-**	**7,979**

AS AT DECEMBER 31, 2019

€ million	Mutual funds	of which guarantee funds	Special funds	of which guarantee funds	Total
Assets	**1,824**	**-**	**6,012**	**-**	**7,836**
Loans and advances to customers	5	-	7	-	12
Investments	1,464	-	35	-	1,499
Investments held by insurance companies	122	-	5,477	-	5,599
Property, plant and equipment, investment property, and right-of-use assets	46	-	-	-	46
Other assets	149	-	19	-	168
Non-current assets and disposal groups classified as held for sale	38	-	474	-	512
Liabilities	**57**	**10**	**-**	**-**	**57**
Hedging instruments (negative fair values)	10	10	-	-	10
Other liabilities	47	-	-	-	47
Net exposure recognized on the balance sheet	1,767	-10	6,012	-	7,779
Contingent liabilities	**-**	**-**	**-**	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**1,573**	**1,573**	**-**	**-**	**1,573**
Financial guarantee contracts	-	-	-	-	-
Loan commitments	-	-	-	-	-
Other obligations	1,573	1,573	-	-	1,573
Actual maximum exposure	**3,340**	**1,563**	**6,012**	**-**	**9,352**

Regarding the disclosure of the maximum exposure, it must be noted that the ‘Other obligations’ line item in the table above includes market price guarantees in the amount of the nominal amounts of the guarantee commitments for guarantee funds of €757 million (December 31, 2019: €1,584 million), less negative fair values of €12 million (December 31, 2019: €10 million) recognized as a liability for the put options embedded in these products. The maximum exposure for market price guarantees for the guarantee funds does not represent the economic risk of this product type because the economic risk also has to reflect these guarantee funds’ net assets of €790 million on the balance sheet date (December 31, 2019: €1,703 million) (net asset value) and the management model used with these products to safeguard the minimum payment commitments. The benefit under a market price guarantee is triggered if the fair value of the affected units does not reach the specified guaranteed level on particular dates. The put options embedded in the guarantee funds are reported as derivatives (negative fair values) under equity and liabilities on the balance sheet.

The interests in investment funds issued and managed by the DZ BANK Group resulted in losses of €66 million in the financial year (2019: losses of €13 million). Distributions in 2020 relating to each investment fund were offset in the calculation of the losses incurred in respect of each fund. No amount was added to loss allowances in 2020 (2019: €146 million).

The revenue generated from investment funds issued by the DZ BANK Group was as follows:

2020

€ million	Mutual funds	of which guarantee funds	Special funds	of which guarantee funds	**Total**
Interest income and current income and expense	7	-	2	-	9
Fee and commission income	2,309	7	199	-	2,508
Gains and losses on investments	-5	-	-	-	-5
Other gains and losses on valuation of financial instruments	16	-	2	-	18
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	-	29	-	29
Other operating income	-	-	2	-	2
Total	**2,327**	**7**	**234**	**-**	**2,561**

2019

€ million	Mutual funds	of which guarantee funds	Special funds	of which guarantee funds	**Total**
Interest income and current income and expense	8	-	-1	-	7
Fee and commission income	2,190	16	173	-	2,363
Gains and losses on investments	2	-	1	-	3
Other gains and losses on valuation of financial instruments	16	-	-1	-	15
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	-	33	-	33
Other operating income	-	-	-	-	-
Total	**2,216**	**16**	**205**	**-**	**2,421**

Interests in investment funds not issued by the DZ BANK Group

The interests in the investment funds not issued by the DZ BANK Group above all comprise investment funds managed by entities in the Union Investment Group within the scope of their own decision-making powers that have been issued by entities outside the DZ BANK Group and parts of such investment funds. Their total volume amounted to €39,836 million (December 31, 2019: €40,256 million). The DZ BANK Group also extends loans to investment funds in order to generate interest income.

In addition, there were investment funds issued by entities outside the group in connection with unit-linked life insurance amounting to €10,056 million (December 31, 2019: €8,837 million) that, however, do not result in a maximum exposure.

The maximum exposure arising from the investment funds not issued by the DZ BANK Group is shown as a gross value, excluding deduction of available collateral. The following assets and liabilities have been recognized on the DZ BANK Group's balance sheet in connection with interests in investment funds not issued by the DZ BANK Group:

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	**7,051**	**6,771**
Loans and advances to customers	7,051	6,771
Liabilities	**-**	**-**
Net exposure recognized on the balance sheet	7,051	6,771
Contingent liabilities	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**267**	**229**
Financial guarantee contracts	37	-
Loan commitments	230	229
Other obligations	-	-
Maximum exposure	**7,318**	**7,000**

The revenue generated from interests in investment funds not issued by the DZ BANK Group was as follows:

€ million	2020	2019
Interest income	117	82
Fee and commission income	78	83
Total	**195**	**165**

Interests in securitization vehicles

The interests in securitization vehicles are interests in vehicles where the DZ BANK Group's involvement goes beyond that of an investor. The assets and liabilities listed below have been recognized on the DZ BANK Group's balance sheet in connection with these interests. There is also an additional exposure from contingent liabilities and from financial guarantee contracts, loan commitments, and other obligations, which are shown at their nominal amounts. Only financial guarantee contracts, loan commitments, and other obligations for which no liability or contingent liability has been recognized are included. The maximum exposure is determined as a gross value, excluding deduction of available collateral.

€ million	Dec. 31, 2020	Dec. 31, 2019
Assets	**1,658**	**1,529**
Loans and advances to customers	1,498	1,386
Financial assets held for trading	86	82
Investments	74	61
Liabilities	**7**	**4**
Deposits from customers	4	3
Financial liabilities held for trading	1	-
Provisions	2	1
Net exposure recognized on the balance sheet	1,651	1,525
Contingent liabilities	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**2,932**	**2,479**
Financial guarantee contracts	-	-
Loan commitments	2,932	2,479
Other obligations	-	-
Maximum exposure	**4,583**	**4,004**

The revenue generated from interests in securitization vehicles was as follows:

€ million	2020	2019
Interest income	6	7
Fee and commission income	45	45
Gains and losses on trading activities	8	10
Gains and losses on investments	-	1
Total	**59**	**63**

The material interests in securitization vehicles comprise the two multi-seller asset-backed commercial paper (ABCP) programs: CORAL and AUTOBAHN.

DZ BANK acts as sponsor and program agent for both programs. It is also the program administrator for AUTOBAHN. As sponsor, DZ BANK was involved in setting up the structured entities and provides various services for them. Under the CORAL program, customers of the bank sell assets to separate special-purpose entities. The assets purchased essentially consist of trade receivables, loans, and lease receivables. Under the AUTOBAHN program, assets of North American customers are sold to specially established special-purpose entities and funded through the issuing company by means of ABCP issues.

The special-purpose entities are unconsolidated structured entities. Owing to the cellular structure of the transactions, there are no investee companies to be assessed. DZ BANK does not have control over the individual silos because it acts as agent and not as principal.

The purchase of the assets is funded using liquidity lines and by issuing money market-linked ABCPs. DZ BANK is a liquidity agent for the program, which involves making liquidity facilities available.

In 2020, DZ BANK did not provide either of the programs with any non-contractual support. Moreover, it currently has no intention to provide financial or other support. Because the ABCP programs are fully supported programs, DZ BANK bears all the credit risk.

Interests in asset-leasing vehicles

The interests in asset-leasing vehicles comprised shares in limited partnerships and voting shares, other than the shares in limited partnerships, in partnerships established by VR Smart Finanz for the purpose of real estate leasing (asset-leasing vehicles), in which the asset, and the funding occasionally provided by the DZ BANK Group, were placed. This business model was discontinued in 2019.

In 2019, the interests in asset-leasing vehicles had given rise to interest income and current income and expense of €1 million and other net operating income of €2 million.

>> 32 Sponsoring arrangements for unconsolidated structured entities

The DZ BANK Group sponsors an unconsolidated structured entity within the meaning of IFRS 12 if it was involved in establishing the structured entity or if the structured entity is linked by name to DZ BANK or a subsidiary within the DZ BANK Group and there are no interests, within the meaning of IFRS 12, in the structured entity.

Until the majority of the shares were acquired in October 2020, the DZ BANK Group acted as sponsor for an unconsolidated structured entity because it was linked with the structured entity by name and did not have any interests in the structured entity within the meaning of IFRS 12. The structured entity is an open-ended real estate fund for which the DZ BANK Group received a fee for sales and for services. In 2020, the fees amounted to €24 million (2019: €28 million) under net fee and commission income and €1 million (2019: €1 million) under other net operating income.

C Disclosures relating to the income statement and the statement of comprehensive income

>> 33 Segment information

Information on operating segments

2020

€ million	BSH	R+V	TeamBank	UMH
Net interest income	531	-	492	10
Net fee and commission income	-9	-	-30	1,566
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	56	-	-	44
Other gains and losses on valuation of financial instruments	5	-	-1	-83
Gains and losses from the derecognition of financial assets measured at amortized cost	15	-	-	-
Premiums earned	-	18,741	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	2,091	-	-
Insurance benefit payments	-	-17,499	-	-
Insurance business operating expenses	-	-3,046	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-19	-	-
Loss allowances	-29	-	-59	-
Administrative expenses	-526	-	-256	-919
Other net operating income	38	9	8	31
Profit/loss before taxes	**81**	**277**	**154**	**649**
Cost/income ratio (%)	82.7	-	54.6	58.6
Regulatory RORAC (%)	6.6	2.6	27.0	>100.0
Average own funds/solvency requirement	1,216	10,473	569	432
Total assets/total equity and liabilities as at Dec. 31, 2020	81,673	130,027	9,285	3,561

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	832	714	69	138	30	-50	31	2,797
	441	6	188	-24	25	-	-42	2,121
	488	9	17	-	26	-	12	552
	15	1	-	-	-1	-	51	166
	41	118	-2	-	-81	-	-19	-22
	-3	-	-	-	-	-	-14	-2
	-	-	-	-	-	-	-	18,741
	-	-	-	-	-	-	-44	2,047
	-	-	-	-	-	-	-	-17,499
	-	-	-	-	-	-	124	-2,922
	-	-	-	-	-	-	-1	-20
	-337	-47	-1	-49	-153	-	-3	-678
	-1,272	-237	-235	-102	-154	-188	-147	-4,036
	39	18	2	-8	23	-	50	210
	244	**582**	**38**	**-45**	**-285**	**-238**	**-2**	**1,455**
	68.6	27.4	85.8	96.2	>100.0	-	-	65.4
	4.6	36.7	10.8	-17.5	>100.0	-	-	7.2
	5,298	1,586	352	255	154	-	-	20,336
	314,612	94,486	17,691	3,684	10,247	21,297	-91,990	594,573

2019

€ million	BSH	R+V	TeamBank	UMH
Net interest income	450	-	482	40
Net fee and commission income	-28	-	-28	1,468
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	163	-	-	2
Other gains and losses on valuation of financial instruments	18	-	-	-43
Gains and losses from the derecognition of financial assets measured at amortized cost	18	-	-	-
Premiums earned	-	17,249	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	6,204	-	-
Insurance benefit payments[1]	-	-19,394	-	-
Insurance business operating expenses	-	-2,973	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-12	-	-
Loss allowances	-4	-	-77	-
Administrative expenses	-486	-	-230	-910
Other net operating income	58	-11	5	91
Profit/loss before taxes	**189**	**1,063**	**152**	**648**
Cost/income ratio (%)	71.6	-	50.1	58.4
Regulatory RORAC (%)	16.5	13.3	30.0	>100.0
Average own funds/solvency requirement	1,147	8,415	506	357
Total assets/total equity and liabilities as at Dec. 31, 2019[1]	77,469	121,973	9,455	3,012

1 Amount restated (see note 2).

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	772	656	65	147	146	-55	35	2,738
	388	2	176	-10	48	-	-41	1,975
	437	-2	9	-	6	-	22	472
	-3	10	-	-	-1	-	11	182
	39	275	2	1	-36	-	-1	255
	50	-	-	-	-	-	-53	15
	-	-	-	-	-	-	-	17,249
	-	-	-	-	-	-	-47	6,157
	-	-	-	-	-	-	-	-19,394
	-	-	-	-	-	-	150	-2,823
	-	-	-	-	-	-	-3	-15
	-77	1	-	-30	-141	-	-1	-329
	-1,296	-259	-220	-127	-202	-203	-141	-4,074
	-17	4	4	9	72	-	35	250
	293	**687**	**36**	**-10**	**-108**	**-258**	**-34**	**2,658**
	77.8	27.4	85.9	86.4	86.0	>100.0	-	57.7
	5.8	44.5	11.2	-3.4	-42.1	-	-	15.2
	5,056	1,543	319	291	256	-	-	17,890
	288,841	92,377	19,464	4,283	14,239	20,191	-91,832	559,472

General information on operating segments
The information on operating segments has been prepared using the management approach in accordance with IFRS 8. Under this standard, external reporting must include segment information that is used internally for the management of the entity and for the purposes of quantitative reporting to the chief operating decision-makers. The DZ BANK Group's information on operating segments has therefore been prepared on the basis of the internal management reporting system.

Definition of operating segments
Segmentation is fundamentally based on the integrated risk and capital management system in the DZ BANK Group, the function of which is to create transparency, notably in respect of the risk structure and risk-bearing capacity of the individual management units in the group. The segment information presents separate disclosures for the management units DZ HYP AG, Hamburg/Münster, (DZ HYP), TeamBank AG Nürnberg, Nuremberg, (TeamBank), DZ PRIVATBANK, and the BSH, DVB, R+V, UMH, and VR Smart Finanz subgroups. DZ BANK is broken down into the central institution and corporate bank (DZ BANK – CICB) and the group management function (DZ BANK – holding function) in line with the internal financial reporting structure. The DZ BANK – CICB operating segment comprises the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is mainly used to pool tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision. The total assets of DZ BANK – holding function include the equity, plus a number of other items such as a notional carrying amount for the long-term equity investment in DZ BANK – CICB, together with the carrying amounts of the long-term equity investments in the other management units. The notional long-term equity investment in DZ BANK – CICB is measured in an amount equating to 11 percent of the risk-weighted assets of DZ BANK – CICB. DZ BANK – holding function does not constitute an operating segment within the meaning of IFRS 8.5 but is presented separately in line with the internal reporting structure. All other companies in the DZ BANK Group, which are not required to provide regular quantitative reports to the chief operating decision-makers, and the consolidations are reported on an aggregated basis under Other/Consolidation.

Presentation of operating segments
Interest income and associated interest expenses generated by the operating segments are offset and reported as net interest income in the information on operating segments because, from a group perspective, the operating segments are managed solely on the basis of the net figure.

Measurement
Internal reporting to the chief operating decision-makers in the DZ BANK Group is primarily based on the generally accepted accounting and measurement principles applicable to the DZ BANK Group.

Intragroup transactions between operating segments are carried out on an arm's-length basis. These transactions are reported internally using the financial reporting standards applied to external financial reporting.

The key indicators for assessing the performance of the operating segments are profit/loss before taxes, the cost/income ratio, and the return on risk-adjusted capital (regulatory RORAC).

The cost/income ratio shows the ratio of administrative expenses to operating income and reflects the economic efficiency of the operating segment concerned.

Operating income comprises net interest income, net fee and commission income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, gains and losses from the derecognition of financial assets measured at amortized cost, net income from insurance business, and other net operating income.

Regulatory RORAC is a risk-adjusted performance measure. In the financial year, it reflected the relationship between profit before taxes and the average own funds for the year (calculated as an average of the figure for the four quarters) in accordance with the own funds/solvency requirements for the financial conglomerate. It therefore shows the return on the regulatory risk capital employed.

Other/Consolidation

The consolidation-related adjustments shown under Other/Consolidation to reconcile operating segment profit/loss before taxes to consolidated profit/loss before taxes are attributable to the elimination of intragroup transactions and to the fact that investments in joint ventures and associates were accounted for using the equity method.

The adjustments to net interest income were primarily the result of the elimination of intragroup dividend payments and profit distributions in connection with intragroup liabilities to dormant partners and were also attributable to the early redemption of issued bonds and commercial paper that had been acquired by entities in the DZ BANK Group other than the issuer.

The figure under Other/Consolidation for net fee and commission income largely relates to the fee and commission business of TeamBank and the BSH subgroup with the R+V subgroup.

The remaining adjustments are mostly also attributable to the consolidation of income and expenses.

DZ BANK Group-wide disclosures

Information about geographical areas

The DZ BANK Group's operating income was generated in the following geographical areas:

€ million	**2020**	2019
Germany	5,330	6,273[1]
Rest of Europe	786	836
Rest of World	206	103
Consolidation/reconciliation	-153	-151
Total	**6,169**	**7,061**

1 Amount restated (see note 2).

Information on geographical areas is presented according to the home countries of the companies included in the consolidated financial statements.

This information does not include the separate disclosure of certain non-current (largely tangible) assets because these assets are of minor significance in the DZ BANK Group's business model.

Information about products and services

Information on products and services offered by the DZ BANK Group is included in the income statement disclosures below.

>> 34 Net interest income

€ million	2020	2019
INTEREST INCOME AND CURRENT INCOME AND EXPENSE	**5,193**	**6,355**
Interest income from	**5,111**	**6,272**
Lending and money market business	4,915	6,053
of which relating to mortgage loans	975	918
of which relating to home savings loans advanced by building society	1,067	1,073
of which relating to pass-through loans	608	674
of which relating to registered securities	310	356
of which relating to finance leases	47	76
Bonds and other fixed-income securities	519	656
Portfolio hedges of interest-rate risk	-128	-171[1]
Financial assets with a negative effective interest rate	-188	-266
Other assets	-7	-
Current income and expense from	**82**	**83**
Shares and other variable-yield securities	22	27
of which income from other shareholdings	13	16
Investments in subsidiaries	7	2
Investments in associates	1	2
Operating leases	-3	13
Entities accounted for using the equity method	49	35
of which relating to investments in joint ventures	39	7
of which relating to investments in associates	10	28
Income from profit-pooling, profit-transfer and partial profit-transfer agreements	6	4
INTEREST EXPENSE ON	**-2,396**	**-3,617**
Deposits from banks and customers	-2,274	-3,181
of which relating to home savings deposits	-984	-1,145
Debt certificates issued including bonds	-453	-695
Subordinated capital	-62	-71
Portfolio hedges of interest-rate risk	45	85[1]
Financial liabilities with a positive effective interest rate	357	252
Provisions and other liabilities	-9	-7
Total	**2,797**	**2,738**

1 Amount restated (see note 2).

The interest income from other assets included losses of €7 million from non-credit-risk-related modifications resulting from financial assets (2019: no losses). The interest expense on provisions and other liabilities included interest expense on lease liabilities of €3 million (2019: €4 million).

>> 35 Net fee and commission income

€ million	2020	2019
Fee and commission income	**4,267**	4,044
Securities business	3,307	3,051
Asset management	287	251
Payments processing including card processing	281	289
Lending business and trust activities	125	149
Financial guarantee contracts and loan commitments	60	58
International business	12	10
Building society operations	39	34
Other	156	202
Fee and commission expenses	**-2,146**	-2,069
Securities business	-1,456	-1,369
Asset management	-194	-163
Payments processing including card processing	-134	-144
Lending business	-85	-88
Financial guarantee contracts and loan commitments	-10	-10
Building society operations	-72	-84
Other	-195	-211
Total	**2,121**	**1,975**

In the financial year, fee and commission income included revenue from contracts with customers pursuant to IFRS 15 in an amount of €4,258 million (2019: €4,032 million); see note 93.

>> 36 Gains and losses on trading activities

€ million	2020	2019
Gains and losses on non-derivative financial instruments and embedded derivatives	-32	-1,373
Gains and losses on derivatives	665	1,794
Gains and losses on exchange differences	-81	51
Total	**552**	**472**

>> 37 Gains and losses on investments

€ million	2020	2019
Gains and losses on the disposal of bonds and other fixed-income securities	**71**	70
Gains and losses on the disposal of shares and other variable-yield securities	**-2**	2
Gains and losses on the disposal of investments in subsidiaries	**6**	-1
Gains and losses on investments in joint ventures	**6**	116
Disposals	-1	116
Transitional accounting	7	-
Impairment losses	-33	-
Reversals of impairment losses	33	-
Gains and losses on investments in associates	**85**	-5
Disposals	37	4
Transitional accounting	48	-
Impairment losses	-4	-16
Reversals of impairment losses	4	7
Total	**166**	182

In the financial year, further shares were acquired in ZBI Partnerschaftsholding GmbH, Erlangen, as part of a business combination achieved in stages. The company was previously accounted for using the equity method. It has been fully consolidated since control was obtained. The net gain resulting from transitional accounting amounted to €48 million. Further shares in GMS Holding GmbH, Paderborn, were also acquired. The investment in the joint venture, which was previously accounted for using the equity method, has been measured at fair value through profit or loss since control was obtained. This led to a net gain resulting from transitional accounting of €7 million.

In 2019, the bulk of the gains from the sale of investments in joint ventures had been derived from the disposal of Českomoravská stavební spořitelna, a.s., Prague, Czech Republic, (ČMSS).

>> 38 Other gains and losses on valuation of financial instruments

€ million	2020	2019
Gains and losses from fair value hedge accounting	**41**	-2
Gains and losses on derivatives used for purposes other than trading	**-173**	-45
Gains and losses on financial instruments designated as at fair value through profit or loss	**110**	273
Gains and losses on non-derivative financial instruments and embedded derivatives	234	211
Gains and losses on derivatives	-124	62
Gains and losses on financial assets mandatorily measured at fair value through profit or loss	**-**	29
Total	**-22**	255

Gains and losses on derivatives used for purposes other than trading result from the recognition and measurement of derivatives that are used for economic hedging but are not included in hedge accounting.

>> 39 Gains and losses from the derecognition of assets measured at amortized cost

€ million	2020	2019
Gains from the derecognition of financial assets measured at amortized cost	**12**	**47**
Loans and advances to banks and customers	5	9
Investments	7	38
Losses on derecognition of financial assets measured at amortized cost	**-14**	**-32**
Investments	-2	-2
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	-12	-30
Total	**-2**	**15**

The derecognition of financial assets measured at amortized cost was primarily attributable to the sale of impaired loans and advances to customers and early redemptions at the request of customers.

>> 40 Premiums earned

€ million	2020	2019
Net premiums written	**18,754**	**17,255**
Gross premiums written	18,952	17,398
Reinsurance premiums ceded	-198	-143
Change in provision for unearned premiums	**-13**	**-6**
Gross premiums	-14	-10
Reinsurers' share	1	4
Total	**18,741**	**17,249**

>> 41 Gains and losses on investments held by insurance companies and other insurance company gains and losses

€ million	2020	2019
Income from investments held by insurance companies	**8,691**	**8,961**
Interest income and current income	2,270	2,476
Income from reversals of impairment losses and reversals of loss allowances, and unrealized gains	346	655
Gains on valuation through profit or loss of investments held by insurance companies	4,857	5,058
Gains on disposals	1,218	772
Expenses in connection with investments held by insurance companies	**-6,962**	**-2,694**
Administrative expenses	-179	-171
Depreciation/amortization expense, additions to loss allowances, and impairment losses and unrealized losses	-1,252	-507
Losses on valuation through profit or loss of investments held by insurance companies	-4,310	-1,539
Losses on disposals	-1,220	-477
Expenses from the transfer of losses	-1	-
Other gains and losses of insurance companies	**318**	**-110**
Other insurance gains and losses	296	317
Other non-insurance gains and losses	22	-427
Total	**2,047**	**6,157**

Other non-insurance gains and losses included interest expenses on lease liabilities amounting to €1 million (2019: €1 million).

Income from and expenses in connection with investments held by insurance companies and other gains and losses of insurance companies included currency translation losses of €603 million (2019: gains of €123 million).

Income from and expenses in connection with investments held by insurance companies included additions to loss allowances of €82 million (2019: €5 million), reversals of loss allowances of €23 million (2019: €8 million), and no directly recognized impairment losses (2019: €1 million).

Around €46 million of the expenses for additions to loss allowances were related to the effects of the COVID-19 pandemic. The requirement for the addition in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses. In the event of an extreme weighting of 100 percent for both the baseline scenario and the risk scenario underlying the calculation of loss allowances, the additions to loss allowances required because of the pandemic would reduce by approximately 0 percent and increase by approximately 2 percent respectively.

>> 42 Insurance benefit payments

€ million	2020	2019
EXPENSES FOR CLAIMS	**-12,122**	**-11,953**
Payments for claims	**-10,745**	**-10,710**
Gross payments for claims	-10,807	-10,753
Reinsurers' share	62	43
Change in the provision for claims outstanding	**-1,377**	**-1,243**
Gross change in the provision for claims outstanding	-1,394	-1,228
Reinsurers' share	17	-15
CHANGE IN THE BENEFIT RESERVE AND IN OTHER INSURANCE LIABILITIES	**-5,107**	**-5,649**
Change in the benefit reserve	**-5,116**	**-5,654**
Gross change in the benefit reserve	-5,130	-5,669
Reinsurers' share	14	15
Change in other insurance liabilities	**9**	**5**
EXPENSES FOR PREMIUM REFUNDS	**-270**	**-1,792**
Gross expenses for premium refunds	-503	-622
Expenses for deferred premium refunds	233	-1,170[1]
Total	**-17,499**	**-19,394**

1 Amount restated (see note 2).

The net reinsurance expense amounted to €78 million (2019: €76 million).

Claims rate trend for direct non-life insurance business including claim settlement costs

Gross claims provisions in direct business and payments made against the original provisions:

€ million	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
At the end of the year	4,845	4,716	4,551	4,276	4,173	3,856	3,634	3,901	3,345	3,341	3,324
1 year later		4,606	4,471	4,142	4,103	3,767	3,523	3,847	3,336	3,359	3,135
2 years later			4,405	4,067	4,046	3,682	3,457	3,769	3,247	3,279	3,160
3 years later				4,021	4,020	3,647	3,389	3,731	3,220	3,254	3,139
4 years later					3,980	3,625	3,382	3,696	3,189	3,241	3,122
5 years later						3,624	3,389	3,691	3,198	3,250	3,139
6 years later							3,329	3,626	3,126	3,183	3,080
7 years later								3,616	3,118	3,172	3,065
8 years later									3,108	3,165	3,060
9 years later										3,153	3,059
10 years later											3,060
Settlements	-	**110**	**146**	**255**	**193**	**232**	**305**	**285**	**237**	**188**	**264**

Net claims provisions in direct business and payments made against the original provisions:

€ million	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
At the end of the year	4,787	4,702	4,518	4,255	4,110	3,827	3,574	3,669	3,313	3,298	3,254
1 year later		4,589	4,438	4,118	4,050	3,736	3,460	3,613	3,300	3,317	3,056
2 years later			4,373	4,044	3,994	3,655	3,393	3,533	3,211	3,236	3,077
3 years later				3,999	3,965	3,624	3,331	3,490	3,180	3,208	3,057
4 years later					3,928	3,601	3,361	3,465	3,139	3,194	2,939
5 years later						3,602	3,369	3,670	3,166	3,191	3,049
6 years later							3,309	3,605	3,095	3,144	2,957
7 years later								3,594	3,087	3,134	2,981
8 years later									3,076	3,127	2,977
9 years later										3,115	2,977
10 years later											2,978
Settlements	-	**113**	**145**	**256**	**182**	**225**	**265**	**75**	**237**	**183**	**276**

Claims rate trend for inward reinsurance business

Gross claims provisions in inward reinsurance business and payments made against the original provisions:

€ million	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Gross provisions for claims outstanding	**5,009**	4,411	3,642	3,197	2,718	2,433	1,976	1,710	1,506	1,409	1,190
Cumulative payments for the year concerned and prior years											
1 year later		1,082	955	852	569	622	464	481	385	463	437
2 years later			1,396	1,237	852	867	783	685	630	640	632
3 years later				1,482	1,062	1,022	919	897	764	345	739
4 years later					1,189	1,154	1,026	987	930	891	856
5 years later						1,249	1,117	1,051	996	1,029	922
6 years later							1,171	1,114	1,035	1,072	1,043
7 years later								1,155	1,085	1,103	1,067
8 years later									1,117	1,140	1,090
9 years later										1,161	1,106
10 years later											1,119
Gross provisions for claims outstanding and payments made against the original provision											
At the end of the year	5,009	4,411	3,642	3,197	2,718	2,433	1,976	1,710	1,506	1,409	1,190
1 year later		4,313	3,951	3,392	2,654	2,434	2,157	1,840	1,593	1,536	1,402
2 years later			3,651	3,315	2,561	2,271	2,004	1,859	1,569	1,472	1,343
3 years later				3,131	2,486	2,224	1,915	1,779	1,628	1,014	1,338
4 years later					2,361	2,179	1,887	1,720	1,580	1,528	1,360
5 years later						2,088	1,848	1,699	1,550	1,501	1,396
6 years later							1,779	1,677	1,536	1,486	1,379
7 years later								1,627	1,526	1,481	1,368
8 years later									1,490	1,468	1,354
9 years later										1,444	1,337
10 years later											1,324
Settlements	-	**98**	**-9**	**66**	**357**	**345**	**197**	**83**	**16**	**-35**	**-134**

Net claims provisions in inward reinsurance business and payments made against the original provisions:

€ million	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Net provisions for claims outstanding	**5,001**	**4,408**	**3,639**	**3,193**	**2,710**	**2,428**	**1,970**	**1,695**	**1,491**	**1,389**	**1,164**
Cumulative payments for the year concerned and prior years											
1 year later		1,082	955	851	567	622	464	473	383	461	432
2 years later			1,396	1,236	849	866	782	677	620	636	625
3 years later				1,480	1,058	1,020	918	888	754	333	729
4 years later					1,186	1,153	1,025	978	919	878	839
5 years later						1,247	1,115	1,042	985	1,016	904
6 years later							1,170	1,105	1,024	1,059	1,025
7 years later								1,146	1,074	1,090	1,049
8 years later									1,105	1,126	1,071
9 years later										1,147	1,086
10 years later											1,100
Net provisions for claims outstanding and payments made against the original provision											
At the end of the year	5,001	4,408	3,639	3,193	2,710	2,428	1,970	1,695	1,491	1,389	1,164
1 year later		4,310	3,950	3,388	2,648	2,429	2,152	1,827	1,576	1,519	1,377
2 years later			3,649	3,312	2,555	2,267	1,999	1,845	1,554	1,454	1,321
3 years later				3,129	2,482	2,219	1,911	1,766	1,612	997	1,314
4 years later					2,356	2,176	1,883	1,708	1,566	1,510	1,337
5 years later						2,086	1,845	1,687	1,536	1,484	1,372
6 years later							1,777	1,666	1,522	1,470	1,357
7 years later								1,616	1,513	1,464	1,346
8 years later									1,477	1,453	1,332
9 years later										1,429	1,317
10 years later											1,304
Settlements	**-**	**98**	**-10**	**64**	**354**	**342**	**193**	**79**	**14**	**-40**	**-140**

>> 43 Insurance business operating expenses

€ million	2020	2019
Gross expenses	-2,945	-2,842
Reinsurers' share	23	19
Total	**-2,922**	**-2,823**

>> 44 Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business

The derecognition of financial assets measured at amortized cost in the insurance business gave rise to gains of €8 million (2019: €9 million) and losses of €28 million (2019: €24 million).

The gains and losses from the derecognition of financial assets measured at amortized cost may include gains and losses from disposals and also gains and losses from derecognition as a result of substantial modification.

>> 45 Loss allowances

€ million	2020	2019
Loss allowances for cash and cash equivalents	**1**	**-1**
Additions	-8	-3
Reversals	9	2
Loss allowances for loans and advances to banks	**-12**	**2**
Additions	-30	-26
Reversals	18	26
Recoveries on loans and advances to banks previously impaired	-	2
Loss allowances for loans and advances to customers	**-610**	**-307**
Additions	-2,419	-1,907
Reversals	1,756	1,525
Directly recognized impairment losses	-41	-28
Recoveries on loans and advances to customers previously impaired	68	76
Other	26	27
Loss allowances for investments	**-2**	**7**
Additions	-38	-21
Reversals	36	28
Loss allowances for other assets	**-2**	**-1**
Additions	-1	-1
Directly recognized impairment losses	-1	-
Other loss allowances for loans and advances	**-53**	**-29**
Additions to and reversals of provisions for loan commitments	-36	-22
Additions to and reversals of provisions for financial guarantee contracts	-4	-13
Additions to and reversals of other provisions for loans and advances	-13	6
Total	**-678**	**-329**

Gains and losses from credit-risk-related modifications and other gains and losses on POCI assets are reported under the 'Other' line item. Other gains and losses on POCI assets consist of the changes in the loss allowances for these assets within the reporting period.

Of the net addition of €678 million to loss allowances for loans and advances to banks and customers, investments, and other lending business, €220 million was related to the effects of the COVID-19 pandemic. The requirement for the addition in connection with the COVID-19 pandemic arose because the anticipated macroeconomic conditions were included in the calculation, in particular by adjusting the model-based default probability profiles (referred to as shift factors), which are taken into account when determining the expected losses. In the event of an extreme weighting of 100 percent for both the baseline scenario and the risk scenario underlying the calculation of loss allowances, the additions to loss allowances required because of the pandemic would reduce by approximately 3 percent and increase by approximately 11 percent respectively.

>> 46 Administrative expenses

€ million	2020	2019
Staff expenses	**-1,910**	**-1,878**
Wages and salaries	-1,590	-1,558[1]
Social security contributions	-201	-198
Pension and other post-employment benefit expenses	-108	-109
Expenses for share-based payment transactions	-11	-13[1]
General and administrative expenses	**-1,838**	**-1,921**
Expenses for temporary staff	-22	-31
Contributions and fees	-212	-199
of which contributions to the resolution fund for CRR credit institutions	-68	-68
Consultancy	-465	-517
Office expenses	-166	-198
IT expenses	-523	-486
Property and occupancy costs	-113	-122
Information procurement	-85	-85
Public relations and marketing	-143	-161
Other general and administrative expenses	-104	-116
Expenses for administrative bodies	-5	-6
Depreciation and amortization	**-288**	**-275**
Property, plant and equipment, and investment property	-85	-81
Right-of-use assets	-76	-72
Other assets	-127	-122
Total	**-4,036**	**-4,074**

1 Amount restated (see note 2).

>> 47 Other net operating income

€ million	2020	2019
Income from the reversal of provisions and accruals	116	103
Gains and losses on non-current assets and disposal groups classified as held for sale	49	211
Gains on the disposal of other assets	33	15
Restructuring expenses	-27	-84
Expenses for other taxes	-5	-24
Residual other net operating income	44	29
Total	**210**	**250**

Gains and losses on non-current assets and disposal groups classified as held for sale included realized gains of €104 million on disposals (2019: €333 million), impairment losses of €81 million (2019: €122 million), and reversals of impairment losses of €26 million (2019: no reversals).

Restructuring expenses included additions of €13 million to provisions for termination benefits linked with restructuring (2019: €72 million).

Residual other net operating income included rental income from investment property of €13 million (2019: €13 million) and directly assignable expenses of €3 million (2019: €3 million).

>> 48 Income taxes

€ million	2020	2019
Current tax expense	-529	-615
Deferred tax income/expense	54	-163[1]
Total	**-475**	**-778**

1 Amount restated (see note 2).

The total for current taxes includes income of €20 million (2019: expenses of €19 million) attributable to previous years. Deferred taxes include income of €83 million (2019: expenses of €167 million (amount restated; see note 2)) related to temporary differences and their reversal.

Current taxes in relation to the German limited companies in the group are calculated using an effective corporation tax rate of 15.825 percent based on a corporation tax rate of 15.0 percent plus the solidarity surcharge. The tax rate applied in 2020 was unchanged from the rate used in 2019. The effective rate of trade tax for DZ BANK and subsidiaries that are members of the tax group was unchanged on the previous year at 15.435 percent.

Deferred taxes must be calculated using tax rates expected to apply when the tax asset is recovered or liability settled. The tax rates used are therefore those that are valid or have been announced for the periods in question as at the balance sheet date.

The following table shows a reconciliation from expected income taxes to recognized income taxes based on application of the current tax law in Germany:

€ million	2020	2019
Profit before taxes	**1,455**	2,658[1]
Group income tax rate	31.260%	31.260%
Expected income taxes	**-455**	-831
Income tax effects	**-20**	53
Impact of tax-exempt income and non-deductible expenses	-6	29
Adjustments resulting from other types of income tax, other trade tax multipliers, and changes in tax rates	20	17
Tax rate differences on income subject to taxation in other countries	-1	10
Current and deferred taxes relating to prior years	19	-12
Change in impairment losses on deferred tax assets	-30	-37
Other effects	-22	46[1]
Recognized income taxes	**-475**	**-778**

1 Amount restated (see note 2).

>> 49 Items reclassified to the income statement

The following amounts were recognized in other comprehensive income/loss or reclassified from other comprehensive income/loss to the income statement in the reporting period:

€ million	2020	2019
Gains and losses on debt instruments measured at fair value through other comprehensive income	**1,143**	**1,700**
Gains (+)/losses (-) arising during the reporting period	1,391	1,918[1]
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-248	-218
Exchange differences on currency translation of foreign operations	**-32**	**-1**
Gains (+)/losses (-) arising during the reporting period	-32	5
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-	-6
Gains and losses on hedges of net investments in foreign operations	**3**	**3**
Gains (+)/losses (-) arising during the reporting period	3	3
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-	-
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	**-6**	**1**
Gains (+)/losses (-) arising during the reporting period	-6	1
Gains (-)/losses (+) reclassified to the income statement	-	-

1 Amount restated (see note 2).

>> 50 Income taxes relating to components of other comprehensive income

The table below shows the income taxes on the various components of other comprehensive income:

€ million	2020 Amount before taxes	2020 Income taxes	2020 Amount after taxes	2019 Amount before taxes	2019 Income taxes	2019 Amount after taxes
Items that may be reclassified to the income statement	**1,108**	**-360**	**748**	**1,703**	**-533**	**1,170**
Gains and losses on debt instruments measured at fair value through other comprehensive income	1,143	-362	781	1,700[1]	-536[1]	1,164
Exchange differences on currency translation of foreign operations	-32	3	-29	-1	-	-1
Gains and losses on hedges of net investments in foreign operations	3	-1	2	3	3	6
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	-6	-	-6	1	-	1
Items that will not be reclassified to the income statement	**-276**	**49**	**-227**	**205**	**47**	**252**
Gains and losses on equity instruments for which the fair value OCI option has been exercised	-97	9	-88	476[1]	-39[1]	437
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-60	18	-42	-96	30	-66
Gains and losses arising from remeasurement of defined benefit plans	-119	22	-97	-175	56	-119
Total	**832**	**-311**	**521**	**1,908**	**-486**	**1,422**

1 Amount restated (see note 2).

D Balance sheet disclosures

>> 51 Cash and cash equivalents

€ million	Dec. 31, 2020	Dec. 31, 2019
Cash on hand	206	378
Balances with central banks	68,148	52,167
Total	**68,354**	**52,545**

The average target minimum reserve for 2020 was €3,829 million (2019: €3,971 million).

>> 52 Loans and advances to banks

	Repayable on demand		Other loans and advances		Total	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Domestic banks	**4,488**	5,811	**89,789**	83,288	**94,277**	89,099
Affiliated banks	1,667	2,720	84,711	76,286	86,378	79,006
Other banks	2,821	3,091	5,078	7,002	7,899	10,093
Foreign banks	**5,290**	4,923	**3,453**	3,522	**8,743**	8,445
Total	**9,778**	**10,734**	**93,242**	**86,810**	**103,020**	**97,544**

The following table shows the breakdown of loans and advances to banks by type of business:

€ million	Dec. 31, 2020	Dec. 31, 2019
Mortgage loans	131	99
Registered securities	9,094	9,823
Pass-through loans	58,733	51,773
Other bank loans	16,103	16,596
Money market placements	15,413	16,214
Current account debit balances	2,896	2,882
Other loans and advances	650	157
Total	**103,020**	**97,544**

>> 53 Loans and advances to customers

€ million	Dec. 31, 2020	Dec. 31, 2019
Loans and advances to domestic customers	164,071	157,573
Loans and advances to foreign customers	26,223	28,651
Total	**190,294**	**186,224**

The following table shows the breakdown of loans and advances to customers by type of business:

€ million	Dec. 31, 2020	Dec. 31, 2019
Mortgage loans	53,784	50,935
Ship mortgage loans	341	583
Home savings loans advanced by building society	55,698	50,372
Finance leases	1,096	1,547
Registered securities	9,604	10,033
Pass-through loans	7,147	6,275
Other bank loans	43,307	44,338
Money market placements	3,439	3,056
Current account debit balances	4,703	5,443
Other loans and advances	11,175	13,642
Total	**190,294**	**186,224**

>> 54 Hedging instruments (positive fair values)

Hedging instruments (positive fair values) amounted to €161 million and resulted solely from derivatives used as fair value hedges. As at December 31, 2019, hedging instruments (positive fair values) had amounted to €211 million (amount restated; see note 2).

>> 55 Financial assets held for trading

€ million	Dec. 31, 2020	Dec. 31, 2019
DERIVATIVES (POSITIVE FAIR VALUES)	**22,303**	**19,281**
Interest-linked contracts	19,488	17,053[1]
Currency-linked contracts	1,758	1,270
Share-/index-linked contracts	719	554
Other contracts	1	30
Credit derivatives	337	374
BONDS AND OTHER FIXED-INCOME SECURITIES	**10,488**	**12,644**
Money market instruments	373	978
Bonds	10,115	11,666
SHARES AND OTHER VARIABLE-YIELD SECURITIES	**1,444**	**1,210**
Shares	1,444	1,208
Investment fund units	-	1
Other variable-yield securities	-	1
RECEIVABLES	**8,611**	**11,636**
of which from affiliated banks	152	400
of which from other banks	7,821	8,505
Money market placements	**7,412**	**10,594**
with banks	7,197	8,242
with customers	215	2,352
Promissory notes and registered bonds	**1,199**	**1,042**
from banks	776	663
from customers	423	379
Total	**42,846**	**44,771**

1 Amount restated (see note 2).

>> 56 Investments

€ million	Dec. 31, 2020	Dec. 31, 2019
Bonds and other fixed-income securities	**57,423**	**54,231**
Money market instruments	519	419
Bonds	56,904	53,812
Shares and other variable-yield securities	**2,071**	**1,872**
Shares and other shareholdings	324	321
Investment fund units	1,735	1,541
Other variable-yield securities	12	10
Investments in subsidiaries	**297**	**310**
Investments in joint ventures	**329**	**313**
Investments in associates	**112**	**201**
Total	**60,232**	**56,927**

The carrying amount of investments in joint ventures accounted for using the equity method totaled €329 million (December 31, 2019: €313 million). €112 million of the investments in associates has been accounted for using the equity method (December 31, 2019: €201 million).

>> 57 Investments held by insurance companies

€ million	Dec. 31, 2020	Dec. 31, 2019
Investment property	3,835	3,558
Investments in subsidiaries	831	785
Investments in joint ventures	19	17
Investments in associates	-	1
Mortgage loans	10,882	9,749
Promissory notes and loans	7,050	7,235
Registered bonds	9,081	9,146
Other loans	863	716
Variable-yield securities	11,639	11,300
Fixed-income securities	61,540	55,811
Derivatives (positive fair values)	553	417
Loss allowances	-23	-3
Deposits with ceding insurers and other investments	578	449
Assets related to unit-linked contracts	14,820	14,368
Total	**121,668**	**113,549**

The fair value of investment property was €5,178 million as at the balance sheet date (December 31, 2019: €4,601 million).

Some investment property has been pledged as collateral and is subject to restrictions on disposal, the total furnished collateral value of the property being €776 million (December 31, 2019: €760 million). The group also has capital expenditure commitments amounting to €119 million (December 31, 2019: €394 million). A total of €38 million was spent on the repair and maintenance of investment property in 2020 (2019: €30 million). Vacant property resulted in repair and maintenance expenses of €2 million (2019: €1 million).

The table below shows the changes in loss allowances for investments held by insurance companies in the financial year.

	Investments held by insurance companies			Total
€ million	Stage 1	Stage 2	Stage 3	
Balance as at Jan. 1, 2019	2	-	2	4
Additions	-	-	-1	-1
Reversals	-1	-	-	-1
Other changes	1	-	-	1
Balance as at Dec. 31, 2019	2	-	1	3
Additions	19	4	-	23
Reversals	-3	-	-	-3
Other changes	1	-1	-	-
Balance as at Dec. 31, 2020	**19**	**3**	**1**	**23**

>> 58 Property, plant and equipment, investment property, and right-of-use assets

€ million	Dec. 31, 2020	Dec. 31, 2019
Land and buildings	884	917
Office furniture and equipment	179	182
Assets subject to operating leases	-	17
Investment property	235	238
Right-of-use assets	446	278
Total	**1,744**	**1,632**

The fair value of investment property was €302 million as at the balance sheet date (December 31, 2019: €273 million). Payments in advance are allocated to the relevant item of property, plant and equipment.

>> 59 Income tax assets and liabilities

€ million	Dec. 31, 2020	Dec. 31, 2019
Income tax assets	**879**	**1,018**
Current income tax assets	368	372
Deferred tax assets	511	646
Income tax liabilities	**1,229**	**1,069**
Current income tax liabilities	308	293
Deferred tax liabilities	921	776

In addition to deferred tax assets recognized for tax loss carryforwards, deferred tax assets and liabilities are also recognized for temporary differences in respect of the items shown below:

	Deferred tax assets		Deferred tax liabilities	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Tax loss carryforwards	14	43		
Loans and advances to banks and customers	86	51	965	1,115
Financial assets and liabilities held for trading, hedging instruments (positive and negative fair values)	809	837	109	169
Investments	15	19	1,150	840
Loss allowances	229	202	2	5
Investments held by insurance companies	109	115	1,248	1,150
Property, plant and equipment, investment property, and right-of-use assets	24	24	197	146
Deposits from banks and customers	917	1,021	158	174
Debt certificates issued including bonds	210	177	-	-
Provisions for employee benefits and for share-based payment transactions	727	685	70	59
Other provisions	202	206	29	30
Insurance liabilities	74	77	49	115
Other balance sheet items	291	247	140	31
Total (gross)	3,707	3,704	4,117	3,834
Netting of deferred tax assets and deferred tax liabilities	-3,196	-3,058	-3,196	-3,058
Total (net)	**511**	**646**	**921**	**776**

Deferred tax assets for temporary differences and tax loss carryforwards are only recognized if it is sufficiently probable that the asset can be recovered in the future. No deferred tax assets have been recognized for corporation tax loss carryforwards amounting to €332 million (December 31, 2019: €308 million), which can be carried forward indefinitely, or for trade tax loss carryforwards amounting to €211 million (December 31, 2019: €224 million). There remained foreign loss carryforwards of €1,043 million (December 31, 2019: €1,049 million) for which no deferred tax assets are recognized. Of this total, €517 million will expire by 2031 and €526 million can be used indefinitely. As regards companies (or permanent establishments of companies) in the DZ BANK Group that have suffered tax losses in 2020 or 2019 in their tax jurisdiction, it will be possible to utilize no deferred tax assets (December 31, 2019: €4 million) in the future if a corresponding level of taxable income is available. It is assumed that this will in fact be the case based on information available from planning of taxable income.

Overall, there was a net deferred tax liability recognized through other comprehensive income of €717 million (December 31, 2019: €401 million (amount restated; see note 2)).

Deferred tax assets of €234 million (December 31, 2019: €341 million (amount restated; see note 2)) and deferred tax liabilities of €487 million (December 31, 2019: €313 million) are expected to be realized only after a period of 12 months.

As at December 31, 2020, no deferred tax liabilities were recognized for temporary differences of €307 million (December 31, 2019: €290 million) relating to long-term equity investments in subsidiaries.

>> 60 Other assets

€ million	Dec. 31, 2020	Dec. 31, 2019
Other assets held by insurance companies	3,416	3,759
Goodwill	140	41
Other intangible assets	546	462
of which software	442	419
of which acquired customer relationships	65	4
Other loans and advances	360	382
Residual other assets	1,054	800
Total	**5,516**	**5,444**

Other intangible assets include internally generated intangible assets amounting to €14 million (December 31, 2019: €23 million).

The breakdown of other assets held by insurance companies is as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Intangible assets	**157**	**157**
Reinsurers' share of insurance liabilities	**149**	**130**
Provision for unearned premiums	12	11
Benefit reserve	39	38
Provision for claims outstanding	98	81
Receivables	**1,604**	**1,593**
Receivables arising out of direct insurance operations	428	422
Receivables arising out of reinsurance operations	294	282
Other receivables	882	889
Credit balances with banks, checks and cash on hand	**357**	**826**
Residual other assets	**1,151**	**1,055**
Property, plant and equipment	427	425
Prepaid expenses	82	67
Remaining assets held by insurance companies	642	563
Loss allowances	**-2**	**-2**
Total	**3,416**	**3,759**

The intangible assets in the other assets held by insurance companies include internally generated intangible assets amounting to €8 million (December 31, 2019: €1 million).

Property, plant and equipment includes right-of-use assets amounting to €66 million (December 31, 2019: €56 million).

The following tables show the reinsurers' share of the changes in insurance liabilities:

REINSURERS' SHARE OF THE CHANGES IN THE PROVISION FOR UNEARNED PREMIUMS

€ million	**2020**	2019
Balance as at Jan. 1	11	6
Additions	18	17
Utilizations/reversals	-17	-12
Balance as at Dec. 31	**12**	**11**

REINSURERS' SHARE OF THE CHANGES IN THE BENEFIT RESERVE

€ million	**2020**	2019
Balance as at Jan. 1	38	36
Additions	2	2
Utilizations/reversals	-1	-
Balance as at Dec. 31	**39**	**38**

REINSURERS' SHARE OF THE CHANGES IN THE PROVISION FOR CLAIMS OUTSTANDING

€ million	**2020**	2019
Balance as at Jan. 1	81	97
Claims expenses	72	19
less payments	-55	-35
Balance as at Dec. 31	**98**	**81**

The breakdown of maturities for the reinsurers' share of insurance liabilities is shown in the following tables:

AS AT DECEMBER 31, 2020

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	8	2	2	-
Benefit reserve	-	2	13	24
Provision for claims outstanding	40	28	30	-
Total	**48**	**32**	**45**	**24**

AS AT DECEMBER 31, 2019

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	8	2	1	-
Benefit reserve	1	2	10	25
Provision for claims outstanding	34	20	27	-
Total	**43**	**24**	**38**	**25**

>> 61 Loss allowances

Loss allowances for loans and advances to banks and for loans and advances to customers also comprise the loss allowances recognized for finance lease receivables.

The following table shows the changes in loss allowances, which are reported on the assets side of the balance sheet, broken down by individual balance sheet item:

	Cash and cash equi-valents	Loans and advances to banks			Loans and advances to customers			
€ million	Stage 1	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3	POCI assets
Balance as at Jan. 1, 2019	-	8	-	4	218	164	1,957	3
Additions	3	22	-	4	288	457	1,150	12
Utilizations	-	-	-	-	-	-1	-559	-1
Reversals	-2	-23	-	-3	-432	-202	-876	-13
Other changes	-	-	-	-	128	-215	135	-
Balance as at Dec. 31, 2019	1	7	-	5	202	203	1,807	1
Additions	8	22	5	3	314	732	1,355	16
Utilizations	-	-	-	-	-	-1	-604	-1
Reversals	-9	-15	-1	-2	-412	-350	-977	-16
Other changes	-	-	-1	-	142	-248	80	7
Balance as at Dec. 31, 2020	**-**	**14**	**3**	**6**	**246**	**336**	**1,661**	**7**

	Investments			Other assets	Total
€ million	Stage 1	Stage 2	Stage 3	Stage 1	
Balance as at Jan. 1, 2019	5	40	17	-	2,416
Additions	3	8	1	1	1,949
Utilizations	-	-	-	-	-561
Reversals	-7	-16	-	-	-1,574
Other changes	5	-6	-	-	47
Balance as at Dec. 31, 2019	6	26	18	1	2,277
Additions	4	21	4	1	2,485
Utilizations	-	-	-	-	-606
Reversals	-15	-12	-5	-	-1,814
Other changes	11	-13	-	-	-22
Balance as at Dec. 31, 2020	**6**	**22**	**17**	**2**	**2,320**

>> 62 Changes in non-current assets

The following table shows the changes in investment property included in the investments held by insurance companies, the changes in property, plant and equipment, and investment property, and the changes in intangible assets included in other assets:

	Investments held by insurance companies	
€ million	Investment property	
Carrying amounts as at Jan. 1, 2019	2,842	
Cost as at Jan. 1, 2019	3,330	
Adjustment due to first-time adoption of IFRS 16	19	
Adjusted cost as at Jan. 1, 2019	3,349	
Additions	671	
Additions in respect of borrowing costs eligible for capitalization	1	
Reclassifications	-	
Reclassifications to/from non-current assets and disposal groups classified as held for sale	9	
Disposals	-14	
Changes attributable to currency translation	-	
Changes in scope of consolidation	108	
Cost as at Dec. 31, 2019	**4,124**	
Reversals of impairment losses as at Jan. 1, 2019	25	
Additions	1	
Reclassifications[1]	-	
Changes attributable to currency translation	-	
Reversals of impairment losses as at Dec. 31, 2019	**26**	
Depreciation/amortization and impairment losses as at Jan. 1, 2019	-513	
Depreciation/amortization expense for the year	-77	
Impairment losses for the year	-	
Reclassifications[1]	-	
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-3	
Disposals	1	
Changes attributable to currency translation	-	
Changes in scope of consolidation	-	
Depreciation/amortization and impairment losses as at Dec. 31, 2019	**-592**	
Carrying amounts as at Dec. 31, 2019	3,558	
Cost as at Jan. 1, 2020	4,124	
Additions	393	
Additions in respect of borrowing costs eligible for capitalization	1	
Reclassifications	-	
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-9	
Disposals	-3	
Changes attributable to currency translation	-	
Changes in scope of consolidation	-	
Cost as at Dec. 31, 2020	**4,506**	
Reversals of impairment losses as at Jan. 1, 2020	26	
Additions	1	
Reclassifications	-	
Disposals	-	
Reversals of impairment losses as at Dec. 31, 2020	**27**	
Depreciation/amortization and impairment losses as at Jan. 1, 2020	-592	
Depreciation/amortization expense for the year	-78	
Impairment losses for the year	-29	
Reclassifications	-	
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-	
Disposals	1	
Changes attributable to currency translation	-	
Changes in scope of consolidation	-	
Depreciation/amortization and impairment losses as at Dec. 31, 2020	**-698**	
Carrying amounts as at Dec. 31, 2020	**3,835**	

1 Amount restated (see note 2).

	Property, plant and equipment, and investment property				Other assets	
	Land and buildings	Office furniture and equipment	Assets subject to operating leases	Investment property	Goodwill	Other intangible assets
	911	182	72	258	41	436
	1,294	550	169	283	272	1,673
	-	-	-	-	-	-
	1,294	550	169	283	272	1,673
	12	65	-	2	-	154
	-	-	-	-	-	-
	20	-	-	-19	-	-
	-	-	-	-	-	-
	-	-77	-98	-	-3	-16
	-	1	3	-	-	-
	-	-	-	-	-	-
	1,326	**539**	**74**	**266**	**269**	**1,811**
	13	-	64	5	-	5
	-	-	13	-	-	-
	-	-	-	-	-	-
	-	-	4	-	-	-
	13	**-**	**81**	**5**	**-**	**5**
	-396	-368	-161	-30	-231	-1,242
	-24	-52	-8	-5	-	-122
	-	-	-5	-	-	-1
	-2	-	-	2	-	-
	-	-	-	-	-	-
	-	64	42	-	3	11
	-	-1	-6	-	-	-
	-	-	-	-	-	-
	-422	**-357**	**-138**	**-33**	**-228**	**-1,354**
	917	182	17	238	41	462
	1,326	539	74	266	269	1,811
	31	56	-	2	-	151
	-	-	-	-	-	-
	1	-	-	-1	-	-
	-72	-3	-	-	-	-
	-6	-46	-61	-	-	-15
	-	-2	3	-	-	-3
	-	4	-	-	99	66
	1,280	**548**	**16**	**267**	**368**	**2,010**
	13	-	81	5	-	5
	-	-	-	-	-	1
	-	-	-	-	-	-
	-	-	-	-	-	-5
	13	**-**	**81**	**5**	**-**	**1**
	-422	-357	-138	-33	-228	-1,354
	-24	-56	-5	-4	-	-127
	-	-	-1	-	-	-
	-	-	-	-	-	-
	31	2	-	-	-	-
	6	43	49	-	-	16
	-	1	-2	-	-	1
	-	-2	-	-	-	-1
	-409	**-369**	**-97**	**-37**	**-228**	**-1,465**
	884	**179**	**-**	**235**	**140**	**546**

In 2020, the useful life of the assets ranged from 2 to 60 years for buildings (2019: 2 to 61 years), from 1 to 25 years for office furniture and equipment (2019: 3 to 25 years), and – as in 2019 – from 6 months to 25 years for assets subject to an operating lease; the useful life for investment property was 3 to 80 years (2019: 1 to 67 years). Software included in other intangible assets was amortized over a useful life of 1 to 12 years (2019: 1 to 20 years) while acquired customer relationships were amortized over 10 to 20 years (2019: 10 to 12 years). Depreciation and amortization are recognized on a straight-line basis over the useful life of the asset.

The assets subject to an operating lease comprised office furniture and equipment.

Payments in advance are allocated to the relevant item of property, plant and equipment.

In 2020, borrowing costs relating to investment property held by insurance companies were capitalized in an amount of €1 million (2019: €1 million). The capitalization rate used for borrowing costs was 1.33 percent for investment property held by insurance companies (2019: 1.07 percent).

Disclosures regarding the changes in goodwill are included in note 91.

Other intangible assets include acquired customer relationships amounting to €65 million (December 31, 2019: €4 million). The associated amortization expense came to €1 million (2019: €0 million).

The changes in right-of-use assets are described in note 92 (Leases).

>> 63 Non-current assets and disposal groups classified as held for sale

The non-current assets and disposal groups classified as held for sale include individual non-current assets together with assets and liabilities from disposal groups not qualifying as discontinued operations, as described below. Gains and losses arising from the classification of assets and disposal groups as held for sale are reported under other net operating income.

At the level of the DVB subgroup, a material part of the aviation finance business, which previously constituted a disposal group not qualifying as a discontinued operation, was sold in 2020. The disposal gave rise to a net gain of €83 million, which was recognized under other net operating income. The impairment loss requirement of €18 million identified for this disposal group was also recognized under other net operating income. As at December 31, 2020, assets of €14 million and liabilities of €1 million were recognized in this disposal group. The sale is expected to take place in 2021.

The disposal group not qualifying as a discontinued operation, which had been classified as such in 2019 and consists of associates, joint ventures, and fully consolidated subsidiaries of the DVB subgroup, included assets totaling €66 million and a small volume of liabilities as at the reporting date. In this disposal group, the impairment loss requirement amounted to €54 million and reversals of impairment losses amounted to €26 million; the overall figure was recognized in other net operating income. The sale is expected to be completed by the end of 2021.

Furthermore, a receivable of €42 million was categorized as an individual asset classified as held for sale in the DVB subgroup. The impairment loss on this asset of €9 million was recognized in other net operating income. The sale is expected to take place by December 31, 2021.

Property, plant and equipment, and investment property were also sold in the year under review. The net gain on disposal of €21 million was recognized under other net operating income.

Other disposal groups not qualifying as discontinued operations included units in various investment funds. The individual non-current assets classified as held for sale comprise long-term equity investments and items of property, plant and equipment, and investment property that were classified as held for sale in 2020. The share of the reserve from other comprehensive income attributable to the long-term equity investments is presented separately within equity (see note 73 (Equity)).

>> 64 Deposits from banks

	Repayable on demand		With agreed maturity or notice period		Total	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Domestic banks	**59,958**	**43,890**	**109,573**	**84,059**	**169,531**	**127,949**
Affiliated banks	56,001	38,831	21,285	20,237	77,286	59,068
Other banks	3,957	5,059	88,288	63,822	92,245	68,881
Foreign banks	**2,974**	**3,566**	**5,347**	**9,606**	**8,321**	**13,172**
Total	**62,932**	**47,456**	**114,920**	**93,665**	**177,852**	**141,121**

The following table shows the breakdown of deposits from banks by type of business:

€ million	Dec. 31, 2020	Dec. 31, 2019
Home savings deposits	1,576	1,653
Money market deposits	34,140	24,576
Other deposits	142,136	114,892
Total	**177,852**	**141,121**

>> 65 Deposits from customers

	Repayable on demand		With agreed maturity or notice period		Total	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Domestic customers	21,522	17,158	94,680	95,887	116,202	113,045
Foreign customers	11,563	12,144	6,160	6,327	17,723	18,471
Total	**33,085**	**29,302**	**100,840**	**102,214**	**133,925**	**131,516**

The following table shows the breakdown of deposits from customers by type of business:

€ million	Dec. 31, 2020	Dec. 31, 2019
Home savings deposits	64,673	63,226
Money market deposits	21,168	21,880
Other deposits	48,084	46,410
Total	**133,925**	**131,516**

>> 66 Debt certificates issued including bonds

€ million	Dec. 31, 2020	Dec. 31, 2019
Bonds issued	**62,838**	**51,536**
Mortgage Pfandbriefe	25,364	22,445
Public-sector Pfandbriefe	1,764	2,180
Other bonds	35,710	26,911
Other debt certificates issued	**7,662**	**33,587**
Total	**70,500**	**85,123**

All other debt certificates issued are commercial paper.

>> 67 Hedging instruments (negative fair values)

Hedging instruments (negative fair values) amounted to €2,638 million and resulted solely from derivatives used as fair value hedges. As at December 31, 2019, hedging instruments (negative fair values) had amounted to €2,018 million (amount restated; see note 2).

>> 68 Financial liabilities held for trading

€ million	Dec. 31, 2020	Dec. 31, 2019
DERIVATIVES (NEGATIVE FAIR VALUES)	**20,138**	**18,189**
Interest-linked contracts	16,501	15,056[1]
Currency-linked contracts	1,805	1,772
Share-/index-linked contracts	1,550	1,181
Other contracts	188	105
Credit derivatives	94	75
SHORT POSITIONS	**604**	**1,128**
BONDS ISSUED	**22,224**	**22,261**
DEPOSITS	**7,438**	**9,472**
of which from affiliated banks	3,660	2,616
of which from other banks	3,516	6,659
Money market deposits	**7,279**	**9,306**
from banks	7,078	9,167
from customers	201	139
Promissory notes and registered bonds issued	**159**	**166**
to banks	98	108
to customers	61	58
Total	**50,404**	**51,050**

1 Amount restated (see note 2).

Bonds issued mainly comprise share certificates and index-linked certificates.

>> 69 Provisions

€ million	Dec. 31, 2020	Dec. 31, 2019
Provisions for employee benefits	**1,835**	**1,704**
Provisions for defined benefit plans	1,321	1,198
Provisions for other long-term employee benefits	186	165
of which for semi-retirement schemes	43	27
Provisions for termination benefits	295	305
of which for early retirement schemes	19	15
of which for restructuring	224	263
Provisions for short-term employee benefits	33	36[1]
Provisions for share-based payment transactions	**46**	**49[1]**
Other provisions	**2,122**	**2,090**
Provisions for onerous contracts	10	15
Provisions for restructuring	14	24
Provisions for loan commitments	107	71
Provisions for financial guarantee contracts	123	124
Other provisions for loans and advances	37	33
Provisions relating to building society operations	1,444	1,406
Residual provisions	387	417
Total	**4,003**	**3,843**

1 Amount restated (see note 2).

Provisions for defined benefit plans

The provisions for defined benefit plans predominantly result from pension plans that employees can no longer join (closed plans). There are also defined benefit pension plans for members of boards of managing directors. New employees in Germany are almost always only offered defined contribution pension plans, for which it is not generally necessary to recognize a provision. The picture outside Germany is more varied because there are both defined contribution and defined benefit plans that are open to new employees. However, the proportion of the group's total obligations accounted for by obligations outside Germany is not material. The expense for defined contribution pension plans came to €20 million in 2020 (2019: €21 million).

The present value of the defined benefit obligations is broken down by risk category as follows:

	Germany		Other countries		Total	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Final-salary-dependent plans	2,792	2,703	129	124	2,921	2,827
Defined benefit contributory plans	605	519	256	243	861	762
Accessorial plans	74	70	-	4	74	74
Total	**3,471**	**3,292**	**385**	**371**	**3,856**	**3,663**

A significant risk factor for all plans is the level of market interest rates for investment-grade fixed-income corporate bonds because the discount rate determined from this data affects both the amount of the obligations and the measurement of the plan assets.

Final-salary-dependent plans are pension obligations to employees, the amount of which depends on the employee's final salary before the pension trigger event occurs and that, for the most part, can be assumed to constitute a life-long payment obligation. In Germany, section 16 (1) of the Occupational Pensions Act (BetrAVG) requires the amount of the pension to be adjusted every 3 years to reflect the change in consumer prices or net wages. The main risk factors for final-salary-dependent pension plans are longevity, changes in salary, inflation risk, and the discount rate.

The majority of defined benefit contributory plans comprise obligations to pay fixed capital amounts or amounts at fixed interest rates. An annuitization option exists for around half of the obligations. As a result, there may be lifelong payment obligations as well as lump-sum payments and installments. For most obligations, the contributions are linked to remuneration. Most of these plans are closed.

Accessorial plans are when the employer commits to a benefit that essentially corresponds to the benefit that is provided when an insured event occurs if the contributions are invested in a financial product of a third-party pension provider or insurer. The amount of the pension benefits therefore depends on the pension plan of the third-party pension provider, which is directly exposed to the risk factors longevity, changes in salary, and market interest-rate risk. Accessorial plans are almost risk free for the employer.

The pension plans agreed in Germany are not subject to minimum funding requirements. Minimum funding is required for some pension plans outside Germany owing to local regulations.

The changes in the present value of the defined benefit obligations were as follows:

€ million	2020	2019
Present value of defined benefit obligations as at Jan. 1	3,663	3,317
Current service cost	63	57
Interest expense	37	58
Employee contributions	6	6
Pension benefits paid including plan settlements	-123	-118
of which relating to plan settlements	-7	-5
Past service cost	2	-
Actuarial gains (-)/losses (+)	207	340
of which due to changes in demographic assumptions	40	-1
of which due to changes in financial assumptions	153	334
of which experience-based	14	7
Plan takeovers	6	-
Changes attributable to currency translation	-5	5
Reclassifications	-	-2
Present value of defined benefit obligations as at Dec. 31	**3,856**	**3,663**

The actuarial losses from the change in financial assumptions mainly resulted from the decrease in the underlying discount rate from 1.0 percent to 0.75 percent as at December 31, 2020 (December 31, 2019: from 1.75 percent to 1.0 percent).

Virtually all of the actuarial losses arising from the change in demographic assumptions arose because the changes in take-up of the option were taken into account in the measurement of defined benefit contributory plans with an annuitization option.

The following actuarial assumptions were used in the measurement of the defined benefit obligations:

%	Dec. 31, 2020	Dec. 31, 2019
Discount rate	0.75	1.00
Weighted salary increases	1.98	1.97
Weighted pension increases	1.67	1.67

Sensitivity analysis

The following table shows the sensitivity of the present value of the defined benefit obligations to changes in the actuarial parameters. The effects shown are based on an isolated change to one parameter, with the other parameters remaining constant. Correlation effects between individual parameters are not considered. The range relevant to the discount rate was reduced to plus or minus 50 basis points due to the environment of low interest rates.

	Dec. 31, 2020		Dec. 31, 2019	
	€ million	%	€ million	%
Change in the present value of defined benefit obligations as at balance sheet date if				
the discount rate were 50 (Dec. 31, 2019: 100) basis points higher	-270	-7.00	-479	-13.08
the discount rate were 50 (Dec. 31, 2019: 100) basis points lower	305	7.91	604	16.49
the future salary increase were 50 basis points higher	39	1.01	38	1.04
the future salary increase were 50 basis points lower	-38	-0.99	-38	-1.04
the future pension increase were 25 basis points higher	89	2.31	87	2.38
the future pension increase were 25 basis points lower	-87	-2.26	-84	-2.29

The duration of the defined benefit obligations as at December 31, 2020 was 15.50 years (December 31, 2019: 15.22 years).

Plan assets

Defined benefit obligations are offset by plan assets. €1,952 million of the plan assets (December 31, 2019: €1,904 million) are attributable to contractual trust arrangements (CTAs) at DZ BANK and BSH, and are managed as trust assets by DZ BANK Pension Trust e.V., Frankfurt am Main. The relevant CTA investment committee defines the investment policy and strategy for the asset management company. Plan assets relating to obligations in the United States and United Kingdom are also managed by independent trusts. In Luxembourg, the assets were transferred to a pension fund and, in Switzerland, to a foundation. Trustees/administrators are responsible for the administration and management of the pension plans and for compliance with regulatory requirements.

The changes in the funding status of the defined benefit obligations were as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Present value of defined benefit obligations funded by plan assets	3,188	3,025
Present value of defined benefit obligations not funded by plan assets	668	638
Present value of defined benefit obligations	**3,856**	**3,663**
less fair value of plan assets	-2,535	-2,466
Recognized surplus	-	1
Provisions for defined benefit plans	**1,321**	**1,198**
Reimbursement rights recognized as assets	3	3

The following table shows the changes in plan assets:

€ million	2020	2019
Fair value of plan assets as at Jan. 1	2,466	2,158
Interest income	25	38
Return on/expenses from plan assets (excluding interest income)	95	196
Contributions to plan assets	23	139
of which contributions by employer	17	133
of which employee contributions	6	6
Pension benefits paid	-73	-70
Changes attributable to the takeover of defined benefit obligations	6	-
Changes attributable to currency translation	-7	5
Fair value of plan assets as at Dec. 31	**2,535**	**2,466**

Contributions to plan assets of €21 million are expected for 2021 (2020: €18 million).

As at December 31, 2020, 62 percent of the plan assets (December 31, 2019: 62 percent) were invested in fixed-income assets, thereby allowing for the defined benefit obligations' sensitivity to interest rates. The defined benefit obligations and the plan assets are largely in the euro, US dollar, and pound sterling currency areas. If the defined benefit obligations and the plan assets are in different currencies, derivative hedges are entered into in order to hedge the currency risk. The fixed-income investments in the form of Pfandbriefe, government bonds, and corporate bonds are generally of high quality. A small proportion of non-investment-grade corporate bonds are held. The bulk of the investments (particularly Pfandbriefe and government bonds) are of prime quality (AAA to AA).

The other investments are predominantly variable-yield securities (equities and investment fund units) from around the world, plus entitlements arising from insurance policies, short-term investments, and real estate assets.

The fair value of the plan assets is broken down by asset class as follows:

€ million	Dec. 31, 2020 With quoted market price in an active market	Dec. 31, 2020 Without quoted market price in an active market	Dec. 31, 2020 Total	Dec. 31, 2019 With quoted market price in an active market	Dec. 31, 2019 Without quoted market price in an active market	Dec. 31, 2019 Total
Cash and money market investments	-	47	47	-	50	50
Bonds and other fixed-income securities	1,563	-	1,563	1,531	-	1,531
Shares	158	-	158	130	-	130
Investment fund units	210	250	460	297	134	431
Other shareholdings	-	29	29	-	35	35
Derivatives	1	-	1	1	1	2
Land and buildings	-	5	5	-	5	5
Entitlements arising from insurance policies	-	160	160	-	158	158
Other assets	-	112	112	-	124	124
Total	**1,932**	**603**	**2,535**	**1,959**	**507**	**2,466**

As at December 31, 2020, the plan assets included €248 million of the group's own financial instruments (December 31, 2019: €244 million). The real estate and other assets contained in the plan assets are not used by the companies themselves.

In Luxembourg, there is a joint plan with other employers. Provisions and contributions are allocated to the contributors as stipulated in the regulations. The gains or losses on investments are distributed to the contributors on the basis of the proportion of the net assets attributable to them at the start of the year.

Other provisions

The following table shows the changes in other provisions in 2020:

€ million	Provisions for onerous contracts	Provisions for restruct-uring	Provisions for loan commit-ments	Provisions for financial guarantee contracts	Other provisions for loans and advances	Provisions relating to building society operations	Residual provisions	Total
Balance as at Jan. 1, 2020	15	24	71	124	33	1,406	417	2,090
Additions	1	12	257	87	45	326	283	1,011
Utilizations	-	-13	-	-	-11	-288	-231	-543
Reversals	-7	-7	-221	-83	-32	-	-84	-434
Interest expense/changes in discount rate	1	-	-	1	1	-	-	3
Other changes	-	-2	-	-6	1	-	1	-6
Balance as at Dec. 31, 2020	**10**	**14**	**107**	**123**	**37**	**1,444**	**387**	**2,122**

The residual provisions include provisions totaling €28 million for litigation risk (December 31, 2019: €36 million). In particular, provisions have been recognized in connection with capital market and lending products. No information pursuant to IAS 37.84 and IAS 37.85 is disclosed for these provisions because it is believed that disclosure of this information would seriously harm the outcome of the proceedings.

The expected maturities of other provisions are shown in the tables below.

AS AT DECEMBER 31, 2020

€ million	≤ 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provisions for onerous contracts	-	-	-	10	-
Provisions for restructuring	-	5	9	-	-
Provisions for loan commitments	5	14	63	22	3
Provisions for financial guarantee contracts	24	7	80	12	-
Other provisions for loans and advances	-	34	1	2	-
Provisions relating to building society operations	5	950	426	63	-
Residual provisions	51	150	65	108	13
Total	**85**	**1,160**	**644**	**217**	**16**

AS AT DECEMBER 31, 2019

€ million	≤ 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provisions for onerous contracts	-	-	-	15	-
Provisions for restructuring	1	2	21	-	-
Provisions for loan commitments	7	6	38	16	4
Provisions for financial guarantee contracts	21	22	65	16	-
Other provisions for loans and advances	-	30	1	2	-
Provisions relating to building society operations	6	883	454	63	-
Residual provisions	63	153	64	109	28
Total	**98**	**1,096**	**643**	**221**	**32**

The changes in loss allowances recognized under provisions for loan commitments and provisions for financial guarantee contracts were as follows:

	Loss allowances for loan commitments				**Loss allowances for financial guarantee contracts**			**Total**
€ million	Stage 1	Stage 2	Stage 3	POCI assets	Stage 1	Stage 2	Stage 3	
Balance as at Jan. 1, 2019	27	6	16	-	8	3	102	162
Additions	123	21	47	-	11	7	71	280
Reversals	-111	-15	-43	-	-16	-4	-56	-245
Other changes	1	-4	3	-	2	-4	-	-2
Balance as at Dec. 31, 2019	40	8	23	-	5	2	117	195
Additions	119	68	66	4	15	11	61	344
Reversals	-105	-48	-65	-3	-9	-3	-71	-304
Other changes	-	-2	2	-	-2	1	-4	-5
Balance as at Dec. 31, 2020	**54**	**26**	**26**	**1**	**9**	**11**	**103**	**230**

>> 70 Insurance liabilities

€ million	Dec. 31, 2020	Dec. 31, 2019
Provision for unearned premiums	1,194	1,188
Benefit reserve	70,470	65,502
Provision for claims outstanding	14,627	13,415
Provision for premium refunds	12,569	12,149
Other insurance liabilities	50	59
Reserve for unit-linked insurance contracts	12,303	12,033
Total	**111,213**	**104,346**

CHANGES IN THE PROVISION FOR UNEARNED PREMIUMS

€ million	2020	2019
Balance as at Jan. 1	1,188	1,171
Additions	1,253	1,252
Utilizations/reversals	-1,239	-1,241
Changes attributable to currency translation	-8	6
Balance as at Dec. 31	**1,194**	**1,188**

CHANGES IN THE BENEFIT RESERVE

€ million	2020	2019
Balance as at Jan. 1	65,502	61,709
Additions	8,093	7,095
Interest component	982	1,015
Utilizations/reversals	-4,106	-4,318
Changes attributable to currency translation	-1	1
Balance as at Dec. 31	**70,470**	**65,502**

Supplementary change-in-discount-rate reserves totaling €4,698 million have been recognized for policies with a discount rate in excess of the reference rate specified in the DeckRV (December 31, 2019: €3,957 million).

CHANGES IN THE PROVISION FOR CLAIMS OUTSTANDING

€ million	2020	2019
Balance as at Jan. 1	13,415	12,079
Claims expenses	7,821	7,504
less payments	-6,427	-6,276
Changes attributable to currency translation	-182	108
Balance as at Dec. 31	**14,627**	**13,415**

CHANGES IN THE PROVISION FOR PREMIUM REFUNDS

€ million	2020	2019
Balance as at Jan. 1	12,149	8,283
Additions	516	689
Utilizations/reversals	-759	-794
Changes resulting from unrealized gains and losses on investments (through other comprehensive income)	919	2,796[1]
Changes resulting from other remeasurements (through profit or loss)	-233	1,170[1]
Changes attributable to currency translation	-23	5
Balance as at Dec. 31	**12,569**	**12,149**

1 Amount restated (see note 2).

The breakdown of maturities for insurance liabilities is shown in the following tables:

AS AT DECEMBER 31, 2020

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	967	182	45	-
Benefit reserve	2,040	5,205	13,917	49,308
Provision for claims outstanding	5,262	5,437	3,928	-
Provision for premium refunds	857	664	649	10,399
Other insurance liabilities	29	6	11	4
Total	**9,155**	**11,494**	**18,550**	**59,711**

AS AT DECEMBER 31, 2019

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	983	168	37	-
Benefit reserve	1,749	5,998	13,181	44,574
Provision for claims outstanding	4,868	4,918	3,629	-
Provision for premium refunds	843	685	734	9,887
Other insurance liabilities	37	10	8	4
Total	**8,480**	**11,779**	**17,589**	**54,465**

In connection with the COVID-19 pandemic, €215 million was added to the provisions for claims outstanding in respect of the direct insurance companies in the non-life insurance division and in respect of inward reinsurance business. Of this amount, €52 million was attributable to claims already reported and €163 million to the provision for claims incurred but not reported (IBNR). This was mitigated by a positive effect of €87 million in the provisions for individual claims in the branches of insurance not adversely affected by COVID-19 (particularly motor vehicle insurance).

In the reinsurance business, €310 million was added for claims outstanding in connection with the COVID-19 pandemic. Of this amount, €83 million was attributable to claims already reported and €227 million to the provision for claims incurred but not (enough) reported (IBNR/IBNER). In accordance with the realization principle, it is not yet possible to quantify mitigating effects because the ceding insurers' final settlements were not available by December 31, 2020.

>> 71 Other liabilities

€ million	Dec. 31, 2020	Dec. 31, 2019
Other liabilities of insurance companies	7,472	6,780
Accruals	1,279	1,248[1]
Financial liabilities from contingent considerations in a business combination	-	5
Other payables	226	189
Lease liabilities	454	279
Residual other liabilities	812	664
Total	**10,243**	**9,165**

1 Amount restated (see note 2).

The table below gives a breakdown of insurance companies' other liabilities.

€ million	Dec. 31, 2020	Dec. 31, 2019
Other provisions	**436**	**428**
Provisions for employee benefits	403	389
Provisions for share-based payment transactions	3	3
Other provisions	30	36
Payables and residual other liabilities	**7,036**	**6,352**
Subordinated capital	75	89
Deposits received from reinsurers	41	41
Payables arising out of direct insurance operations	1,525	1,464
Payables arising out of reinsurance operations	566	442
Debt certificates issued including bonds	31	31
Deposits from banks	606	581
Derivatives (negative fair values)	23	20
Liabilities from capitalization transactions	3,053	2,751
Insurance lease liabilities	68	63
Other payables	293	284
Residual other liabilities	755	586
Total	**7,472**	**6,780**

>> 72 Subordinated capital

€ million	Dec. 31, 2020	Dec. 31, 2019
Subordinated liabilities	3,077	2,106
Profit-sharing rights	-	68
Share capital repayable on demand	13	13
Total	**3,090**	**2,187**

>> 73 Equity

Subscribed capital

The subscribed capital of DZ BANK consists of 1,791,344,757 registered non-par-value shares each with an imputed value of €2.75. All shares in issue are fully paid-up.

The Board of Managing Directors did not propose a dividend for 2019 to the Annual General Meeting of DZ BANK AG on May 27, 2020. The Board of Managing Directors is thereby following the recommendation of the European Central Bank (ECB) that no dividends be distributed in 2020 in view of the COVID-19 pandemic. In 2020, therefore, no dividend was paid for the 2019 financial year (paid in 2019: €0.18 per share). A dividend of €0.16 per share for 2020 will be proposed to the Annual General Meeting.

Authorized capital

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to increase the share capital by May 31, 2021 on one or more occasions by up to a total of €100 million by way of issuing new registered non-par-value shares in return for cash or non-cash contributions. The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to exclude the subscription right of shareholders both in the case of capital increases in return for non-cash contributions and in the case of capital increases in return for cash contributions if the capital is increased for the purpose of

- issuing new shares to employees of the corporation (employee shares),
- issuing new shares to one or more cooperative banks which, measured in terms of their total assets, directly and indirectly have a below-average stake in the corporation's share capital, i.e. less than 0.5 percent of their total assets (based on the nominal value of €2.75 per DZ BANK share),
- acquiring companies, equity investments in companies or for granting equity investments in the corporation in order to back strategic partnerships.

The Board of Managing Directors is also authorized, subject to the approval of the Supervisory Board, to exclude fractions from the subscription right of shareholders ('Authorized Capital I').

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to increase the share capital by May 31, 2021 on one or more occasions by up to a total of €300 million by issuing new registered non-par-value shares in return for cash contributions. The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to exclude fractions from the subscription right of shareholders ('Authorized Capital II').

The new shares issued on the basis of utilizing Authorized Capital I or Authorized Capital II can also be acquired by credit institutions determined by the Board of Managing Directors if aforesaid credit institutions agree to offer said shares to the shareholders (indirect subscription right).

The Board of Managing Directors did not make use of any of this authorized action in 2020.

Contingent capital

The share capital is to be contingently raised by up to €52,859,413.75 by issuing up to 19,221,605 new, registered non-par-value shares (Contingent Capital). The increase in the Contingent Capital shall serve to grant registered non-par value shares (subscription shares) for the fulfillment of corresponding conversion rights and/or conversion obligations of creditors of convertible bonds or registered bonds, as the case may be, that were issued until June 24, 2015 in return for a cash contribution on the basis of the authorization resolution of the Annual General Meeting of WGZ BANK AG Westdeutsche Genossenschafts-Zentralbank of June 24, 2014. The increase in the Contingent Capital must only be carried out to the extent that the creditors of aforesaid convertible bonds or registered bonds, as the case may be, entitled or obliged to convert make use of their conversion right or fulfill their conversion obligation and that no own shares are used for aforesaid fulfillment. The subscription shares shall at all times be issued at a ratio of one registered bond to 7,435.824 subscription shares.

The subscription shares participate from the beginning of the financial year in which they come into existence in the profits of the current financial year as well as in the profits of previous years if a resolution of the appropriation of said profits has yet to be passed.

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to determine the further details pertaining to the execution of the increase in the Contingent Capital.

Disclosures on shareholders

At the end of 2020, 99.5 percent of shares were held by cooperative enterprises (December 31, 2019: 99.5 percent). These cooperative enterprises include the cooperative banks and other legal entities and trading companies economically associated with the cooperative movement or cooperative housing sector.

Capital reserve

The capital reserve comprises the amounts from the issue of DZ BANK shares in excess of the imputed par value of the shares.

Retained earnings

Retained earnings comprise earned, undistributed consolidated profit together with gains and losses arising from remeasurement of defined benefit plans after taking into account deferred taxes. Cumulative gains and losses arising from remeasurement of defined benefit plans amounted to a loss of €777 million (December 31, 2019: loss of €682 million).

Reserve from other comprehensive income

Reserve from equity instruments for which the fair value OCI option has been exercised

The reserve from equity instruments for which the fair value OCI option has been applied is used to report the changes in the fair value of equity instruments measured at fair value through other comprehensive income after

taking into account deferred taxes. If the equity instruments are sold, the related reserve is reclassified to retained earnings.

At the end of 2020, an amount of €10 million was attributable to the reserve from non-current assets and disposal groups classified as held for sale (December 31, 2019: no amount).

Reserve from gains and losses on financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk

The portion of the changes in fair value of financial liabilities designated as at fair value through profit or loss attributable to changes in the DZ BANK Group's own credit risk is also recognized in the reserve from other comprehensive income. If the liabilities are derecognized, the cumulative gains and losses recognized through other comprehensive income are reclassified to retained earnings.

Reserve from debt instruments measured at fair value through other comprehensive income

The reserve from debt instruments measured at fair value through other comprehensive income is used to report the changes in fair value after taking into account deferred taxes. In the case of debt instruments, gains and losses are only recognized in profit or loss when the relevant asset is sold. Loss allowances are recognized for these assets in accordance with IFRS 9.

Currency translation reserve

The currency translation reserve is the result of the translation of financial statements of subsidiaries denominated in foreign currency into euros (the group reporting currency). It also includes the gains and losses on hedges of net investments in foreign operations and the change in the currency translation reserve for entities accounted for using the equity method.

Additional equity components

Additional Tier 1 notes

In previous years, DZ BANK had issued tranches of additional Tier 1 notes (AT1 bonds) in 2 placements with a total volume of €2,150 million. In both placements, the AT1 bonds are split into 4 types depending on their interest-rate arrangements (types A to D). All interest is payable annually; the date for the payment of interest has been specified as August 1 each year in both placements. Under the terms and conditions of the bonds, interest payments are at the discretion of the issuer. They may be canceled, either wholly or in part, depending on the items eligible for distribution or by order of the competent supervisory authority. Interest payments are not cumulative; canceled or reduced payments will not be made up in subsequent periods.

The bonds do not have any maturity date and are subject to the terms and conditions set out in the relevant prospectus. Among other things, the terms and conditions specify that DZ BANK may only call the bonds in their entirety, and not in part, provided that there are certain regulatory or tax reasons for doing so. In all instances, DZ BANK must obtain the consent of the competent supervisory authority in order to call the bonds.

The tranches of AT1 bonds issued are shown in the 'Additional equity components' sub-item. According to the provisions of IAS 32, the AT1 bonds have characteristics of equity. The AT1 bonds are unsecured, subordinated bearer bonds of DZ BANK.

Other hybrid capital

As a result of the merger of DZ BANK with WGZ BANK, the convertible bond issued by WGZ BANK was taken over by DZ BANK as the legal successor. Upon initial recognition when the convertible bond was taken over, the components had to be defined as a financial liability or an equity instrument. The portion of the convertible bond that was not classified as a component of equity was recognized under subordinated capital. As was the case in the previous year, the equity component of €95 million is included as an additional equity component within the equity of the DZ BANK Group until such time as it is potentially converted into non-par-value shares of DZ BANK. Further disclosures on conversion into non-par-value shares of DZ BANK can be found in the section on contingent capital.

Non-controlling interests

Non-controlling interests comprise the equity of subsidiaries not attributable to DZ BANK.

Breakdown of changes in equity by component of other comprehensive income

2020

€ million	Equity earned by the group	Reserve from other compre-hensive income	Non-controlling interests
Gains and losses on debt instruments measured at fair value through other comprehensive income	-	710	71
Exchange differences on currency translation of foreign operations	-	-22	-7
Gains and losses on hedges of net investments in foreign operations	-	2	-
Gains and losses on equity instruments for which the fair value OCI option has been exercised	-	-73	-15
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-	-42	-
Gains and losses arising from remeasurement of defined benefit plans	-95	-	-2
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	-	-6	-
Other comprehensive income/loss	**-95**	**569**	**47**

2019

€ million	Equity earned by the group	Reserve from other compre-hensive income	Non-controlling interests
Gains and losses on debt instruments measured at fair value through other comprehensive income	-	1,051[1]	113
Exchange differences on currency translation of foreign operations	-	-	-1
Gains and losses on hedges of net investments in foreign operations	-	6	-
Gains and losses on equity instruments for which the fair value OCI option has been exercised	-	398[1]	39
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-	-64	-2
Gains and losses arising from remeasurement of defined benefit plans	-114	-	-5
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	-	1	-
Other comprehensive income/loss	**-114**	**1,392**	**144**

1 Amount restated (see note 2).

The table below shows a breakdown of the reserve from other comprehensive income:

	Items not reclassified to the income statement		Items reclassified to the income statement	
€ million	Reserve from equity instruments for which the fair value OCI option has been exercised	Reserve from gains and losses on financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	Reserve from debt instruments measured at fair value through other comprehensive income	Currency translation reserve
Equity as at Jan. 1, 2019	361	23	131	84
Restatements according to IAS 8	1	-	-2	-
Equity restated as at Jan. 1, 2019	362	23	129	84
Other comprehensive income/loss	398[1]	-65	1,051[1]	8
Total comprehensive income/loss	**398**	**-65**	**1,051**	**8**
Changes in scope of consolidation	-	-	-	-7
Acquisition/disposal of non-controlling interests	1	-	-	-
Reclassifications within equity	-298	-	-	-
Equity as at Dec. 31, 2019	463	-42	1,180	85
Other comprehensive income/loss	-73	-42	710	-26
Total comprehensive income/loss	**-73**	**-42**	**710**	**-26**
Acquisition/disposal of non-controlling interests	-	-	-1	-
Reclassifications within equity	-50	8	-	-
Equity as at Dec. 31, 2020	**340**	**-76**	**1,889**	**59**

1 Amount restated (see note 2).

The changes in loss allowances included in the reserve from other comprehensive income, broken down by individual balance sheet item, were as follows:

	Loans and advances to customers			Investments		
€ million	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
Balance as at Jan. 1, 2019	1	2	-	3	1	29
Additions	-	-	-	5	-	4
Reversals	-1	-1	-	-4	-	-1
Other changes	1	-1	-	-	-	-2
Balance as at Dec. 31, 2019	1	-	-	4	1	30
Additions	1	1	-	9	-	-
Utilizations	-	-	-	-1	-	-8
Reversals	-	-1	-	-3	-1	-
Other changes	-	-	-	-1	-	2
Balance as at Dec. 31, 2020	**2**	**-**	**-**	**8**	**-**	**24**

	Investments held by insurance companies			Total
€ million	Stage 1	Stage 2	Stage 3	
Balance as at Jan. 1, 2019	4	-	-	40
Additions	5	-	-	14
Reversals	-5	-	-	-12
Other changes	-	-	-	-2
Balance as at Dec. 31, 2019	4	-	-	40
Additions	9	3	-	23
Utilizations	-	-	-	-9
Reversals	-4	-	-	-9
Other changes	1	-1	-	1
Balance as at Dec. 31, 2020	**10**	**2**	**-**	**46**

E Financial instruments and fair value disclosures

>> 74 Classes, categories, and fair values of financial instruments

The following tables show the breakdown of net carrying amounts and fair values of financial assets and financial liabilities by class (in accordance with IFRS 7) and by category of financial instrument (in accordance with IFRS 9):

€ million	Dec. 31, 2020 Carrying amount	Dec. 31, 2020 Fair value	Dec. 31, 2019 Carrying amount	Dec. 31, 2019 Fair value
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**196,505**	**196,505**	**187,377**	**187,377**
Financial assets measured at fair value through profit or loss	**83,473**	**83,473**	**84,894**	**84,894**
Financial assets mandatorily measured at fair value through profit or loss	***74,003***	***74,003***	***74,563***	***74,563***
Loans and advances to customers	241	241	258	258
Hedging instruments (positive fair values)	161	161	211[1]	211[1]
Financial assets held for trading	42,846	42,846	44,771[1]	44,771[1]
Investments	2,720	2,720	2,591	2,591
Investments held by insurance companies	28,035	28,035	26,732	26,732
Financial assets designated as at fair value through profit or loss	***9,470***	***9,470***	***10,331***	***10,331***
Loans and advances to banks	1,967	1,967	2,427	2,427
Loans and advances to customers	1,213	1,213	1,488	1,488
Investments	6,290	6,290	6,416	6,416
Financial assets measured at fair value through other comprehensive income	**112,857**	**112,857**	**102,169**	**102,169**
Financial assets mandatorily measured at fair value through other comprehensive income	***106,935***	***106,935***	***95,857***	***95,857***
Loans and advances to banks	116	116	152	152
Loans and advances to customers	3,436	3,436	3,569	3,569
Investments	35,450	35,450	29,731	29,731
Investments held by insurance companies	67,933	67,933	62,405	62,405
Financial assets designated as at fair value through other comprehensive income	***5,922***	***5,922***	***6,312***	***6,312***
Investments	393	393	379	379
Investments held by insurance companies	5,529	5,529	5,933	5,933
Non-current assets and disposal groups classified as held for sale	**175**	**175**	**314**	**314**
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**385,370**	**394,481**	**359,662**	**366,937**
Cash and cash equivalents	68,148	68,148	52,166	52,167
Loans and advances to banks	100,913	104,646	94,953	97,570
Loans and advances to customers	182,079	185,968	177,165	180,501
Investments	14,894	15,838	17,246	18,148
Investments held by insurance companies	15,757	18,282	14,472	16,259
Other assets	1,595	1,595	2,094	2,094
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	1,980		1,368[1]	
Non-current assets and disposal groups classified as held for sale	**4**	**4**	**198**	**198**
FINANCE LEASES	**1,076**	**1,091**	**1,531**	**1,534**
Loans and advances to customers	1,076	1,091	1,531	1,534

1 Amount restated (see note 2).

€ million	Dec. 31, 2020 Carrying amount	Dec. 31, 2020 Fair value	Dec. 31, 2019 Carrying amount	Dec. 31, 2019 Fair value
FINANCIAL LIABILITIES MEASURED AT FAIR VALUE	**84,968**	**84,968**	**84,261**	**84,261**
Financial liabilities mandatorily measured at fair value through profit or loss	**53,065**	**53,065**	**53,093**	**53,093**
Hedging instruments (negative fair values)	2,638	2,638	2,018[1]	2,018[1]
Financial liabilities held for trading	50,404	50,404	51,050[1]	51,050[1]
Other liabilities	23	23	25	25
Financial liabilities designated as at fair value through profit or loss	**31,903**	**31,903**	**31,168**	**31,168**
Deposits from banks	4,564	4,564	5,060	5,060
Deposits from customers	9,511	9,511	10,114	10,114
Debt certificates issued including bonds	17,589	17,589	15,647	15,647
Subordinated capital	239	239	347	347
FINANCIAL LIABILITIES MEASURED AT AMORTIZED COST	**355,644**	**363,304**	**330,704**	**336,160**
Deposits from banks	173,288	177,515	136,061	139,028
Deposits from customers	124,413	126,803	121,402	123,345
Debt certificates issued including bonds	52,911	54,117	69,476	70,137
Other liabilities	1,865	1,867	1,688	1,689
Subordinated capital	2,851	3,001	1,840	1,961
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	315		237[1]	
Liabilities included in disposal groups classified as held for sale	**1**	**1**	-	-
LEASES	**522**	**522**	**342**	**342**
Other liabilities	522	522	342	342
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	**230**	**230**	**195**	**195**
Financial guarantee contracts	**123**	**123**	**124**	**124**
Provisions	123	123	124	124
Loan commitments	**107**	**107**	**71**	**71**
Provisions	107	107	71	71

1 Amount restated (see note 2).

Given the complex structure of home savings contracts and the multitude of scales of rates and charges, there is currently no suitable method for calculating the fair value of an individual contract as at the balance sheet date. Consequently, the fair value cannot be determined using either comparable market prices or suitable option pricing models. The fair values of financial assets and financial liabilities resulting from building society operations are therefore shown in simplified form at their carrying amounts. On the basis of the models used for building society management, which comprise both collective and non-collective business including deposits, the overall amount for building society operations during the reporting period was positive.

The carrying amounts and fair values reported under investments held by insurance companies relate to receivables and fixed-income securities matched as cover for long-term insurance contract obligations as part of insurance operations. Because these instruments are normally held over their entire maturity, interest-rate-related changes in fair value during the maturity of the financial assets balance each other out in full. The fair values of the investments held by insurance companies comprise both the proportion of the fair values that is attributable to the policyholders and the proportion attributable to the shareholders of the DZ BANK Group. The fair value attributable to the shareholders of the DZ BANK Group of investments held by insurance companies measured at amortized cost was €16,505 million (December 31, 2019: €15,050 million).

>> 75 Equity instruments designated as at fair value through other comprehensive income

Investments and investments held by insurance companies include shares and other variable-yield securities and investments in subsidiaries, joint ventures, and associates that the DZ BANK Group has elected to measure at fair value through other comprehensive income. These investments and investments held by insurance companies are not held for trading or to generate returns. The DZ BANK Group believes that it would be inappropriate to report gains and losses in profit or loss in this case.

€ million	Dec. 31, 2020	Dec. 31, 2019
Investments	**393**	**379**
Shares and other variable-yield securities	262	222
Investments in subsidiaries	131	157
Investments held by insurance companies	**5,529**	**5,933**
Shares and other variable-yield securities	5,109	5,537
Investments in subsidiaries	402	378
Investments in joint ventures	18	17
Investments in associates	-	1
Total	**5,922**	**6,312**

Dividends of €74 million (2019: €176 million) were recognized in 2020 in respect of investments and investments held by insurance companies as at the reporting date.

Investments and investments held by insurance companies with a carrying amount of €576 million (2019: €712 million) were derecognized in 2020. The derecognition of these investments was attributable to capital repayments, liquidations, and disposals. No further current gains or losses are expected from these assets. These derecognitions resulted in cumulative net gains of €54 million (2019: €350 million), which were reclassified to retained earnings or the provision for premium refunds in the financial year. In 2020, dividends of €80 million (2019: €13 million) were recognized in respect of investments and investments held by insurance companies that have been sold.

>> 76 Assets and liabilities measured at fair value on the balance sheet

Fair value hierarchy

The fair value measurements are assigned to the levels of the fair value hierarchy as follows:

€ million	Level 1		Level 2		Level 3	
	Dec. 31, 2020	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019
Assets	**89,438**	82,382	**97,616**	96,062	**9,451**	8,933
Loans and advances to banks	-	-	2,083	2,579	-	-
Loans and advances to customers	-	-	4,029	4,408	861	907
Hedging instruments (positive fair values)	-	-	161	211[1]	-	-
Financial assets held for trading	2,032	1,645	40,045	42,335[1]	769	791
Investments	20,421	19,770	22,726	17,378	1,705	1,969
Investments held by insurance companies	66,935	60,873	28,532	29,106	6,030	5,091
Non-current assets and disposal groups classified as held for sale	50	94	39	45	86	175
of which non-recurring measurement	50	94	-	-	2	41
Liabilities	**4,451**	4,320	**94,466**	93,039	**774**	1,172
Deposits from banks	-	-	4,564	5,060	-	-
Deposits from customers	-	-	9,511	10,114	-	-
Debt certificates issued including bonds	3,416	3,340	13,691	11,699	482	608
Hedging instruments (negative fair values)	-	-	2,638	2,018[1]	-	-
Financial liabilities held for trading	1,032	973	49,101	49,562[1]	271	515
Financial liabilities arising from unit-linked insurance products	-	-	14,722	14,270	-	-
Other liabilities	3	7	20	13	-	5
Subordinated capital	-	-	219	303	20	44

1 Amount restated (see note 2).

The investments held by insurance companies measured at fair value include assets related to unit-linked contracts. These are offset on the equity and liabilities side of the balance sheet by financial liabilities measured at fair value arising from unit-linked insurance products, which consist of the reserve for unit-linked insurance contracts and liabilities from capitalization transactions allocated to unit-linked life insurance.

Transfers

Assets and liabilities held at the balance sheet date and measured at fair value on a recurring basis were transferred as follows between Levels 1 and 2 of the fair value hierarchy:

€ million	Transfers from Level 1 to Level 2		Transfers from Level 2 to Level 1	
	2020	2019	**2020**	2019
Financial assets measured at fair value	**753**	957	**1,732**	3,759
Investments	-	-	-	3,577
Investments held by insurance companies	753	957	1,732	182

Transfers from Level 1 to Level 2 were due to quoted prices no longer being obtainable in active markets for identical assets or liabilities. Transfers from Level 2 to Level 1 were due to the availability of quoted prices in active markets that had previously not existed.

In the DZ BANK Group, transfers between Levels 1 and 2 take place when there is a change in the inputs that is relevant to categorization in the fair value hierarchy.

Fair value measurements within Levels 2 and 3

Fair value measurements within Level 2 of the fair value hierarchy either use prices available in active markets for similar, but not identical, financial instruments or use valuation techniques largely based on observable market data. If valuation techniques are used that include a significant valuation input that is not observable in the market, the relevant fair value measurements are categorized within Level 3 of the fair value hierarchy.

Generally, the discounted cash flow (DCF) method is used in the model-based measurement of the fair value of financial instruments without optionalities. Modeling of the yield curves is based on a multi-curve approach with collateral discounting. Simple products on which options exist are measured using customary standard models in which the inputs are quoted in active markets. For structured products on which options exist, a wide range of standard valuation techniques are used. Valuation models are calibrated to available market prices and validated regularly. The fair values of structured products can be measured by breaking these products into their constituent parts, which are then measured using the valuation methods described below.

The basis for measurement is the selection of an adequate yield curve for each specific instrument. The measurement is carried out by selecting appropriate tenor-specific forward curves for projecting variable cash flows. The nature and collateralization of the transactions determines how they are discounted using yield curves that can be adjusted on the basis of relevant spreads.

The DZ BANK Group uses prices in active markets (provided these prices are available) for the fair value measurement of loans and advances as well as unstructured bonds. Otherwise, it mainly uses the DCF method. Discounting is based on yield curves that are adjusted for liquidity-related and credit rating-related costs using spreads. Product-dependent funding spreads are added to the yield curve for liabilities attributable to registered creditors, debt certificates issued including bonds, and subordinated capital. Debt instruments held are adjusted using issuer-specific spreads or spreads derived from the issuer's internal and external credit rating, sector, and risk category. Customer-appropriate spreads and collateralization rates are taken into account for the measurement of loans when the DCF method is used. If significant unobservable inputs are used for measurement and there are no indications that the transaction price is not identical to the fair value at the time of first-time recognition on the balance sheet, the valuation method is calibrated in such a way that the model price at the time of acquisition corresponds to the transaction price. In exceptional cases, the nominal amount of the debt instrument in question provides the best evidence of fair value.

The fair value measurements of shares and other variable-yield securities and of long-term equity investments accounted for in accordance with IFRS 9 are determined by applying income capitalization approaches and observing transaction prices. The best indicator of fair value is deemed to be the transaction prices for recent transactions involving the relevant financial instruments, provided there have been any such transactions. Otherwise, the fair value is measured using income capitalization approaches in which future income and dividends – calculated on the basis of forecasts and estimates – are discounted, taking risk parameters into account.

The fair value measurements of investment fund units are determined using the pro rata net asset value. This is adjusted for any outstanding performance-related remuneration entitlements of fund managers; risk adjustments are also taken into account. Some long-term equity investments in real estate companies are also measured at net asset value. In this case, the liabilities are subtracted from the fair values of the real estate tied up in the company and the result is multiplied by the percentage of shareholding. The prices of units in real estate funds that are not managed by the DZ BANK Group are provided by the asset management company that manages these funds. These units are measured regularly at net asset value. Fair value measurements are also based on valuations, current values, and prices in recent transactions.

The fair value measurement of standardized derivatives traded in liquid markets is based on observable market prices and/or industry-standard models using observable inputs. To discount the cash flows of derivatives, a distinction is made between non-collateralized and collateralized transactions when using yield curves in order to take into account the specific funding costs. Moreover, calculation of the model prices for products on which options exist mostly requires the input of additional market data (e.g. volatilities, correlations, repo rates). As far as possible, this data is derived implicitly from quoted market prices that are available. If observable quoted market prices are not available, or only available to a limited extent, the DZ BANK Group uses customary interpolation and extrapolation mechanisms, historical time series analyses, and fundamentals analyses of economic variables to generate the required inputs. It also uses expert assessments on a small scale.

The fair value measurement of OTC financial derivatives applies the option in IFRS 13.48, which enables the total net amount to be measured. In the first step, credit risk is not taken into account. Counterparty-specific credit risk arising from derivatives is recognized after the total net amount has been determined. Credit valuation adjustments (CVAs) are recognized to take into account counterparty credit risk and debt valuation adjustments (DVAs) are recognized to take into account the group’s own credit risk. Their measurement also takes account of collateral and uses market-implied parameters with matching maturities or internal parameters with matching maturities for the probability of default and loss given default.

The measurement of financial instruments also involves carrying out measurement adjustments to a suitable degree. These include, among other things, model reserves that enable uncertainties regarding model selection, model parameters, and model configuration to be taken into account. The DZ BANK Group measures financial instruments at the price at which these financial instruments can be realized in the market. If this differs from the measurement of the individual instruments (e.g. measurement at middle rates), the bid/ask adjustments (close-out reserves) are determined on a net basis applying the option in IFRS 13.48. Measurement takes account of the group’s funding structure.

The following table shows the valuation techniques, the unobservable inputs, and the spreads of the unobservable inputs used for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2020.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Loans and advances to customers		580	DCF method	BVAL price adjustment	-4.0 to 4.9
	Loans	79	DCF method	Credit spread	0.1 to 8.3
	Profit-participation certificates	28	DCF method	Internal credit ratings	4.0 to 24.2
	Shareholders' loans	112	DCF method	Internal credit ratings	4.0 to 24.2
	Receivables arising from silent partnerships	62	DCF method	Internal credit ratings	4.0 to 24.2
Financial assets held for trading	ABSs	4	DCF method	Credit spread	7.7
	Equity/commodity basket products	3	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Loans and advances to issuers in default	6	DCF method	Recovery rate	-
	Collateralized loan obligations	121	Gaussian copula model	Liquidity spread	1.6 to 3.3
	Bearer securities	235	DCF method	BVAL price adjustment	0.2 to 2.6
	Registered securities	400	DCF method	BVAL price adjustment	-4.0 to 4.9
Investments	ABSs	93	DCF method	Credit spread	0.6 to 7.0
	Other variable-yield securities	10	DCF method	Assumptions for measurement of risk parameters	11.4 to 14.5
	Investments in subsidiaries	66	DCF method	Assumptions for measurement of risk parameters	11.4 to 14.5
		231	Income capitalization approach, net asset value method	Future income	-
	Collateralized loan obligations	3	Gaussian copula model	Liquidity spread	0.0 to 2.1
	Loans and advances to issuers in default	6	DCF method	Recovery rate	-
	Bearer securities	164	DCF method	BVAL price adjustment	0.2 to 132.7
	Investment fund units	13	Net asset value	-	-
	Mortgage-backed securities	276	DCF method	Duration	-
		37	DCF method	Recovery rate	0.0 to 94.3
	Other shareholdings	88	DCF method	Capitalization rate, growth factor	1.0 to 10.3
		235	Income capitalization approach, net asset value method	Future income	-
	VR Circle	483	DCF method	Multiple-year default probabilities	0.0 to 100.0

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Investments held by insurance companies	ABSs	1,379	Third-party pricing information	-	-
	Investments in subsidiaries, associates, and joint ventures, real estate funds, profit-participation certificates, and other long-term equity investments	2,923	Net asset value	-	-
	Investments in subsidiaries, associates, and joint ventures, other long-term equity investments, and shares in cooperatives	309	Income capitalization approach	Future income	6.5 to 9.4
	Fixed-income securities, convertible bonds, shares, investment fund units, and shares in cooperatives	959	Third-party pricing information	-	-
	Profit-participation certificates and promissory notes	451	DCF method	Credit spread	5.0 to 6.8
	Other shareholdings	9	Approximation	-	-
Non-current assets and disposal groups classified as held for sale	Investments in corporations	29	Income capitalization approach	Future income	0.0 to 10.8
	Loans	57	DCF method	Credit spread	0.1 to 8.3
Debt certificates issued including bonds	VR Circle	482	DCF method	Multiple-year default probabilities	0.0 to 100.0
Financial liabilities held for trading	Equity/commodity basket products	254	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Products with commodity volatility derived from comparable instruments	17	Local volatility model	Volatility	7.0 to 72.1
Subordinated capital	Loans	20	DCF method	Credit spread	0.3 to 3.2

The following table shows the valuation techniques, the unobservable inputs, and the spreads of the unobservable inputs used for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2019.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Loans and advances to customers	Loans	632	DCF method	BVAL price adjustment	-4.0 to 4.0
		69	DCF method	Credit spread	0.0 to 8.3
	Profit-participation certificates	46	DCF method	Internal credit ratings	5.2 to 16.5
	Shareholders' loans	102	DCF method	Internal credit ratings	5.2 to 16.5
	Receivables arising from silent partnerships	58	DCF method	Internal credit ratings	5.2 to 16.5
Financial assets held for trading	ABSs	4	DCF method	Credit spread	6.5
	Equity/commodity basket products	6	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Loans and advances to issuers in default	20	DCF method	Recovery rate	-
	Collateralized loan obligations	99	Gaussian copula model	Liquidity spread	1.1 to 4.5
	Bearer securities	466	DCF method	BVAL price adjustment	-1.7 to 0.6
	Registered securities	168	DCF method	BVAL price adjustment	-4.0 to 4.0
	Option in connection with acquisition of long-term equity investments	28	Black-Scholes model	Earnings indicator	-
Investments	ABSs	79	DCF method	Credit spread	0.5 to 5.4
	Other variable-yield securities	10	DCF method	Assumptions for measurement of risk parameters	9.6 to 13.5
	Investments in subsidiaries	37	DCF method	Assumptions for measurement of risk parameters	9.6 to 13.5
		273	Income capitalization approach, net asset value method	Future income	-
	Collateralized loan obligations	6	Gaussian copula model	Liquidity spread	0.0 to 1.7
	Bearer securities	342	DCF method	BVAL price adjustment	-1.7 to 132.0
	Investment fund units	20	Net asset value	-	-
	Mortgage-backed securities	334	DCF method	Duration	-
		41	DCF method	Recovery rate	0.0 to 94.6
	Other shareholdings	72	DCF method	Capitalization rate, growth factor	0.0 to 11.6
		249	Income capitalization approach, net asset value method	Future income	-
	VR Circle	506	DCF method	Multiple-year default probabilities	0.0 to 100.0

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Investments held by insurance companies	ABSs	1,044	Third-party pricing information	-	-
	Investments in subsidiaries, associates, and joint ventures, real estate funds, profit-participation certificates, and other long-term equity investments	2,455	Net asset value	-	-
	Investments in subsidiaries, associates, and joint ventures, other long-term equity investments, and shares in cooperatives	404	Income capitalization approach	Future income	7.8 to 8.4
	Fixed-income securities, convertible bonds, shares, and shares in cooperatives	719	Third-party pricing information	-	-
	Profit-participation certificates and promissory notes	462	DCF method	Credit spread	4.4 to 6.0
	Other shareholdings	7	Approximation	-	-
Non-current assets and disposal groups classified as held for sale	Loans	175	DCF method	Credit spread	0.0 to 8.3
Debt certificates issued including bonds	Bearer issue	102	DCF method	BVAL price adjustment	0.1
	VR Circle	506	DCF method	Multiple-year default probabilities	0.0 to 100.0
Financial liabilities held for trading	Equity/commodity basket products	479	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Option in connection with acquisition of long-term equity investments	10	Black-Scholes model	Earnings indicators	-
	Products with commodity volatility derived from comparable instruments	26	Local volatility model	Volatility	7.0 to 59.5
Other liabilities	Incentivization commitment in connection with acquisition of long-term equity investments	5	Expected value	-	-
Subordinated capital	Loans	44	DCF method	Credit spread	0.3 to 3.2

Fair value measurements within Level 3 of the fair value hierarchy

The table below shows the changes in the fair value measurements of assets within Level 3 of the fair value hierarchy:

€ million	Loans and advances to customers	Financial assets held for trading	Investments	Investments held by insurance companies	Non-current assets and disposal groups classified as held for sale
Balance as at Jan. 1, 2019	928	554	2,179	4,261	388
Additions (purchases)	51	774	187	1,488	289
Transfers	-10	223	-36	-137	-
from Level 3 to Levels 1 and 2	-10	-71	-266	-234	-
from Levels 1 and 2 to Level 3	-	294	230	97	-
Disposals (sales)	-132	-732	-201	-679	-780
Changes resulting from measurement at fair value	-26	-28	65	158	46
through profit or loss	-33	-28	43	89	-59
through other comprehensive income	7	-	22	69	105
Other changes	96	-	-225	-	232
Balance as at Dec. 31, 2019	907	791	1,969	5,091	175
Additions (purchases)	71	762	101	1,297	-
Transfers	-	376	-150	-2	-
from Level 3 to Levels 1 and 2	-	-106	-442	-133	-
from Levels 1 and 2 to Level 3	-	482	292	131	-
Disposals (sales)	-102	-1,155	-296	-290	-141
Changes resulting from measurement at fair value	-25	-7	32	-40	-27
through profit or loss	-29	-7	-10	-128	-27
through other comprehensive income	4	-	42	88	-
Other changes	9	2	49	-26	79
Balance as at Dec. 31, 2020	**861**	**769**	**1,705**	**6,030**	**86**

The table below shows the changes in the fair value measurements of liabilities within Level 3 of the fair value hierarchy:

€ million	Debt certificates issued including bonds	Financial liabilities held for trading	Other liabilities	Subordinated capital
Balance as at Jan. 1, 2019	565	907	7	45
Additions (issues)	-	103	-	-
Transfers	101	-367	-	-
from Level 3 to Level 2	-	-468	-	-
from Level 2 to Level 3	101	101	-	-
Disposals (settlements)	-42	-154	-2	-1
Changes resulting from measurement at fair value	-16	26	-	-
through profit or loss	-16	26	-	-2
through other comprehensive income	-	-	-	2
Balance as at Dec. 31, 2019	608	515	5	44
Additions (issues)	-	86	-	-
Transfers	-101	-192	-	-
from Level 3 to Level 2	-101	-396	-	-
from Level 2 to Level 3	-	204	-	-
Disposals (settlements)	-18	-140	-5	-21
Changes resulting from measurement at fair value	-6	3	-	-2
through profit or loss	-5	3	-	-2
through other comprehensive income	-1	-	-	-
Other changes	-	-	-	-1
Balance as at Dec. 31, 2020	**482**	**271**	**-**	**20**

As part of the processes for fair value measurement, the DZ BANK Group reviews whether the valuation methods used for the measurement are typical and whether the valuation inputs used in the valuation methods are observable in the market. This review takes place at every balance sheet date, i.e. at least every 6 months. On the basis of this review, the fair value measurements are assigned to the levels of the fair value hierarchy. In the DZ BANK Group, transfers between the levels generally take place as soon as there is a change in the inputs that is relevant to categorization in the fair value hierarchy.

In each step of these processes, both the distinctive features of the particular product type and the distinctive features of the business models of the group entities are taken into consideration.

Transfers of fair values from Levels 1 and 2 to Level 3 of the fair value hierarchy during the financial year are largely attributable to a revised estimate of the market observability of the valuation inputs used in the valuation methods. Transfers from Level 3 to Levels 1 or 2 are essentially due to the availability of a price listed in an active market and to the inclusion in the valuation method of material valuation inputs observable in the market.

The amount of gains or losses recognized in profit or loss resulting from the recurring fair value measurements within Level 3 of assets and liabilities held at the balance sheet date constituted a net loss of €149 million during the year under review (2019: net gain of €54 million). The gains or losses are included in the line items net interest income, gains and losses on trading activities, other gains and losses on valuation of financial instruments, gains and losses on investments held by insurance companies and other insurance company gains and losses, loss allowances, and other net operating income.

For the fair values of investments held by insurance companies reported within Level 3, a worsening in the credit rating or a rise in the interest rate of 1 percent would lead to the recognition of a €37 million loss in the income statement (2019: loss of €40 million) and a loss of €1 million under other comprehensive income/loss (2019: loss of €1 million). In the case of the fair values of loans and advances to customers, the same change would lead to the recognition of an €11 million loss in the income statement (2019: loss of €8 million). For the fair values of investments, there would be a €19 million loss under other comprehensive income/loss (2019: loss of €26 million) and a €20 million loss in the income statement (2019: loss of €24 million). In the case of financial assets held for trading, financial liabilities held for trading, and debt certificates issued including bonds, a worsening in the credit rating or a rise in the interest rate of 1 percent would not lead to any material change in fair value. In 2019, the changes would have given rise to a loss of €8 million recognized in the income statement within financial assets held for trading and a gain of €3 million recognized in the income statement within financial liabilities held for trading. For debt certificates issued including bonds, a gain of €3 million would have been recognized under other comprehensive income/loss in 2019.

The fair values of bonds without liquid markets that are reported within financial assets held for trading, financial liabilities held for trading, investments, and loans and advances to customers are given an individual adjustment spread or are measured using Bloomberg Valuation Service prices, which are observable in the market. All other things being equal, an increase in the pertinent measurement assumptions of 1 percent would lead to the recognition of a €24 million loss in the income statement (2019: loss of €14 million) and a loss of €16 million under other comprehensive income/loss (2019: loss of €19 million). Historical spreads are used for bonds recognized under subordinated capital whose spread components are no longer observable in the market. All other things being equal, an increase of 1 percent in the spread would lead to a €1 million increase in fair value that would be recognized in the income statement (2019: increase of €4 million).

An alternative assumption about the credit spreads used could lead to a significant change in the fair values of some of the ABSs reported under financial assets held for trading and under investments. All other things being equal, an increase in these spreads of 1 percent would lead to the recognition of a €1 million loss in the income statement (2019: loss of €2 million) and a loss of €2 million under other comprehensive income/loss (2019: loss of €1 million).

An alternative assumption about the liquidity spreads used could lead to a significant change in respect of collateralized loan obligations reported under investments and under financial assets held for trading. All other things being equal, a rise in the liquidity spread assumptions by 1 percent would lead to a €4 million decrease in the fair values of these financial assets that would be recognized in the income statement (2019: decrease of €5 million).

Sensitivity analysis is used to calculate the aforementioned changes in the fair value measurements. Non-performing exposures and strategically held investments in subsidiaries and other shareholdings whose fair values are calculated using an income capitalization approach are not included in the sensitivity analysis.

Exercise of option pursuant to IFRS 13.48

The option offered by IFRS 13.48 of measuring a net risk position for financial assets and financial liabilities is used for portfolios whose components are recognized under the balance sheet items loans and advances to banks, loans and advances to customers, financial assets held for trading, investments, and financial liabilities held for trading.

>> 77 Assets and liabilities not measured at fair value on the balance sheet

Fair value hierarchy

Fair value measurements of assets and liabilities that are not recognized at fair value on the balance sheet, but whose fair value must be disclosed, are assigned to the levels of the fair value hierarchy as follows:

	Level 1		Level 2		Level 3	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Assets	**486**	**800**	**226,890**	**205,088**	**172,600**	**165,927**
Cash and cash equivalents	-	-	68,148	52,167	-	-
Loans and advances to banks	-	-	100,553	92,984	4,093	4,586
Loans and advances to customers	-	-	38,347	37,758	147,620	142,743
Investments	486	431	14,959	17,320	393	397
Investments held by insurance companies	-	369	4,369	4,357	19,091	16,134
Property, plant and equipment, investment property, and right-of-use assets	-	-	154	121	148	152
Other assets	-	-	359	381	1,236	1,713
Non-current assets and disposal groups classified as held for sale	-	-	-	-	19	202
Liabilities	**20,443**	**16,992**	**271,567**	**250,466**	**71,523**	**68,897**
Deposits from banks	-	-	175,854	137,288	1,661	1,740
Deposits from customers	-	-	61,727	59,747	65,076	63,598
Debt certificates issued including bonds	20,443	16,992	33,674	53,145	-	-
Provisions	-	-	39	19	191	176
Other liabilities	-	-	215	201	1,652	1,488
Subordinated capital	-	-	58	66	2,943	1,895
Liabilities included in disposal groups classified as held for sale	-	-	1	-	-	-

Fair value measurements within Levels 2 and 3

The fair value measurements of assets and liabilities that are not recognized at fair value on the balance sheet largely correspond to the fair value measurements of assets and liabilities that are recognized at fair value on the balance sheet.

The following table shows the valuation techniques and the unobservable inputs used in these techniques for the fair value measurements at Level 3 of the fair value hierarchy as at the balance sheet date.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs
Loans and advances to banks	Loans	4,093	DCF method	Credit spread, recovery rate
Loans and advances to customers	Building loans	55,517	Amortized cost	-
	Loans	92,103	DCF method	Credit spread, recovery rate, internal spread
Investments	ABSs	94	DCF method	Credit spread
	Bonds with adjustment spread	299	DCF method	BVAL price adjustment
Investments held by insurance companies		160	Cost	Nominal amounts
	Investment property	5,018	DCF method	Future rent, reference prices in the market
	Loans and bank accounts	13,848	DCF method	Yield curves, credit spread
	Loans	65	Cost	Nominal amounts
Property, plant and equipment	Investment property	148	Valuation reports	-
Other assets	Credit balances with banks	356	Cost	Nominal amounts
	Other receivables	880	Cost	Nominal amounts
Non-current assets and disposal groups classified as held for sale	Loans	4	DCF method	Credit spread
	Property, plant and equipment, investment property, and right-of-use assets	15	Cost	Nominal amounts
Deposits from banks	Home savings deposits	1,576	Cost	-
	Loans	85	DCF method	Credit spread
Deposits from customers	Home savings deposits	64,673	Cost	-
	Loans	365	DCF method	Credit spread
	Overpayments on consumer finance loans	15	Cost	-
	Other deposits	23	Cost	-
Provisions	Provisions for loan commitments	191	Settlement amount	-
Other liabilities	Bonds with adjustment spread	68	DCF method	Credit spread
	Loans	605	Cost	Nominal amounts
	Non-controlling interests in special funds	153	Cost	Nominal amounts
	Subordinated liabilities	14	DCF method	Yield curves, credit spread
	Registered securities	31	Cost	Nominal amounts
	Other payables	141	Cost	Nominal amounts
	Liabilities arising from rented software	6	Carrying amount	Assumptions regarding the exercise of extension or termination options
	Liabilities from capitalization transactions	634	Cost	Nominal amounts
Subordinated capital	Bonds with adjustment spread	2,943	DCF method	Credit spread

The following table shows the valuation techniques and the unobservable inputs used in these techniques for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2019.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs
Loans and advances to banks	Loans	4,586	DCF method	Credit spread, recovery rate
Loans and advances to customers	Building loans	50,209	Amortized cost	-
	Loans	92,534	DCF method	Credit spread, recovery rate, internal spread
Investments	ABSs	108	DCF method	Credit spread
	Bonds with adjustment spread	289	DCF method	BVAL price adjustment
Investments held by insurance companies		111	Cost	Nominal amounts
	Investment property	4,490	DCF method	Future rent, reference prices in the market
	Loans and bank accounts	11,482	DCF method	Yield curves, credit spread
	Loans	51	Cost	Nominal amounts
Property, plant and equipment	Investment property	152	Valuation reports	-
Other assets	Credit balances with banks	825	Cost	Nominal amounts
	Other receivables	888	Cost	Nominal amounts
Non-current assets and disposal groups classified as held for sale	Loans	198	DCF method	Credit spread
	Property, plant and equipment, and investment property	4	Cost	Nominal amounts
Deposits from banks	Home savings deposits	1,653	Cost	-
	Loans	87	DCF method	Credit spread
Deposits from customers	Home savings deposits	63,222	Cost	-
	Loans	358	DCF method	Credit spread
	Overpayments on consumer finance loans	18	Cost	-
Provisions	Provisions for loan commitments	176	Settlement amount	-
Other liabilities	Loans	542	Cost	Nominal amounts
	Non-controlling interests in special funds	153	Cost	Nominal amounts
	Subordinated liabilities	73	DCF method	Yield curves, credit spread
	Registered securities	31	Cost	Nominal amounts
	Other payables	169	Cost	Nominal amounts
	Liabilities arising from rented software	6	Carrying amount	Assumptions regarding the exercise of extension or termination options
	Liabilities from capitalization transactions	514	Cost	Nominal amounts
Subordinated capital	Bonds with adjustment spread	1,895	DCF method	Credit spread

>> 78 Financial liabilities designated as at fair value through profit or loss

A residual value method is used to determine changes in fair value attributable to changes in the DZ BANK Group's own credit risk. In this method, the measurement effect caused by changes in own credit risk is determined by deducting the measurement effect caused by factors other than the change in own credit risk from the overall change in fair value. The cumulative changes in fair value resulting from changes in own credit risk amounted to a loss of €109 million in 2020 (2019: loss of €56 million). The use of this method ensures that

the changes in fair value attributable to changes in own credit risk are not distorted by other effects caused by changes in market risk.

The following overview compares fair values with the amounts contractually required to be paid at maturity to the creditors concerned for liabilities designated as at fair value through profit or loss, but whose changes in fair value attributable to own credit risk are reported in other comprehensive income:

€ million	Fair value		Repayment amount	
	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Deposits from banks	4,564	5,060	4,441	4,962
Deposits from customers	9,511	10,114	8,965	9,555
Debt certificates issued including bonds	17,589	15,647	17,161	15,383
Subordinated capital	239	347	230	332
Total	**31,903**	**31,168**	**30,797**	**30,232**

In the course of the year under review, a loss of €8 million was reclassified to retained earnings within equity as a result of the recognition of measurement effects in connection with changes in the DZ BANK Group's own credit risk. Only a negligible loss had been reclassified in the previous year.

The derecognition of financial liabilities gave rise to a loss of €3 million that had previously been reported in other comprehensive income/loss (2019: loss of €9 million (amount restated; see note 2)).

>> 79 Offsetting of financial assets and financial liabilities

Financial assets and financial liabilities reference standard master agreements, such as ISDA Master Agreements and German Master Agreements for Financial Futures. However, these standard master agreements do not generally satisfy the offsetting criteria in IAS 32.42 because the legal right to set off the amounts under these agreements is contingent on the occurrence of a future event.

The following tables show financial assets that were offset or that were subject to a legally enforceable global netting agreement or a similar arrangement:

AS AT DECEMBER 31, 2020

€ million	Gross amount of financial assets before offsetting	Gross amount of offset financial liabilities	Net amount of financial assets (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral received	
Derivatives	49,946	26,358	23,588	15,617	4,267	3,704
Reverse repos/securities borrowing	8,453	-	8,453	8,424	-	29
Total	**58,399**	**26,358**	**32,041**	**24,041**	**4,267**	**3,733**

AS AT DECEMBER 31, 2019

€ million	Gross amount of financial assets before offsetting	Gross amount of offset financial liabilities	Net amount of financial assets (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral received	
Derivatives	48,375	27,698	20,677	13,855	4,130	2,692
Reverse repos/securities borrowing	11,920	-	11,920	11,769	-	151
Total	**60,295**	**27,698**	**32,597**	**25,624**	**4,130**	**2,843**

The following tables show financial liabilities that were offset or that were subject to a legally enforceable global netting agreement or a similar arrangement:

AS AT DECEMBER 31, 2020

€ million	Gross amount of financial liabilities before offsetting	Gross amount of offset financial assets	Net amount of financial liabilities (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral furnished	
Derivatives	51,892	29,906	21,986	14,633	7,045	308
Repos/securities lending	4,198	-	4,198	4,176	8	14
Other financial instruments	143	143	-	-	-	-
Total	**56,233**	**30,049**	**26,184**	**18,809**	**7,053**	**322**

AS AT DECEMBER 31, 2019

€ million	Gross amount of financial liabilities before offsetting	Gross amount of offset financial assets	Net amount of financial liabilities (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral furnished	
Derivatives	50,401	30,543	19,858	13,325	6,343	190
Repos/securities lending	7,050	-	7,050	6,998	-	52
Other financial instruments	77	77	-	-	-	-
Total	**57,528**	**30,620**	**26,908**	**20,323**	**6,343**	**242**

>> 80 Sale and repurchase agreements, securities lending

Transfers of financial assets

In 2020, the only transfers carried out by the DZ BANK Group in which the transferred assets remained on the balance sheet in their entirety were transfers under sale and repurchase agreements (repos), in which the DZ BANK Group was the original seller, and transfers as part of securities lending transactions.

Sale and repurchase agreements

The entities in the DZ BANK Group enter into sale and repurchase agreements using standard banking industry master agreements, notably the Global Master Repurchase Agreement (GMRA) and the master agreement provided by the International Securities Market Association (ISMA). Under these agreements, the buyer of the securities is permitted to make use of the securities without restriction (with no requirement for a prior counterparty default) and return securities of the same type. If the fair value of the securities received or transferred in such transactions increases or decreases, the entity concerned may be required to furnish additional collateral or may demand additional collateral.

As at the balance sheet date, the sale and repurchase agreements entered into by companies in the DZ BANK Group were exclusively genuine sale and repurchase agreements, i.e. the buyer is obliged to sell back the securities.

Sale and repurchase agreements in which DZ BANK acts as a seller (repos)

Under sale and repurchase agreements, bonds and other fixed-income securities classified as financial assets measured at fair value and financial assets measured at amortized cost are temporarily transferred to another party. As at the balance sheet date, the carrying amounts of securities subject to such sale and repurchase agreements were:

€ million	Dec. 31, 2020	Dec. 31, 2019
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**544**	959
Financial assets measured at fair value through profit or loss	**400**	959
Financial assets mandatorily measured at fair value through profit or loss	***400***	*945*
Financial assets held for trading	400	945
Financial assets designated as at fair value through profit or loss	**-**	*14*
Investments	-	14
Financial assets measured at fair value through other comprehensive income	**144**	-
Financial assets mandatorily measured at fair value through other comprehensive income	***52***	-
Investments	52	-
Financial assets designated as at fair value through other comprehensive income	***92***	-
Investments	92	-
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**1,266**	966
Investments	1,266	966
Total	**1,810**	**1,925**

As at the balance sheet date, additional collateral with a carrying amount of €70 million had been furnished in connection with repos (December 31, 2019: €127 million). This collateral is recognized under financial assets held for trading and may be sold or repledged by the recipient even if the provider is not in default.

The carrying amounts of liabilities arising from sale and repurchase agreements were as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
LIABILITIES ASSOCIATED WITH FINANCIAL ASSETS MEASURED AT FAIR VALUE	**538**	956
Liabilities associated with financial assets measured at fair value through profit or loss	**400**	956
Liabilities associated with financial assets mandatorily measured at fair value through profit or loss	***400***	*942*
Liabilities associated with financial assets held for trading	400	942
Liabilities associated with financial assets designated as at fair value through profit or loss	**-**	*14*
Liabilities associated with investments	-	14
Liabilities associated with financial assets measured at fair value through other comprehensive income	**138**	-
Liabilities associated with financial assets mandatorily measured at fair value through other comprehensive income	***45***	-
Liabilities associated with investments	45	-
Liabilities associated with financial assets designated as at fair value through other comprehensive income	***93***	-
Liabilities associated with investments	93	-
LIABILITIES ASSOCIATED WITH FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**1,273**	967
Liabilities associated with investments	1,273	967
Total	**1,811**	**1,923**

Sale and repurchase agreements in which DZ BANK acts as the buyer (reverse repos)

In reverse repo transactions, bonds and other fixed-income securities are bought on a temporary basis. As at December 31, 2020, the fair value of securities involved in such transactions was €8,585 million (December 31, 2019: €11,754 million).

The receivables arising from these reverse repo transactions and reported under financial assets held for trading and under investments amounted to €8,580 million as at the balance sheet date (December 31, 2019: €11,687 million). As part of the collateral management requirements, the original seller provides the DZ BANK Group with additional collateral for reverse repo transactions in which the fair value of the securities purchased is less than the amounts receivable from the seller.

Securities lending

Securities lending transactions are undertaken on the basis of the Global Master Securities Lending Agreement (GMSLA) or on the basis of individual contractual arrangements. Under these agreements, the borrower of the securities is permitted to make use of the securities without restriction and return securities of the same type. If the fair value of the securities received or transferred in such transactions increases or decreases, the entity concerned may be required to furnish additional collateral or may demand additional collateral.

Securities lending

In securities lending transactions, shares and other variable-yield securities and/or bonds and other fixed-income securities classified as financial assets measured at fair value and financial assets measured at amortized cost are temporarily transferred to another party. As at the balance sheet date, the carrying amounts of securities lent under securities lending arrangements were as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**2,336**	3,049
Financial assets measured at fair value through profit or loss	**897**	614
Financial assets mandatorily measured at fair value through profit or loss	***897***	*614*
Financial assets held for trading	897	614
Financial assets measured at fair value through other comprehensive income	**1,439**	2,435
Financial assets mandatorily measured at fair value through other comprehensive income	***1,439***	*2,084*
Investments held by insurance companies	1,439	2,084
Financial assets designated as at fair value through other comprehensive income	-	*351*
Investments held by insurance companies	-	351
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**3**	-
Investments held by insurance companies	3	-
Total	**2,339**	3,049

Collateral is provided or received as part of collateral management arrangements in connection with financial assets held for trading and investments held by insurance companies that are lent under securities lending agreements. In this process, all positions with the counterparty concerned are netted to determine the collateral to be provided or received.

As at the balance sheet date, additional collateral with a carrying amount of €19 million had been furnished in connection with securities lending (December 31, 2019: €6 million). This collateral is recognized under financial assets held for trading and may be sold or repledged by the recipient even if the provider is not in default.

Securities borrowing

The fair value of borrowed securities as at the balance sheet date was as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Bonds and other fixed-income securities	1,916	1,955
Shares and other variable-yield securities	27	26
Total	**1,943**	1,981

In addition to securities subject to sale and repurchase agreements or that have been borrowed, bonds and other fixed-income securities and shares and other variable-yield securities are accepted as additional collateral. These may be sold or repledged as collateral by the recipient, even if there is no default. As at December 31, 2020, the fair value of the additional collateral received was €36 million (December 31, 2019: €75 million).

Securities subject to a sale and repurchase or lending agreement that the recipient may sell or repledge as collateral with no requirement for a prior counterparty default

All securities transferred to another party by entities in the DZ BANK Group under sale and repurchase agreements or securities lending agreements may be sold or repledged as collateral by the recipient without restriction.

The carrying amounts of the individual balance sheet items concerned are as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Financial assets held for trading	1,297	1,559
Investments	1,410	980
Investments held by insurance companies	1,442	2,435
Total	**4,149**	**4,974**

>> 81 Collateral

The breakdown of the carrying amount of financial assets pledged as collateral for liabilities is as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Loans and advances to banks	65,692	57,278[1]
Loans and advances to customers	247	202[1]
Financial assets held for trading	14,811	12,677
Investments	14,851	11
Investments held by insurance companies	1,311	1,099
Total	**96,912**	**71,267**

1 Amount restated (see note 2).

Of the total financial assets pledged as collateral for liabilities, financial assets held for trading and investments with a carrying amount of €5,229 million (December 31, 2019: €4,667 million) may be sold or repledged as collateral by the recipient, even if the relevant entity in the DZ BANK Group is not in default.

Funds received from German federal and state development banks that are to be specifically used for the purposes of development program loans are mainly passed on to affiliated banks. The corresponding loans and advances to affiliated banks serve as collateral with the German federal and state development banks.

The loans and advances to customers pledged as collateral predominantly consist of building loans issued as part of KfW development program loans. The amounts due to Germany’s KfW development bank are secured by assigning to KfW the receivables arising from the forwarding of the development loans together with the collateral furnished by the borrowers.

Securities and money market placements recognized as financial assets held for trading are pledged as collateral for exchange-traded forward transactions, non-exchange-traded derivatives and for forward forex transactions. These arrangements are governed by standard industry collateral agreements.

The investments pledged as collateral comprise securities furnished as collateral for open-market operations with Deutsche Bundesbank.

The investments held by insurance companies are predominantly securities pledged as collateral as part of the reinsurance business; this collateral may only be sold or pledged by the recipient in the event of default by the provider.

>> 82 Items of income, expense, gains, and losses

Net gains and losses

The breakdown of net gains or net losses on financial instruments by IFRS 9 category for financial assets and financial liabilities is as follows:

€ million	2020	2019
Financial instruments measured at fair value through profit or loss	**1,378**	3,159
Financial instruments mandatorily measured at fair value through profit or loss	1,327	3,172
Financial instruments designated as at fair value through profit or loss	51	-13
Financial assets measured at fair value through other comprehensive income	**3,573**	4,673
Financial assets mandatorily measured at fair value through other comprehensive income	3,517	4,005
of which gains and losses recognized in profit or loss	1,878	1,869
of which gains and losses recognized in other comprehensive income	1,391	1,918[1]
of which gains and losses reclassified on derecognition from cumulative other comprehensive income to profit or loss	248	218
Financial assets designated as at fair value through other comprehensive income	56	668[1]
Financial assets measured at amortized cost	**4,438**	5,510
Financial liabilities measured at amortized cost	**-2,247**	-3,135

1 Amount restated (see note 2).

Net gains or net losses comprise gains and losses on fair value measurement, impairment losses and reversals of impairment losses, and gains and losses on the sale or early repayment of the financial instruments concerned. These items also include interest income and interest expense, current income, income from profit-pooling, profit-transfer agreements, partial profit-transfer agreements, and expenses from the transfer of losses.

In connection with financial liabilities designated as at fair value through profit or loss, a loss of €60 million (2019: loss of €96 million) was recognized in other comprehensive income/loss and a loss of €475 million (2019: loss of €849 million) in profit or loss, which predominantly related to interest expense.

Interest income and expense

The following total interest income and expense arose in connection with financial assets and financial liabilities that are not measured at fair value through profit or loss:

€ million	2020	2019
Interest income	**6,419**	7,248
From financial assets measured at amortized cost including finance leases	5,121	5,868
From financial assets measured at fair value through other comprehensive income	1,298	1,380
Interest expense	**-2,251**	-3,139

Fee and commission income and expenses

The table below shows the changes in fee and commission income and expenses:

€ million	2020	2019
Fee and commission income		
From financial assets and financial liabilities not at fair value through profit or loss	169	178
From trust and other fiduciary activities	3,618	3,308
Fee and commission expenses		
For financial assets and financial liabilities not at fair value through profit or loss	-240	-251
For trust and other fiduciary activities	-1,647	-1,528

>> 83 Derivatives

Derivatives are used primarily to hedge against market risk as well as for trading purposes. As at the balance sheet date, the breakdown of the portfolio of derivatives was as follows:

€ million	Nominal amount: Time to maturity ≤ 1 year	> 1 year – 5 years	> 5 years	Total amount Dec. 31, 2020	Total amount Dec. 31, 2019	Fair value Positive Dec. 31, 2020	Positive Dec. 31, 2019	Negative Dec. 31, 2020	Negative Dec. 31, 2019
INTEREST-LINKED CONTRACTS	169,885	391,020	549,435	1,110,340	1,027,509	20,043	17,508	19,142	17,074
OTC products									
Forward rate agreements	22,515	-	-	22,515	5,624	-	-	-	-
Interest-rate swaps	127,413	350,800	520,287	998,500	927,952	17,973	15,457	15,850	14,133
Interest-rate options – bought	7,273	18,112	13,374	38,758	40,881	1,462	1,531	77	105
Interest-rate options – written	7,686	21,710	15,774	45,170	48,581	235	293	3,214	2,836
Other interest-rate contracts	1,230	61	-	1,291	1,503	374	227	1	-
Exchange-traded products									
Interest-rate futures	3,768	338	-	4,105	2,968	-	-	-	-
CURRENCY-LINKED CONTRACTS	91,786	26,201	8,610	126,597	151,659	1,891	1,326	1,822	1,785
OTC products									
Cross-currency swaps (excl. portfolio hedging)	6,430	17,741	8,544	32,714	40,484	653	321	666	928
Forward forex transactions	68,793	6,832	32	75,657	101,937	1,024	963	1,003	808
Forex options – bought	7,813	331	-	8,144	3,601	68	8	42	16
Forex options – written	8,540	1,297	8	9,845	5,313	146	33	106	25
Exchange-traded products									
Forex futures	138	-	-	138	132	-	-	-	-
Forex options	73	-	27	100	192	-	1	4	8
SHARE-/INDEX-LINKED CONTRACTS	16,859	13,051	2,553	32,464	33,496	744	671	1,553	1,188
OTC products									
Share/index options – bought	3,259	42	8	3,309	3,162	29	122	-	-
Share/index options – written	124	195	-	319	339	-	-	18	10
Other share/index contracts	477	3,567	2,052	6,096	6,497	56	66	378	208
Exchange-traded products									
Share/index futures	1,906	109	-	2,016	1,019	-	-	-	-
Share/index options	11,093	9,138	493	20,724	22,479	660	483	1,157	970
OTHER CONTRACTS	2,927	3,013	11,159	17,099	17,043	1	30	188	105
OTC products									
Commodities contracts	9	-	-	9	26	-	-	1	-
Other contracts	2,714	3,010	11,146	16,870	16,636	-	28	180	97
Exchange-traded products									
Futures	107	1	-	108	120	-	-	-	-
Options	96	3	13	112	261	1	2	7	8
CREDIT DERIVATIVES	2,394	10,157	4,923	17,474	17,587	337	374	94	75
Protection buyer									
Credit default swaps	523	2,562	282	3,366	3,205	6	1	63	72
Protection seller									
Credit default swaps	1,871	7,563	4,635	14,069	14,334	331	373	28	3
Total return swaps	-	32	6	38	48	-	-	3	-
Total	283,851	443,444	576,679	1,303,973	1,247,294	23,017	19,909	22,799	20,227

The derivatives held at the balance sheet date involved the following counterparties:

	Fair value			
	Positive		Negative	
€ million	**Dec. 31, 2020**	Dec. 31, 2019	**Dec. 31, 2020**	Dec. 31, 2019
OECD central governments	60	63	13	19
OECD banks	19,290	16,636	18,897	17,247
OECD financial services institutions	392	258	917	680
Other companies, private individuals	3,218	2,946	2,862	2,152
Non-OECD banks	57	6	110	129
Total	**23,017**	**19,909**	**22,799**	**20,227**

The Union Investment Group has capital preservation commitments under section 1 (1) no. 3 of the German Personal Pension Plan Certification Act (AltZertG) amounting to €16,113 million (December 31, 2019: €15,013 million). These commitments are the total amount of the pension contributions paid by investors into the individual variants of the *UniProfiRente* and *UniProfiRente Select* products, which represent the minimum amount that must be made available at the start of the payout phase under statutory provisions, and the guaranteed payout amounts for existing contracts that are already in the portfolio payout phase. The group also has minimum payment commitments of €757 million (December 31, 2019: €1,584 million) in connection with genuine guarantee funds launched by fund management companies in the group.

>> 84 Hedge accounting

Risk management strategy

Fair value hedges are used as part of the risk management strategy to eliminate or reduce accounting mismatches.

Hedged items

Fair value hedges are used in the hedging of interest-rate risk. In this context, interest-rate risk refers to the risk of an adverse change in the fair value of fixed-income financial instruments caused by a change in market interest rates. The hedged financial assets are loans and advances to banks, loans and advances to customers, and investments that are categorized as 'financial assets measured at amortized cost' or 'financial assets measured at fair value through other comprehensive income'. Hedged financial liabilities are deposits from banks and customers, debt certificates issued including bonds, and subordinated liabilities, all of which are measured at amortized cost. Interest-rate risk portfolios under both assets and liabilities are identified and designated as hedged items in portfolio hedges.

Hedging instruments

Swaps and swaptions are designated as hedging instruments in fair value hedges of financial assets and financial liabilities. In the DZ BANK Group, hedging instruments are reported under hedging instruments (positive fair values) and hedging instruments (negative fair values).

Assessment of hedge effectiveness

The prerequisite for recognizing a hedge is that the hedge must be highly effective on both a prospective and retrospective basis. Highly effective in this case means that the changes in fair value or expected cash flows for the hedged items must be almost fully offset by the changes in fair value or expected cash flows for the hedging instruments. In the case of the individual hedges entered into by the DZ BANK Group, this is achieved by ensuring that the main features of hedged items that influence their value match those of the hedging instruments and that there is a hedging ratio of 100 percent (1:1 hedging). In portfolio hedges, there is no direct economic relationship between hedged item and hedging instrument. An individual hedging ratio based on the sensitivities of the hedged items and hedging instruments is used to ensure that the respective changes in fair value more or less balance each other out. Hedge effectiveness must be assessed and documented at every balance sheet date as a minimum.

For individual hedges accounted for in application of the rules under IFRS 9, any hedge ineffectiveness is quantified retrospectively and recognized in profit or loss. IFRS 9 does not define effectiveness in terms of a mandatory range of values. If a hedge no longer satisfies the effectiveness criterion in relation to the hedge ratio, the hedge ratio must be adjusted (recalibration). If it is no longer possible to adjust the hedge ratio or if the risk management objective for the hedge has changed, the hedge must be de-designated.

Portfolio hedges that continue to be accounted for in application of the rules under IAS 39 are deemed to be highly effective if the changes in the fair value of the hedged items are offset by the changes in the fair value of the hedging instruments within the range of 80 percent to 125 percent specified by IAS 39. If this assessment identifies that a hedge has not achieved the required effectiveness, the hedge must be reversed retrospectively to the balance sheet date of the last assessment in which the hedge was found to be effective.

In the case of fair value hedges, prospective effectiveness is assessed by using sensitivity analyses (based on the basis point value method) and linear regression analyses; it is also assessed qualitatively with the critical-terms-match method. Retrospective effectiveness is assessed primarily by using the dollar offset method, a noise threshold value, and regression analysis. In these methods, the cumulative changes in the fair value of the hedged items attributable to the hedged risk are compared with the changes in the fair value of the hedging instruments.

Gains and losses and hedge ineffectiveness from hedge accounting

In hedge accounting, hedge ineffectiveness arises when the changes in the fair value of hedging instruments do not fully offset the changes in the fair value of the hedged items. The ineffective portions of hedges are recognized in profit or loss under other gains and losses on valuation of financial instruments.

Hedge ineffectiveness can arise in fair value hedges of interest-rate risk. Some of the ways in which this can occur are where the changes in the fair values of hedged items and hedging instruments do not balance each other out in full because of differences in maturities, cash flows, and/or discount rates.

Extent of risks managed by the use of hedges

The table below presents information on the volume of hedged items and hedging instruments designated as hedges for the purposes of hedging interest-rate risk:

AS AT DECEMBER 31, 2020

€ million	Carrying amount	Nominal amount of hedging instruments	Fair value hedge adjustments included in carrying amount of hedged items		Fair value changes as basis for measuring hedge ineffective-ness for the period
			Existing hedges	Terminated hedges	
Assets	**53,390**	**8,628**	**2,079**	**917**	**1,552**
Loans and advances to banks	41		-	-	-1
Loans and advances to customers	1,855		176	80	105
Investments	2,485		71	30	14
Non-current assets and disposal groups classified as held for sale	4		-	-	-
Portfolio hedges of interest-rate risk	48,844		1,832	807	1,429
Hedging instruments (positive fair values)	161	8,628			5
Liabilities	**10,622**	**51,769**	**264**	**324**	**-1,511**
Deposits from banks	509		22	10	-4
Deposits from customers	3,351		171	14	31
Debt certificates issued including bonds	371		49	7	-10
Subordinated capital	10		-	-	-
Portfolio hedges of interest-rate risk	3,743		22	293	-122
Hedging instruments (negative fair values)	2,638	51,769			-1,406

AS AT DECEMBER 31, 2019

€ million	Carrying amount	Nominal amount of hedging instruments	Fair value hedge adjustments included in carrying amount of hedged items		Fair value changes as basis for measuring hedge ineffective-ness for the period
			Existing hedges	Terminated hedges	
Assets	**50,367**	**12,511**	**1,378**	**526**	**1,027**
Loans and advances to banks	55		1	-	-1
Loans and advances to customers	1,526		74	85	219
Investments	2,875		59	32	30
Non-current assets and disposal groups classified as held for sale	197		-	-	11
Portfolio hedges of interest-rate risk	45,503		1,244	409	1,382
Hedging instruments (positive fair values)	211[1]	12,511			-614
Liabilities	**11,309**	**45,802**	**247**	**277**	**-1,029**
Deposits from banks	615		16	7	-26
Deposits from customers	3,828		222	21	-50
Debt certificates issued including bonds	368		13	9	-9
Subordinated capital	9		-	-	-
Portfolio hedges of interest-rate risk	4,471		-4	240	-114
Hedging instruments (negative fair values)	2,018[1]	45,802			-830

1 Amount restated (see note 2).

Effects of hedging instruments on cash flows

The residual maturities of the hedging instruments entered into by the DZ BANK Group to hedge interest-rate risk are as follows:

AS AT DECEMBER 31, 2020

	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Nominal amount (€ million)	170	354	3,567	28,913	27,391
Average hedged interest rate (%)	1.42	1.48	1.48	0.81	1.24

AS AT DECEMBER 31, 2019

	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Nominal amount (€ million)	72	192	5,892	25,003	27,154
Average hedged interest rate (%)	1.94	1.70	1.88	1.14	1.19

Reconciliation of hedge accounting effects to equity components by type of risk

The following table shows a reconciliation of the effects from hedge accounting to corresponding components of equity. The relevant effects were those from hedges of net investments in foreign operations. These types of hedge were used only in connection with hedging the exposure to currency risk.

€ million	**2020**	2019
Reserve from hedges of net investments in foreign operations as at Jan. 1	-7	-13
Gains (+)/losses (-) arising during the reporting period	4	3
Income taxes	-1	3
Reserve from hedges of net investments in foreign operations as at Dec. 31	**-4**	**-7**

As at the reporting date, there were no hedges of net investments in foreign operations. The relevant reserves resulted solely from hedges that have expired.

Uncertainties resulting from the reform of interest-rate benchmarks

The entities in the DZ BANK Group that are affected by the reform of interest-rate benchmarks set up projects to ensure a smooth transition to alternative interest-rate benchmarks. During these projects, they assessed the extent to which fair value hedges of financial instruments were subject to uncertainties as a result of the IBOR reform. Hedges may be exposed to ineffectiveness that is attributable to market participants' expectations when the transition from the existing IBOR rate to an alternative interest-rate benchmark takes place. This transition takes place unilaterally for the hedging instrument and not for the (fixed-rate) hedged item, which may result in hedge ineffectiveness.

Some of the hedging instruments of the entities in the DZ BANK Group continue to be linked to Libor. They are due to mature after the likely date on which Libor will cease to apply. The current assumption is that the change of interest-rate benchmark will not lead to dedesignation of existing hedges.

The Libor-related risk attaching to the hedges can be seen from the nominal amounts of the hedging instruments shown below:

AS AT DECEMBER 31, 2020

	CHF Libor 3M	CHF Libor 6M	USD Libor 1M	USD Libor 3M	USD Libor 6M
Nominal amount (€ million)	185	10	954	4,558	19
Weighted average maturity (years)	1.5	7.0	2.4	5.4	3.8

>> 85 Nature and extent of risks arising from financial instruments and insurance contracts

With the exception of the qualitative and quantitative disclosures pursuant to IFRS 7.35F(a)-36(b), the disclosures on the nature and extent of risks arising from financial instruments (IFRS 7.31-42) and insurance contracts (IFRS 4.38-39A) are included in the opportunity and risk report within the group management report. The disclosures pursuant to IFRS 7.35F(a)-36(b) can be found in this note in the notes to the consolidated financial statements. Disclosures on the maturity analysis in accordance with IFRS 7.39(a) and (b) and IFRS 4.39(d)(i), together with disclosures on the claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with IFRS 4.39(c)(iii), can be found within the notes to the consolidated financial statements in notes 42 and 86.

Credit risk management practices

The rules for recognizing loss allowances are based on the calculation of expected losses in the lending business, on investments, on investments held by insurance companies, and on other assets. The impairment rules are applied only to those financial assets that are not measured at fair value through profit or loss. These are:

- Financial assets measured at amortized cost and
- Debt instruments held as financial assets measured at fair value through other comprehensive income.

The impairment rules are also applied to:

- Financial guarantee contracts and loan commitments that fall within the scope of IFRS 9 and are not recognized at fair value through profit or loss,
- Lease receivables, and
- Trade receivables and contract assets pursuant to IFRS 15.

In accordance with IFRS 9, the three-stage approach is used, additionally taking POCI assets into account, to determine the expected losses:

- Stage 1: For financial assets whose credit risk has not increased significantly since initial recognition that were not impaired upon initial recognition, the 12-month credit loss is recognized. Interest is recognized on the basis of the gross carrying amount.
- Stage 2: For financial assets whose credit risk has increased significantly since initial recognition, the loss allowances are determined in the amount of the assets' lifetime expected credit losses. Interest is recognized on the basis of the gross carrying amount.
- Stage 3: Financial assets are classified as impaired if they are deemed to be in default pursuant to article 178 of the Capital Requirements Regulation (CRR) as operationalized in the DZ BANK Group's definition of default. Here too, loss allowances are recognized in the amount of the lifetime expected credit losses. Interest income is calculated on the amortized cost after loss allowances using the effective interest method.
- POCI assets: Financial assets that are already deemed impaired upon initial recognition are not assigned to the 3-stage model and are reported separately. Credit-impaired financial assets are initially recognized at fair value rather than at their gross carrying amount. Consequently, interest is recognized for these assets using a risk-adjusted effective interest rate.

The review of whether the credit risk of financial assets, financial guarantee contracts, and loan commitments has increased significantly since initial recognition is carried out on an ongoing basis. The assessment is conducted both for individual financial assets and for portfolios of assets using quantitative and qualitative analysis. As a rule, quantitative analysis looks at the expected credit risk over the entire residual life of the financial instruments in question. Macroeconomic information is also factored in by transferring these inputs to shift factors for determining the default probability. To this end, the credit risk as at the balance sheet date for the residual life is compared with the assets' credit risk over the same maturity period estimated at the time of initial recognition. The thresholds that indicate a significant increase in credit risk are determined for each portfolio separately relative to the portfolio's past migrations of default probability. Internal risk measurement systems, external credit ratings, and risk forecasts are also used to assess the credit risk of financial assets. This test is extended to look at qualitative criteria that increase credit risk. Furthermore, allocation to stage 2 is generally assumed no later than when payments become more than 30 days past due. Depending on the business line, this criterion has been defined as an additional backstop. As a rule, however, the other transfer criteria mean that financial assets are allocated to stage 2 well before payments become more than 30 days past due.

Securities with low credit risk are not tested to ascertain whether credit risk has increased significantly. Investment-grade securities are thus assigned to stage 1. This exemption does not apply to loans and receivables.

If, on the balance sheet date, it is found that there is no longer a significant increase in credit risk compared with previous balance sheet dates, the financial assets in question are transferred back to stage 1 and the loss allowances are brought back down to the level of the 12-month expected credit loss. If a financial instrument in stage 3 recovers, the difference between the interest income determined for the period of credit impairment on the basis of amortized cost and the actual interest income recognized in respect of the financial instrument for the period concerned is reported as a reversal of an impairment loss or a reversal of loss allowances. In the case of a transfer back from stage 3, the default status (as defined in the regulatory requirements) is only revoked after the necessary cure period, which is thereby taken into account in the transfer criterion.

Expected losses are calculated as the probability-weighted present value of the expected defaults over the estimated lifetime from default events within the next 12 months for assets assigned to stage 1 of the impairment model and from default events over the entire residual life for assets assigned to stage 2. The expected losses are discounted with their original effective interest rate. This calculation uses the regulatory

model (probability of default, loss given default, and expected loan amount at the time of default), with adjustments to satisfy the requirements of IFRS 9. The estimated probability of default incorporates both historical and forward-looking default information. This is applied when loss allowances are determined, in the form of shifts in the default probabilities calculated using statistical methods (known as shift factors). Depending on the portfolio, the calculation of the expected loss for specific exposures in stage 3 also uses this type of parameter-based approach or draws on individual expert appraisals of the achievable cash flows and probability-weighted scenarios at individual transaction level.

Loss histories, adjusted to reflect forecast future defaults, serve as the basis for determining expected losses. Two macroeconomic scenarios based on empirical estimates are factored in. These scenarios specifically look at future trends in the labor market, interest rates in the money market, changes in gross domestic product, inflation, and real estate prices. To ensure that the expected loss is not distorted, the DZ BANK Group uses a number of scenarios when determining the risk parameters, which are then factored into the level of the loss allowance with a probability weighting. The methods and assumptions, including the forecasts, are validated regularly.

For the purpose of calculating loss allowances for portfolios, the portfolios are grouped according to shared credit risk characteristics, e.g. credit rating, date of origination, residual life, industry and origin of the borrower, and type of asset.

Directly recognized impairment losses reduce the carrying amounts of assets directly. Unlike loss allowances, which are estimates, directly recognized impairment losses are specified in an exact amount if this is justified because the receivable is not collectible (e.g. as a result of the notification of an insolvency ratio). Impairment losses can be recognized directly by writing down the asset value and/or by using existing loss allowances. As a rule, asset values are written down directly after all recovery and enforcement measures have been completed. Directly recognized impairment losses are also applied to insignificant amounts.

Impact of COVID-19

During the COVID-19 pandemic, the established models and processes for calculating expected losses in accordance with IFRS 9 have generally been retained.

Current economic conditions against the backdrop of COVID-19 are mainly taken into consideration by updating the shift factors. For the portfolio segments affected by the pandemic, the shift factors determined using statistical methods were overridden in consultation with experts because of the extreme macroeconomic changes, which have not been seen on this scale before, and because of the extensive government support measures. This ensures that the shift factors used are in line both with experts' expectations and with the forecast changes in macroeconomic factors for the calculation of expected losses.

The expected macroeconomic conditions are thus taken into account, primarily by adjusting the model-based default probability profiles used in economic and regulatory risk management (known as shift factors). The shift factors are used to include current economic conditions (known as a point-in-time focus) and forecasts of future economic conditions for the years covered by the macroeconomic forecast period in the determination of loss allowances. These shift factors are derived from macroeconomic inputs for various levels of default probability using stress test models that already existed or that were developed for IFRS 9. The basis for the shift factors applied as at the balance sheet date are the macroeconomic forecasts provided by the Economic Roundtable in November 2020. As at the balance sheet date, two macroeconomic scenarios (baseline scenario and risk scenario) were taken into account with a weighting of 80 percent (baseline scenario) and 20 percent (risk scenario). The baseline scenario was given a higher weighting in light of the progress that has been made with the development of vaccines.

The baseline scenario is based on the assumption of a further recession in the winter months of 2020/2021 that will give way to an increasingly rapid recovery over the course of 2021. This presupposes that, as has happened, an effective vaccine is developed very quickly and can be rolled out on a broad basis in 2021. The resulting rebound of consumer spending, capital expenditure, and foreign trade will continue to fuel strong growth in 2022 before national economies then return to their trend growth rates. The baseline scenario, with a weighting of 80 percent, reflects the forecasts of the Economic Roundtable in November 2020, which are almost identical to the ECB scenarios from December 2020.

The risk scenario is based on the assumption that significant problems arise with the vaccines that have been developed, thus casting doubt on their effectiveness. Such problems might include unforeseen side-effects from the vaccines or new mutations of the virus against which the available vaccines are not effective. This will result in a 'disappointment shock' for the economy and consumers in 2021 and will significantly hold back the recovery of the economy as a whole. In this scenario, sharp rises in unemployment and huge falls in income make it unlikely that the economy will bounce back in 2021 and 2022. Instead, the economy will probably recover gradually over a period of several years. This scenario will also see further sharp rises in indebtedness.

The main macroeconomic forecasts for 2020 to 2024 used to calculate the expected loss as at the balance sheet date were as follows.

		2020		2021		2022		2023		2024	
		Baseline	Risk	Baseline	Risk	Baseline	Risk	Baseline	Risk	Baseline	Risk
DAX 30, Germany	Index	13,400	13,400	13,800	11,390	14,210	11,960	14,640	12,320	14,930	12,690
EURO STOXX 50, EU	Index	3,400	3,400	3,500	2,890	3,600	3,040	3,700	3,130	3,770	3,220
Unemployment rate, Germany	%	6.00	6.00	7.00	7.25	6.50	7.25	6.00	7.00	5.50	6.75
Harmonized unemployment rates, EU	%	7.25	7.25	8.50	8.75	8.00	9.25	7.50	9.00	7.25	8.75
Real GDP growth, Germany (seasonally and calendar-adjusted)	Compared with prior year (%)	-5.00	-5.00	3.00	1.00	4.50	1.25	1.75	1.50	1.25	2.00
Real GDP growth, EU (seasonally and calendar-adjusted)	Compared with prior year (%)	-8.00	-8.00	3.50	0.50	5.00	1.25	2.00	1.50	1.25	2.50

The need to override the shift factors was evaluated in consultation with experts. Different group entities are responsible for this task depending on the shift segment, which constitutes the aggregation of the rating segments. The need to override the shift factors for the shift segments particularly affected by the COVID-19 pandemic was ascertained in groupwide consultation because the models cannot fully take account of government support measures or the current market situation.

In the second half of the year, the methodology for the process of overriding the model shift factors was adjusted again at group level. The override process was implemented in 3 steps for the segments in the group:

Evaluation of the need to override the shift factors

The first step is to evaluate the general need to override the shift factors in light of the current macroeconomic situation and the existing model shift factors. The override is carried out only if actually needed.

1-year shift factor override at sectoral level
Based on the evaluation of need, the initial task is to review the shift factors for the first year. This involves using exposure weighting to translate the shift factors from the shift segment level to sectoral level so that they can be evaluated at this level. The degree to which the sector is affected by COVID-19 is then taken into account on the basis of a 4-stage assessment by the center of excellence for the sector. The resulting point-in-time probability of default (PD) of the individual sectors is then critically examined again by the experts from the center of excellence for the sector and, if necessary, adjusted to achieve plausible point-in-time PDs. The final step is to translate the PDs back into sectoral shift factors and use exposure weighting to determine the resulting segment shift factors for the production systems.

2 to 4-year shift factor determination
In the last step, the shift factors for subsequent years 2 to 4 (2022 to 2024) are determined. The new shift factor for year 1 (after the override, if applicable) is used as the starting value. The original model shift factor is used as the target value for the cumulative shift factor after 4 years. For some segments, this cumulative model shift was adjusted in consultation with experts in order to reflect the latest macroeconomic outlook. Once these starting and target values have been determined, the cumulative shift factors for years 2 and 3 are calculated using interpolation based on the percentage change in a suitable macroeconomic factor (e.g. Germany's gross domestic product). In year 5 (2025), a return to the original, unadjusted rating level is assumed and no further adjustments will be made in subsequent years.

Furthermore, the crisis led to qualitative stage 2 transfers being carried out at sectoral level for the first time as at December 31, 2020. These affected commercial real estate finance transactions in which the main asset is in the hotel or department store sector.

To mitigate the impact of COVID-19, borrowers and the entities in the DZ BANK Group reached agreement on individual support measures, including the temporary deferral of capital repayments. Besides these individual measures, other measures were taken in the context of legislative and non-legislative moratoria on repayments. In the DZ BANK Group, repayments under consumer loans were deferred due to legislative moratoria in Germany (only until the end of June 2020), Hungary (extended until June 30, 2021), and other countries (on an insignificant scale). Repayments under consumer loans were also deferred due to the moratorium of Verband der Privaten Bausparkassen e.V. [Association of Private Bausparkassen]. Deferrals could be requested until September 30, 2020 for a maximum of 6 months. In accordance with the EBA Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis, the general legislative and non-legislative moratoria are, as a rule, not classified as forbearance measures and therefore do not lead to a forbearance-related transfer between stages within the impairment model. A transfer between stages does take place if other transfer criteria are met. This exemption does not apply to individual support measures.

Government support measures in the form of support loans specifically in connection with the COVID-19 pandemic helped to mitigate the impact of the crisis.

No material deterioration in the value of collateral held in the form of mortgages on real estate is currently observable in connection with the COVID-19 pandemic. The COVID-19 pandemic is particularly affecting real estate in the hotel sector and the non-food segment of the retail sector (e.g. department stores) because they have been hit disproportionately hard as a result of having to close during the lockdowns. The impact of the pandemic on the value of the real estate held as collateral can currently be offset by, for example, low interest rates, low vacancy rates, and a conservative finance structure. Any potential write-down of the value of real estate held as collateral by the DZ BANK Group is monitored on an ongoing basis, taking account of how the pandemic continues to unfold. By contrast, the pandemic has a direct impact on the collateral held in connection with the financing of aircraft and ships. The value of these types of collateral was validated using stress data and

market data so that any write-down caused by the pandemic could be determined. These updated collateral values were incorporated into the calculation of loss allowances for expected losses in the reporting period.

The COVID-19 pandemic resulted in transfers between the stages of the impairment model in the case of the gross carrying amounts of the financial instruments in the classes 'financial assets measured at fair value', 'financial assets measured at amortized cost', and 'finance leases' and in the case of the nominal amounts in the class 'financial guarantee contracts and loan commitments'. The transfers were largely the result of taking account of expected macroeconomic conditions, primarily by adjusting the model-based default probability profiles.

The addition to loss allowances for the classes 'financial assets measured at fair value', 'financial assets measured at amortized cost', 'finance leases', and 'financial guarantee contracts and loan commitments' in connection with the COVID-19 pandemic was the result of taking account of expected macroeconomic conditions, primarily by adjusting the model-based default probability profiles. This updating has a direct effect on the probability of default of the financial instruments, which affects both the transfer between stages and the addition to loss allowances within the stages. Loss allowances in stage 3 also went up due to a significant addition that was not solely attributable to the pandemic.

Because of the COVID-19 pandemic, the DZ BANK Group's credit risk relating to financial instruments increased in the corporates sector (as defined by the Deutsche Bundesbank industry codes). In this sector, finance in the aviation, shipping, hotel, and retail (non-food) segments is deemed a concentration. The DZ BANK Group has not identified a geographical concentration of credit risk attaching to financial instruments as a result of COVID-19.

Loss allowances and gross carrying amounts

In the DZ BANK Group, loss allowances are recognized for the classes 'financial assets measured at fair value', 'financial assets measured at amortized cost', 'finance leases', and 'financial guarantee contracts and loan commitments' in the amount of the expected credit losses. Trade receivables and contract assets that fall within the scope of IFRS 15 are assigned to the 'financial assets measured at amortized cost' class.

Financial assets measured at fair value

€ million	Stage 1		Stage 2		Stage 3	
	Loss allowances	Fair value	Loss allowances	Fair value	Loss allowances	Fair value
Balance as at Jan. 1, 2019	8	80,068	3	182	29	25
Addition/increase in loan drawdowns	8	26,216	-	-	-	4
Change to financial assets due to transfer between stages	1	93	-1	-93	-	-
Transfer from stage 2	1	93	-1	-93	-	-
Use of loss allowances/directly recognized impairment losses	-1	-	-	-	-	-
Derecognitions and repayments	-5	-15,375	-	-35	-1	-7
Changes to models/risk parameters	-2	-	-1	-	3	-
Additions	4	-	-	-	3	-
Reversals	-6	-	-1	-	-	-
Amortization, fair value changes, and other changes in measurement	-	4,773	-	5	-	-3
Exchange differences and other changes	-	4	-	-	-	-
Deferred taxes	-	-	-	-	-1	-
Balance as at Dec. 31, 2019	9	95,779	1	59	30	19
Addition/increase in loan drawdowns	4	21,832	-	32	-	-
Change to financial assets due to transfer between stages	1	-641	-1	641	-	-
Transfer from stage 1	-	-759	-	759	-	-
Transfer from stage 2	1	118	-1	-118	-	-
Use of loss allowances/directly recognized impairment losses	-1	-	-	-	-8	-
Derecognitions and repayments	-2	-13,222	-	-45	-	-10
Changes to models/risk parameters	10	-	3	-	-	-
Additions	15	-	5	-	-	-
Reversals	-5	-	-2	-	-	-
Amortization, fair value changes, and other changes in measurement	-	2,546	-	14	-	9
Exchange differences and other changes	-	-78	-	-	-1	-
Deferred taxes	-2	-	-	-	3	-
Balance as at Dec. 31, 2020	**19**	**106,216**	**3**	**701**	**24**	**18**

Financial assets measured at amortized cost

€ million	Stage 1		Stage 2		Stage 3		POCI assets	
	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount
Balance as at Jan. 1, 2019	231	330,226	196	7,864	1,972	4,349	3	22
Addition/increase in loan drawdowns	168	10,429,453	29	20,979	393	1,898	-	14
Change to financial assets due to transfer between stages	128	1,005	-210	-2,041	87	1,036	-	-
Transfer from stage 1	-72	-5,886	64	5,487	8	399	-	-
Transfer from stage 2	184	6,829	-313	-7,818	134	989	-	-
Transfer from stage 3	16	62	39	290	-55	-352	-	-
Use of loss allowances/directly recognized impairment losses	-	-	-1	-	-559	-27	-1	-2
Derecognitions and repayments	-129	-10,411,693	-55	-18,511	-286	-2,866	-1	-31
Changes to models/risk parameters	-180	-	265	-	167	-	-	-
Additions	149	-	422	-	752	-	11	-
Reversals	-329	-	-157	-	-585	-	-11	-
Amortization, fair value changes, and other changes in measurement	-	-83	-	33	-	-277	-	-
Positive change in fair value of POCI assets								27
Exchange differences and other changes	-	-691	-	-95	49	-228	-	1
Balance as at Dec. 31, 2019	218	348,217	224	8,229	1,823	3,885	1	31
Addition/increase in loan drawdowns	180	7,541,364	92	14,385	618	1,989	7	70
Change to financial assets due to transfer between stages	155	-7,833	-254	6,588	103	1,239	-	-
Transfer from stage 1	-71	-12,762	68	12,140	3	622	-	-
Transfer from stage 2	211	4,810	-357	-5,707	146	891	-	-
Transfer from stage 3	15	119	35	155	-46	-274	-	-
Use of loss allowances/directly recognized impairment losses	-	-1	-1	-	-604	-37	-1	-4
Reclassifications to liabilities included in disposal groups classified as held for sale	-	-51	-	-	-	-	-	-
Derecognitions and repayments	-141	-7,511,144	-120	-15,324	-557	-3,013	-11	-56
Changes to models/risk parameters	-122	-	423	-	309	-	4	-
Additions	185	-	656	-	729	-	9	-
Reversals	-307	-	-233	-	-420	-	-5	-
Modifications	-	-6	-1	-2	-	-	-	-
Modification gains	-	-	-1	-	-	-	-	-
Modification losses	-	-6	-	-2	-	-	-	-
Amortization, fair value changes, and other changes in measurement	-	-1,347	-	-92	-	-297	-	-
Positive change in fair value of POCI assets								26
Exchange differences and other changes	-4	-1,559	-4	430	-20	-19	7	2
Changes in scope of consolidation	-	37	-	3	-	-	-	-
Addition of subsidiaries	1	186	-	3	5	5	-	-
Derecognition of subsidiaries	-1	-149	-	-	-5	-5	-	-
Balance as at Dec. 31, 2020	**286**	**367,677**	**359**	**14,217**	**1,672**	**3,747**	**7**	**69**

The undiscounted expected credit losses on purchased or originated credit-impaired assets that were recognized for the first time during the reporting period totaled €99 million (2019: €84 million).

Non-current assets and disposal groups classified as held for sale that were previously recognized as financial assets measured at amortized cost

€ million	Stage 1		Stage 2		Stage 3	
	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount
Balance as at Jan. 1, 2019	5	5,853	-	105	13	40
Addition/increase in loan drawdowns	1	1,334	-	-	-	-
Change to financial assets due to transfer between stages	-1	-194	-1	92	2	102
Transfer from stage 1	-1	-232	1	210	-	22
Transfer from stage 2	-	16	-2	-118	2	102
Transfer from stage 3	-	22	-	-	-	-22
Derecognitions and repayments	-9	-6,785	-4	-206	-24	-138
Changes to models/risk parameters	4	-	5	-	10	-
Additions	6	-	6	-	13	-
Reversals	-2	-	-1	-	-3	-
Amortization, fair value changes, and other changes in measurement	-	21	-	1	-	-
Exchange differences and other changes	-	133	-	11	2	3
Changes in scope of consolidation	-	-168	-	-3	-	-
Balance as at Dec. 31, 2019	-	194	-	-	3	7
Addition/increase in loan drawdowns	-	24	-	-	-	16
Derecognitions and repayments	-	-215	-	-	-	-11
Changes to models/risk parameters	-	-	-	-	-	-
Additions	-	-	-	-	1	-
Reversals	-	-	-	-	-1	-
Amortization, fair value changes, and other changes in measurement	-	-	-	-	-	-204
Exchange differences and other changes	-	1	-	-	-3	192
Balance as at Dec. 31, 2020	**-**	**4**	**-**	**-**	**-**	**-**

Finance leases

€ million	Stage 1		Stage 2		Stage 3	
	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount	Loss allowances	Gross carrying amount
Balance as at Jan. 1, 2019	4	1,811	8	186	8	23
Addition/increase in loan drawdowns	2	290	13	3	9	2
Change to finance leases due to transfer between stages	5	-43	-9	21	-1	22
Transfer from stage 1	-1	-151	1	141	-	10
Transfer from stage 2	5	99	-12	-127	2	28
Transfer from stage 3	1	9	2	7	-3	-16
Use of loss allowances/directly recognized impairment losses	-	-	-	-	-1	-
Derecognitions and repayments	-8	-684	-7	-62	-7	-22
Balance as at Dec. 31, 2019	3	1,374	5	148	8	25
Addition/increase in loan drawdowns	2	133	13	6	15	2
Change to finance leases due to transfer between stages	3	-234	-3	204	-4	36
Transfer from stage 1	-2	-398	2	382	-	16
Transfer from stage 2	4	159	-9	-192	5	39
Transfer from stage 3	1	5	4	14	-9	-19
Derecognitions and repayments	-6	-471	-10	-97	-7	-29
Changes to models/risk parameters	-	-	1	-	-	-
Additions	-	-	1	-	-	-
Balance as at Dec. 31, 2020	**2**	**802**	**6**	**261**	**12**	**34**

Financial guarantee contracts and loan commitments

€ million	Stage 1		Stage 2		Stage 3		POCI assets	
	Loss allowances	Nominal amount	Loss allowances	Nominal amount	Loss allowances	Nominal amount	Loss allowances	Nominal amount
Balance as at Jan. 1, 2019	35	60,787	9	834	118	250	-	-
Addition/increase in loan drawdowns	103	67,567	9	637	33	206	-	-
Change to financial guarantee contracts and loan commitments due to transfer between stages	3	-158	-7	45	4	113	-	-
Transfer from stage 1	-2	-615	2	553	-	62	-	-
Transfer from stage 2	4	450	-10	-511	6	61	-	-
Transfer from stage 3	1	7	1	3	-2	-10	-	-
Derecognitions and repayments	-56	-63,803	-11	-937	-36	-282	-	-
Changes to models/risk parameters	-40	-	11	-	22	-	-	-
Additions	32	-	20	-	85	-	-	-
Reversals	-72	-	-9	-	-63	-	-	-
Amortization, fair value changes, and other changes in measurement	-	69	-	-1	-	1	-	-
Exchange differences and other changes	-	475	-1	-3	-1	-6	-	-
Balance as at Dec. 31, 2019	45	64,937	10	575	140	282	-	-
Addition/increase in loan drawdowns	92	78,042	25	2,175	54	279	4	27
Change to financial guarantee contracts and loan commitments due to transfer between stages	-2	-1,993	-	1,853	2	140	-	-
Transfer from stage 1	-10	-2,257	10	2,139	-	118	-	-
Transfer from stage 2	8	262	-11	-294	3	32	-	-
Transfer from stage 3	-	2	1	8	-1	-10	-	-
Derecognitions and repayments	-65	-65,755	-30	-2,539	-73	-443	-3	-18
Changes to models/risk parameters	-8	-	33	-	10	-	-	-
Additions	42	-	54	-	73	-	-	-
Reversals	-50	-	-21	-	-63	-	-	-
Amortization, fair value changes, and other changes in measurement	-	-179	-	-1	-	-	-	-
Exchange differences and other changes	-	-493	-	382	-4	2	-	-
Balance as at Dec. 31, 2020	**62**	**74,559**	**38**	**2,445**	**129**	**260**	**1**	**9**

Liabilities included in disposal groups classified as held for sale that were previously recognized as financial guarantee contracts and loan commitments

€ million	Stage 1	
	Loss allowances	Nominal amount
Balance as at Jan. 1, 2019	-	549
Addition/increase in loan drawdowns	-	75
Derecognitions and repayments	-2	-530
Changes to models/risk parameters	2	-
Additions	2	-
Exchange differences and other changes	-	-19
Balance as at Dec. 31, 2019	-	75
Derecognitions and repayments	-	-75
Balance as at Dec. 31, 2020	-	-

Contractual modifications and derecognitions

The negotiation or modification of contractually agreed cash flows relating to a financial asset leads to a modified asset. The modification of contractually agreed cash flows can lead to the derecognition of the existing financial asset and the recognition of a new one. In the case of modifications that do not lead to the derecognition of the financial asset (non-substantial contractual modifications), the modifications of the contractually agreed cash flows are recognized as a modification gain or loss in the amount of the difference between the originally agreed cash flows and the modified cash flows discounted with the original effective interest rate. If substantial modifications are made to the contract for a financial asset, the asset is derecognized and then recognized as a new asset. The POCI asset rules apply to impaired assets (stage 3). If contractual modifications for a financial asset do not have a substantial impact, the asset is reviewed to ascertain whether credit risk has increased significantly since initial recognition. The assessment to determine whether there has been a significant deterioration in the credit quality of modified assets compares the probability of default based on the modified cash flows and on the residual maturity as at the reporting date against the probability of default based on the original cash flows and residual maturity on initial recognition.

In 2020, contractually agreed payments in relation to financial assets allocated to stages 2 and 3 of the impairment model with an amortized cost of €323 million (December 31, 2019: €245 million) were modified to take account of changes in contractual cash flows. The modifications resulted in a modification loss of €2 million (2019: €0 million).

The gross carrying amount of financial assets whose contractually agreed cash flows were modified and that had been allocated to stage 2 in the impairment model but were transferred to stage 1 during the reporting period amounted to €1 million (2019: €0 million).

Maximum exposure to credit risk

The DZ BANK Group is exposed to credit risk from financial instruments. The maximum exposure to credit risk is represented by the fair value, amortized cost, or nominal amount of financial instruments. The following collateral is held to reduce the exposure to this maximum credit risk:

AS AT DECEMBER 31, 2020

€ million	Maximum exposure to credit risk	
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**172,220**	
Financial assets measured at fair value through profit or loss	**65,285**	
Financial assets mandatorily measured at fair value through profit or loss	55,815	
Financial assets designated as at fair value through profit or loss	9,470	
Financial assets measured at fair value through other comprehensive income	**106,935**	
Financial assets mandatorily measured at fair value through other comprehensive income	106,935	
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**385,366**	
of which credit-impaired		
FINANCE LEASES	**1,076**	
of which credit-impaired		
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	**77,747**	
of which credit-impaired		

AS AT DECEMBER 31, 2020

€ million	Maximum exposure to credit risk	
Non-current assets and disposal groups classified as held for sale from financial assets measured at fair value	95	
Non-current assets and disposal groups classified as held for sale from financial assets measured at amortized cost	4	

			of which secured with:			
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	834	**2**	**206**	**331**	**2,756**	**825**
	566	**2**	**24**	**26**	**1,297**	**79**
	364	2	23	26	1,296	39
	202	-	1	-	1	40
	268	**-**	**182**	**305**	**1,459**	**746**
	268	-	182	305	1,459	746
	6,894	**2,729**	**113,950**	**2,343**	**8,265**	**6,283**
	71	265	1,344	126	151	398
	10	**-**	**-**	**5**	**-**	**1**
	-	-	-	4	-	1
	389	**1,450**	**5,972**	**786**	**2**	**56**
	3	6	2	11	-	12

			of which secured with:			
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	-	-	-	-	-	55
	-	-	-	-	-	-

AS AT DECEMBER 31, 2019

€ million	Maximum exposure to credit risk	
FINANCIAL ASSETS MEASURED AT FAIR VALUE	163,287	
Financial assets measured at fair value through profit or loss	67,429	
Financial assets mandatorily measured at fair value through profit or loss	57,099	
Financial assets designated as at fair value through profit or loss	10,330	
Financial assets measured at fair value through other comprehensive income	95,858	
Financial assets mandatorily measured at fair value through other comprehensive income	95,858	
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	359,464[1]	
of which credit-impaired		
FINANCE LEASES	1,531	
of which credit-impaired		
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	66,202	
of which credit-impaired		

1 Amount restated (see note 2).

AS AT DECEMBER 31, 2019

€ million	Maximum exposure to credit risk	
Non-current assets and disposal groups classified as held for sale from financial assets measured at fair value	38	
Non-current assets and disposal groups classified as held for sale from financial assets measured at amortized cost	198	
Liabilities included in disposal groups classified as held for sale from financial guarantee contracts and loan commitments	74	

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	1,001	**-**	**199**	**316**	**3,138**	**623**
	697	**-**	**29**	**25**	**926**	**76**
	289[1]	-	29	25	926[1]	51
	408[1]	-	-	-	-	25[1]
	304	**-**	**170**	**291**	**2,212**	**547**
	304	-	170	291[1]	2,212	547[1]
	5,311[1]	**2,720**	**106,044[1]**	**2,385[1]**	**7,383[1]**	**10,219[1]**
	34[1]	134	481[1]	208	3	335
	11	**-**	**-**	**7**	**-**	**5**
	-	-	-	6	-	1
	374	**852**	**6,064**	**693**	**6**	**49**
	-	2	5	9	-	32

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	-	-	-	-	-	-
	-	-	-	-	-	14
	8	-	-	-	2	10

A range of different collateral is held in the traditional lending business to reduce the exposure to the maximum credit risk. Specifically, this collateral includes mortgages on residential and commercial real estate, registered ship and aircraft mortgages, guarantees (including indemnities and credit insurance), financial security (e.g. certain fixed-income securities, shares, and investment fund units), blanket and individual assignments of trade receivables, and various types of physical collateral. Generally, cash collateral, high-quality government bonds, and Pfandbriefe are held in the trading business in accordance with the collateral policy to reduce the risk attaching to OTC derivatives. Some financial instruments in stage 3 are not written down because they are fully covered by collateral.

Changes in the credit risk did not result in changes to the fair value of financial assets designated as at fair value through profit or loss in 2020 (December 31, 2019: increase of €4 million). As at the balance sheet date, the cumulative amount by which the fair value had increased owing to changes in the credit risk was €42 million (December 31, 2019: €129 million).

The credit risk associated with financial assets designated as at fair value through profit or loss was mitigated as at the reporting date by financial guarantee contracts with a value of €163 million (December 31, 2019: €332 million) furnished by affiliated banks.

Credit risk concentrations

The credit risk from financial instruments to which the DZ BANK Group is exposed is broken down by sector using the Deutsche Bundesbank industry codes and by geographic region using the annually updated country groups published by the International Monetary Fund (IMF). Volumes, measured on the basis of fair values and gross carrying amounts of financial assets and the credit risk from financial guarantee contracts and loan commitments, are broken down using the following credit rating classes:

- Investment grade: equates to internal rating classes 1A–3A
- Non-investment grade: equates to internal rating classes 3B–4E
- Default: equates to internal rating classes 5A–5E
- Not rated: no rating necessary or not classified

‘Not rated’ comprises counterparties for which a rating classification is not required.

AS AT DECEMBER 31, 2020

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglo-merates	Other
Investment grade							
Fair value	Stage 1	52,952	33,115	15,413	-	1,682	267
	Stage 2	169	-	423	-	-	-
Gross carrying amount	Stage 1	172,263	19,976	60,356	36,695	7,188	480
	Stage 2	105	13	282	467	3,744	-
Nominal amount	Stage 1	27,495	186	21,958	8,133	2,501	-
	Stage 2	5	-	331	-	100	-
Non-investment grade							
Fair value	Stage 1	176	262	94	-	-	-
	Stage 2	18	73	17	-	1	-
Gross carrying amount	Stage 1	7,894	120	12,465	36,190	57	-
	Stage 2	298	139	3,361	3,830	22	-
	Stage 3	-	-	784	5	-	-
Nominal amount	Stage 1	452	255	7,853	176	-	-
	Stage 2	95	-	1,749	2	53	-

AS AT DECEMBER 31, 2019

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglo-merates	Other
Investment grade							
Fair value	Stage 1	48,971	30,089	14,127	-	257	-
Gross carrying amount	Stage 1	149,404	22,031	61,507	33,598	7,437	-
	Stage 2	25	8	135	467	297	-
Nominal amount	Stage 1	21,815	401	20,233	7,641	2,133	-
	Stage 2	77	-	23	-	37	-
Non-investment grade							
Fair value	Stage 1	401	345	230	-	1	-
	Stage 2	28	30	-	-	1	-
Gross carrying amount	Stage 1	8,954	171	19,102	32,692	82	-
	Stage 2	35	197	1,536	3,643	35	-
	Stage 3	-	-	994	15	-	-
Nominal amount	Stage 1	606	23	7,153	138	56	-
	Stage 2	3	-	357	1	-	-

AS AT DECEMBER 31, 2020

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglo-merates	Other
Default							
Fair value	Stage 3	17	-	-	-	-	-
Gross carrying amount	Stage 2	-	-	1	-	-	-
	Stage 3	234	7	1,476	737	119	-
	POCI assets	-	-	38	-	-	-
Nominal amount	Stage 3	-	-	257	2	-	-
	POCI assets	-	-	8	-	-	-
Not rated							
Fair value	Stage 1	850	1,117	70	-	217	-
Gross carrying amount	Stage 1	2,046	619	2,532	8,090	1,508	-
	Stage 2	447	42	738	713	245	30
	Stage 3	1	-	99	319	-	-
	POCI assets	-	-	3	29	-	-
Nominal amount	Stage 1	1,116	9	1,136	2,290	998	-
	Stage 2	3	-	58	22	27	-

AS AT DECEMBER 31, 2019

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglo-merates	Other
Default							
Fair value	Stage 3	19	-	-	-	-	-
Gross carrying amount	Stage 2	-	-	4	-	-	-
	Stage 3	125	-	1,620	708	144	-
	POCI assets	-	-	13	-	-	-
Nominal amount	Stage 3	3	-	279	-	-	-
Not rated							
Fair value	Stage 1	333	718	80	-	227	-
Gross carrying amount	Stage 1	2,351	870	1,416	8,540	1,436	-
	Stage 2	891	41	234	608	194	27
	Stage 3	-	-	3	301	-	-
	POCI assets	-	-	-	18	-	-
Nominal amount	Stage 1	955	9	944	2,027	803	-
	Stage 2	10	-	57	9	1	-

AS AT DECEMBER 31, 2020

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Investment grade						
Fair value	Stage 1	32,823	61,883	1,398	3,061	4,264
	Stage 2	98	325	169	-	-
Gross carrying amount	Stage 1	267,321	26,474	861	1,441	861
	Stage 2	4,401	178	1	31	-
Nominal amount	Stage 1	53,706	6,068	118	381	-
	Stage 2	338	88	-	10	-
Non-investment grade						
Fair value	Stage 1	88	281	-	163	-
	Stage 2	3	106	-	-	-
Gross carrying amount	Stage 1	49,671	2,593	352	4,110	-
	Stage 2	6,179	628	73	770	-
	Stage 3	1	385	109	294	-
Nominal amount	Stage 1	6,494	1,035	47	1,160	-
	Stage 2	1,427	373	23	76	-

AS AT DECEMBER 31, 2019

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Investment grade						
Fair value	Stage 1	29,276	56,414	1,457	2,748	3,549
Gross carrying amount	Stage 1	242,384	28,455	1,005	1,602	531
	Stage 2	903	28	1	-	-
Nominal amount	Stage 1	45,766	6,021	45	391	-
	Stage 2	73	64	-	-	-
Non-investment grade						
Fair value	Stage 1	183	491	-	303	-
	Stage 2	-	59	-	-	-
Gross carrying amount	Stage 1	50,071	3,960	1,049	5,921	-
	Stage 2	4,504	536	17	389	-
	Stage 3	4	549	217	239	-
Nominal amount	Stage 1	6,121	1,069	99	687	-
	Stage 2	295	54	2	10	-

AS AT DECEMBER 31, 2020

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Default						
Fair value	Stage 3	-	17	-	-	-
Gross carrying amount	Stage 2	1	-	-	-	-
	Stage 3	1,882	322	39	330	-
	POCI assets	38	-	-	-	-
Nominal amount	Stage 3	154	83	-	22	-
	POCI assets	8	-	-	-	-
Not rated						
Fair value	Stage 1	736	1,235	2	-	281
Gross carrying amount	Stage 1	12,537	1,852	3	267	136
	Stage 2	1,603	503	1	108	-
	Stage 3	358	61	-	-	-
	POCI assets	30	2	-	-	-
Nominal amount	Stage 1	4,598	772	-	179	-
	Stage 2	99	11	-	-	-

AS AT DECEMBER 31, 2019

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Default						
Fair value	Stage 3	-	19	-	-	-
Gross carrying amount	Stage 2	4	-	-	-	-
	Stage 3	2,092	245	53	207	-
	POCI assets	13	-	-	-	-
Nominal amount	Stage 3	156	76	17	33	-
Not rated						
Fair value	Stage 1	516	684	-	-	158
Gross carrying amount	Stage 1	11,987	2,189	8	293	136
	Stage 2	1,479	471	7	38	-
	Stage 3	278	26	-	-	-
	POCI assets	17	1	-	-	-
Nominal amount	Stage 1	4,239	450	-	49	-
	Stage 2	66	11	-	-	-

>> 86 Maturity analysis

AS AT DECEMBER 31, 2020

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Financial assets	**105,984**	**16,115**	**40,108**	**164,118**	**250,857**	**22,194**
Cash and cash equivalents	68,148	-	-	-	-	-
Loans and advances to banks	13,517	4,189	11,761	39,315	35,476	-
Loans and advances to customers	16,018	6,675	17,796	73,898	92,052	18
Derivatives used for hedging (positive fair values)	1	5	19	94	38	-
Financial assets held for trading	4,564	2,833	3,203	9,097	22,871	1,964
of which non-derivative financial assets held for trading	4,258	2,247	1,808	3,626	6,644	1,964
of which derivatives (positive fair values)	306	586	1,395	5,471	16,227	-
Investments	996	1,240	4,459	21,757	31,338	2,375
Investments held by insurance companies	631	1,147	2,799	19,853	69,081	17,802
of which non-derivative investments held by insurance companies	350	1,070	2,791	19,829	69,068	17,787
of which derivatives (positive fair values)	281	77	8	24	13	15
Other assets	2,109	26	71	104	1	35
Financial liabilities	**-117,376**	**-11,869**	**-24,899**	**-113,999**	**-114,873**	**-69,878**
Deposits from banks	-72,724	-3,556	-9,824	-56,314	-35,823	-1,576
Deposits from customers	-37,829	-2,172	-3,134	-7,523	-22,823	-64,761
Debt certificates issued including bonds	-2,524	-3,628	-6,753	-26,359	-32,180	-
Derivatives used for hedging (negative fair values)	-10	-32	-152	-883	-1,542	-
Financial liabilities held for trading	-2,982	-1,926	-4,622	-19,009	-20,770	-931
of which non-derivative financial liabilities held for trading	-2,801	-1,001	-2,413	-13,100	-10,020	-931
of which derivatives (negative fair values)	-181	-925	-2,209	-5,909	-10,750	-
Other liabilities	-1,207	-530	-235	-1,402	-1,094	-2,585
of which non-derivative other liabilities	-1,188	-504	-230	-1,300	-953	-2,579
of which derivatives (negative fair values)	-19	-26	-5	-102	-141	-6
Subordinated capital	-100	-25	-179	-2,509	-641	-25
Financial guarantee contracts and loan commitments	**-74,528**	**-85**	**-333**	**-241**	**-35**	**-2,050**
Financial guarantee contracts	-8,233	-53	-3	-146	-10	-52
Loan commitments	-66,295	-32	-330	-95	-25	-1,998

AS AT DECEMBER 31, 2019

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Financial assets	**92,427**	**14,815**	**42,241**	**162,214**	**241,372**	**20,985**
Cash and cash equivalents	52,167	-	-	-	-	-
Loans and advances to banks	10,845	4,213	13,098	37,610	35,522	-
Loans and advances to customers	16,754	6,598	17,124	73,270	91,693	-
Derivatives used for hedging (positive fair values)	-	3	19	121	66	-
Financial assets held for trading	8,313	1,831	4,755	8,805	20,996	1,667
of which non-derivative financial assets held for trading	7,968	1,346	3,283	4,095	7,153	1,667
of which derivatives (positive fair values)	345	485	1,472	4,710	13,843	-
Investments	1,079	1,233	4,227	22,269	29,329	2,173
Investments held by insurance companies	665	907	2,974	20,037	63,765	17,119
of which non-derivative investments held by insurance companies	481[1]	879[1]	2,959	20,014[1]	63,732[1]	17,112[1]
of which derivatives (positive fair values)	184	28	15	23	33	7
Other assets	2,604[1]	30[1]	44	102[1]	1[1]	26[1]
Financial liabilities	**-105,297**	**-27,558**	**-32,895**	**-90,139**	**-105,318**	**-68,427**
Deposits from banks	-55,086	-3,621	-10,018	-39,397	-33,962	-1,652
Deposits from customers	-33,188	-2,287	-4,217	-8,768	-25,151	-63,789
Debt certificates issued including bonds	-9,290	-19,660	-12,809	-20,651	-24,108	-
Derivatives used for hedging (negative fair values)	-4	-18	-122	-436	-723	-
Financial liabilities held for trading	-6,813	-1,378	-5,243	-18,186	-19,686	-552
of which non-derivative financial liabilities held for trading	-6,263	-862	-3,393	-12,229	-9,562	-552
of which derivatives (negative fair values)	-550	-516	-1,850	-5,957	-10,124	-
Other liabilities	-916	-434	-93	-1,368	-1,143	-2,409
of which non-derivative other liabilities	-906	-412	-85	-1,275	-927	-2,402
of which derivatives (negative fair values)	-10	-22	-8	-93	-216	-7
Subordinated capital	-	-160	-393	-1,333	-545	-25
Financial guarantee contracts and loan commitments	**-63,140**	**-277**	**-405**	**-312**	**-30**	**-1,630**
Financial guarantee contracts	-7,494	-58	-36	-168	-30	-56
Loan commitments	-55,646	-219	-369	-144	-	-1,574

1 Amount restated (see note 2).

The maturity analysis shows contractually agreed cash inflows with a plus sign and contractually agreed cash outflows with a minus sign. In the case of financial guarantee contracts and loan commitments, the potential cash outflows are shown.

The contractual maturities do not match the estimated actual cash inflows and cash outflows, especially in the case of financial guarantee contracts and loan commitments. The management of liquidity risk based on expected and unexpected cash flows is described in section 4.2.5 of the risk report in the group management report.

The maturity analysis for lease liabilities in accordance with IFRS 16.58 is presented in note 92.

>> 87 Exposures to countries particularly affected by the sovereign debt crisis

The table below shows the carrying amounts of the DZ BANK Group's exposures to bonds issued by governments and public authorities in countries particularly affected by the sovereign debt crisis, broken down into the categories applied to financial instruments under IFRS 9.

	Dec. 31, 2020		Dec. 31, 2019	
€ million	Carrying amount	Fair value	Carrying amount	Fair value
Portugal	**846**	**863**	**814**	**831**
Financial assets measured at fair value through profit or loss	447	447	423	423
Financial assets measured at fair value through other comprehensive income	349	349	342	342
Financial assets measured at amortized cost	50	67	49	66
Italy	**4,965**	**5,069**	**4,973**	**5,058**
Financial assets measured at fair value through profit or loss	1,978	1,978	1,915	1,915
Financial assets measured at fair value through other comprehensive income	2,449	2,449	2,538	2,538
Financial assets measured at amortized cost	538	642	520	605
Spain	**2,272**	**2,337**	**2,123**	**2,170**
Financial assets measured at fair value through profit or loss	1,287	1,287	1,253	1,253
Financial assets measured at fair value through other comprehensive income	728	728	630	630
Financial assets measured at amortized cost	257	322	240	287
Total	**8,083**	**8,269**	**7,910**	**8,059**

Bonds issued by countries particularly affected by the sovereign debt crisis and held as part of the insurance business are only recognized in the proportion attributable to the shareholders of the DZ BANK Group.

Fair value hierarchy

The recurring fair value measurements as measured and recognized on the balance sheet are assigned to the levels of the fair value hierarchy as follows:

	Level 1		Level 2		Level 3	
€ million	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2019
Portugal	**796**	**765**	**-**	**-**	**-**	**-**
Financial assets measured at fair value through profit or loss	447	423	-	-	-	-
Financial assets measured at fair value through other comprehensive income	349	342	-	-	-	-
Italy	**4,316**	**4,382**	**80**	**41**	**31**	**30**
Financial assets measured at fair value through profit or loss	1,953	1,897	25	18	-	-
Financial assets measured at fair value through other comprehensive income	2,363	2,485	55	23	31	30
Spain	**1,811**	**1,659**	**193**	**158**	**11**	**66**
Financial assets measured at fair value through profit or loss	1,120	1,029	156	158	11	66
Financial assets measured at fair value through other comprehensive income	691	630	37	-	-	-
Total	**6,923**	**6,806**	**273**	**199**	**42**	**96**

Maturity analysis

AS AT DECEMBER 31, 2020

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Portugal	-	-	25	102	764
Italy	7	157	403	1,090	3,846
Spain	1	3	162	426	1,969
Total	**8**	**160**	**590**	**1,618**	**6,579**

AS AT DECEMBER 31, 2019

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Portugal	-	-	25	102	783
Italy	7	95	237	1,521	4,091
Spain	4	9	64	555	1,876
Total	**11**	**104**	**326**	**2,178**	**6,750**

The maturity analysis shows the contractually agreed cash inflows.

F Other disclosures

>> 88 Contingent liabilities

€ million	Dec. 31, 2020	Dec. 31, 2019
Contingent liabilities from placement and underwriting obligations	41	-
Contingent liabilities arising from contributions to the resolution fund for CRR credit institutions	88	37
Contingent liabilities in respect of litigation risk	39	9
Total	**168**	**46**

The contingent liabilities from placement and underwriting obligations relate to the signing of an undertaking by DZ BANK AG in connection with its involvement in the funding of a power plant project as part of an initiative to support economic growth in less developed regions of Saudi Arabia.

The contingent liabilities arising from contributions to the resolution fund for CRR credit institutions consist of irrevocable payment commitments that were made after the applications to furnish collateral in partial settlement of the contribution to the European bank levy were approved by the Single Resolution Board (SRB).

The contingent liabilities in respect of litigation risk in the direct health business of the R+V subgroup essentially relate to the not improbable risk of an outflow of resources embodying economic benefits as a result of certain premium adjustments potentially being ineffective. In addition, the contingent liabilities in respect of litigation risk comprise a small number of court proceedings relating to different cases. Where provisions have been recognized for particular claims, no contingent liabilities are recognized.

>> 89 Financial guarantee contracts and loan commitments

€ million	Dec. 31, 2020	Dec. 31, 2019
Financial guarantee contracts	**8,497**	**7,842**
Loan guarantees	4,681	4,187
Letters of credit	636	562
Other guarantees and warranties	3,180	3,093
Loan commitments	**68,775**	**57,952**
Credit facilities to banks	22,290	17,163
Credit facilities to customers	19,259	18,690
Guarantee credits	712	464
Letters of credit	6	1
Global limits	26,508	21,634
Total	**77,272**	**65,794**

The amounts shown for financial guarantee contracts and loan commitments are the nominal values of the commitment in each case.

>> 90 Trust activities

Assets held and liabilities entered into as part of trust activities do not satisfy the criteria for recognition on the balance sheet. The following table shows the breakdown for trust activities:

€ million	Dec. 31, 2020	Dec. 31, 2019
Trust assets	**2,094**	761
Loans and advances to banks	1,570	140
Loans and advances to customers	12	12
Investments	512	609
Trust liabilities	**2,094**	761
Deposits from banks	1,530	57
Deposits from customers	564	704

Trust assets and trust liabilities each include trust loans amounting to €1,530 million (December 31, 2019: €57 million).

>> 91 Business combinations

ZBI Partnerschafts-Holding GmbH, Erlangen, (ZBI) was established by the UMH subgroup together with the majority shareholder CI Central Immobilien Holding AG, Erlangen, as part of a strategic partnership. ZBI was held as an associate with a shareholding of 49.9 percent. On October 29, 2020, the UMH subgroup acquired a further 45.0 percent of the shares in ZBI, bringing the total shareholding to 94.9 percent. ZBI and 3 of its subsidiaries have been fully consolidated since the purchase of the additional shares owing to the existence of control. Until the purchase of the additional shares, ZBI was accounted for using the equity method.

ZBI and its subsidiaries are regarded as one of the leading specialists for investment in German residential real estate funds and have been serving retail and institutional investors since 2002. The business combination represents the completion of the UMH subgroup's ambition to establish itself in the market for residential real estate. The option to purchase further shares had been agreed with the majority shareholder at the time of ZBI's establishment and was structured using call and put options. The fair values of the options were included in the consideration transferred for the purchase.

The consideration transferred for ZBI totaled €199 million and comprised the remeasured existing shareholding of €98 million resulting from the business combination achieved in stages, the purchase consideration of €85 million for the newly acquired tranche, which was paid in cash, and the netting of the fair values of the call and put options held. The net gain of €48 million resulting from transitional accounting for the existing shareholding was recognized in gains and losses on investments. The fair value of the net assets stood at €105 million on the acquisition date, of which €5 million was attributable to non-controlling interests. The difference of €99 million between the consideration transferred and the share of the remeasured net assets was recognized as goodwill. This essentially represents the expected growth of ZBI, synergies from the business combination, and the workforce, which constitutes an unrecognizable asset.

The breakdown of net assets was as follows:

€ million	Oct. 31, 2020
Loans and advances to banks	37
Loans and advances to customers	2
Investments	32
Property, plant and equipment, investment property, and right-of-use assets	21
Income tax assets	7
Other assets	67
Total assets acquired	166
Provisions	2
Income tax liabilities	21
Other liabilities	38
Total liabilities assumed	61
Net assets acquired	**105**

Goodwill is allocated to the DZ BANK Group's operating segments, each of which constitutes a cash-generating unit. As at the balance sheet date, goodwill of €138 million was allocated to the UMH subgroup operating segment (December 31, 2019: €39 million) and €2 million to the TeamBank operating segment (December 31, 2019: €2 million).

Goodwill is regularly tested for possible impairment in the last quarter of the financial year. If there are any indications of possible impairment, more frequent impairment tests are also carried out. In an impairment test, the carrying amount of the goodwill-bearing units is compared with the relevant recoverable amount. The carrying amount is equivalent to the equity attributable to the goodwill-bearing entity. For the purposes of the test, the goodwill is notionally increased by the amount attributable to non-controlling interests. If the recoverable amount exceeds the carrying amount, no impairment of the goodwill is recognized. The recoverable amount is determined as the value in use of the goodwill-bearing entity. Value in use is based on the DZ BANK Group's 4-year plan, from which estimated future cash flows can be derived.

The basic assumptions are determined using an overall assessment based on past experience, current market and economic conditions, and estimates of future market trends. The macroeconomic scenario used as the basis for the 4-year plan assumes that the COVID-19-related lockdown in Germany has a severe adverse impact on the economy as a whole. Overall, the negative effects in other eurozone countries will be slightly more pronounced than in Germany because Italy and Spain are hardest hit by the recession. In the United States, the macroeconomic effects are even greater than in the eurozone. A recovery is expected to begin in 2021. The scenario also assumes that both the euro area and the US dollar area will initially be hit by rising inflation, although the ECB's target for the euro area of 2.0 percent is unlikely to be exceeded for very long. The US inflation rate will temporarily rise above the 2.0 percent mark but will not accelerate any further. The ECB is expected to adjust key interest rates only in the medium term, with the US central bank following suit a little later. The scenario anticipates a narrowing of spreads on government bonds issued by the peripheral countries of the eurozone, with the exception of Italy.

Cash flows beyond the end of the 4-year period were estimated using a constant rate of growth of 0.75 percent (2019: 0.75 percent) for the following operating segments: UMH subgroup and TeamBank. The value in use for a goodwill-bearing entity is produced by discounting these cash flows back to the date of the impairment test. The discount rate (before taxes) used for the UMH subgroup operating segment in 2020, which was determined on the basis of the capital asset pricing model, was 13.53 percent (2019: 13.09 percent). A discount rate (before taxes) of 14.10 percent was used for the TeamBank operating segment (2019: 13.09 percent).

Sensitivity analyses are also carried out in which parameters relevant to the calculation of value in use are modified within a plausible range of values. The parameters that are particularly relevant to the DZ BANK Group are the forecast cash flows and the discount rates. No impairment requirement would result in the UMH subgroup in any of the scenarios. There would be an impairment requirement for the TeamBank operating segment if the forecast cash flows fell by more than 3.98 percent or the discount rates rose by more than 0.31 percent.

>> 92 Leases

DZ BANK Group as lessor

The underlying assets in leases in which the DZ BANK Group is the lessor can be subdivided into the following classes: land and buildings, office furniture and equipment, and intangible assets.

For the most part, the land and buildings asset class consists of commercial real estate, including parking areas. A smaller proportion is accounted for by residential real estate. Lease assets in the office furniture and equipment asset class are motor vehicles and, in a small volume, aircraft and ships. Medical technology devices as well as IT and office equipment are also leased out. In addition, production machinery and photovoltaic installations account for a significant proportion of this asset class. Software is the most significant item under intangible assets.

Finance leases

Within the DZ BANK Group, the VR Smart Finanz subgroup is active as a lessor. The companies in the VR Smart Finanz subgroup enter into leases with customers for production machinery and photovoltaic installations. Medical technology devices, vehicles, and software are leased in addition to office equipment. Some of the leases include purchase, extension, or termination options; they have terms of 1 to 21 years for office furniture and equipment, and 2 to 7 years for intangible assets.

In addition to the actual underlying assets financed by the leases, further items of collateral such as guarantees, repurchase agreements, and residual value guarantees are contractually agreed in order to reduce the risk. Lease assets are also monitored, for example by means of on-site inspections.

€ million	Dec. 31, 2020	Dec. 31, 2019
Gross investment	**1,154**	**1,641**
Up to 1 year	431	576
More than 1 year and up to 2 years	308	420
More than 2 years and up to 3 years	195	295
More than 3 years and up to 4 years	110	177
More than 4 years and up to 5 years	53	91
More than 5 years	57	82
less unearned finance income	**-58**	**-94**
Net investment	1,096	1,547
less present value of unguaranteed residual values	**-30**	**-9**
Present value of minimum lease payment receivables	**1,066**	**1,538**

The change in the present value of the minimum lease payment receivables was largely attributable to expiring finance leases and partial repayments at the request of customers.

Only an immaterial volume of gains on disposals were recognized in 2020. In 2019, losses on disposal had amounted to €1 million. They are reported together with the financial income derived from the net investment in the lease under interest income in note 34.

Operating leases

Leases are in place for commercial and residential real estate, including parking areas. The leases normally include extension options. A small number of leases are also entered into for office furniture and equipment.

The following table shows a breakdown by asset class of the carrying amounts of the underlying assets in the leases, comprising investment property and items of property, plant and equipment, as at the reporting date:

€ million	Dec. 31, 2020	Dec. 31, 2019
Land and buildings	3,790	3,574[1]
Office furniture and equipment	8	25
Total	**3,798**	**3,599**

1 Amount changed (see note 2).

Income from operating leases amounted to €275 million in the financial year (2019: €273 million), the bulk of which comprised rental income from investment property held by the insurance companies.

As at the reporting date, the breakdown of the total amount of minimum lease payments expected to be received from operating leases in the future was as follows:

€ million	Dec. 31, 2020	Dec. 31, 2019
Total future minimum lease payments under non-cancelable leases	**1,099**	**1,001**
Up to 1 year	241	173
More than 1 year and up to 2 years	141	135
More than 2 years and up to 3 years	123	118
More than 3 years and up to 4 years	108	108
More than 4 years and up to 5 years	96	96
More than 5 years	390	371

DZ BANK Group as lessee

The underlying assets in leases in which the DZ BANK Group is the lessee can be subdivided into the following classes: land and buildings, and office furniture and equipment.

Leases involving the land and buildings asset class in which the DZ BANK Group is the lessee relate to the leasing of offices and business premises (including parking) for the group’s own business operations. Some of these leases include extension and termination options. The lease terms are up to 20 years. There are also a small

number of leases for office furniture and equipment. These include leases for motor vehicles and workplace equipment. The lease terms are up to 5 years.

Rights to use underlying assets in leases are included under property, plant and equipment, investment property, and right-of-use assets, and under other assets. The following table shows the changes in the carrying amounts of the right-of-use assets, broken down by class of underlying asset:

€ million	Land and buildings	Office furniture and equipment
Carrying amounts as at Jan. 1, 2019	336	32
Additions	42	9
Revaluation	3	-
Depreciation	-70	-14
Impairment losses	-2	-
Disposals	-2	-
Carrying amounts as at Dec. 31, 2019	307	27
Additions	208	24
Revaluation	41	-
Depreciation	-75	-17
Disposals	-18	-3
Changes attributable to currency translation	-1	-
Changes in scope of consolidation	19	-
Carrying amounts as at Dec. 31, 2020	**481**	**31**

Lease liabilities of €522 million were recognized under other liabilities and insurance companies' other liabilities (December 31, 2019: €342 million).

The interest expense for lease liabilities is disclosed in notes 34 and 41.

The following table shows a breakdown of the contractual maturities for lease liabilities:

€ million	**Dec. 31, 2020**	Dec. 31, 2019
Up to 1 year	80	74
More than 1 year and up to 3 years	133	115
More than 3 years and up to 5 years	115	76
More than 5 years	215	96

The total cash outflows for lease liabilities in 2020 amounted to €129 million (2019: €119 million).

The following income and expenses have been recognized in the income statement for rights to use underlying assets in leases:

€ million	2020	2019
Expenses relating to short-term leases	-5	-11
Expenses relating to leases for low-value assets	-18	-16
Expenses relating to variable lease payments not included in the lease liability	-5	-5
Income from subleasing right-of-use assets	10	9
Gains and losses on sale and leaseback transactions	4	-

The expenses relating to short-term leases relate primarily to leases for motor vehicles and other mobile assets, such as bicycles for employees, as well as real estate with lease terms between 2 and 12 months. Expenses relating to leases for low-value assets mainly relate to the office furniture and equipment asset class.

As at the reporting date, there were no lease commitments (December 31, 2019: commitments of €1 million) for short-term leases that are not included in the portfolio of short-term leases to which the disclosed expense from short-term leases relates.

The lease commitments could give rise to potential future cash outflows as a result of variable lease payments, extension or termination options, or residual value guarantees. These potential cash outflows have not been included in the measurement of the lease liability because, under current assessments, it is not possible to determine with a sufficient degree of reliability whether, and to what extent, the variable components will materialize or will be used. Within the DZ BANK Group, there are variable lease payments of this nature in connection with utilities related to real estate leases. The entities in the DZ BANK Group estimate that variable lease payments, extension options, and termination rights contractually provided for in leases could give rise to future cash outflows of €392 million (2019: €342 million).

As at the reporting date, there were also future commitments amounting to €189 million (2019: €270 million) arising from leases that had been signed by the entities in the DZ BANK Group but that had not yet commenced. Most of these leases are real estate leases for offices and ATM sites, for example.

In 2020, a sale-and-leaseback transaction was entered into for offices and business premises. The term of the sale-and-leaseback transaction is 10.5 years and the contract includes an extension option.

Taking account of the contractual term, the incremental borrowing rate of interest is mainly determined on the basis of observable risk-free yield curves, supplemented by liquidity spreads, credit spreads and, if applicable, a currency markup. The term to maturity of the lease liabilities is based on the initial contractual term of the lease. If leases contain termination or extension options, the probability of these options being exercised is assessed using objective criteria or on the basis of expert opinion.

>> 93 Disclosures on revenue from contracts with customers

Effects in the income statement

Disclosures on revenue from contracts with customers, broken down by operating segment

2020

€ million	BSH	R+V	TeamBank	
Income type				
Fee and commission income from securities business	-	-	-	
Fee and commission income from asset management	-	-	-	
Fee and commission income from payments processing including card processing	-	-	-	
Fee and commission income from lending business and trust activities	-	-	4	
Fee and commission income from financial guarantee contracts and loan commitments	-	-	-	
Fee and commission income from international business	-	-	-	
Fee and commission income from building society operations	39	-	-	
Other fee and commission income	64	-	116	
Fee and commission income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	39	-	
Other income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	65	-	
Other operating income	-	-	10	
Total	**103**	**104**	**130**	
Main geographical markets				
Germany	94	104	130	
Rest of Europe	9	-	-	
Rest of World	-	-	-	
Total	**103**	**104**	**130**	
Type of revenue recognition				
At a point in time	103	2	130	
Over a period of time	-	102	-	
Total	**103**	**104**	**130**	

	UMH	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	Other/ Consolidation	**Total**
	2,768	427	-	194	-	-	-83	3,306
	12	-	-	280	-	-	-5	287
	-	232	-	1	-	1	47	281
	-	69	8	-	-	22	22	125
	-	54	8	-	-	2	-4	60
	-	12	-	-	-	-	-	12
	-	-	-	-	-	-	-	39
	-	55	-	3	15	3	-108	148
	-	-	-	-	-	-	-	39
	-	-	-	-	-	-	-	65
	8	-	-	-	-	-	34	52
	2,788	**849**	**16**	**478**	**15**	**28**	**-97**	**4,414**
	2,147	849	16	143	15	3	-111	3,390
	641	-	-	333	-	23	14	1,020
	-	-	-	2	-	2	-	4
	2,788	**849**	**16**	**478**	**15**	**28**	**-97**	**4,414**
	448	306	12	186	15	5	-262	945
	2,340	543	4	292	-	23	165	3,469
	2,788	**849**	**16**	**478**	**15**	**28**	**-97**	**4,414**

2019

€ million	BSH	R+V	TeamBank	
Income type				
Fee and commission income from securities business	-	-	-	
Fee and commission income from asset management	-	-	-	
Fee and commission income from payments processing including card processing	-	-	-	
Fee and commission income from lending business and trust activities	-	-	4	
Fee and commission income from financial guarantee contracts and loan commitments	-	-	-	
Fee and commission income from international business	-	-	-	
Fee and commission income from building society operations	34	-	-	
Other fee and commission income	60	-	136	
Fee and commission income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	64	-	
Other income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	67	-	
Other operating income	-	-	12	
Total	**94**	**131**	**152**	
Main geographical markets				
Germany	84	131	152	
Rest of Europe	10	-	-	
Rest of World	-	-	-	
Total	**94**	**131**	**152**	
Type of revenue recognition				
At a point in time	94	22	152	
Over a period of time	-	109	-	
Total	**94**	**131**	**152**	

	UMH	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	Other/ Consolidation	**Total**
	2,614	350	-	166	-	-	-79	3,051
	15	-	-	241	-	-	-5	251
	-	230	-	1	-	1	55	287
	-	67	7	-	-	45	26	149
	-	52	7	-	-	2	-3	58
	-	10	-	-	-	-	-	10
	-	-	-	-	-	-	-	34
	-	60	1	21	27	5	-118	192
	-	-	-	-	-	-	-	64
	-	-	-	-	-	-	-	67
	6	-	-	-	-	-	14	32
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**
	2,054	769	15	134	27	6	-122	3,250
	581	-	-	293	-	32	12	928
	-	-	-	2	-	15	-	17
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**
	429	277	11	175	27	7	-230	964
	2,206	492	4	254	-	46	120	3,231
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**

In the financial year, the DZ BANK Group recognized revenue from contracts with customers in an amount of €4 million that had been included in contract liabilities at the beginning of the year (2019: €24 million).

Effects on the balance sheet

Receivables, contract assets, and contract liabilities

Receivables from contracts with customers in which the recognized income is not subject to calculation using the effective interest method are accounted for in application of the rules in IFRS 15. Contract assets and contract liabilities are also recognized as a result of circumstances in which the fulfilment of the counter-performance is conditional on something other than the passage of time.

As at the reporting date, contract liabilities amounted to €3 million (December 31, 2019: €19 million). These arose from the service business.

Changes in receivables, contract assets, and contract liabilities from contracts with customers

€ million	Loans and advances to banks	Loans and advances to customers	Other receivables (other assets)	Contract liabilities
Balance as at Jan. 1, 2019	5	109	139	38
Additions	42	438	2,253	5
Derecognitions	-43	-410	-2,224	-24
Balance as at Dec. 31, 2019	4	137	168	19
Additions	48	427	2,358	3
Derecognitions	-46	-453	-2,349	-19
Other	-	1	1	-
Balance as at Dec. 31, 2020	**6**	**112**	**178**	**3**

Other disclosures on revenue from contracts with customers

Performance obligations

Performance obligations are satisfied predominantly over a period of time. Within any year, performance obligations over time are billed mainly on a monthly or quarterly basis. Performance obligations related to a point in time are satisfied when the service in question has been performed. The related fees are normally due after the service has been provided. In the property development business, the performance obligation is satisfied gradually with the completion of the individual stages of construction. The consideration does not vary for the most part.

If advance payments are received, this leads to the recognition of contract liabilities, which are then reversed again over the maturity of the contract.

>> 94 Government grants

The ECB made additional liquidity available under the TLTRO III program in order to support lending to households and companies during the COVID-19 pandemic. The DZ BANK Group participated in the program with a total drawdown amount of €17,837 million. Of this sum, €14,837 million was attributable to the joint bidder group of DZ BANK AG and TeamBank and €3,000 million to DZ HYP. The total volume of €17,837 million was recognized under deposits from banks on the balance sheet. The term for each tranche is a maximum of 3 years. Early, voluntary partial or full repayment is possible at quarterly intervals from 12 months after disbursement, but not before September 2021.

In accordance with the rules of the TLTRO III program, the interest on the liquidity provided depends on the net lending volume in the specified comparative periods. The interest rate in the reporting-relevant months of 2020 was in any case minus 0.5 percent and was recognized pro rata in net interest income in an amount of €41 million. In the best case, a 0.5 percentage point lower interest rate is achievable in the period June 24, 2020 to June 23, 2021 if the net lending volume of the eligible loans (loans to the non-financial sector in the eurozone, excluding consumer home finance) remains at least constant in the period March 1, 2020 to March 31, 2021. Provided this condition is met, the interest rate will be minus 1.0 percent. In accordance with the ECB's decision on December 10, 2020, the more favorable funding conditions will also apply in the period June 24, 2021 to June 23, 2022 if the net lending volume in respect of the eligible loans remains at least constant in the period October 1, 2020 to December 31, 2021. The possible interest-rate advantage is thus 0.5 percentage points below the market interest rate for the DZ BANK Group and will therefore be accounted for as a government grant in accordance with IAS 20. Under IAS 20, however, it cannot be recognized until there is reasonable assurance that the DZ BANK Group will comply with the condition attaching to it regarding the net lending volume. Based on the information available at the reporting date, there was not reasonable assurance that the joint bidder group of DZ BANK AG and TeamBank met the aforementioned condition for recognition as a government grant. Consequently, the government grants were not recognized for these entities in 2020. By contrast, there is reasonable assurance that DZ HYP meets the condition. The interest-rate advantage will therefore be deferred and recognized over the term of the loan. As a result, an additional €8 million was recognized as a government grant in net interest income in 2020.

Government grants of €17 million were deducted from the carrying amount of investment property held by insurance companies (December 31, 2019: €18 million). The grants are non-interest-bearing, low-interest or forgivable loans.

>> 95 Letters of comfort

Except in the event of political risk, DZ BANK has undertaken to ensure, in proportion to its shareholding for the consolidated entity DZ PRIVATBANK S.A., and in total for DZ HYP, that these companies are able to meet their contractual obligations. These entities are identified in the list of DZ BANK Group's shareholdings (note 105) as being covered by a letter of comfort. DZ BANK has also issued subordinated letters of comfort in respect of DZ BANK Capital Funding LLC I, DZ BANK Capital Funding LLC II, and DZ BANK Capital Funding LLC III, all based in Wilmington. In addition, DZ BANK has issued 5 subordinated letters of comfort in respect of DZ BANK Perpetual Funding (Jersey) Limited, St. Helier, Jersey, each relating to different classes of preferred shares.

>> 96 Employees

Average number of employees by employee group:

	2020	2019
Female employees	**14,282**	**14,033**
Full-time employees	8,750	8,588
Part-time employees	5,532	5,445
Male employees	**17,128**	**16,792**
Full-time employees	15,962	15,707
Part-time employees	1,166	1,085
Total	**31,410**	**30,825**

>> 97 Auditor fees

The total fees charged for 2020 by the independent auditors of the consolidated financial statements, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, broken down by type of service are as follows:

€ million	2020	2019
Auditing services	12.3	12.2
Other attestation services	0.8	1.0
Tax consultancy services	0.6	0.2
Other services	0.6	1.9
Total	**14.3**	**15.3**

The fees for auditing services comprise expenses relating to the audit of the consolidated financial statements and group management report of DZ BANK as well as the audits of the annual financial statements and management reports of DZ BANK and consolidated subsidiaries carried out by the auditors of the consolidated financial statements. The fees for auditing services also comprise expenses relating to the review by the auditor of the condensed interim consolidated financial statements and interim group management report. The fees for other attestation services comprise the fees charged for the audit in accordance with section 89 of the German Securities Trading Act (WpHG) and services for which the auditors' professional seal must or can be applied. The fees for other services resulted from the auditing of funds of UMH and from consulting services.

>> 98 Remuneration for the Board of Managing Directors and Supervisory Board of DZ BANK

In 2020, overall remuneration for DZ BANK's Board of Managing Directors from the group in accordance with IAS 24.17 amounted to €14.1 million (2019: €12.9 million). This total is broken down into short-term employee benefits of €8.8 million (2019: €8.4 million), post-employment benefits of €3.6 million (2019: €2.9 million), and share-based payments of €1.7 million (2019: €1.6 million). The remuneration for the Board of Managing Directors in 2020 and 2019 included the total bonus awarded to the Board of Managing Directors for the year in question. Supervisory Board remuneration amounted to €1.1 million (2019: €1.1 million) and consisted of payments due in the short term.

The remuneration for the Board of Managing Directors included contributions of €0.3 million (2019: €0.3 million) to defined contribution pension plans. DZ BANK has defined benefit obligations for the members of the Board of Managing Directors amounting to €38.2 million (December 31, 2019: €35.6 million).

In 2020, the total remuneration for the Board of Managing Directors of DZ BANK for the performance of their duties in DZ BANK and its subsidiaries pursuant to section 314 (1) no. 6a HGB was €10.7 million (2019: €10.2 million), while the total remuneration for the Supervisory Board for the performance of these duties amounted to €1.1 million (2019: €1.1 million).

The total remuneration paid to former members of the Board of Managing Directors or their surviving dependants pursuant to section 314 (1) no. 6b HGB amounted to €9.9 million in 2020 (2019: €10.2 million). DZ BANK has defined benefit obligations for former members of the Board of Managing Directors or their surviving dependants amounting to €176.4 million (2019: €181.4 million).

>> 99 Share-based payment transactions

The entities in the DZ BANK Group have entered into share-based payment agreements with the members of the Board of Managing Directors and with certain other salaried employees.

BSH has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors, the managing directors of Schwäbisch Hall Kreditservice GmbH, the heads of division, and a group of selected managers (risk takers). The amount of variable remuneration depends on the achievement of agreed targets. All of the targets are measured over a period of several years and include the main targets in the corporate strategy. The parameters factored into the remuneration are management-related KPIs that are important to a building society. If the variable remuneration amounts to €50,000 or more, 20 percent of it is paid immediately in the following year and 20 percent after a one-year retention period. 60 percent of the bonus is deferred over a period of up to 5 years, with each payment made after a subsequent retention period of one year. All amounts earmarked for deferred payment are pegged to the change in the enterprise value of the building society. The enterprise value is determined each year by means of a business valuation. If the enterprise value falls, then the retained variable remuneration components are reduced according to specified bands. A rise in the value does not lead to an increase in the deferred remuneration. Negative contributions to profits are taken into account when setting bonuses and pro-rata deferrals and at the end of the retention period, which may cause the variable remuneration to be reduced or not be paid.

The following table shows the changes in unpaid remuneration components at BSH:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2019	1.7	0.5
Remuneration granted	0.7	0.1
Payment of remuneration granted in 2018	-0.2	-0.1
Payment of remuneration granted in previous years	-0.5	-0.1
Unpaid share-based payments as at Dec. 31, 2019	1.7	0.4
Remuneration granted	0.7	0.1
Payment of remuneration granted in 2019	-0.2	-
Payment of remuneration granted in previous years	-0.5	-0.2
Unpaid share-based payments as at Dec. 31, 2020	**1.7**	**0.3**

R+V has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors and a group of selected salaried employees (risk takers). The amount of variable remuneration depends on the achievement of agreed targets. A proportion of 60 percent of the variable remuneration for members of the Board of Managing Directors, and 40 percent of that for the selected salaried employees, depends on the change in value of the shares in R+V Versicherung AG. In these arrangements, the share value equates to the fair market value of the unlisted shares in R+V Versicherung AG as at December 31 of the year in question. The portion of the bonus subject to payout restrictions will be paid out after 3 years without any reduction if the share value equates to more than 85 percent of the value at the end of the baseline year. If the share value is between 75 percent and 85 percent of this figure, the bonus portion subject to payout restrictions is reduced by half. If the share value falls below 75 percent, payment of the part of the bonus subject to payout restrictions is canceled in full.

The following table shows the changes in unpaid remuneration components at R+V:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2019	1.3	0.2
Remuneration granted	0.8	0.1
Unpaid share-based payments as at Dec. 31, 2019	2.1	0.3
Remuneration granted	0.9	0.1
Payment of remuneration granted in previous years	-0.6	-0.1
Unpaid share-based payments as at Dec. 31, 2020	**2.4**	**0.3**

TeamBank has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors. The amount of variable remuneration depends on the achievement of agreed targets. 20 percent of the variable remuneration is paid immediately in the following year after it has been set. Another 20 percent is subject to a retention period of one calendar year. 50 percent of both tranches depends on the long-term changes in the enterprise value of TeamBank. The remaining 60 percent is paid in 5 tranches, each of 12 percent, within 5 calendar years. The change in the enterprise value of TeamBank is used to measure long-term performance. The value is determined using the income capitalization approach.

The following table shows the changes in unpaid remuneration components at TeamBank:

€ million	Board of Managing Directors
Unpaid share-based payments as at Jan. 1, 2019	1.3
Remuneration granted	0.5
Payment of remuneration granted in 2018	-0.1
Payment of remuneration granted in previous years	-0.3
Unpaid share-based payments as at Dec. 31, 2019	1.4
Remuneration granted	0.4
Payment of remuneration granted in 2019	-0.1
Payment of remuneration granted in previous years	-0.4
Unpaid share-based payments as at Dec. 31, 2020	**1.3**

DZ BANK has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors, heads of division, and a group of selected salaried employees (risk takers). The amount of variable remuneration depends on the achievement of agreed targets. In the case of members of the Board of Managing Directors and heads of division, 80 percent of the total variable remuneration is deferred over a period of up to 6 years from when the bonus is determined. For risk takers below the level of head of division with variable remuneration of more than €130,000, 80 percent of the total variable remuneration is deferred over a period of up to 4 years from when the bonus is determined. For risk takers below the level of head of division with variable remuneration of more than €50,000 and up to €130,000, 70 percent of the total variable remuneration is deferred over a period of up to 4 years from when the bonus is determined. Amounts are paid out after taking into account deferral or retention periods. The deferred portion of the variable remuneration may be reduced or even fully withdrawn if there is an adverse change in the value of DZ BANK shares or if there are negative contributions to profits from DZ BANK, individual divisions, or individual activities. A rise in the value of DZ BANK shares does not lead to an increase in the deferred remuneration. The value of the shares is determined each year by means of an independent business valuation. The deferred portion of the variable remuneration for members of the Board of Managing Directors is reduced by 50 percent if the share price falls by between 7.5 percent and 12.5 percent. If the share price drops by more than 12.5 percent, the deferred portion of the variable remuneration is canceled. In the case of heads of division and risk takers below the level of head of division, the deferred portion of the variable remuneration is reduced by 25 percent if the share price falls by between 15 percent and 20 percent. If the share price drops by between 20 percent and 25 percent, the deferred portion of the variable remuneration is reduced by 50 percent. If the share price drops by more than 25 percent, the deferred portion of the variable remuneration is canceled in full. If the change in the share price does not reach the specified threshold values, the deferred portion of the variable remuneration is not reduced as a result of the change in the share price. Based on a value per DZ BANK share of €9.15 as at December 31, 2016, a value per share of €8.65 as at December 31, 2017 (adjusted share value following the merger), a value per share of €8.65 as at December 31, 2018, a value per share of €8.35 as at December 31, 2019, and a value per share of €8.05 as at December 31, 2020, it can currently be assumed that the deferred remuneration will be paid in full. No options have been granted for these groups of employees. Share-based payments are granted in the year after they have been earned.

The following summary shows the change in unpaid share-based payment components at DZ BANK:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2019	3.2	20.5
Remuneration granted	1.5	6.1
Payment of remuneration granted in 2018	-0.5	-3.5
Payment of remuneration granted in previous years	-1.3	-4.6
Unpaid share-based payments as at Dec. 31, 2019	2.9	18.5
Remuneration granted	1.6	5.8
Payment of remuneration granted in 2019	-0.4	-2.2
Payment of remuneration granted in previous years	-1.3	-5.3
Unpaid share-based payments as at Dec. 31, 2020	**2.8**	**16.8**

DZ HYP has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors and a group of selected salaried employees (risk takers). The level of variable performance-based remuneration is based on the achievement of quantitative and qualitative targets derived from the corporate strategy in the form of group, bank, area of board responsibility, and individual targets. 20 percent of the variable remuneration is paid immediately in the following year after the annual financial

statements have been adopted and the variable remuneration has been set by the Supervisory Board. Payment of the remaining 80 percent of the bonus set for the previous year is spread out over a period of up to 6 years in total, taking into account deferral and retention periods. All amounts earmarked for deferred payment are linked to the long-term performance of DZ HYP because they are pegged to the value of its shares. Negative contributions to profits are taken into account when setting bonuses and pro-rata deferrals, which may cause the variable remuneration to be reduced or cancelled.

The heads of division are classified as risk takers. Individual contractual agreements on variable performance-based remuneration have been reached with the heads of division. The variable performance-based remuneration is set with reference to a contractually agreed target bonus. Quantitative and qualitative targets derived from the corporate strategy in the form of group, overall bank, divisional, and individual targets are assessed and used to determine the actual bonus level. If the variable performance-based remuneration amounts to €50,000 or more, 20 percent of it is paid immediately in the following year. The other 80 percent of the calculated bonus is deferred over a period of up to 6 years. Of this deferred amount, 50 percent is pegged to the long-term performance of DZ HYP, which is calculated on the basis of the enterprise value. Negative contributions to profits are taken into account when setting bonuses and pro-rata deferrals.

The following table shows the changes in unpaid remuneration components at DZ HYP:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2019	1.1	0.4
Remuneration granted	0.6	0.2
Payment of remuneration granted in 2018	-0.2	-
Payment of remuneration granted in previous years	-0.3	-0.1
Unpaid share-based payments as at Dec. 31, 2019	1.2	0.5
Remuneration granted	0.4	0.2
Payment of remuneration granted in 2019	-0.2	-0.1
Payment of remuneration granted in previous years	-0.3	-0.1
Unpaid share-based payments as at Dec. 31, 2020	**1.1**	**0.5**

DZ PRIVATBANK has entered into an agreement on variable remuneration components with the members of its Board of Managing Directors. The level of variable remuneration is based on quantitative and qualitative targets derived from the corporate strategy in the form of group, bank, area of board responsibility, and individual targets. The variable remuneration is paid out over 6 years. The initial payout amount of 20 percent is paid out immediately after the variable remuneration amount has been set. A further 20 percent is subject to a retention period of one year. The remaining 60 percent is spread out over a period of 5 years. To this end, the retained component is subdivided into 5 equal portions. All deferred payouts are linked to the long-term change in the enterprise value of DZ PRIVATBANK. The enterprise value is determined each year by means of an independent business valuation. If the enterprise value falls, then the retained variable remuneration components are reduced according to specified bands.

The following table shows the changes in unpaid remuneration components at DZ PRIVATBANK:

€ million	Board of Managing Directors
Unpaid share-based payments as at Jan. 1, 2019	2.7
Remuneration granted	0.4
Payment of remuneration granted in 2018	-0.1
Payment of remuneration granted in previous years	-0.4
Reduction of share-based payments	-0.9
Unpaid share-based payments as at Dec. 31, 2019	1.7
Remuneration granted	0.4
Payment of remuneration granted in 2019	-0.1
Payment of remuneration granted in previous years	-0.3
Reduction of share-based payments	-0.1
Unpaid share-based payments as at Dec. 31, 2020	**1.6**

In addition to a basic salary, the remuneration system for the Board of Managing Directors of VR Smart Finanz includes a variable remuneration component. It is determined on the basis of quantitative and qualitative targets derived from the corporate strategy in the form of group, bank, area of board responsibility, and individual targets. A three-year period is applied as the basis for calculating target achievement. The maximum variable remuneration is set in the event of full achievement of each individual target. All amounts earmarked for deferred payment are linked to the long-term performance of VR Smart Finanz because they are pegged to its enterprise value. Negative contributions to profits are taken into account when setting the amount of variable remuneration and pro-rata deferrals, which may cause the variable remuneration to be reduced or cancelled.

The following table shows the changes in unpaid remuneration components at VR Smart Finanz:

€ million	Board of Managing Directors
Unpaid share-based payments as at Jan. 1, 2019	1.8
Remuneration granted	0.7
Payment of remuneration granted in 2018	-0.1
Payment of remuneration granted in previous years	-0.5
Unpaid share-based payments as at Dec. 31, 2019	1.9
Remuneration granted	0.3
Payment of remuneration granted in 2019	-0.1
Payment of remuneration granted in previous years	-0.5
Reduction of share-based payments	-0.1
Unpaid share-based payments as at Dec. 31, 2020	**1.5**

In 2020, the agreements described above gave rise to expenses for share-based payment transactions in the DZ BANK Group of €10.9 million (2019: €13.6 million (amount restated; see note 2)). As at December 31, 2020, the provisions recognized for share-based payment transactions in the DZ BANK Group amounted to €49.3 million (December 31, 2019: €51.9 million (amount restated; see note 2)).

>> 100 Related party disclosures

DZ BANK enters into transactions with related parties (persons or entities) as part of its ordinary business activities. All of this business is transacted on an arm's length basis. Most of these transactions involve typical banking products and financial services.

Transactions with related parties (entities)

€ million	Dec. 31, 2020	Dec. 31, 2019
Loans and advances to banks	**60**	**34**
to joint ventures	60	34
Loans and advances to customers	**193**	**126**
to subsidiaries	47	41
to joint ventures	9	12
to associates	81	73
to other related parties (entities)	56	-
Investments	**5**	**5**
of joint ventures	5	5
Investments held by insurance companies	**104**	**98**
of subsidiaries	104	98
Property, plant and equipment, and investment property	**1**	**-**
of subsidiaries	1	-
Other assets	**78**	**43**
of subsidiaries	26	27
of pension plans for the benefit of employees	52	16
Deposits from banks	**169**	**166**
owed to joint ventures	169	166
Deposits from customers	**203**	**232**
owed to subsidiaries	161	230
owed to associates	4	2
owed to other related parties (entities)	38	-
Financial liabilities held for trading	**7**	**-**
of other related parties (entities)	7	-
Other liabilities	**17**	**18**
of subsidiaries	10	10
of joint ventures	2	3
of pension plans for the benefit of employees	5	5
Subordinated capital	**19**	**22**
of pension plans for the benefit of employees	18	22
of other related parties (entities)	1	-

€ million	Dec. 31, 2020	Dec. 31, 2019
Financial guarantee contracts	**7**	**6**
for subsidiaries	7	6
Loan commitments	**58**	**322**
to subsidiaries	46	54
to joint ventures	10	266
to associates	2	2

Income of €10 million (2019: income of €8 million) in the total reported net interest income, expenses of €3 million (2019: income of €22 million) in the total reported net fee and commission income, and expenses of €28 million (2019: expenses of €35 million) in the total reported net income from insurance business were attributable to transactions with related parties (entities).

Transactions with related parties (persons)

Related parties (persons) are key management personnel who are directly or indirectly responsible for the planning, management, and supervision of the activities of DZ BANK, as well as their close family members. For the purposes of IAS 24, the DZ BANK Group considers the members of the Board of Managing Directors and the members of the Supervisory Board to be key management personnel. As at December 31, 2020, the DZ BANK Group's loans and loan commitments to related parties (persons) amounted to €0.7 million (December 31, 2019: €0.8 million).

Like unrelated parties, key management personnel and their close family members also have the option of obtaining further financial services from the DZ BANK Group, for example in the form of insurance contracts, home savings contracts, and leases. Where they made use of this option, the transactions were carried out on an arm's-length basis.

>> 101 Events after the balance sheet date

In a press release dated January 12, 2021, it was announced that, in the first half of 2021, DZ BANK intends to call and fully repay the bonds issued by DZ BANK Perpetual Funding Issuer (Jersey) Limited. Also in a press release dated January 12, 2021, it was announced that, in the first half of 2021, DZ BANK intends to call and fully repay the non-cumulative trust preferred securities issued by DZ BANK Capital Funding Trust I, DZ BANK Capital Funding Trust II, and DZ BANK Capital Funding Trust III. The carrying amount of the securities to be called is €1,410 million.

As a result of their being called, the securities no longer fulfill the definition of an equity instrument. From this date, the securities can no longer be reported under non-controlling interests within equity. Instead, they have to be reclassified to liabilities until the date on which they are repaid. On the date on which the issued bonds and issued non-cumulative trust preferred securities are repaid in full in the first half of 2021, the aforementioned companies and the associated companies DZ BANK Capital Funding LLC I, DZ BANK Capital Funding LLC II, and DZ BANK Capital Funding LLC III, all Wilmington, Delaware, and DZ BANK Perpetual Funding (Jersey) Limited, St. Helier, Jersey, will be deconsolidated.

>> 102 Board of Managing Directors

Uwe Fröhlich
(Co-Chief Executive Officer)
Responsibilities: Cooperative Banks/Verbund; Communications & Marketing; Research and Economics; Strategy & Group Development; Structured Finance

Dr. Cornelius Riese
(Co-Chief Executive Officer)
Responsibilities: Group Audit; Legal; Strategy & Group Development

Uwe Berghaus
Responsibilities: Corporate Banking Baden-Württemberg; Corporate Banking Bavaria; Corporate Banking North and East; Corporate Banking West/Central; Investment Promotion; Central Corporate Banking

Dr. Christian Brauckmann
Responsibilities: IT; Services & Organisation

Ulrike Brouzi
Responsibilities: Bank Finance; Compliance; Group Finance; Group Financial Services

Wolfgang Köhler
Responsibilities: Capital Markets Trading; Capital Markets Institutional Clients; Capital Markets Retail Clients; Group Treasury

Michael Speth
Responsibilities: Group Risk Controlling; Credit; Credit Services

Thomas Ullrich
Responsibilities: Group Human Resources; Operations; Payments & Accounts; Transaction Management

>> 103 Supervisory Board

Henning Deneke-Jöhrens
(Chairman of the Supervisory Board)
Chief Executive Officer
Volksbank eG Hildesheim-Lehrte-Pattensen

Ulrich Birkenstock
(Deputy Chairman of the Supervisory Board)
Employee
R+V Allgemeine Versicherung AG

Martin Eul
(Deputy Chairman of the Supervisory Board)
Chief Executive Officer
Dortmunder Volksbank eG

Heiner Beckmann
Senior manager
R+V Allgemeine Versicherung AG

Hermann Buerstedde
Employee
Union Asset Management Holding AG
(Member of the Supervisory Board until May 27, 2020)

Uwe Goldstein
Bank director (ret.)
(Member of the Supervisory Board until May 27, 2020)

Timm Häberle
Chief Executive Officer
VR-Bank Neckar-Enz eG

Dr. Peter Hanker
Spokesman of the Board of Managing Directors
Volksbank Mittelhessen eG

Andrea Hartmann
Employee
Bausparkasse Schwäbisch Hall AG

Pilar Herrero Lerma
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Dr. Dierk Hirschel
Head of the Economic Policy Division
ver.di Bundesverwaltung

Marija Kolak
President
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)

Renate Mack
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Rainer Mangels
Employee
R+V Rechtsschutz-
Schadenregulierungs-GmbH

Sascha Monschauer
Chief Executive Officer
Volksbank RheinAhrEifel eG
(Member of the Supervisory Board since May 27, 2020)

Rolf Dieter Pogacar
Employee
R+V Allgemeine Versicherung AG
(Member of the Supervisory Board since May 27, 2020)

Stephan Schack
Chief Executive Officer
Volksbank Raiffeisenbank eG, Itzehoe

Gregor Scheller
Chief Executive Officer
VR Bank Bamberg-Forchheim eG

Uwe Spitzbarth
Departmental coordinator
ver.di Bundesverwaltung

Sigrid Stenzel
Labor union secretary
Social security department
ver.di Niedersachsen-Bremen

Ingo Stockhausen
Chief Executive Officer
Volksbank Oberberg eG

Dr. Wolfgang Thomasberger
Chief Executive Officer
VR Bank Rhein-Neckar eG

>> 104 Supervisory mandates held by members of the Board of Managing Directors and employees

Within DZ BANK

As at December 31, 2020, members of the Board of Managing Directors and employees also held mandates on the statutory supervisory bodies of major companies. These and other notable mandates are listed below. Companies included in the consolidation are indicated with an asterisk (*).

Members of the Board of Managing Directors

Uwe Fröhlich (Co-Chief Executive Officer)	DZ HYP AG, Hamburg and Münster (*) Chairman of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Chairman of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Chairman of the Supervisory Board
Dr. Cornelius Riese (Co-Chief Executive Officer)	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Chairman of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg (*) Chairman of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Chairman of the Supervisory Board
Uwe Berghaus	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	EDEKABANK AG, Hamburg Member of the Supervisory Board

Dr. Christian Brauckmann	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Deputy Chairman of the Supervisory Board
	Fiducia & GAD IT AG, Frankfurt am Main Member of the Supervisory Board
Ulrike Brouzi	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Member of the Supervisory Board
	R+V Allgemeine Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
	Salzgitter AG, Salzgitter Member of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Member of the Supervisory Board
Wolfgang Köhler	DVB Bank SE, Frankfurt am Main (*) Chairman of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
Michael Speth	BAG Bankaktiengesellschaft, Hamm Member of the Supervisory Board
	DVB Bank SE, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board
	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Deputy Chairman of the Supervisory Board

Thomas Ullrich	Deutsche WertpapierService Bank AG, Frankfurt am Main Deputy Chairman of the Supervisory Board TeamBank AG Nürnberg, Nuremberg (*) Deputy Chairman of the Supervisory Board VR Payment GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board

DZ BANK employees

Arnd Volker Bernbeck	DVB Bank SE, Frankfurt am Main (*) Member of the Supervisory Board
Rolf Büscher	DVB Bank SE, Frankfurt am Main (*) Member of the Supervisory Board ReiseBank AG, Frankfurt am Main (*) Member of the Supervisory Board
Johannes Koch	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board (since January 1, 2021)
Winfried Münch	AKA Ausfuhrkredit-Gesellschaft mbH, Frankfurt am Main Member of the Supervisory Board
Claudio Ramsperger	Cassa Centrale Banca – Credito Cooperativo Italiano S.p.A., Trento Member of the Board of Directors
Gregor Roth	ReiseBank AG, Frankfurt am Main (*) Chairman of the Supervisory Board VR Payment GmbH, Frankfurt am Main (*) Member of the Supervisory Board

Peter Tenbohlen	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dr. Ulrich Walter	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dagmar Werner	Banco Cooperativo Español S.A., Madrid Member of the Board of Directors

In the DZ BANK Group

As at December 31, 2020, members of the Boards of Managing Directors and employees also held mandates on the statutory supervisory bodies of the following major companies in Germany. Companies included in the consolidation are indicated with an asterisk (*).

Reinhard Klein Chief Executive Officer Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Kreditservice GmbH, Schwäbisch Hall (*) Chairman of the Supervisory Board
Peter Magel Member of the Board of Managing Directors Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Kreditservice GmbH, Schwäbisch Hall (*) Member of the Supervisory Board
Claudia Klug General Executive Manager Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Facility Management GmbH, Schwäbisch Hall Chairwoman of the Supervisory Board

Dr. Norbert Rollinger Chief Executive Officer R+V Versicherung AG	Condor Lebensversicherungs-AG, Hamburg (*) Chairman of the Supervisory Board
	KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Chairman of the Supervisory Board
	KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Chairman of the Supervisory Board
	Raiffeisendruckerei GmbH, Neuwied Member of the Supervisory Board
	R+V Allgemeine Versicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	R+V Krankenversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	R+V Pensionsfonds AG, Wiesbaden (*) Chairman of the Supervisory Board
	R+V Service Center GmbH, Wiesbaden Chairman of the Supervisory Board
	SECURITAS HOLDING GmbH, Berlin Member of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Member of the Supervisory Board
Claudia Andersch Member of the Board of Managing Directors R+V Versicherung AG	CHEMIE Pensionsfonds AG, Munich (*) Member of the Supervisory Board
	Condor Lebensversicherungs-AG, Hamburg (*) Member of the Supervisory Board
	R+V Pensionsfonds AG, Wiesbaden (*) Deputy Chairwoman of the Supervisory Board
	R+V Pensionskasse AG, Wiesbaden (*) Chairwoman of the Supervisory Board

Jens Hasselbächer Member of the Board of Managing Directors R+V Versicherung AG	R+V Direktversicherung AG, Wiesbaden (*) Deputy Chairman of the Supervisory Board R+V Krankenversicherung AG, Wiesbaden (*) Deputy Chairman of the Supervisory Board
Dr. Christoph Lamby Member of the Board of Managing Directors R+V Versicherung AG	Condor Allgemeine Versicherungs-AG, Hamburg (*) Chairman of the Supervisory Board Extremus Versicherungs-AG, Cologne Member of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Pensionskasse AG, Wiesbaden (*) Member of the Supervisory Board
Tillmann Lukosch Member of the Board of Managing Directors R+V Versicherung AG	Condor Allgemeine Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Direktversicherung AG, Wiesbaden (*) Member of the Supervisory Board
Dr. Edgar Martin Member of the Board of Managing Directors R+V Versicherung AG	GDV Dienstleistungs-GmbH, Hamburg Member of the Supervisory Board R+V Direktversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board Sprint Sanierung GmbH, Cologne (*) Chairman of the Supervisory Board

Julia Merkel Member of the Board of Managing Directors R+V Versicherung AG	KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Pensionskasse AG, Wiesbaden (*) Member of the Supervisory Board Südzucker AG, Mannheim Member of the Supervisory Board
Marc René Michallet Member of the Board of Managing Directors R+V Versicherung AG	CHEMIE Pensionsfonds AG, Munich (*) Member of the Supervisory Board Condor Allgemeine Versicherungs-AG, Hamburg (*) Deputy Chairman of the Supervisory Board Condor Lebensversicherungs-AG, Hamburg (*) Deputy Chairman of the Supervisory Board GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG, Stuttgart (*) Chairman of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Pensionsfonds AG, Wiesbaden (*) Member of the Supervisory Board
Christian Polenz Deputy Chief Executive Officer TeamBank AG Nürnberg	SCHUFA Holding AG, Wiesbaden Chairman of the Supervisory Board

Hans Joachim Reinke Chief Executive Officer Union Asset Management Holding AG	Union Investment Institutional GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board Union Investment Privatfonds GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board Union Investment Real Estate GmbH, Hamburg (*) Deputy Chairman of the Supervisory Board
Alexander Lichtenberg Member of the Board of Managing Directors Union Asset Management Holding AG	Union Investment Service Bank AG, Frankfurt am Main (*) Chairman of the Supervisory Board
Alexander Schindler Member of the Board of Managing Directors Union Asset Management Holding AG	Quoniam Asset Management GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board Union Investment Institutional GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board Union Investment Institutional Property GmbH, Hamburg (*) Deputy Chairman of the Supervisory Board
Jens Wilhelm Member of the Board of Managing Directors Union Asset Management Holding AG	Union Investment Institutional Property GmbH, Hamburg (*) Chairman of the Supervisory Board Union Investment Privatfonds GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board Union Investment Real Estate GmbH, Hamburg (*) Chairman of the Supervisory Board Union Investment Service Bank AG, Hamburg (*) Deputy Chairman of the Supervisory Board
Sonja Albers Employee Union Asset Management Holding AG	Union Investment Service Bank AG, Frankfurt am Main (*) Member of the Supervisory Board

André Haagmann Member of the Board of Managing Directors Union Investment Institutional GmbH	Quoniam Asset Management GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board
Jörn Stobbe Member of the Board of Managing Directors Union Investment Institutional Property GmbH and Union Investment Real Estate GmbH	1. FC Köln GmbH & Co. KGaA, Cologne Chairman of the Supervisory Board
Jörg Kotzenbauer Chief Executive Officer ZBI Partnerschafts-Holding GmbH	ZBI Fondsmanagement AG, Erlangen (*) Chairman of the Supervisory Board
Dr. Bernd Ital Member of the Board of Managing Directors ZBI Partnerschafts-Holding GmbH	ZBI Fondsmanagement AG, Erlangen (*) Member of the Supervisory Board

>> 105 List of shareholdings

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
AER Holding N.V. 1)	Willemstad, Curaçao	100.00		19	-
AGIMA Aktiengesellschaft für Immobilien-Anlage 5)	Frankfurt am Main	100.00		84,025	-
APZ Beteiligungs GmbH 1)	Darmstadt	81.70		2,979	342
APZ CarMotion GmbH 1)	Fischamend, Austria	100.00		-82	-92
APZ GmbH 1)	Darmstadt	100.00		7,135	-
APZ Mobilty GmbH 1)	Darmstadt	100.00		n/a	n/a
Aquila Aircraft Leasing Ltd. 1)	Dublin, Ireland	-		-20	-
Assimoco S.p.A. 1)	Milan, Italy	68.94		239,230	28,280
Assimoco Vita S.p.A. 1)	Milan, Italy	82.14		185,884	18,605
attrax S.A. 1)	Luxembourg, Luxembourg	100.00		58,228	25,188
Aufbau und Handelsgesellschaft mbH 1)	Stuttgart	94.90		525	-
AXICA Kongress- und Tagungszentrum Pariser Platz 3 GmbH 5)	Berlin	100.00		26	-
BankingGuide GmbH	Düsseldorf	60.00		n/a	n/a
Bathgate Trading Opco LLC 1)	Majuro, Marshall Islands	-		1	-
BAUFINEX GmbH 1)	Schwäbisch Hall	70.00		1,856	197
BAUFINEX Service GmbH 1)	Berlin	50.00	75.00	n/a	n/a
Bausparkasse Schwäbisch Hall Aktiengesellschaft - Bausparkasse der Volksbanken und Raiffeisenbanken - 5)	Schwäbisch Hall	97.05		1,812,302	-
Berwick Shipping LLC 1)	Majuro, Marshall Islands	-		-97	-1
Beteiligungsgesellschaft Westend 1 mbH & Co. KG 1)	Frankfurt am Main	94.90		18,169	684
BGP Asset Management GmbH i.L. 1)	Berlin	100.00		n/a	n/a
BGP Hausverwaltung GmbH i.L. 1)	Berlin	100.00		n/a	n/a
BGP Immobilienservice GmbH i.L. 1)	Berlin	100.00		n/a	n/a
Braveheart Shipping Holdco LLC 1)	Majuro, Marshall Islands	-		-	-
Braveheart Shipping Opco LLC 1)	Majuro, Marshall Islands	-		-229	-120
BWG Baugesellschaft Württembergischer Genossenschaften mbH 1)	Stuttgart	94.78		9,965	-
Canadian Iron Ore Railcar Leasing LP 1)	Toronto, Canada	-		-4,928	-2,347
Canadian Iron Ore Railcar Partner Ltd 1)	Toronto, Canada	-		-4,928	-2,347
carexpert Kfz-Sachverständigen GmbH 1)	Walluf	60.00		4,485	14
CHEMIE Pensionsfonds AG 1)	Wiesbaden	100.00		30,318	2,000
Chiefs Aircraft Holding (Malta) Limited 1)	Floriana, Malta	-		2,238	-2,696
CI CONDOR Immobilien GmbH 1)	Hamburg	100.00		20,100	-
compertis Beratungsgesellschaft für betriebliches Vorsorgemanagement mbH 1)	Wiesbaden	100.00		4,724	969
COMPLINA GmbH 1)	Wiesbaden	100.00		140	25
Condor Allgemeine Versicherungs-Aktiengesellschaft 1) 5)	Hamburg	100.00		41,762	-
Condor Dienstleistungs GmbH 1)	Hamburg	100.00		405	49
Condor Lebensversicherungs-Aktiengesellschaft 1)	Hamburg	94.98		51,742	-
Container Investment Fund I LLC 1)	Majuro, Marshall Islands	-		-25,093	765
Cruise Ship InvestCo LLC 1)	Majuro, Marshall Islands	-		-	-
DCAL Aircraft Malta Ltd. 1)	Floriana, Malta	-		17,180	2,181
DEGEKONZEPT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		90	14
Deucalion Capital I (UK) Ltd. 1)	London, UK	-		486	517
Deucalion Capital II (MALTA) Limited 1)	Valletta, Malta	-		1	23
Deucalion Capital II (UK) Ltd. 1)	London, UK	-		-	-
Deucalion Capital II Limited 1)	George Town, Cayman Islands	-		-2,128	-189
Deucalion Capital VI Limited 1)	George Town, Cayman Islands	-		-231	-
Deucalion Capital VIII Limited 1)	George Town, Cayman Islands	-		7,477	-2,964
Deucalion Ltd. 1)	George Town, Cayman Islands	-		29,782	6,168
DEVIF-Fonds Nr. 150 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a
DEVIF-Fonds Nr. 2 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a
DEVIF-Fonds Nr. 250 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a
DEVIF-Fonds Nr. 500 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a
DEVIF-Fonds Nr. 528 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
DEVIF-Fonds Nr. 60 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a
DG Participacoes Ltda. 1)	São Paulo, Brazil	100.00		-	-
Dilax Beteiligungs Verwaltungsgesellschaft mbH 1)	Berlin	100.00		25	-
Dilax Beteiligungsgesellschaft mbH & Co. KG 1)	Berlin	92.39		2,537	-156
Dilax France SAS 1)	Valence, France	100.00		506	174
Dilax Intelcom AG 1)	Ermatingen, Switzerland	100.00		441	137
Dilax Intelcom GmbH 1)	Berlin	72.01		-512	427
Dilax Intelcom Iberica S.L.U. 1)	Madrid, Spain	100.00		317	117
Dilax Management Investment Reserve GmbH 1)	Berlin	100.00		231	-3
Dilax Management Investment Verwaltungsgesellschaft mbH 1)	Berlin	100.00		19	-2
Dilax Management Investmentgesellschaft mbH & Co. KG 1)	Berlin	99.50		186	-9
Dilax Systems Inc. 1)	Saint Lambert, Canada	100.00		720	143
Dilax Systems UK Ltd. 1)	London, UK	100.00		-1,750	-196
DILAX Systems US Inc 1)	Wilmington, USA	100.00		7	2
DVB Bank America N.V. 1)	Willemstad, Curaçao	100.00		111,092	17,100
DVB Bank SE 5)	Frankfurt am Main	100.00		368,199	-
DVB Capital Markets LLC i.L. 1)	New York, USA	100.00		-	-424
DVB Group Merchant Bank (Asia) Ltd. 1)	Singapore, Singapore	100.00		180,009	-7,620
DVB Transport Finance Limited 1)	London, UK	100.00		45,524	553
DVG Deutsche Vermögensverwaltungs-Gesellschaft mit beschränkter Haftung 5)	Frankfurt am Main	100.00		82	-
DZ BANK Capital Funding LLC I 2) 4)	Wilmington, USA	100.00		300,846	6,407
DZ BANK Capital Funding LLC II 2) 4)	Wilmington, USA	100.00		500,584	6,058
DZ BANK Capital Funding LLC III 2) 4)	Wilmington, USA	100.00		350,239	3,796
DZ BANK Capital Funding Trust I	Wilmington, USA	-	100.00	300,001	6,456
DZ BANK Capital Funding Trust II	Wilmington, USA	-	100.00	500,001	6,140
DZ BANK Capital Funding Trust III	Wilmington, USA	-	100.00	350,001	3,840
DZ BANK Perpetual Funding (Jersey) Limited 4)	St. Helier, Jersey	-	100.00	260,300	1,217
DZ BANK Perpetual Funding Issuer (Jersey) Limited	St. Helier, Jersey	-		-	-
DZ BANK Sao Paulo Representacao Ltda. 2)	São Paulo, Brazil	100.00		312	32
DZ Beteiligungsgesellschaft mbH Nr. 11 5)	Frankfurt am Main	100.00		6,620	-
DZ Beteiligungsgesellschaft mbH Nr. 14 5)	Frankfurt am Main	100.00		51	-
DZ Beteiligungsgesellschaft mbH Nr. 18 5)	Frankfurt am Main	100.00		64,726	-
DZ Beteiligungsgesellschaft mbH Nr. 21 5)	Frankfurt am Main	100.00		25	-
DZ Beteiligungsgesellschaft mbH Nr. 22	Frankfurt am Main	100.00		18	-2
DZ Beteiligungsgesellschaft mbH Nr. 23 5)	Frankfurt am Main	100.00		25	-
DZ Beteiligungsgesellschaft mbH Nr. 24	Frankfurt am Main	100.00		18	-2
DZ CompliancePartner GmbH 5)	Neu-Isenburg	100.00		5,548	-
DZ FINANCIAL MARKETS LLC	New York, USA	100.00		3,694	-212
DZ Gesellschaft für Grundstücke und Beteiligungen mbH 5)	Frankfurt am Main	100.00		1,461	-
DZ HYP AG 3) 5)	Hamburg/Münster	96.39		1,762,331	-
DZ Immobilien + Treuhand GmbH 5)	Münster	94.50		4,055	-
DZ PRIVATBANK (Schweiz) AG 1)	Zurich, Switzerland	100.00		164,631	692
DZ PRIVATBANK S.A. 3)	Strassen, Luxembourg	91.69		835,289	29,195
DZ Versicherungsvermittlung Gesellschaft mbH 5)	Frankfurt am Main	100.00		51	-
DZ Vierte Beteiligungsgesellschaft mbH 5)	Frankfurt am Main	100.00		249,687	-
e@syCredit Marketing und Vertriebs GmbH 1)	Nuremberg	100.00		25	-
Englische Strasse 5 GmbH 1)	Wiesbaden	90.00		16,129	469
Evolit Consulting GmbH 1)	Vienna, Austria	100.00		n/a	n/a
FKS-NAVIGIUM GmbH 1)	Eschborn	100.00		-3,167	-2,408
FPAC (Malta) Limited 1)	Floriana, Malta	100.00		3,993	212
fragWILHELM GmbH 1)	Wiesbaden	100.00		206	-1,328
Fundamenta Erteklanc Ingatlanközvetitö es Szolgaltato Kft. 1)	Budapest, Hungary	100.00		-700	-493
Fundamenta-Lakáskassza Lakás-takarékpénztár Zrt. 1)	Budapest, Hungary	51.25		142,735	7,786
Fundamenta-Lakáskassza Pénzügyi Közvetitö Kft. 1)	Budapest, Hungary	100.00		8,353	3,499
GAF Active Life 1 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	96.56		65,354	7,616
GAF Active Life 2 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	95.03		71,393	-4,377

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Gartner, Keil & Co. Klima- und Kältetechnik GmbH 1)	Neulussheim	100.00		n/a	n/a
GENO Broker GmbH 5)	Frankfurt am Main	100.00		10,000	-
GENO-Beteiligungsgesellschaft mbH	Düsseldorf	100.00		1,134	-10
Genossenschaftlicher Informations Service GIS GmbH	Frankfurt am Main	100.00		4,465	89
Glen Campbell Opco LLC 1)	Majuro, Marshall Islands	-		-180	-3
Glencoe Shipping Holdco LLC 1)	Majuro, Marshall Islands	-		-14	-
GMS Development - Gesellschaft für Softwareentwicklung m.b.H 1)	Paderborn	100.00		137	2,755
GMS Holding GmbH 1)	Paderborn	88.89	75.00	15,448	2,455
GMS Management und Service GmbH 1)	Nidderau	100.00		82	32
Günther Kältetechnik GmbH 1)	Plüderhausen	60.00		n/a	n/a
GWG 1. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		2,000	1,076
GWG 2. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		3,000	839
GWG 3. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		7,000	1,504
GWG 4. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		9,000	1,213
GWG Beteiligungsgesellschaft mbH 1)	Stuttgart	100.00		28	1
GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG 1)	Stuttgart	91.57		362,371	26,203
GWG Hausbau GmbH 1)	Stuttgart	94.48		2,750	-
GWG ImmoInvest GmbH 1)	Stuttgart	94.90		10,817	1,799
GWG Wohnpark Sendling GmbH 1)	Stuttgart	94.00		4,028	-
Hibiscus Aircraft Leasing Limited 1)	Floriana, Malta	-		-41	1
HMDV Hausmeisterservice GmbH i.L. 1)	Berlin	100.00		n/a	n/a
HMV GmbH 1)	Erlangen	100.00		n/a	n/a
Hollandse Scheepshypotheekbank N.V. i.L. 1)	Rotterdam, Netherlands	100.00		707	-
Hudson Services LLC 1)	Majuro, Marshall Islands	-		-97	648
HumanProtect Consulting GmbH 1)	Cologne	100.00		382	116
Ihr Autoputzmeister Service GmbH 1)	Graz, Austria	100.00		n/a	n/a
Immobilien-Gesellschaft 'DG Bank-Turm, Frankfurt am Main, Westend' mbH & Co. KG des genossenschaftlichen Verbundes 2)	Frankfurt am Main	95.97		193,655	22,423
Immobilien-Verwaltungsgesellschaft 'DG BANK-Turm, Frankfurt am Main, Westend' mbH	Frankfurt am Main	100.00		60	25
IMPETUS Bietergesellschaft mbH 5)	Düsseldorf	100.00		54,063	-
INFINDO Development GmbH 1)	Düsseldorf	100.00		n/a	n/a
Intermodal Investment Fund IX LLC 1)	Majuro, Marshall Islands	100.00		-6,621	7,217
IPConcept (Luxemburg) S.A. 1)	Strassen, Luxembourg	100.00		19,364	9,284
IPConcept (Schweiz) AG 1)	Zurich, Switzerland	100.00		6,488	398
Iron Maple Rail Ltd. 1)	Vancouver, Canada	100.00		-173	926
ITF International Transport Finance Suisse AG i.L. 1)	Zurich, Switzerland	100.00		332	-40,847
Ivanhoe Shipping Opco LLC 1)	Majuro, Marshall Islands	-		-	-248
IZD-Beteiligung S.à.r.l. 1)	Senningerberg, Luxembourg	100.00		50	-107
K2 Aircraft Malta Ltd 1)	Floriana, Malta	100.00		44	31
Kalsubai Shipping and Offshore Private Ltd. 1)	Mumbai, India	-		-	13,374
Kälte Eckert GmbH 1)	Markgröningen	70.00		6,958	-68
KBIH Beteiligungsgesellschaft für Industrie und Handel mbH	Frankfurt am Main	100.00		35,325	8,184
KRAVAG Umweltschutz und Sicherheitstechnik GmbH 1)	Hamburg	100.00		323	21
KRAVAG-ALLGEMEINE Versicherungs-Aktiengesellschaft 1)	Hamburg	100.00		159,007	26,396
KRAVAG-LOGISTIC Versicherungs-Aktiengesellschaft 1)	Hamburg	51.00		248,421	10,232
KV MSN 27602 Aircraft Ltd. 1)	Dublin, Ireland	-		-15	-5
Lantana Aircraft Leasing Limited 1)	Floriana, Malta	-		-3,253	13,124
Leith Shipping LLC 1)	Majuro, Marshall Islands	-		-	-207
Linton Shipping LLC 1)	Majuro, Marshall Islands	-		-	78
Maple Leaf Shipping Holdco LLC 1)	Majuro, Marshall Islands	-		-55	2
MD Aviation Capital Pte. Ltd. 1)	Singapore, Singapore	100.00		-24,815	-6,154
MDAC 1 Pte Ltd. 1)	Singapore, Singapore	100.00		1,570	3
MDAC 11 Pte Ltd. 1)	Singapore, Singapore	100.00		74	2,385
MDAC 2 Pte Ltd. 1)	Singapore, Singapore	100.00		336	165
MDAC 3 Pte Ltd. 1)	Singapore, Singapore	100.00		245	4

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
MDAC 4 Pte Ltd. 1)	Singapore, Singapore	100.00		-60	558
MDAC 5 Pte. Ltd. 1)	Singapore, Singapore	100.00		73	1,996
MDAC 6 Pte Ltd. 1)	Singapore, Singapore	100.00		401	602
MDAC 8 Pte Ltd. 1)	Singapore, Singapore	100.00		-106	3
MDAC 9 Pte Ltd. 1)	Singapore, Singapore	100.00		-42	510
MDAC Malta Ltd. 1)	Floriana, Malta	-		-	-
MI-Fonds 384 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds 388 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds 391 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds 392 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F 57 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F 59 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F44 Metzler Investmtent GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F45 Metzler Investmtent GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F46 Metzler Investmtent GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds F47 Metzler Investmtent GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds J01 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MI-Fonds J03 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a
MIRADOR Development GmbH 1)	Düsseldorf	100.00		n/a	n/a
Mount Diamir LLC 1)	Majuro, Marshall Islands	-		-	-
Mount Rinjani Shipping Pte. Ltd. 1)	Singapore, Singapore	100.00		-8,882	765
Mount Ulriken LLC 1)	Majuro, Marshall Islands	100.00		-1,734	2,194
MSN1164 Freighter Ltd. 1)	Dublin, Ireland	-		-206	479
MSU Management-, Service- und Unternehmensberatung GmbH 1)	Landau in der Pfalz	74.00		861	154
NTK Immobilien GmbH 1)	Hamburg	100.00		43	-
NTK Immobilien GmbH & Co. Management KG 1)	Hamburg	100.00		648	-598
Ocean Giant LLC 1)	Majuro, Marshall Islands	-		-99	-2
Okoye Beteiligungsverwaltungs GmbH 1)	Vienna, Austria	80.00		n/a	n/a
Pascon GmbH 1)	Wiesbaden	100.00		36	4
PCAM Issuance II SA Issue RV AVL 001 1)	Luxembourg, Luxembourg	-		n/a	n/a
PDZ Personaldienste & Zeitarbeit GmbH 5)	Darmstadt	100.00		60	-
Pension Consult-Beratungsgesellschaft für Altersvorsorge mbH 1)	Wiesbaden	100.00		724	-883
Philip Trading Opco LLC 1)	Majuro, Marshall Islands	-		-78	1
Phoenix Beteiligungsgesellschaft mbH 5)	Düsseldorf	100.00		108,349	-
Quoniam Asset Management GmbH 1)	Frankfurt am Main	93.69	100.00	32,056	16,210
R+V AIFM S.à.r.l. 1)	Luxembourg, Luxembourg	100.00		506	-356
R+V Allgemeine Versicherung Aktiengesellschaft 1) 5)	Wiesbaden	95.00		774,177	-
R+V Deutschland Real (RDR) 1)	Hamburg	-		n/a	n/a
R+V Dienstleistungs GmbH 1)	Wiesbaden	100.00		650	8
R+V Direktversicherung AG 1) 5)	Wiesbaden	100.00		13,320	-
R+V Erste Anlage GmbH i.L. 1)	Wiesbaden	100.00		289	-14
R+V INTERNATIONAL BUSINESS SERVICES Ltd., Dublin 1)	Dublin, Ireland	100.00		1,347	115
R+V KOMPOSIT Holding GmbH 1) 5)	Wiesbaden	100.00		1,826,142	-
R+V Krankenversicherung AG 1)	Wiesbaden	100.00		124,485	20,000
R+V Kureck Immobilien GmbH i.L. 1)	Wiesbaden	100.00		24	-11
R+V Lebensversicherung Aktiengesellschaft 1)	Wiesbaden	100.00		744,981	-
R+V Luxembourg Lebensversicherung S.A. 1)	Strassen, Luxembourg	100.00		484,156	40,762
R+V Mannheim P2 GmbH 1)	Wiesbaden	94.00		57,343	1,855
R+V Pensionsfonds AG 1)	Wiesbaden	100.00		34,613	2,530
R+V Pensionskasse AG 1)	Wiesbaden	100.00		103,233	-
R+V Personen Holding GmbH 1)	Wiesbaden	100.00		1,119,261	179
R+V Rechtsschutz-Schadenregulierungs-GmbH 1)	Wiesbaden	100.00		326	49
R+V Service Center GmbH 1) 5)	Wiesbaden	100.00		2,869	-
R+V Service Holding GmbH 1) 5)	Wiesbaden	100.00		190,800	-
R+V Treuhand GmbH 1)	Wiesbaden	100.00		58	7
R+V Versicherung AG 5)	Wiesbaden	92.17		2,149,774	-
RC II S.a.r.l. 1)	Munsbach, Luxembourg	90.00		8,833	71

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
ReiseBank Aktiengesellschaft 1)	Frankfurt am Main	100.00		19,267	-
RUV Agenturberatungs GmbH 1)	Wiesbaden	100.00		333	67
RV AIP S.C.S. SICAV-SIF 1)	Luxembourg, Luxembourg	99.00		10	-
RV AIP S.C.S. SICAV-SIF - RV TF 2 Infra Debt 1)	Luxembourg, Luxembourg	100.00		459,266	-4,639
RV AIP S.C.S. SICAV-SIF – RV TF 6 Infra Debt II 1)	Luxembourg, Luxembourg	98.40		30,500	-
RV AIP S.C.S. SICAV-SIF - RV TF Acquisition Financing 1)	Luxembourg, Luxembourg	98.67		180,166	3,730
S2 Shipping and Offshore Ptd Ltd. 1)	Singapore, Singapore	100.00		-21,690	4,563
Scheepvaartmaatschappij Ewout B.V. 1)	Schiphol, Netherlands	100.00		-6,280	258
Schwäbisch Hall Facility Management GmbH 1)	Schwäbisch Hall	51.00		6,820	-1,213
Schwäbisch Hall Kreditservice GmbH 1) 5)	Schwäbisch Hall	100.00		18,775	-
Schwäbisch Hall Wohnen GmbH 1)	Schwäbisch Hall	100.00		5,800	-1,302
Shamrock Trading Opco LLC 1)	Majuro, Marshall Islands	-		-18	-
Shipping and Intermodal Investment Management Fund I LLC 1)	Majuro, Marshall Islands	-		1,797	756
Shipping and Intermodal Investment Management Fund II LLC 1)	Majuro, Marshall Islands	-		22,510	18,398
SHT Schwäbisch Hall Training GmbH 1)	Schwäbisch Hall	100.00		4,671	362
SIIM Marlin Holdings LLC 1)	Majuro, Marshall Islands	72.04		-5,646	-1,777
SINALOA Aircraft Leasing Limited 1)	Floriana, Malta	-		-7	-
SOS Kältetechnik GmbH 1)	Königsdorf	100.00		n/a	n/a
Sprint Sanierung GmbH 1)	Cologne	100.00		29,973	-3,449
SRF I Ltd. 1)	Floriana, Malta	-		-96	-1,998
SRF III Ltd. 1)	Floriana, Malta	-		-1,055	-5,898
Stani Trading Opco LLC 1)	Majuro, Marshall Islands	-		-190	-4
Stephenson Capital Limited 1)	George Town, Cayman Islands	-		-1,043	16,457
TeamBank AG Nürnberg 2) 5)	Nuremberg	92.53		539,699	-
Terra Maris I LLC 1)	Majuro, Marshall Islands	100.00		-5,608	-1,545
Tiger Aircraft Leasing (UK) Limited 1)	London, UK	-		-	-
Twenty Holding Private Limited 1)	Singapore, Singapore	-		-462	-5
UI Infrastruktur Management SARL 1)	Luxembourg, Luxembourg	100.00		28	8
UI Management S.a.r.l. 1)	Luxembourg, Luxembourg	100.00		15	1
UI Vario: 2 issued by Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	-		n/a	n/a
UII Issy 3 Moulins SARL 1)	Paris, France	100.00		7	-
UII PSD KN Immolnvest GP GmbH 1)	Hamburg	100.00		85	17
UII SCE Management GP GmbH 1)	Hamburg	100.00		62	19
UII Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		20	-2
UIN Union Investment Institutional Fonds Nr. 560 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 578 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 635 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 669 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 715 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 716 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 772 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 817 1)	Frankfurt am Main	-		2,222,753	-477
UIN Union Investment Institutional Fonds Nr. 825 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 833 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 834 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 839 1)	Frankfurt am Main	-		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 913 1)	Frankfurt am Main	-		n/a	n/a
UIR FRANCE 1 S.a.r.l. 1)	Paris, France	100.00		-	-7
UIR FRANCE 2 S.a.r.l. 1)	Paris, France	100.00		5	-7
UIR Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		96	-2
UIW Austria Verwaltungs GmbH 1)	Erlangen	100.00		n/a	n/a
UMB Unternehmens-Managementberatungs GmbH 1)	Wiesbaden	100.00		5,055	1,301
UniMultiAsset Chance I Nachhaltig 1)	Frankfurt am Main	-		n/a	n/a
UniMultiAsset Chance II Nachhaltig 1)	Frankfurt am Main	-		n/a	n/a
UniMultiAsset Chance III Nachhaltig 1)	Frankfurt am Main	-		n/a	n/a
UniMultiAsset Exklusiv Nachhaltig 1)	Frankfurt am Main	-		n/a	n/a
Union Asset Management Holding AG 2)	Frankfurt am Main	96.57		1,223,063	298,471

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Union Investment Austria GmbH 1)	Vienna, Austria	100.00		17,949	1,399
Union Investment Financial Services S.A. 1)	Luxembourg, Luxembourg	100.00		21,732	1,434
Union Investment Institutional GmbH 1) 5) 6)	Frankfurt am Main	100.00		93,970	-
Union Investment Institutional Property GmbH 1) 6)	Hamburg	90.00		31,297	12,917
Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	100.00		216,991	54,784
Union Investment Privatfonds GmbH 1) 5) 6)	Frankfurt am Main	100.00		660,942	-
Union Investment Real Estate Asia Pacific Pte. Ltd. 1)	Singapore, Singapore	100.00		1,178	-130
Union Investment Real Estate Austria AG 1)	Vienna, Austria	94.50		9,167	2,475
Union Investment Real Estate Digital GmbH 1) 6)	Hamburg	100.00		10,225	-
Union Investment Real Estate France S.A.S. 1)	Paris, France	100.00		3,628	1,425
Union Investment Real Estate GmbH 2) 6)	Hamburg	94.50		183,026	66,931
Union Investment Service Bank AG 1) 5) 6)	Frankfurt am Main	100.00		88,115	-
Union IT-Services GmbH 1) 5) 6)	Frankfurt am Main	100.00		5,170	-
Union Service-Gesellschaft mbH 1) 5) 6)	Frankfurt am Main	100.00		9,554	-
Unterstützungskasse der Condor Versicherungsgesellschaften GmbH 1)	Hamburg	66.67		26	-
URA Verwaltung GmbH 1)	Vienna, Austria	100.00		41	1
VB A330 Leasing Ltd 1)	George Town, Cayman Islands	100.00		4,459	6,305
VisualVest GmbH 1) 5) 6)	Frankfurt am Main	100.00		15,525	-
VR Consultingpartner GmbH 1)	Frankfurt am Main	100.00		1,078	-
VR Equity Gesellschaft für regionale Entwicklung in Bayern mbH 1)	Frankfurt am Main	100.00		5,177	-34
VR Equitypartner Beteiligungskapital GmbH & Co. KG UBG 2)	Frankfurt am Main	100.00		36,021	3,643
VR Equitypartner GmbH 5)	Frankfurt am Main	100.00		69,070	-
VR Equitypartner Management GmbH 1)	Frankfurt am Main	100.00		355	-1
VR Factoring GmbH (VR FACTOREM GmbH until October 28, 2020)	Eschborn	100.00		39,906	521
VR GbR 2)	Frankfurt am Main	100.00		137,493	55,611
VR HYP GmbH 1)	Hamburg	100.00		25	-
VR Kreditservice GmbH 1) 5)	Hamburg	100.00		25	-
VR Makler GmbH 1)	Hannover	100.00		525	-362
VR Mittelstandskapital Unternehmensbeteiligungs GmbH 2)	Düsseldorf	100.00		6,913	592
VR Payment GmbH	Frankfurt am Main	90.00		55,671	4,415
VR Real Estate GmbH 1)	Hamburg	100.00		25	-
VR Smart Finanz AG 5)	Eschborn	100.00		211,070	-
VR Smart Finanz Bank GmbH 1) 5)	Eschborn	100.00		250,147	-
VR Smart Guide GmbH 1)	Eschborn	100.00		983	177
VR WERT Gesellschaft für Immobilienbewertung mbH 1) 5)	Hamburg	100.00		50	-
VR-Leasing Beteiligungs GmbH 1)	Eschborn	100.00		98,654	-14
VR-LEASING Hauptverwaltung GmbH & Co. KG 1) 6)	Eschborn	94.80	76.00	5,000	47,141
Waverley Shipping Opco LLC 1)	Majuro, Marshall Islands	-		14	-229
WBS Wohnwirtschaftliche Baubetreuungs- und Servicegesellschaft mbH 1)	Stuttgart	94.90		19,984	786
ZBI Beteiligungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Fondsmanagement AG 1)	Erlangen	100.00		19,401	14,334
ZBI Fondsverwaltungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Immobilien AG 1)	Erlangen	100.00		23,619	23,056
ZBI Partnerschafts-Holding GmbH 1)	Erlangen	94.90		15,163	24,174
ZBI Professional Fondsverwaltungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Projektentwicklungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Regiofonds Wohnen GF GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Regiofonds Wohnen GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Vertriebskoordinations GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Vorsorge - Plan Wohnen GF GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Vorsorge - Plan Wohnen GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI Wohnen Plus Verwaltungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBI WohnWert Verwaltungs GmbH 1)	Erlangen	100.00		n/a	n/a
ZBVV Zentral Boden Vermietung und Verwaltung GmbH 1)	Erlangen	100.00		61	-705

JOINT VENTURES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
38321 & 38329 Aircraft Leasing (Cayman) Ltd. 1)	Grand Cayman, Cayman Islands	50.00	-	9,443	2,273
BAU + HAUS Management GmbH 1)	Wiesbaden	50.00		10,014	855
BEA Union Investment Management Limited 1)	Hong Kong, Hong Kong	49.00		58,137	12,371
BSP Bürgschaftsservice-Plattform GmbH 1)	Hamburg	50.00		n/a	n/a
D8 Product Tankers I LLC 1)	Majuro, Marshall Islands	50.00		7,593	-299
Deutsche WertpapierService Bank AG	Frankfurt am Main	50.00		211,436	15,656
DZ BANK Galerie im Städel Kunstverwaltungsgesellschaft mbH	Frankfurt am Main	50.00		24	-2
Global Offshore Services B.V. 1)	Shannon, Ireland	50.00		-	-
Hudson Chemical Tankers Ltd 1)	Majuro, Marshall Islands	50.00		n/a	n/a
IZD-Holding S.à.r.l. 1)	Senningerberg, Luxembourg	50.30	50.00	9	-61
KCM Bulkers Ltd. 1)	Majuro, Marshall Islands	50.00		12,220	2,602
Norafin Verwaltungs GmbH 1)	Mildenau	44.72		24,032	401
Prvá stavebná sporitel'na, a.s. 1)	Bratislava, Slovakia	32.50		266,198	8,277
R+V Kureck Immobilien GmbH Grundstücksverwaltung Braunschweig 1)	Wiesbaden	50.00		7,024	168
TrustBills GmbH	Hamburg	25.00		-1,125	-2,572
Versicherungs-Vermittlungsgesellschaft des Sächsischen Landesbauernverbandes mbH 1)	Dresden	50.00		215	-35
Versicherungs-Vermittlungsgesellschaft mbH des Bauernverbandes Mecklenburg-Vorpommern e.V. (VVB) 1)	Neubrandenburg	50.00		204	11
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Brandenburg (VVB) 1)	Teltow	50.00		33	4
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Sachsen-Anhalt e.V. (VVB) 1)	Magdeburg	50.00		70	9
Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse) Ltd. 1)	Tianjin, China	24.90		375,019	7,726

ASSOCIATES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
adorsys GmbH & Co. KG 1)	Nuremberg	25.89		1,741	1,542
adorsys Verwaltungs GmbH 1)	Nuremberg	25.90		28	1
aku.beteiligung GmbH 1)	Frankfurt am Main	46.04		n/a	n/a
Artemis Gas 1 Shipping Inc. 1)	Piraeus, Greece	20.00		61,948	765
Bankenkonsortium der Zenit GmbH, GbR	Düsseldorf	33.30		-	-
bbv-service Versicherungsmakler GmbH 1)	Munich	25.20		2,124	344
Bergina AS 1)	Grimstad, Norway	40.00		10	-926
Bookwire Holding GmbH 1)	Frankfurt am Main	49.00		13,060	-395
Danae Gas Shipping Inc 1)	Majuro, Marshall Islands	5.00		n/a	n/a
DITTRICH + CO Holding GmbH 1)	Frankfurt am Main	49.85		n/a	n/a
Dr. Förster Holding GmbH 1)	Neu-Isenburg	20.06		-12,858	-1,280
Dr. Neuberger Holding GmbH 1)	Wiesbaden	40.00		9,562	437
European Convenience Food GmbH 1)	Garrel	39.77	40.58	4,728	-3,103
GBS Beteiligungsgesellschaft mbH 1)	Bayreuth	42.33		5,037	1,865
GGB-Beratungsgruppe GmbH	Stuttgart	23.13		-1,123	-1,858
GHM Holding GmbH 1)	Erolzheim	40.00		17,182	-18
GHM MPP Reserve GmbH 1)	Regenstauf	50.00		349	-4
GHM MPP Verwaltungs GmbH 1)	Remscheid	50.00		18	-2
Global Asic GmbH 1)	Dresden	30.80		1,083	-35
Global Offshore Services B.V. 1)	Amsterdam, Netherlands	32.13		-	-
Goldeck Zetti Beteiligungsgesellschaft mbH 1)	Leipzig	39.23		19,050	597
Groneweg Verwaltungsgesellschaft mbH 1)	Greven	48.00		26,000	900
Hör Technologie GmbH 1)	Weiden i.d.OPf.	62.78	49.99	23,502	-1,029
Hudson Chemical Tankers Ltd 1)	Middlesex, UK	25.00		n/a	n/a
Informatik Consulting Systems Holding GmbH 1)	Stuttgart	49.83	49.43	n/a	n/a
Kapitalbeteiligungsgesellschaft für die mittelständische Wirtschaft in Nordrhein-Westfalen mbH - KBG -	Neuss	23.60		4,548	520
KCM Bulkers International Limited 1)	Tortola, Virgin Islands	49.00		n/a	n/a
KCM Bulkers Ltd. 1)	Tortola, Virgin Islands	49.00		-	-
KOTANI JV CO. BV 1)	Amsterdam, Netherlands	48.35		71,342	-6,112
KTP Holding GmbH 1)	Bous	37.36		41,573	758
Mandarin Containers Limited 1)	Tortola, Virgin Islands	17.01		58,795	1,741
MSEA Aframax Holdings LLC 1)	Majuro, Marshall Islands	48.00		23,532	-796
MSEA Marlin Holdings LLC 1)	Majuro, Marshall Islands	32.19		n/a	n/a
MSN 1272&1278 Aircraft Leasing 1)	Grand Cayman, Cayman Islands	20.00		n/a	n/a
N3K Informatik Holding GmbH 1)	Frankfurt am Main	25.10		n/a	n/a
Ostertag DeTeWe Group GmbH 1)	Walddorfhäslach	58.52	49.90	85	72
PI-SM GmbH 1)	Ehringshausen	40.80		24,217	369
Sanitärgruppe Stiller GmbH 1)	Cologne	45.00		38,991	49,308
SCL GmbH 1)	Butzbach	49.00		6,554	1,371
Signet Wohnmöbel GmbH 1)	Hochstadt am Main	49.80		n/a	n/a
TAP Ltd. 1)	Hamilton, Bermuda	38.05		41,021	960
Treuhand- und Finanzierungsgesellschaft für Wohnungs- und Bauwirtschaft mit beschränkter Haftung. Treufinanz	Düsseldorf	33.14		1,435	-266
TREVA Entertainment GmbH i. L. 1)	Hamburg	32.70		1,269	-529
United MedTec Holding GmbH 1)	Bückeburg	41.01		1,379	184
Votronic Elektronik-Systeme GmbH 1)	Lauterbach	49.80		2,290	1,496
Weisshaar Holding GmbH 1)	Deisslingen	84.94	49.92	3,668	-582
Wessel-Werk Beteiligungsverwaltung GmbH i.L. 1)	Karlsruhe	45.00		-2,088	-1,527
ZT Finance GmbH i.L. 1)	Weilheim	26.67		2,278	-40

SHAREHOLDINGS OF 20% OR MORE

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
AMP Capital Infrastructure Debt Fund IV (EUR), L.P. 1)	Luxembourg, Luxembourg	39.84		223,130	1,929
Assiconf S.r.l. 1)	Turin, Italy	20.00		88	2
ASSICRA Servizi Assisurativi Banche di Credito Cooperativo Abruzzo e Molise S.r.l. 1)	Pescara, Italy	25.00		516	29
BCC RISPARMIO & PREVIDENZA S.G.R.P.A. 1)	Milan, Italy	25.00		38,226	12,400
BRASIL FLOWERS S.A. 1)	Barbacena, Brazil	45.00		n/a	n/a
BREDS IV Aggregator SCSp 1)	Luxembourg, Luxembourg	90.91		n/a	n/a
Burghofspiele GmbH 1)	Eltville	20.00		-	-21
Bürgschaftsbank Brandenburg GmbH	Potsdam	25.31		31,024	1,188
Bürgschaftsbank Mecklenburg-Vorpommern GmbH	Schwerin	30.38		16,899	262
Bürgschaftsbank Sachsen-Anhalt GmbH	Magdeburg	29.73		16,436	437
Bürgschaftsbank Thüringen GmbH	Erfurt	22.13		27,219	637
Cheyne Real Estate Credit (CRECH) Fund IV Loans SCS SICAV-SIF 1)	Luxembourg, Luxembourg	20.83		314,225	7,255
Cheyne Real Estate Credit Holdings VII 1)	Luxembourg, Luxembourg	96.77		n/a	n/a
CMMT Partners L.P. 1)	Camden, USA	47.07		253,433	18,890
Credit Suisse Global Infrastructure SCA SICAR 1)	Luxembourg, Luxembourg	30.09		23,186	7,544
DEGEPROMO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	95.00	33.34	n/a	n/a
DZ BANK Mikrofinanzfonds eG 2)	Frankfurt am Main	30.90	0.45	259	-
EIG Global Project Fund V-A, L.P. 1)	Wilmington, USA	51.28		n/a	n/a
Finatem II GmbH & Co. KG 1)	Frankfurt am Main	20.20		12,519	2,908
FREUNDE DER EINTRACHT FRANKFURT Aktiengesellschaft 1)	Frankfurt am Main	32.05	19.84	6,268	169
GENOPACE GmbH 1) 6)	Berlin	27.49		200	-
Global Energy & Power Infrastructure Fund III E, SCSp 1)	Luxembourg, Luxembourg	35.34		38,416	3,077
Global Infrastructure Partners III-C2, L.P. 1)	New York, USA	27.97		380,881	49,454
Golding Mezzanine SICAV IV 1)	Luxembourg, Luxembourg	49.98		3,342	526
GTIS Brazil II S-Feeder LP 1)	Edinburgh, UK	100.00		27,831	-76
Kreditgarantiegemeinschaft in Baden-Württemberg Verwaltungs-GmbH	Stuttgart	20.00		1,023	-
Macquarie Asia Infrastructure Fund 2 SCSp 1)	Luxembourg, Luxembourg	50.48		147,269	10,042
Macquarie Asia Infrastructure Fund EU Feeder L.P 1)	London, UK	100.00		88,216	9,304
MB Asia Real Estate Feeder (Scot.) L.P. 1)	Edinburgh, UK	34.80		1,193	-312
Medico 12 GmbH & Co. KG 1)	Frankfurt am Main	99.98		648	-178
Nuveen Immobilien GmbH 1)	Frankfurt am Main	50.00		227	86
Nuveen Immobilien GmbH & Co. GB I KG 1)	Frankfurt am Main	73.91	73.21	1,943	-73
Partners Group Direct Infrastructure 2020 (EUR), L.P.S.C.Sp. 1)	Luxembourg, Luxembourg	33.68		n/a	n/a
paydirekt GmbH	Frankfurt am Main	33.33		18,019	-2,684
RV-CVIII Holdings, LLC 1)	Camden, USA	100.00		66,857	-7,255
Schroder Italien Fonds GmbH & Co. KG 1)	Frankfurt am Main	23.08	19.74	728	28
Schroder Property Services B.V. S.à.r.l. 1)	Senningerberg, Luxembourg	30.00		341	25
Sprint Italia S.r.l. 1)	Bolzano, Italy	51.00		n/a	n/a
Swiss Life Health Care Deutschland V S.C.S., SICAV-SIF 1)	Luxembourg, Luxembourg	41.33		n/a	n/a
Swiss Life Health Care III SICAV-FIS 1)	Luxembourg, Luxembourg	33.33		117,445	15,652
Swiss Life Health Care IV SICAV-FIS 1)	Luxembourg, Luxembourg	46.51		53,509	4,337
Technology DZ Venture Capital Fund I GmbH & Co. KG i.L. 1)	Munich	34.33		4,952	-51
TF H III Technologiefonds Hessen Gesellschaft mit beschränkter Haftung	Wiesbaden	25.00		6,618	-2,306
TF H Technologie-Finanzierungsfonds Hessen Gesellschaft mit beschränkter Haftung (TF H GmbH) i.L.	Wiesbaden	33.33		553	10
Tishman Speyer Brazil Feeder (Scots/D), L.P. 1)	Edinburgh, UK	100.00		6,897	-5,977
Tishman Speyer European Real Estate Venture VIII Parallel SCSp 1)	Luxembourg, Luxembourg	55.88		-9,205	-6,708
Tishman Speyer European Strategic Office Fund Feeder, L.P. 1)	London, UK	97.18		1,177	471
TXS GmbH 1)	Hamburg	24.50		200	500
VBI Beteiligungs GmbH 1)	Vienna, Austria	24.50		421	-163
VR-LEASING OPHIR GmbH & Co. Immobilien KG 1)	Eschborn	94.80	16.33	n/a	n/a

MORE THAN 5% OF VOTING RIGHTS (LARGE CORPORATIONS)

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Banco Cooperativo Español S.A.	Madrid, Spain	12.02		571,612	32,009
EDEKABANK Aktiengesellschaft	Hamburg	8.35		160,869	6,073
EURO Kartensysteme GmbH	Frankfurt am Main	19.60		12,187	151
PANELLINIA BANK SOCIETE ANONYME (under special liquidation)	Athens, Greece	8.42	5.28	50,143	-12,637
Protektor Lebensversicherungs-AG 1)	Berlin	5.27		7,851	7
Raiffeisendruckerei GmbH 1)	Neuwied	7.88		36,656	2,738
SCHUFA Holding AG 1)	Wiesbaden	17.94		118,321	41,120

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
'Hotel Wagramerstrasse 8' Errichtungs- und BetriebsgmbH & Co KG 1)	Vienna, Austria	-		21,243	1,533
ABE Clearing S.A.S a Capital Variable	Paris, France	1.92		31,181	3,267
AERS Consortio AG 1)	Stuttgart	16.50		114	-18
AgroRisk Polska Spólka z ograniczona odpowiedzialnoscia 1)	Poznaŋ, Poland	15.00		n/a	n/a
Airport Garden Services and Business Center S.A. 1)	Brussels-Zaventem, Belgium	0.33		273	182
AKA Ausfuhrkredit-Gesellschaft mit beschränkter Haftung	Frankfurt am Main	0.31		253,193	10,621
Akademie Badischer Volksbanken und Raiffeisenbanken GmbH 1)	Karlsruhe	0.03		n/a	-
Anlegerentschädigung von Wertpapierfirmen GmbH 1)	Vienna, Austria	0.57	1.61	n/a	n/a
Architrave GmbH 1)	Berlin	12.04		n/a	n/a
ARDIAN Infrastructure Fund V B S.C.S., SICAV-RAIF 1)	Luxembourg, Luxembourg	13.58		55,128	-10,738
Assicoop-Assicurazioni Cooperative S.r.l. 1)	Catania, Italy	0.41		n/a	n/a
assistance partner GmbH & Co. KG 1)	Munich	5.01		1,102	102
Bank Polskiej Spoldzielczosci Spolka Akcyjna	Warsaw, Poland	1.00		176,142	5,153
Baro Beteiligungs-GmbH & Co. KG 1)	Münster	5.10		82,501	4,749
BayBG Bayerische Beteiligungsgesellschaft mbH	Munich	9.38		242,372	5,160
Bayerische Raiffeisen- Beteiligungs-Aktiengesellschaft 2)	Beilngries	1.85		856,018	35,290
Berliner Volksbank eG 1)	Berlin	-	0.10	1,029,942	19,628
Beteiligungs-Aktiengesellschaft der bayerischen Volksbanken 1)	Pöcking	1.14		232,001	6,569
BFL Gesellschaft des Bürofachhandels mbH & Co. KG i.L. 1)	Eschborn	0.07	0.05	2,364	139
BGG Bayerische Garantiegesellschaft mit beschränkter Haftung für mittelständische Beteiligungen	Munich	13.15		55,374	2,023
Blackrock Renewable Income Europe Fund 1)	Dublin, Ireland	7.69		474,768	34,794
Blackstone Real Estate Partners Europe III L.P. 1)	New York, USA	1.62		579,252	5,229
Blackstone Real Estate Partners International I.E. L.P. 1)	New York, USA	9.77		-26,468	30,572
BLHV Versicherungs-Service GmbH 1)	Freiburg	9.00		124	99
BTG Beteiligungsgesellschaft Hamburg mbH	Hamburg	10.00		5,141	495
Bürgschaftsbank Bremen GmbH	Bremen	4.86		8,258	364
Bürgschaftsbank Hessen GmbH	Wiesbaden	15.87		21,824	985
Bürgschaftsbank Nordrhein-Westfalen GmbH Kreditgarantiegemeinschaft	Neuss	15.75		38,223	1,463
Bürgschaftsbank Rheinland-Pfalz GmbH	Mainz	14.31		17,184	358
Bürgschaftsbank Sachsen GmbH	Dresden	14.66	16.59	44,085	489
Bürgschaftsbank Schleswig-Holstein Gesellschaft mit beschränkter Haftung	Kiel	11.79		41,825	651
Bürgschaftsgemeinschaft Hamburg GmbH	Hamburg	6.36		26,783	505
Caprese S.A. 1)	Brussels-Zaventem, Belgium	-		3,748	-423
Cash Logistik Security AG 1)	Düsseldorf	4.10		5,190	1,064
CASSA CENTRALE BANCA - CREDITO COOPERATIVO ITALIANO S.P.A.	Trento, Italy	3.69		1,133,251	30,896
CLS Group Holdings AG	Lucerne, Switzerland	0.69		375,865	-31,443
Coop System S.p.A. 1)	Rome, Italy	1.97		n/a	n/a
Copenhagen Infrastructure III K/S 1)	Copenhagen K, Denmark	5.77		n/a	n/a
Copenhagen Infrastructure IV K/S 1)	Copenhagen K, Denmark	7.97		n/a	n/a
Crown Secondaries Special Opportunities II S.C.S. 1)	Luxembourg, Luxembourg	9.69		n/a	n/a
Curzon Capital Partners III LP 1)	London, UK	11.99		n/a	n/a
Curzon Capital Partners IV LP 1)	London, UK	10.73		287,011	40,641
Deutsche Bauernsiedlung - Deutsche Gesellschaft für Landentwicklung (DGL) mbH 1)	Frankfurt am Main	16.26		-	-
Deutsche Börse Commodities GmbH	Frankfurt am Main	16.20	14.48	8,915	7,915
Deutscher Genossenschafts-Verlag eG 2)	Wiesbaden	1.54	1.58	67,825	1,927
DG ANLAGE Holland-Fonds 'Nieuwegein, 's-Hertogenbosch' GmbH & Co. KG (DGI 48) i.L.	Frankfurt am Main	0.57		1,030	-253
DG IMMOBILIEN MANAGEMENT Gesellschaft mbH	Frankfurt am Main	5.01		19,389	3,209
DG Immobilien-Anlagegesellschaft Nr. 35 'Berlin, Frankfurt' Prüske & Dr. Neumann KG i.L.	Frankfurt am Main	0.07		3,039	-75
DG IMMOBILIEN-Objektgesellschaft 'Stuttgart, Industriestrasse' Kreft & Dr. Neumann KG (DGI 49) i.L.	Frankfurt am Main	0.98		-	-
DI Rathaus-Center Pankow Nr.35 KG 1)	Düren	3.86		27,574	2,303

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Domus Beteiligungsgesellschaft der Privaten Bausparkassen mbH Berlin 1)	Berlin	14.13		32	-4
EDD AG i.L. 2)	Düsseldorf	9.99		21,601	-
EIG Energy Fund XVI (Scotland) L.P. 1)	Edinburgh, UK	14.02		395,913	6,536
EIG Energy Fund XVII (Scotland) L.P. 1)	Edinburgh, UK	15.61		276,748	25,928
EPI Interim Company SE	Sint-Jans Molenbeek, Belgium	6.25		n/a	n/a
Euro Capital S.A.S. 1)	Metz, France	4.44		23,020	1,663
European Property Investors Special Opportunities, L.P. 1)	London, UK	6.35		136,153	-56,671
European Property Investors, L. P. 1)	London, UK	6.50		5,349	-80
EXTREMUS Versicherungs-Aktiengesellschaft 1)	Cologne	5.00		64,058	118
Fiducia & GAD IT AG 2)	Frankfurt am Main	0.35		431,556	-114
FIDUCIA Mailing Services eG 2)	Karlsruhe	0.13		78	-
Flugplatz Schwäbisch Hall GmbH 1)	Schwäbisch Hall	2.00		49	-
GAD Beteiligungs GmbH & Co. KG 2)	Münster	2.25		119,597	3,008
GBK Holding GmbH & Co. KG 1)	Kassel	0.02		468,549	11,365
GDV Dienstleistungs-GmbH 1)	Hamburg	2.82		28,941	1,511
GI Data Infrastructure Fund-A LP 1)	Wilmington, USA	13.60		n/a	n/a
GIP Capital Solutions Feeder Fund II (EEA) 1)	Luxembourg, Luxembourg	15.00		-1,523	-994
GLADBACHER BANK Aktiengesellschaft von 1922	Mönchengladbach	17.53		39,878	1,498
Global Infrastructure Partners IV-C2, L.P. 1)	Luxembourg, Luxembourg	17.17		-2,715	-44,769
Global Renewable Power Infrastructure Fund III (C), SCSp 1)	Luxembourg, Luxembourg	4.48		n/a	n/a
GMS Mitarbeiter Beteiligungsgesellschaft UG & Co.KG 1)	Paderborn	4.00		986	-8
Golding Mezzanine SICAV III 1)	Luxembourg, Luxembourg	1.30		50,330	6,222
Grand Hotel Heiligendamm GmbH & Co. KG Fundus Fonds Nr. 34 1)	Disternich	1.90		-9,257	-31
Gründerfonds Ruhr GmbH & Co. KG 1)	Essen	7.25		4,882	-783
HANDWERKSBAU NIEDERRHEIN AKTIENGESELLSCHAFT	Düsseldorf	10.15		26,718	1,744
heal.capital I GmbH & Co. KG 1)	Berlin	0.99		-	-1,010
Hines European Value Fund SCSp 1)	Luxembourg, Luxembourg	13.87		488,081	27,341
Immigon portfolioabbau ag i.A.	Vienna, Austria	3.79		722,784	8,897
Immo Feest en Cultuurpaleis Oostende SA 1)	Brussels, Belgium	-		16,641	102
Interessengemeinschaft Frankfurter Kreditinstitute GmbH	Frankfurt am Main	7.01		26,301	9,656
IVS Immobilien GmbH 1)	Schiffweiler	6.00		26	-
K in Kortrijk S.A. 1)	Brussels, Belgium	-		87,440	-3,081
KLAAS MESSTECHNIK GmbH 1)	Seelze-Harenberg	15.00		28	-
KLV BAKO Vermittlungs-GmbH	Karlsruhe	10.00		242	9
Konsortium der Absatzfinanzierungsinstitute plettac-assco GbR	Wuppertal	-	7.08	n/a	n/a
Kreditgarantiegemeinschaft der Freien Berufe Baden-Württemberg Verwaltungs GmbH	Stuttgart	4.76		153	-
Kreditgarantiegemeinschaft der Industrie, des Verkehrsgewerbes und des Gastgewerbes Baden-Württemberg Verwaltungs-GmbH	Stuttgart	15.28		1,300	-
Kreditgarantiegemeinschaft des bayerischen Gartenbaues GmbH	Munich	9.07		649	-
Kredit-Garantiegemeinschaft des bayerischen Handwerks Gesellschaft mit beschränkter Haftung	Munich	12.00		4,846	-
Kreditgarantiegemeinschaft des Gartenbaues Baden-Württemberg Verwaltungs-GmbH	Stuttgart	12.00		138	-
Kreditgarantiegemeinschaft des Handels Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,022	-
Kreditgarantiegemeinschaft des Handwerks Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,001	-
Kreditgarantiegemeinschaft des Hotel- und Gaststättengewerbes in Bayern GmbH	Munich	9.66		4,359	-
Kreditgarantiegemeinschaft für den Handel in Bayern GmbH	Munich	7.19		6,317	-
Kunststiftung Baden-Württemberg GmbH 1)	Stuttgart	0.50		2,899	-17
Les Grands Pres S.A. 1)	Brussels-Zaventem, Belgium	-	0.11	51,931	4,276
Lucrezia GmbH & Co. KG 1)	Berlin	0.10		5,097	-8
Macquarie European Infrastructure Fund 6 SCSp 1)	Luxembourg, Luxembourg	4.15		-19,959	-19,961
Macquarie European Infrastructure Fund 4 L.P. 1)	St. Peter, Guernsey	5.70		2,765,494	405,131

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
MBG H Mittelständische Beteiligungsgesellschaft Hessen GmbH	Wiesbaden	16.26		10,488	-855
MBG Mittelständische Beteiligungsgesellschaft Baden-Württemberg Gesellschaft mit beschränkter Haftung	Stuttgart	9.94	8.33	81,296	4,303
MBG Mittelständische Beteiligungsgesellschaft Rheinland-Pfalz mbH	Mainz	9.80	11.11	15,991	664
MBG Mittelständische Beteiligungsgesellschaft Schleswig-Holstein mbH	Kiel	14.59	15.22	43,486	2,193
Mittelständische Beteiligungsgesellschaft Berlin-Brandenburg mbH	Potsdam	8.89		22,891	1,056
Mittelständische Beteiligungsgesellschaft Mecklenburg-Vorpommern mbH	Schwerin	16.00		16,618	668
Mittelständische Beteiligungsgesellschaft Niedersachsen (MBG) mit beschränkter Haftung	Hannover	19.92		14,731	422
Mittelständische Beteiligungsgesellschaft Sachsen mbH	Dresden	9.38		49,169	1,567
Mittelständische Beteiligungsgesellschaft Sachsen-Anhalt (MBG) mbH	Magdeburg	19.84		24,249	217
Mittelständische Beteiligungsgesellschaft Thüringen mbH	Erfurt	10.28		26,842	928
Münchener Hypothekenbank eG 2)	Munich	1.18		1,428,457	35,697
Munster S.A. 1)	Luxembourg, Luxembourg	0.11		2,428	-236
Niedersächsische Bürgschaftsbank (NBB) Gesellschaft mit beschränkter Haftung	Hannover	17.68		30,102	1,818
Norddeutsche Genossenschaftliche Beteiligungs-Aktiengesellschaft 1)	Hannover	0.55		1,379,444	47,754
North Haven Infrastructure Partners III Feeder A L.P. 1)	Kitchener, Canada	3.05		n/a	n/a
North Haven Infrastructure Partners III SCSp 1)	Luxembourg, Luxembourg	0.61		n/a	n/a
Opción Jamantab S. A. DE C. V. 1)	Mexico City, Mexico	-		9,675	492
Partners Group Global Mezzanine 2007 S.C.A., SICAR 1)	Luxembourg, Luxembourg	2.24		45,799	1,580
PRIVATE EQUITY SCS SICAV-SIF 1)	Luxembourg, Luxembourg	-		n/a	n/a
Prosa Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	15.63		587	-408
Prosolis GmbH The Solution House i.L. 1)	Fulda	6.00		n/a	n/a
Raiffeisen Waren-Zentrale Rhein-Main eG	Cologne	2.00		123,919	-2,155
Raiffeisen-Kassel A-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	-
Raiffeisen-Kassel B-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	-
Royale 120 New Building S.A. 1)	Brussels-Zaventem, Belgium	-		43,789	910
Royale 120 S.A. 1)	Brussels-Zaventem, Belgium	0.01		849	-44
RPD Real Property Development GmbH 1)	Langenwang, Austria	10.00		662	120
RREEF Pan-European Infrastructure Feeder GmbH & Co. KG 1)	Eschborn	17.70		348,880	-116
Rund Vier GmbH & Co. KG 1)	Vienna, Austria	-		46,016	3,444
S.W.I.F.T. Society for Worldwide International Financial Telecommunication 2)	La Hulpe, Belgium	0.26		469,588	53,208
Saarländische Wagnisfinanzierungsgesellschaft mbH	Saarbrücken	2.59		8,157	381
SALEG Sachsen-Anhaltinische Landesentwicklungs GmbH 1)	Magdeburg	1.15		13,940	367
Sana Kliniken AG 1)	Ismaning	0.69		1,017,094	66,685
Schulze-Delitzsch-Haus, eingetragene Genossenschaft 1)	Bonn	0.95		541	167
Sechzehnte Gamma Trans Leasing Verwaltungs-GmbH & Co. Finanzierungs-Management KG i.L. 1)	Nidderau	16.51		n/a	n/a
SGB-Bank Spólka Akcyjna	Poznaŋ Poland	0.28		143,324	5,584
SIGNA Development Selection AG 1)	Innsbruck, Austria	5.00		674,359	125,995
SIGNA Prime Selection AG 1)	Innsbruck, Austria	5.00		3,283,737	497,973
SIGNA Sports United GmbH 1)	Munich	11.59		373,800	-33,300
Société de la Bourse de Luxembourg S.A. 1)	Luxembourg, Luxembourg	0.06		129,565	10,630
Strategie Invest SICAV 1)	Zurich, Switzerland	0.09		n/a	n/a
Süddeutsche Zuckerrübenverwertungs-Genossenschaft eG	Ochsenfurt	4.44	4.55	194,143	5,569
Target Partners Capital GmbH & Co. KG 1)	Munich	10.00	10.01	278	-7
Technologiezentrum Schwäbisch Hall GmbH 1)	Schwäbisch Hall	4.17	5.56	569	62
Teko - Technisches Kontor für Versicherungen Gesellschaft mit beschränkter Haftung 1)	Düsseldorf	10.00		111	30
True Sale International GmbH	Frankfurt am Main	7.69		4,864	248
Ufficio Centrale Italiano di Assistenza Assicurativa Automobilisti in Circolazione Internazionale -U.C.I. Societe consortie a R.L. 1)	Milan, Italy	0.09		1,330	16
UIR Belgique 1 S.A. 1)	Brussels, Belgium	0.13		733	-55
UIR Le Président 1 1)	Brussels-Zaventem, Belgium	-	0.06	3,714	-486

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
UIR MU III S.A. de C.V. 1)	Mexico City, Mexico	-		12,121	678
UniInstitutional Sachwerte SCS SICAV-SIF 1)	Luxembourg, Luxembourg	-		n/a	n/a
Visa Inc.	San Francisco, USA	-		28,251,201	9,839,537
VNT Automotive GmbH 1)	Langenwang, Austria	10.00		11,148	846
VR-Bank Schwäbisch Hall eG 1)	Schwäbisch Hall	0.01		119,256	4,721
VR-IMMOBILIEN-LEASING GmbH 1)	Eschborn	6.00		n/a	n/a
WESTFLEISCH Finanz AG 1)	Münster	0.36		65,691	5,706
WRW Wohnungswirtschaftliche Treuhand Rheinland-Westfalen Gesellschaft mit beschränkter Haftung i.L.	Düsseldorf	2.73		n/a	n/a
ZBI Zentral Boden Immobilien GmbH & Co. KG WohnWert 1 Geschlossene Investmentkommanditgesellschaft 1)	Erlangen	-		n/a	n/a
ZG Raiffeisen eG	Karlsruhe	1.01	0.02	29,005	-3,971

1) Held indirectly.

2) Including shares held indirectly.

3) A letter of comfort exists.

4) A subordinated letter of comfort exists.

5) Profit-and-loss transfer agreement with DZ BANK (direct or indirect).

6) Section 264 (3) HGB and section 264b HGB have been applied.

n/a = no figures available.

Responsibility statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the group in accordance with German principles of proper accounting, and the group management report includes a fair review of the development and performance of the business and the position of the group, together with a description of the material opportunities and risks associated with the expected development of the group.

Frankfurt am Main, March 2, 2021

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

The Board of Managing Directors

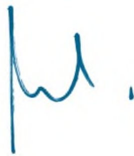
Fröhlich

Dr. Riese

Berghaus

Dr. Brauckmann

Brouzi


Köhler

Speth

Ullrich

Independent auditor's report

To DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main

Report on the audit of the consolidated financial statements and of the group management report

Opinions

We have audited the consolidated financial statements of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, and its subsidiaries (the Group), which comprise the consolidated income statement and consolidated statement of comprehensive income for the financial year from 1 January 2020 to 31 December 2020, and the consolidated balance sheet as at 31 December 2020, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from 1 January 2020 to 31 December 2020, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, for the financial year from 1 January 2020 to 31 December 2020. In accordance with the German legal requirements, we have not audited the content of the sustainability report 2020 that is cross-referenced in section IV "Human resources report and sustainability" of the management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB ["Handelsgesetzbuch": German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at 31 December 2020 and of its financial performance for the financial year from 1 January 2020 to 31 December 2020, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and the EU Audit Regulation (No 537/2014, referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits

promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Art. 10 (2) f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Art. 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January 2020 to 31 December 2020. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon; we do not provide a separate opinion on these matters.

Below, we describe what we consider to be the key audit matters:

1. Inclusion of forward-looking information in the parameter-based calculation of loss allowances for financial instruments not in default

Reasons why the matter was determined to be a key audit matter

The estimated probability of default used in the parameter-based calculation (pursuant to IFRS 9) of the loss allowances for financial instruments not in default is based in part on historical information. It is also based on current economic developments and forward-looking macroeconomic assumptions in the form of shift factors in the statistical probabilities of default in the rating models. Significant allocations to loss allowances arose in connection with the updated shift factors as of the reporting date.

As, from the Bank's point of view, the statistical shift factors do not adequately reflect the macroeconomic repercussions of the COVID-19 pandemic (due, among other things, to moratoria on payments and government aid) on borrowers' probabilities of default as of the reporting date, the Bank made expert-based adjustments to the statistical shift factors for the portfolio segments impacted by the pandemic. These adjusted input parameters were considered in the parameter-based calculation of the loss allowance.

In light of the significance of the portfolios of financial instruments not in default as well as the increased uncertainty due to the COVID-19 pandemic regarding macroeconomic forecasts and the increased use of judgement regarding the applied shift factors, we determined the inclusion of forward-looking information in the parameter-based calculation of loss allowances for financial instruments not in default, taking particular account of the impact of the COVID-19 pandemic, to be a key audit matter.

Auditor's response

During our audit, we obtained an understanding of the group-wide process for calculating the loss allowances for financial instruments not in default applied by DZ BANK with regard to the requirements resulting from IFRS 9. Our focus was on the conceptual inclusion of forward-looking information and their key assumptions.

We assessed the appropriateness of the calculation of DZ BANK's macroeconomic forecasts underlying the shift factors by comparing them with macroeconomic forecasts by leading economic research institutes and, with the assistance of internal specialists, we recalculated the model-based shift factors derived from the macroeconomic forecasts.

Furthermore, we obtained an understanding of the method used in the expert-based adjustments to the statistical shift factors for the portfolio segments impacted by the COVID 19 pandemic and assessed their appropriateness. In this connection, we analysed whether the adjustments to the shift factors duly reflect the impact of COVID-19 in substance and amount. In addition, we verified that the adjusted shift factors were appropriately considered in the parameter-based calculation of the loss allowances. Lastly, we performed sensitivity analyses to assess the effects of changes in shift factors on the amounts of parameter-based loss allowances.

Our audit procedures did not give rise to any reservations regarding the inclusion of forward-looking information in the parameter-based calculation of loss allowances for financial instruments not in default, taking particular account of the impact of the COVID-19 pandemic.

Reference to related disclosures

Information on the inclusion of forward-looking information in the parameter-based calculation of loss allowances for financial instruments not in default, taking particular account of the impact of the COVID-19 pandemic, is provided in Note 85 of the notes to the consolidated financial statements under credit risk management practices.

2. Measurement of the provision for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding

Reasons why the matter was determined to be a key audit matter

The gross provision for claims outstanding mainly comprises the provisions for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business (claims reserve); they are measured in accordance with IFRS 4.13 and Sec. 341g HGB.

The gross provision for reported direct non-life claims is measured on a case-by-case base and is based on a claims rate trend assumed by the Board of Managing Directors on the basis of current information and the settlement of similar claims.

The gross provision for incurred but not reported claims from direct non-life business is measured on the basis of an actuarial method which uses assumptions about the expected number of claims yet to be reported and the expected indemnification amount. The calculation method is generally based on an observation period of 5 years or, in some classes and types of insurance, 15 years. Depending on the class and type of insurance, the provision for unknown claims is calculated as the product of the expected number of claims and the expected average cost per claim for each year in which claims occur.

For inward reinsurance business, the gross provision is generally measured in accordance with the instructions from the ceding insurers. If such instructions are not available or are not considered sufficient for the recognition of a provision, the gross provision is estimated using actuarial methods. The estimates are primarily based on the instructions of the competent functional department.

The gross provision for claims outstanding is a major liability item in the consolidated balance sheet. In light of the use of judgement and estimates, the measurement of the provisions for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding was a key audit matter. There is a risk that the gross provisions for reported, and incurred but not reported claims in the aggregate and in the individual classes of insurance are not sufficient.

Auditor's response

During our audit we obtained an understanding of the processes for handling claims and determining the gross provisions for reported, and incurred but not reported claims and the procedures, methods and controls used therein.

We examined the gross provision for reported claims from direct non-life business to determine whether the process for processing and provisioning claims – from the reporting of claims to the accounting for claims in the consolidated financial statements – is appropriately designed so as to ensure complete recognition and proper valuation. We evaluated the design and tested the operating effectiveness of significant controls in this regard. In addition, for a risk-based sample of claims, we examined whether the provisions recognised are sufficient on the basis of the information and insights available as at the reporting date and the claims have been properly processed. For our audit of the measurement of the provision for unknown claims, we examined the derivation of the estimated number of incurred but not reported claims and their amounts taking into account historical data as well as current developments and reviewed the arithmetical calculation for a deliberately selected sample of insurance classes and types.

By way of a time series comparison of, in particular, numbers, frequencies and average amounts of claims and claims ratios for the financial year and on the balance sheet, we analysed the development of gross claims reserves for the main insurance classes.

We also assessed whether the gross outstanding claims reserves in prior years were, in hindsight, sufficient to cover the actual claims and thus obtained indications of the adequacy of the historical estimates.

To check the measurement of the gross provision for inward reinsurance business, we examined both the process of entering the invoices received from the ceding insurers as well as for estimates and tested selected significant controls for ensuring complete and correct measurement in these processes. On the basis of a sample, we checked whether the invoices received matched with the values posted. We analysed the actuarial estimation techniques as to determine whether they give rise to, when applied properly, measurement of the gross provision that is in accordance with the requirements of Sec. 341g HGB. In addition, we analysed the mis-estimation (difference between the original invoices actually received in the following year and the estimated values recognised in the previous year) in order to assess the estimation quality.

Furthermore, to assess the measurement of the gross provision for reported, and incurred but not reported claims from direct non-life business and from inward reinsurance business, we performed our own claims forecasts on the basis of statistical methods and used our best estimate for each type of claim as a benchmark for assessing the measurement of the claims reserves as a whole.

In connection with the audit of the valuation of gross provisions for claims outstanding in direct non-life insurance business, we worked with the component auditors of individual group entities. To this end, we sent audit instructions to the component auditors about risk classification and the audit approach, especially in relation to the audit of the valuation of gross provisions for outstanding claims. We examined the reporting received from the component auditors as to whether the valuation of the gross provision is in accordance with the requirements of Sec. 341g HGB.

We used our own actuaries in the course of our audit.

Our audit procedures did not give rise to any reservations concerning the measurement of the provision for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding.

Reference to related disclosures

Information on the measurement of the gross provision for claims outstanding is provided in notes 2, 11 and 70 of the notes to the consolidated financial statements.

3. Measurement of the gross benefit reserve for the German life insurance business allowing for the interest rate obligations entered into in respect of insured persons

Reasons why the matter was determined to be a key audit matter

The gross benefit reserve is determined in accordance with IFRS 4.13 in conjunction with Sec. 341f HGB and Sec. 25 RechVersV [“Verordnung über die Rechnungslegung von Versicherungsunternehmen”: German Insurance Accounting Directive] in accordance with regulatory requirements and contains a range of assumptions about biometrics (including mortality or longevity and occupational incapacity), policyholders’ exercise of options (cancellation and lump-sum payments) and on costs and interest rates for actuarial obligations.

These calculation assumptions are derived from the premium calculation assumptions for the various scales on the one hand, and on current calculation assumptions on the other. The latter may originate from statutory provisions (e.g., the reference interest rate in accordance with the DeckRV [“Verordnung über Rechnungsgrundlagen für die Deckungsrückstellung”: German Ordinance on Calculation Assumptions for Benefit Reserves] or from publications by the German Association of Actuaries (DAV) (e.g., an updated mortality table for longevity risk). In addition, entity-specific assumptions made on the basis of past experience and allowing for current legal and economic developments, e.g., cancellation and lump-sum payment probabilities or biometric assumptions, are used in the analysis. The Board of Managing Directors derives these assumptions from historical data using mathematical methods, in some cases taking into account long-term assumptions as recommended by DAV.

In accordance with Sec. 341e (1) HGB, technical reserves are required to be recognised also to the extent deemed necessary according to prudent business judgement to ensure that obligations under insurance policies may be fulfilled at all times. The regulatory requirements adopted in the interests of the insured persons governing the calculation assumptions used to calculate the reserves, including the discount rate, and the allocation of certain investment income to the reserves must be observed.

In particular, the interest rate obligations entered into in respect of insured persons must be considered in accordance with Sec. 341f (2) HGB in conjunction with Sec. 5 (3) and (4) DeckRV in recognising the gross benefit reserve if the current or expected income from the Group’s assets is not sufficient to meet these obligations. This leads to recognition of a supplementary change-in-discount-rate provision, as part of the gross benefit reserve, which comprises the supplementary change-in-discount-rate reserve (new policies) and an addition to the discount rate reserves (existing policies).

In determining the supplementary change-in-discount-rate provisions, options are exercised that are set forth in the letter from BaFin [“Bundesanstalt für Finanzdienstleistungsaufsicht”: German Federal Financial Supervisory Authority] dated 5 October 2016 and entitled “Guidance on the calculation of the supplementary change-in-

discount-rate reserve for new policies and the allocation to the discount rate reserves for existing policies. In this connection, cancellation and lump-sum payment probabilities are used which are determined using judgement. These are affected in particular by assumptions about the behaviour of policyholders.

In light of the estimation processes and the related use of judgement and given the amount, there is a risk that the measurement of the gross benefit reserve for the German life insurance business does not meet the requirements of IFRS 4.13 in conjunction with Sec. 341f HGB and Sec. 25 RechVersV. For that reason we determined this to be a key audit matter.

Auditor's response

During our audit we walked through the processes for determining the gross benefit reserve for the German life insurance business including the supplementary change-in-discount-rate provision and assessed and tested the design and operating effectiveness of significant controls in this process. The tested controls cover, among other things, the completeness and correctness of the portfolio.

In addition, we performed analytical and substantive procedures on a sample basis. We developed our own expectation by extrapolating the gross benefit reserve on the basis of the profit allocations of recent years and the current development of the portfolio and compared this expectation with the reported values. In addition, we recalculated the gross benefit reserve and the supplementary change-in-discount-rate provision for selected subportfolios or policies. In addition, we performed ratio and time series analyses in order to analyse the development of the gross benefit reserve overall and for subportfolios or components thereof over time.

Our audit also included the derivation of the underlying calculation assumptions and an assessment of adequacy. In order to audit the adequacy of the calculation assumptions used to calculate the gross benefit reserve, especially in respect of the options used for the calculation of the supplementary change-in-discount-rate provisions, we critically appraised the derivation of the calculation assumptions on the basis of the historical and current portfolio development, profit allocation and the Board of Managing Directors' expectation of future policyholder behaviour. When assessing the adequacy of the calculation assumptions used, we referred in particular to the recommendations and publications of DAV and BaFin.

In addition, we examined whether the gross benefit reserve was recognised in accordance with the approved business plans and notifications pursuant to Sec. 143 VAG ["Versicherungsaufsichtsgesetz": German Insurance Supervision Act] and in compliance with the other regulatory requirements.

In addition, we analysed and critically reviewed the explanatory reports and the adequacy reports of the responsible actuaries of the various group entities and the results of the annual forecasts of BaFin to determine whether all risks with regard to the adequacy of the calculation assumptions and the ability to fulfill insurance policies at all times were considered in measuring the benefit reserve.

We used our own actuaries in the course of our audit.

Our procedures did not lead to any reservations relating to the measurement of the gross benefit reserve for German life insurance business, allowing for the interest rate obligations entered into in respect of insured persons.

Reference to related disclosures

Information on the recognition and measurement of the gross benefit reserve for German endowment and pension insurance policies is provided in notes 2, 11 and 70 of the notes to the consolidated financial statements.

4. Measurement of provisions relating to building society operations (Bauspar-specific provisions)

Reasons why the matter was determined to be a key audit matter:

Provisions relating to building society operations (Bauspar-specific provisions) primarily comprise provisions for interest bonuses (particularly loyalty bonuses) granted by the group company Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (BSH). The amount of the provisions to be recognised is determined on the basis of the results of the collective simulation (building society simulations used for forecasting). The determination of the underlying probabilities of customer behaviour (e.g., with regard to claiming of a loyalty bonus) is based on assumptions relating to the building society customers' future behaviour on the basis of historical data and the forecast capital market rate; these assumptions have a significant effect on the measurement of the provisions. BSH tests the plausibility of the amount of the provisions thus determined by reference to a supplementary expiry simulation. The forecast quality of the collective simulation model is tested annually during the validation process, by, among other things, backtesting.

In light of the complexity of the simulation models and the necessary use of assumptions and estimates subject to uncertainty with a significant effect on the amount of the provisions, the measurement of provisions relating to building society operations was a key audit matter.

Auditor's response:

We assessed the design and operating effectiveness of the internal control system with regard to the process for determining the amount of the provisions for interest bonuses.

We checked the methodology and the clerical accuracy of the calculations of the amount of the provisions using the collective simulation. In so doing, we examined the model used to determine whether the relevant contract portfolio was included in full in the calculation, whether the significant estimation inputs are included in the model and whether the model chosen with the related model assumptions appropriately determines the provision amounts within the scope of estimation accuracies customary in the industry for mathematically similar models.

In order to validate the estimation inputs, we analysed the current calculations by reference to historical data and the periods used and their weighting in the model by comparing the results of the current validation report with the inputs estimated in previous years, allowing for the historical forecast accuracy.

For the review of the building society simulation model, we used specialists in the audit team who have particular expertise in the area of building society mathematics.

Our audit procedures did not lead to any reservations relating to the measurement of provisions relating to building society operations.

Reference to related disclosures

Information on the measurement of provisions relating to building society operations is provided in notes 2, 26 and 69 of the notes to the consolidated financial statements.

5. Calculation of specific allowances for the DVB Subgroup's Shipping and Offshore loan portfolios

Reasons why the matter was determined to be a key audit matter

The valuation of the Shipping and Offshore loan portfolios and the resulting estimate of any necessary specific loan loss allowances constitutes a significant area of management judgement. The identification and valuation of impaired loans entail uncertainties and involve various assumptions and factors, in particular the financial situation of the borrower, expectations of future cash flows, observable market prices with regard to existing collateral and resulting net sales prices.

During our audit, the calculation of specific allowances for the DVB Subgroup's Shipping and Offshore loan portfolios within the customer lending volume was a key audit matter because together the two portfolios make up a significant share of DZ BANK Group's total customer lending volume and the market conditions in these areas are persistently negative. In light of these uncertainties, judgements involved in determining assumptions for valuing the portfolios can have a significant effect.

Auditor's response

During our audit, we analyzed the process implemented for identifying impaired loans and determining the IFRS 9 conformity of the valuation and assessed the effectiveness of the relevant existing internal controls.

We also performed substantive procedures using a risk-based selection and an additional sample, thereby assessing the adequacy of the specific allowances. The risk-based selection includes, in particular, watchlist loans and loans in problem loan processing in the Shipping and Offshore loan portfolios.

We obtained an understanding of the significant assumptions used in the impairment process during the audit. This included evaluating the individual estimates of the expected future cash flows from customers, including the cash flows from the realisation of loan collateral on the basis of our industry expertise and our expectations regarding the industry development. The effects of deferral agreements were taken into account in this respect. We used external appraisals by experts appointed by the Board of Managing Directors in our audit of collateral. We obtained an understanding of the assumptions used in these appraisals, appraised the adequacy of the valuation method used and assessed the competence and objectivity of the experts.

Our audit procedures did not lead to any reservations relating to the valuation of the Shipping and Offshore loan portfolios.

Reference to related disclosures

Information on the valuation of the loan portfolios (including DVB's Shipping and Offshore portfolios) are contained in notes 2, 5 and 85 of the notes to the consolidated financial statements and in the "Combined opportunity and risk report of DZ BANK and the DZ BANK Group" section of the group management report.

Other information

The Supervisory Board is responsible for the report of the Supervisory Board. In all other respects, the executive directors are responsible for the other information. The other information comprises the responsibility statement pursuant to Sec. 297 (2) Sentence 4 HGB in conjunction with Sec. 315 (1) Sentence 6, the combined separate group non-financial report of which we received a version before issuing this auditor's report, and other parts of the annual report of which we received a version before issuing this auditor's report, including the letter to shareholders and the report of the Supervisory Board.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other legal and regulatory requirements

Report on the assurance in accordance with Sec. 317 (3b) HGB on the electronic reproduction of the consolidated financial statements and the group management report prepared for publication purposes

Opinion

We have performed assurance work in accordance with Sec. 317 (3b) HGB to obtain reasonable assurance about whether the reproduction of the consolidated financial statements and the group management report (hereinafter the "ESEF documents") contained in the attached electronic file "DZ BANK_AG_KA+KLB_ESEF_2020-12-31.zip" and prepared for publication purposes complies in all material respects with the requirements of Sec. 328 (1) HGB for the electronic reporting format ("ESEF format"). In accordance with German legal requirements, this assurance only extends to the conversion of the information contained in the consolidated financial statements and the group management report into the ESEF format and therefore relates neither to the information contained in this reproduction nor to any other information contained in the abovementioned electronic file.

In our opinion, the reproduction of the consolidated financial statements and the group management report contained in the abovementioned attached electronic file and prepared for publication purposes complies in all material respects with the requirements of Sec. 328 (1) HGB for the electronic reporting format. We do not

express any opinion on the information contained in this reproduction nor on any other information contained in the abovementioned file beyond this reasonable assurance opinion and our audit opinion on the accompanying consolidated financial statements and the accompanying group management report for the financial year from 1 January 2020 to 31 December 2020 contained in the "Report on the audit of the consolidated financial statements and of the group management report" above.

Basis for the opinion

We conducted our assurance work on the reproduction of the consolidated financial statements and the group management report contained in the abovementioned attached electronic file in accordance with Sec. 317 (3b) HGB and Exposure Draft of IDW Assurance Standard: Assurance in Accordance with Sec. 317 (3b) HGB on the Electronic Reproduction of Financial Statements and Management Reports Prepared for Publication Purposes (ED IDW AsS 410). Our responsibilities under that standard are further described in the "Group auditor's responsibilities for the assurance work on the ESEF documents" section. Our audit firm applied the requirements for the quality assurance system set forth in the IDW Standard on Quality Control: "Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis" [Requirements for Quality Control in Audit Firms] (IDW QS 1).

Responsibilities of the executive directors and the Supervisory Board for the ESEF documents

The executive directors of the Institution are responsible for the preparation of the ESEF documents including the electronic reproduction of the consolidated financial statements and the group management report in accordance with Sec. 328 (1) Sentence 4 No. 1 HGB and for the tagging of the consolidated financial statements in accordance with Sec. 328 (1) Sentence 4 No. 2 HGB.

In addition, the executive directors of the Institution are responsible for such internal control as they have considered necessary to enable the preparation of ESEF documents that are free from material non-compliance with the requirements of Sec. 328 (1) HGB for the electronic reporting format, whether due to fraud or error.

The executive directors of the Institution are also responsible for the submission of the ESEF documents together with the auditor's report and the attached audited consolidated financial statements and the audited group management report as well as other documents to be published to the operator of the Bundesanzeiger [German Federal Gazette].

The supervisory board is responsible for overseeing the preparation of the ESEF documents as part of the financial reporting process.

Group auditor's responsibilities for the assurance work on the ESEF documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material non-compliance with the requirements of Sec. 328 (1) HGB, whether due to fraud or error. We exercise professional judgement and maintain professional scepticism throughout the engagement. We also:

- Identify and assess the risks of material non-compliance with the requirements of Sec. 328 (1) HGB, whether due to fraud or error, design and perform assurance procedures responsive to those risks, and obtain assurance evidence that is sufficient and appropriate to provide a basis for our assurance opinion.
- Obtain an understanding of internal control relevant to the assurance on the ESEF documents in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing an assurance opinion on the effectiveness of these controls.

- Evaluate the technical validity of the ESEF documents, i.e., whether the electronic file containing the ESEF documents meets the requirements of Delegated Regulation (EU) 2019/815, in the version valid as of the reporting date, on the technical specification for this electronic file.
- Evaluate whether the ESEF documents enable an XHTML reproduction with content equivalent to the audited consolidated financial statements and to the audited group management report.
- Evaluate whether the tagging of the ESEF documents with Inline XBRL technology (iXBRL) enables an appropriate and complete machine-readable XBRL copy of the XHTML reproduction.

Further information pursuant to Art. 10 of the EU Audit Regulation

We were elected as auditor by the Annual General Meeting on 27 May 2020. We were engaged by the Supervisory Board on 13 August 2020. We have been the auditor of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, without interruption since financial year 2002.

We declare that the opinions expressed in this auditor’s report are consistent with the additional report to the Audit Committee pursuant to Art. 11 of the EU Audit Regulation (long-form audit report).

In addition to the financial statement audit, we have provided to the Institution or entities controlled by it the following services that are not disclosed in the consolidated financial statements or in the group management report: reviews of interim financial statements, voluntary audits of the annual financial statements of controlled entities, project-based reviews and audit of reporting requirements and rules of conduct pursuant to Sec. 89 (1) WpHG [“Wertpapierhandelsgesetz”: German Securities Trading Act], including the audit of custody operations and the depositary function pursuant to Sec. 68 (7) KAGB [“Kapitalanlagegesetzbuch”: German Investment Code], issuance of comfort letters, certificates pursuant to Sec. 5 InvStG [“Investmentsteuergesetz”: German Investment Tax Act], agreed-upon procedures pursuant to ISRS 4400, reviews pursuant to ISRE 2410 and IDW AuS 900, assurance engagements relating to the internal control system at service organisations pursuant to IDW AsS 951 and ISAE 3402, audits of single financial statements or elements thereof in accordance with IDW AuS 490, other assurance engagements pursuant to ISAE 3000. In addition, permitted non-audit services in the form of tax and other advisory services for DZ BANK and its controlled entities (organisational or professional support for quantitative and qualitative data requests from supervisory authorities and in connection with regulatory reports, provision of information in connection with current and planned legislative amendments and events for employees of DZ BANK Group, preparation of certificates for foreign tax purposes, support with regard to new or amended tax reporting or documentation requirements, review of tax returns and tax brochures, tax due diligence services).

German Public Auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Christian Mai.

Eschborn/Frankfurt am Main, den 5. March 2021

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Eckl	Mai
Wirtschaftsprüferin	Wirtschaftsprüfer

The copy of the auditor's report also includes a "Report on the assurance in accordance with Sec. 317 (3b) HGB on the electronic reproduction of the consolidated financial statements and the management report prepared for publication purposes" ("separate report on ESEF compliance"). As the subject of the assurance engagement (ESEF documents) covered by the ESEF report has an electronic format, it is not possible to enclose it in a paper-based format. The audited ESEF documents can be inspected in or downloaded from the Bundesanzeiger [German Federal Gazette].

Report of the Supervisory Board

Henning Deneke-Jöhrens, Chairman of the Supervisory Board of DZ BANK AG

In 2020, the Supervisory Board carried out the tasks assigned to it by law, the Articles of Association, and rules of procedure. As part of this remit, the Supervisory Board advised the Board of Managing Directors and monitored its management activities. In particular, the Supervisory Board focused on the capital situation of DZ BANK and its strategy as the network-oriented central institution and holding company of a financial services group. It also studied current regulatory challenges arising from the EU's ongoing legislative process, such as implementation of the EU banking package. The Supervisory Board thoroughly examined the risk position of the bank and the group as well as the development of systems and procedures used to manage the main risks in the Bank sector and Insurance sector. The Supervisory Board was always involved in decisions of fundamental importance. The Board of Managing Directors provided the Supervisory Board with regular, timely, and comprehensive reports on all matters relevant to the company, in particular the strategy, planning, business performance, risk situation, risk management, remuneration systems, regulatory requirements, technology, organizational matters, and compliance.

In 2020, just about everything was shaped by the coronavirus pandemic, even in the German banking industry. The numerous risk factors considered to be major threats to the global economy at the beginning of the year, such as Brexit and international trade disputes, were completely eclipsed by COVID-19. The start of the COVID-19 crisis triggered a general flight to safe-haven assets, causing a sharp drop in the yields on ten-year Bunds, which hit a record low of minus 0.90 percent before settling in a range between minus 0.65 percent and minus 0.30 percent. In the wake of the lockdown in March, the stock markets – measured by the DAX – tumbled from around 13,795 points to 8,256 points. However, the indices then recovered, boosted by expansionary monetary and fiscal policy. Following the economic rebound in the summer months, the German economy hit turbulent waters again in the autumn. Many countries reintroduced lockdowns in November and December in response to a second wave of COVID-19. Nevertheless, the prospect of an effective COVID-19 vaccine then lifted sentiment markedly in financial markets. At the end of the year, the DAX rose to an all-time high of around 13,900 points. The euro also appreciated against the US dollar in

2020. It benefited from the agreement on the EU recovery fund, the averted risk of a hard Brexit, and from a further rise in risk appetite, which placed the dollar under pressure.

Despite the widespread impact of the COVID-19 pandemic on financial markets, the DZ BANK Group did not need to adjust its strategic focus to any significant degree. Nevertheless, the entities in the DZ BANK Group responded to the changed market conditions by taking various measures and adapting their product ranges. Nearly all sales activities were moved to digital channels owing to the social distancing requirements introduced in connection with the pandemic. Within the DZ BANK Group, precautionary measures were coordinated and implemented to ensure operational stability. The technical options for working from home were extended across the group. During the crisis, DZ BANK's committees and those of the Supervisory Board were kept up to date on the latest situation and were able to make decisions at all times by holding virtual meetings, including extra meetings added to the usual schedule. Changes that have been initiated, such as the accelerated digitalization of sales and back-office processes and the introduction of different ways of collaborating, will continue to have an effect on the DZ BANK Group's business activities even when the COVID-19 pandemic has passed. These changes also form part of the strategic initiatives designed to ensure DZ BANK's resilience for the future, which have been brought together under the 'Verbund First 4.0' strategic program established in 2018 and which continued to be the subject of detailed deliberations by the Supervisory Board in 2020. The program is aimed at improvements in three key areas: market offering, control and production processes, and corporate culture. A positive impact from the changes instigated under the 'Verbund First 4.0' strategy was already evident in the reporting year.

Meetings of the Supervisory Board

The Supervisory Board held five regular and two extraordinary meetings in 2020. Its members attended the meetings of the Supervisory Board and its committees regularly.

At its meetings in the reporting year, the Supervisory Board received and discussed reports from the Board of Managing Directors on current business performance and the capital situation of DZ BANK and the DZ BANK Group. In this context, there were also discussions on the impact of the COVID-19 pandemic on the performance, liquidity, and capital of the DZ BANK Group, the challenges for Bausparkasse Schwäbisch Hall posed by low interest rates, and the reduction of the portfolio and structure at DVB Bank. In addition, the Supervisory Board examined the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report for the year ended December 31, 2019 and approved them in line with the Audit Committee's recommendation. It reviewed the combined non-financial statement for DZ BANK AG and the DZ BANK Group for 2019 and confirmed that the statement satisfied the statutory requirements. It also decided to engage a third party to carry out a review of the combined non-financial statement for 2020. In further discussions, the Supervisory Board addressed the report on profitability in 2019 and, in accordance with the Audit Committee's recommendations, approved the report of the Supervisory Board to the Annual General Meeting as well as the agenda for the Annual General Meeting on May 27, 2020. Based on the recommendation of the Audit Committee, this was accompanied by the Supervisory Board's proposal to the Annual General Meeting that Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, (EY) be appointed as auditor of the single-entity financial statements and the consolidated financial statements for the year ended December 31, 2020 and as auditor for the review of the group's half-year financial report for the period ended June 30, 2020 and other interim financial statements at the level of the group or DZ BANK AG prepared for periods prior to December 31, 2020. This was linked, following a recommendation of the Audit Committee, to the Supervisory Board's proposal to the Annual General Meeting that PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, (PwC) be appointed as auditor responsible for the review report on interim financial statements at the level of the group or DZ BANK AG prepared for periods after December 31, 2020 but before the 2021 Annual General Meeting. These proposals were made in view of the planned change of auditor in 2021, which had been preceded by a process to select the auditor. In its deliberations, the Supervisory Board also elected the Chairman of the Supervisory Board and his two deputies. It decided on the composition of the

Supervisory Board committees and made recommendations on the appointment of the Chair and deputy for each committee.

Under items scheduled for regular discussion, the Supervisory Board examined the strategic and operational planning at DZ BANK and in the DZ BANK Group in the third and fourth quarters of 2020. This included discussing the recovery planning, which is required by law, and the outsourcing strategy. The Supervisory Board also adopted various resolutions in connection with transactions requiring its consent, such as long-term equity investments and loans. As part of another aspect of its activities, the Supervisory Board received and discussed a presentation from representatives of the ECB and Deutsche Bundesbank on the following: the reorganization of the Single Supervisory Mechanism (SSM) and the priorities for 2021; the COVID-19 support measures under the SSM; the 2020 Supervisory Review and Evaluation Process (SREP), including the most recent major progress made by DZ BANK and the supervisor's primary concerns and recommendations in respect of DZ BANK; and the key supervisory activities relating to DZ BANK in 2020. In addition, the Supervisory Board addressed nomination and remuneration issues, passing the necessary resolutions in accordance with the recommendations submitted by the Nominations Committee and Remuneration Control Committee. Finally, the Supervisory Board regularly received and discussed reports on the work of the committees from their Chairs.

The Supervisory Board held two extraordinary meetings in April in response to the COVID-19 pandemic and its economic and regulatory consequences. At these meetings, the Supervisory Board received reports from the Board of Managing Directors about the impact of the pandemic on the overall economy, capital markets, financial and risk position, and the funding and liquidity situation. The Supervisory Board also initially decided in April 2020 to present its proposal for the appropriation of profit (and thus payment of a dividend) for 2019 at an extraordinary general meeting of shareholders in the fourth quarter of 2020. This was because of the recommendations made by the ECB in March 2020 regarding banks' dividend policy during the COVID-19 pandemic. In order to retain the option of distributing a dividend in 2020, the Supervisory Board therefore initially postponed the resolution regarding the appropriation of profits from the Annual General meeting on May 27, 2020 until a date later in the year. However, the ECB maintained its restrictive stance on the payment of dividends, which meant that it still was not possible to distribute a dividend in the fourth quarter of 2020. As a consequence, the Board of Managing Directors of DZ BANK informed the Supervisory Board in September 2020 that it would no longer be convening an extraordinary general meeting of shareholders in 2020. Accordingly, the Supervisory Board could no longer propose an appropriation of profits in respect of 2019. Instead, the distributable profit for 2019 was treated as profit carried forward and added to the distributable profit for 2020. This treatment was agreed with the independent auditor. The Supervisory Board will come to a decision on this distributable profit when it makes its proposal for the appropriation of profit in respect of the 2020 financial year.

Meetings of the Supervisory Board committees

Each Supervisory Board committee also met on a number of occasions in 2020. During this period, the Remuneration Control Committee and Nominations Committee each held three meetings, the Audit Committee four meetings, and the Risk Committee five meetings. The Mediation Committee did not need to meet at all.

In the year under review, the **Nominations Committee** addressed the annual reappraisal of the Board of Managing Directors and the Supervisory Board, proposing a related resolution to the Supervisory Board. The committee also discussed the suitability and election of new members of the Supervisory Board and dealt with personnel matters relating to the Board of Managing Directors. Additionally, it decided on modifications to the framework policy for the suitability requirements relating to the Board of Managing Directors and the Supervisory Board and their members, and to two annexes to the policy (including the diversity policy).

At its meetings in 2020, the **Remuneration Control Committee** covered a wide range of remuneration issues and contractual matters relating to the Board of Managing Directors. This included the variable remuneration for the members of the Board of Managing Directors, with the committee setting the level of such remuneration for 2019 and specifying the company targets and individual targets for 2020. In this context, the committee also devoted time to specifying the overall amount of variable remuneration for DZ BANK AG and the DZ BANK Group. In further discussions, the committee examined contract extensions, the structure of the remuneration systems for employees, the appropriateness of the remuneration systems, analysis of the risk takers for 2020, and the remuneration officer's remuneration control report. Finally, the Remuneration Control Committee assessed the appropriateness of the remuneration of the Board of Managing Directors and received a forecast from the remuneration officer based on the latest remuneration regulations. Where necessary, the Remuneration Control Committee proposed individual resolutions to the Supervisory Board on these matters.

In 2020, the **Audit Committee** studied the findings of the audit of the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report for the year ended December 31, 2019 by EY. It proposed a related resolution to the Supervisory Board. The committee examined the auditor's reports on the half-year financial report of the DZ BANK Group and on the audit of the securities and investment services business in 2019/2020. Furthermore, the Audit Committee studied the planning for the audit of the 2020 single-entity and consolidated financial statements, discussed the auditor's areas of focus for 2020 and key findings from the current audit, and monitored the financial reporting process.

Furthermore, the committee discussed the appointment of the auditor of the single-entity financial statements and the auditor of the consolidated financial statements for 2020 as well as the auditor for the review of the group's half-year financial report and other interim financial statements. In this context, the Audit Committee discussed the independence and quality of the auditor and recommended to the Supervisory Board that the appointment of EY be once again proposed to the Annual General Meeting as auditor of the single-entity financial statements and the consolidated financial statements for the year ended December 31, 2020 and as auditor for the review of the group's half-year financial report for the period ended June 30, 2020 and other interim financial statements at the level of the group or DZ BANK AG prepared for periods prior to December 31, 2020. The fee to be paid to EY was taken into account. In view of EY's role as the independent auditor of Wirecard AG, the Audit Committee devoted greater effort to examining the issue of EY's independence as DZ BANK's auditor. Both the Audit Committee and EY ultimately came to the conclusion that EY could continue to act as the independent auditor of DZ BANK. In other activities, the Audit Committee prepared the Supervisory Board's review of the non-financial statement for DZ BANK AG and the DZ BANK Group for 2019. This also involved studying the findings of the external review of the non-financial statement, for which EY was also engaged by the Supervisory Board.

Because of the intended change of independent auditor in 2021, the Audit Committee recommended to the Supervisory Board that it propose to the Annual General Meeting the appointment of PwC or KPMG Aktiengesellschaft Wirtschaftsprüfungsgesellschaft, Berlin, as auditor for the review of any interim financial statements at the level of DZ BANK AG or the DZ BANK Group prepared for the period after December 31, 2020 but before the 2021 Annual General Meeting; it took into account the expected fees and expressed its preference for PwC. Beforehand, the Audit Committee had already reviewed the independence and quality of the PwC audit services.

In addition, the Audit Committee examined and discussed the business performance, capital, and profitability of the DZ BANK Group. It routinely focused on supervisory audits carried out in the DZ BANK Group, the latest regulatory issues, and the project portfolio. From the middle of the reporting year, non-financial risk at DZ BANK AG was integrated into the regular reports to the Audit Committee (NFR reporting). These reports include details on legal, information, security, and project risks as well as covering compliance risks. The Audit Committee addressed the changes in these risks and their reporting, and discussed these matters with the Board of Managing Directors. The committee also looked at the latest tax developments.

Other matters addressed by the committee included the report for the year ended December 31, 2019 and the quarterly reports prepared by Group Audit, the annual compliance report for 2019, and the IT strategy of DZ BANK and the DZ BANK Group. In this context, the Audit Committee monitored the effectiveness of the internal control system, risk management system, and internal audit. Additionally, it examined the engagement of the auditor for non-audit services and adjusted the guidance for the approval of such services at the end of the year. As part of these activities, the committee fundamentally revised the list of predefined services in view of the switch in auditor from EY to PwC in 2021. The revision included monitoring the upper limit on fees and checking the necessity of measures to maintain the auditor's independence.

The **Risk Committee** advised the Supervisory Board on current and future aggregate risk appetite and strategy in the DZ BANK Group. It also helped the Supervisory Board to monitor implementation of this strategy. This involved regularly examining the recovery indicators and the quarterly reports on aggregate risk and credit risk. As scheduled at the end of the year, it also involved reviewing the 2021 risk strategies for the DZ BANK Group. The Wirecard insolvency came up for detailed discussion in this context. As a result of the COVID-19 pandemic and following the supervisor's relaxation of various requirements, such as those relating to capital ratios, the risk appetite statement was adjusted during the year. The Risk Committee also paid close attention to DZ HYP's management of risk in connection with commercial real estate finance in the context of the COVID-19 pandemic. Furthermore, when addressing the risk reports and strategies, the committee monitored the effectiveness of the risk management system at DZ BANK AG and in the DZ BANK Group. The committee additionally focused on the review of the lending business, which had been brought forward, regulatory and organizational matters, and the shareholdings in connection with the audit of the annual financial statements for the year ended December 31, 2019. Moreover, the Risk Committee acknowledged and discussed the results of the stress tests in the DZ BANK Group. It also dealt with various loan applications and matters relating to long-term equity investments, where necessary adopting resolutions or issuing recommendations to the Supervisory Board. The committee discussed terms and conditions in the customer business and limit lists for banks and insurers. In line with its remit, it examined and monitored these limits. The Risk Committee reviewed DZ BANK's remuneration systems and recommended to the Supervisory Board that the requirements of section 7 of the German Regulation Governing Remuneration at Institutions (InstitutsVergV) be recognized as satisfied in terms of the current overall amount of variable remuneration. The deliberations of the committee also covered the DZ BANK Group's Brexit preparations and the work program for resolution planning in accordance with the Single Resolution Board's requirements.

Corporate governance

In line with the requirements of the German Banking Act, the Supervisory Board conducted an evaluation of the Board of Managing Directors and a self-evaluation in the first quarter of 2020. It found that the structure, size, composition, and performance of both the Board of Managing Directors and the Supervisory Board and the knowledge, skills, and experience of the individual members of the Board of Managing Directors and Supervisory Board and of the Board of Managing Directors and Supervisory Board as a whole fulfilled the requirements laid down by law and in the Articles of Association. The Supervisory Board therefore confirmed the individual suitability of the individual members of the Board of Managing Directors and Supervisory Board and the collective suitability of the Board of Managing Directors and Supervisory Board as a whole. In this context, it also signed off a profile of skills and expertise for the Board of Managing Directors and Supervisory Board.

In its view, the Supervisory Board had adequate financial and personnel resources at its disposal in 2020 to be able to support new members in becoming familiar with their role and to provide the training that is necessary to maintain members' required level of expertise. DZ BANK offered and offers to cover the costs for members of the Supervisory Board of training programs from external providers that are relevant to the activities of Supervisory Boards. As part of the onboarding process, new members took up the offer of customized internal training sessions and information meetings to help them prepare for their tasks on the Supervisory Board of DZ BANK AG. In 2020, the Supervisory Board also received internal training on IT matters.

There were no indications of fundamental and far-reaching conflicts of interests affecting Supervisory Board members.

Cooperation with the auditor

To monitor the independence of the auditor, the Audit Committee accepted EY's own confirmation of its independence and satisfied itself that EY complied with the prohibition on providing certain non-audit services. It also satisfied itself that EY has implemented appropriate processes and measures relating to quality assurance – including in connection with the acceptance and continuation of engagements and in connection with independent quality assurance related to engagements – and that EY is regularly subject to external quality control in the form of a peer review.

The Board of Managing Directors of DZ BANK issued a non-financial statement for 2020. The Supervisory Board decided to submit the statement for a voluntary external review, for which it engaged DZ BANK's auditor. EY did not become aware of any facts that would lead it to believe that the combined non-financial statement of the DZ BANK Group for the period January 1 to December 31, 2020 had not been prepared, in all material respects, in accordance with the statutory requirements. On this basis and in accordance with the Audit Committee's recommendation, the Supervisory Board concluded, having conducted its own review, that the non-financial statement complies with the statutory requirements. At its meeting on March 25, 2021, the Supervisory Board therefore approved the 2020 non-financial statement prepared by DZ BANK.

The auditor EY confirmed that the single-entity financial statements – together with the bookkeeping system – and the management report of DZ BANK as well as the consolidated financial statements and the group management report submitted by the Board of Managing Directors for the year ended December 31, 2020 complied with the applicable legal provisions. EY issued an unqualified opinion for each of these sets of financial statements. The audit reports were submitted to the members of the Supervisory Board, who discussed them in detail at their meetings. In addition, the Chairman of the Supervisory Board and the Chairs of the Supervisory Board committees maintained a regular, intensive dialog with the auditor. This dialog also covered the independent auditor's report pursuant to section 322 HGB (including the key audit matters). The Supervisory Board agrees with the findings of the audit.

Adoption of the financial statements

At their meetings, the Supervisory Board and its Audit Committee scrutinized the single-entity financial statements and management report of DZ BANK (including the Board of Managing Directors' proposal for the appropriation of profits) as well as the consolidated financial statements and group management report for the year ended December 31, 2020. The Chairman of the Audit Committee provided the Supervisory Board with detailed information about the committee's extensive deliberations on the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report. Representatives of the auditor attended the Supervisory Board meeting convened to adopt the financial statements as well as the preparatory meetings held by the Audit Committee and by the Risk Committee so that they could report in detail on the material findings of their audit. They were also available to answer questions from the members of the Supervisory Board. The Supervisory Board did not express any reservations following the concluding findings of its review. The Supervisory Board approved the single-entity financial statements of DZ BANK and the consolidated financial statements prepared by the Board of Managing Directors for the year ended December 31, 2020 at its meeting on March 25, 2021 in line with the Audit Committee's resolution recommendation. The financial statements have therefore been adopted. The Supervisory Board agreed with the Board of Managing Directors' proposal for the appropriation of profits of €578,812,975.50 in respect of 2020. This includes the distributable profit for 2019 amounting to €324,021,291.41, in respect of which the Annual General Meeting in 2020 did not pass any profit appropriation resolution in application of the ECB's recommendation on dividend policy at banks during the COVID-19 pandemic. Accordingly, the distributable profit for 2019 had to be carried forward to the next financial year. Following the end of the 2020 financial year, this amount no longer constituted a separate item in respect of which the Annual General Meeting of DZ BANK could pass a separate profit appropriation resolution. Instead, the distributable profit for 2020 comprises the total for the two years, namely the sum of €324,021,291.41 (2019) and €254,791,684.09 (2020). The distribution of dividends must take into account the ECB's pronouncement on December 15, 2020 in which it continues to recommend that banks exercise extreme caution when distributing dividends. The ECB provides for two dividend limits: dividend limit 1 is a maximum of 15 percent of the accumulated consolidated net profit for the financial years 2019 and 2020; dividend limit 2 is a maximum of 20 basis points in terms of the CET1 ratio as at December 31, 2020. The application of these dividend limits means that the dividends originally planned for financial years 2019 and 2020 cannot be distributed in full, at least initially. The dividends limit in relation to the CET1 ratio constitutes the greater obstacle. Taking into account the above requirements, both the Supervisory Board and the Board of Managing Directors believe that a maximum dividend of just €0.16 per non-par-value share can be proposed to the Annual General Meeting on May 19, 2021. A decision on any further dividend distributions could only be made at an extraordinary general meeting of shareholders in the fourth quarter of 2021.

Personnel changes on the Supervisory Board

Mr. Uwe Goldstein stepped down from the Supervisory Board of DZ BANK AG on May 27, 2020. Mr. Goldstein spent two years as a member of the Supervisory Board of the former WGZ BANK AG and subsequently four years as a member of the Supervisory Board of DZ BANK AG, in connection with which he was also a member of the Risk Committee and the Audit Committee, holding the position of Chairman of the Audit Committee for the last two years. The Supervisory Board would like to thank Mr. Goldstein for his huge level of commitment, in which he has been able to offer his expertise as an auditor and also his experience as a member of the Supervisory Board of WGZ BANK, thereby making a significant contribution to the successful development of DZ BANK.

After ten years as a member, Mr. Hermann Buerstedde also stepped down from the Supervisory Board of DZ BANK on May 27, 2020. The Supervisory Board is grateful to Mr. Buerstedde for being so dedicated and constructive and for representing the interests of the employees. During his time on the Supervisory Board, Mr. Buerstedde was a member of the Risk Committee for around nine years.

Mr. Sascha Monschauer and Mr. Rolf-Dieter Pogacar joined the Supervisory Board on May 27, 2020.

The Supervisory Board wishes to thank the Board of Managing Directors and all employees of the DZ BANK Group for their valuable contribution in 2020.

Frankfurt am Main, March 25, 2021

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank,
Frankfurt am Main

Henning Deneke-Jöhrens
Chairman of the Supervisory Board

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