2019 ANNUAL REPORT

KDB Bank

This report is also published in an interactive PDF format, allowing readers to move quickly and easily to pages in the report, and including shortcuts to related web pages. The 2019 Annual Report of KDB Bank in an interactive PDF format is available to download at our website. (www.kdb.co.kr)

A year of new growth,
a new direction, and
a new chapter, opening up

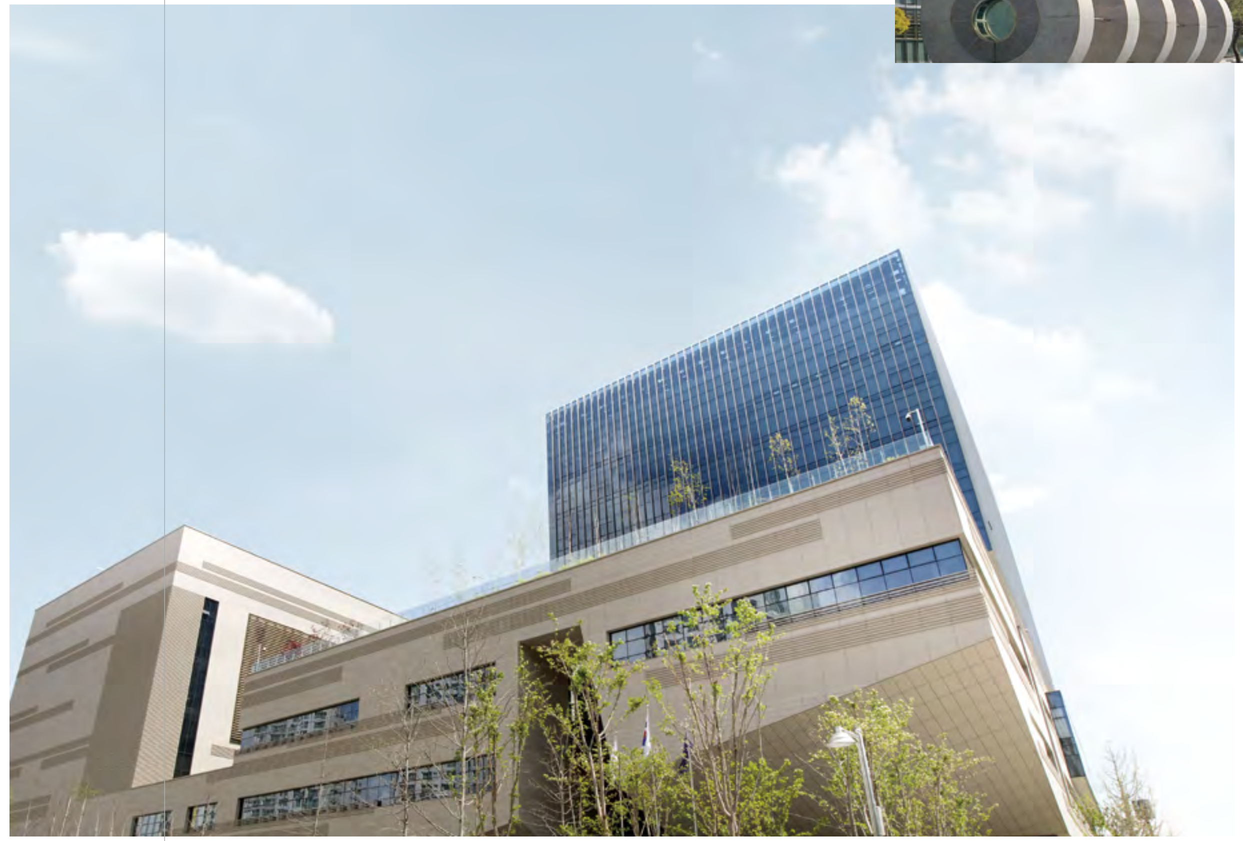
NEW OPPORTUNITIES FOR THE FUTURE

Korea Development Bank has been the backbone of the Korean economy and financial industry since its founding in 1954. Through the decades, we have continued to evolve in line with the demands of our markets and stakeholders, and we are now transforming from Korea's leading policy finance institution into a financial platform of Korea leading to a bright future.

As we usher in the new era of the 4th Industrial Revolution, KDB is providing a strong impetus, turning transactions into connections, connections into opportunities, and opportunities into powerful engines of new growth, thus fulfilling our role as an advanced policy bank at the forefront of Korea's sustainable growth.

Contents

KDB Headquarters (Seoul)



KDB Digital Square (Hanam-si, Gyeonggi-do)

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Message from the Chairman & CEO

Dear Clients and Readers,

I would like to express my sincere appreciation to all our clients, partner organizations, and stakeholders for your unwavering support and trust.

In 2019, KDB, as an advanced policy bank, once again propelled Korea's sustainable growth. In particular, we have sought to enhance the nation's growth potential, promote balanced development, and improve people's quality of life.

KDB has made great strides in restructuring deals amid economic challenges and trailblazed the path toward innovative growth in order to enhance its competitiveness. With the aim of supporting the government's policy-making in the sectors of innovative growth, we conducted in-depth research on industries including material, parts, equipment and logistics and provided funds worth KRW 16 trillion to the related sectors in the year 2019. Furthermore, KDB NextRound, the unique venture investment platform set up by KDB in 2016 for initiating start-ups, is now thriving and has received positive feedback on its potential to be equally well-received in the global arena.

Our goal in 2020 is to raise KDB's competitiveness to new heights through innovations that may require a radical departure from conventional practices. To this end, we plan to focus on the following objectives to create a better future and overcome any challenges that may arise in the course of our journey.

First, KDB will strive to foster the next leading companies and new industries.

To solidify the foundation for future economic growth, KDB will discover and incubate new leaders who will bring about growth and innovation. We also commit to reinforcing our business operations to provide customized solutions for SMEs and MEs with greater support in terms of scope and size so that we may build a favorable environment for the birth of new unicorn companies. We plan to set up a special program that will ensure investments in early stage industries and innovative firms, and to offer new financial solutions that are designed to accommodate companies' intellectual properties and data assets. Meanwhile, we will continue to lay the groundwork for nurturing newly emerging industries by conducting extensive research on promising industries.

To fulfill the plan more effectively, KDB undertook a slight reorganization. We established the Venture Finance Center at our head office in order to concentrate the resources and competence we want to direct to start-ups, and also introduced the Scale-up Banking Department within the Venture Finance Center for the purpose of helping promising start-ups unlock their full potential and blossom into scaleups. The Department will focus on providing large-scale financing to start-ups and comprehensive financial support to existing venture enterprises.

Second, KDB will make active investments in its digitalization and innovation.

KDB is committed to carrying out bank-wide digital transformation and applying digital technologies to every part of our working processes. In fact, we opened KDB Digital Square, the second headquarters building located in Hanam city to serve as an IT center, in 2019. Within the new center, the newly established Digital Transformation Department will mastermind bank-wide digital transformation – from drawing up strategic plans to overseeing execution.

In addition to making bold investments, KDB plans to recruit and appoint talented staff with the requisite digital expertise to work on innovative projects. Our goal is to successfully redesign the overall business process by applying the latest technological developments, such as incorporating data science, into corporate banking, KDB's key business area.

Alongside digital transformation, we are also pursuing a set of internal innovation. KDB has in part employed a smart office system to transform the workplace into an entirely tech-savvy business environment. Such schemes of internal innovation are being developed from various angles with the goal of improving our business processes and establishing a healthy organizational culture.

Third, KDB will put the needs of its clients first.

"We heed voice of clients" is at the top of the list of KDB Way, a new set of guiding principles of the Bank. As such, KDB will pay a close attention to the opinions of our clients; empathize with their real-life concerns; put heads together to find the best solutions for them; and act as a messenger to the government to voice their problems and bring about policy reforms.

KDB NextRound will be diversified into Special Rounds focusing on a particular industry or sector, and Global Rounds specifically designed for firms that are seeking to do, or are already doing, business abroad. We will also introduce new modes of communication to facilitate active discussions among the participants of the Rounds. Likewise, we plan to expand our horizons to create new platforms similar to the KDB NextRound, with an aim to encourage various market players to create new ideas, and to build a strong supply chain for key industries.

Lastly, KDB will secure stability and persistence in policy finance.

We are now in an era in which constant exposure to risk, including the COVID-19 pandemic, has become the new normal. In these unprecedented times, KDB will ensure stability and continuity in performing the duties required of KDB as a policy bank by undertaking higher levels of preemptive risk management, and by proactively preparing effective countermeasures against risk.

In order to brace for after-effects of COVID-19, we will provide financial services to innovative industries so that we can enhance the industrial competitiveness of Korea and thus be ready for the very different future which awaits us. We will also reinforce the foundations of our business by expanding our global network, including in Southeast Asia.

To fulfill the policy financing mandate, KDB, as an advanced policy bank, will secure new growth engines by fostering industries and companies concentrated on innovative growth, and will also continue working to improve the fundamentals of major industries and companies.

I ask for your on-going support and encouragement as KDB continues to tread new paths towards innovation.

Thank you.

Dong-Gull Lee

Lee, Dong Gull

Chairman & CEO

Korea Development Bank

Board of Directors & Senior Management

KDB strives to create values for the benefit of its stakeholders through a responsible and transparent management system which is made possible by its advanced governance.

Board of Directors

Lee, Dong Gull
Chairman & CEO

Sung, Joo Yung
Vice Chairman & COO

Seo, Cheol Hwan
Auditor

Yang, Chae Yeol
Independent Director

Kim, Jung Sik
Independent Director

Kim, Nam Jun
Independent Director

Lee, Yune
Independent Director

Son, Kyo Deog
Independent Director

Senior Management: Division Heads

Chang, Byoung Don
Innovation & Growth Banking Division

Oh, Jin Kyo
SME Banking Division

Choi, Dae Hyon
Corporate Banking Division

Lee, Byung Ho
International Business Division

Yang, Ki Ho
Capital Market Division

Bae, Young Un
Credit Review Division

Kim, Sang Soo
Risk Management Division

Kim, Bock Kyu
Strategy & Planning Division

Lee, Young Jae
Business Administration Division

KDB at a Glance

Foundation

1954

Number of Employees

3,410

Credit Ratings

Aa2
Moody's

AA
S&P

AA-
Fitch

* Equivalent to the sovereign ratings of the Republic of Korea

GLOBAL INITIATIVES

UN Global Compact

Green Climate Fund

International Development Finance Club

Equator Principles

* As of December 31, 2019

Summary Statement of Financial Position

(Unit: KRW billion; Consolidated basis)

	2019	2018	Change	
			Amount	%
ASSETS	**268,839.7**	260,076.2	8,763.5	3.4
Cash & due from banks	**7,761.2**	8,730.0	(968.8)	(11.1)
Securities	**78,179.8**	77,412.0	767.8	1.0
Loans	**149,926.9**	142,936.0	6,990.9	4.9
Other assets	**32,971.7**	30,998.2	1,973.5	6.4
LIABILITIES	**233,762.6**	225,822.7	7,939.9	3.5
Deposits	**36,315.3**	33,949.2	2,366.1	7.0
Borrowings	**24,968.4**	26,379.5	(1,411.1)	(5.3)
Bonds	**125,206.8**	123,175.4	2,031.4	1.6
Other liabilities	**47,272.1**	42,318.6	4,953.5	11.7
EQUITY	**35,077.1**	34,253.4	823.7	2.4
Issued capital	**18,663.1**	18,108.1	555.0	3.1
Capital surplus	**1,000.6**	813.8	186.8	23.0
Retained earnings	**10,658.8**	10,518.9	139.9	1.3
Capital adjustments	**278.0**	316.4	(38.4)	(12.1)
Accumulated other comprehensive income	**40.9**	24.7	16.2	65.6
Non-controlling interests	**4,435.6**	4,471.5	(35.9)	(0.8)

Summary Statement of Income

(Unit: KRW billion; Consolidated basis)

	2019	2018	Change	
			Amount	%
Net operating revenue	**2,663.8**	3,172.0	(508.2)	(16.0)
Net interest income	**1,870.5**	2,174.8	(304.3)	(14.0)
Non-interest income	**793.2**	997.2	(204.0)	(20.5)
Provision for credit losses	**208.6**	94.1	114.5	121.6
G&A expenses	**1,529.2**	1,388.7	140.5	10.1
Operating income	**926.0**	1,689.2	(763.2)	(45.2)
Non-operating income	**(847.2)**	945.3	(1,792.5)	(189.6)
Income tax expenses	**98.2**	444.7	(346.5)	(77.9)
Profit for the period from continuing operations	**(19.5)**	2,189.8	(2,209.3)	(100.9)
Profit from discontinued operations	**298.6**	(1,483.9)	1,782.5	120.1
Net profit	**279.1**	706.0	(426.8)	(60.5)

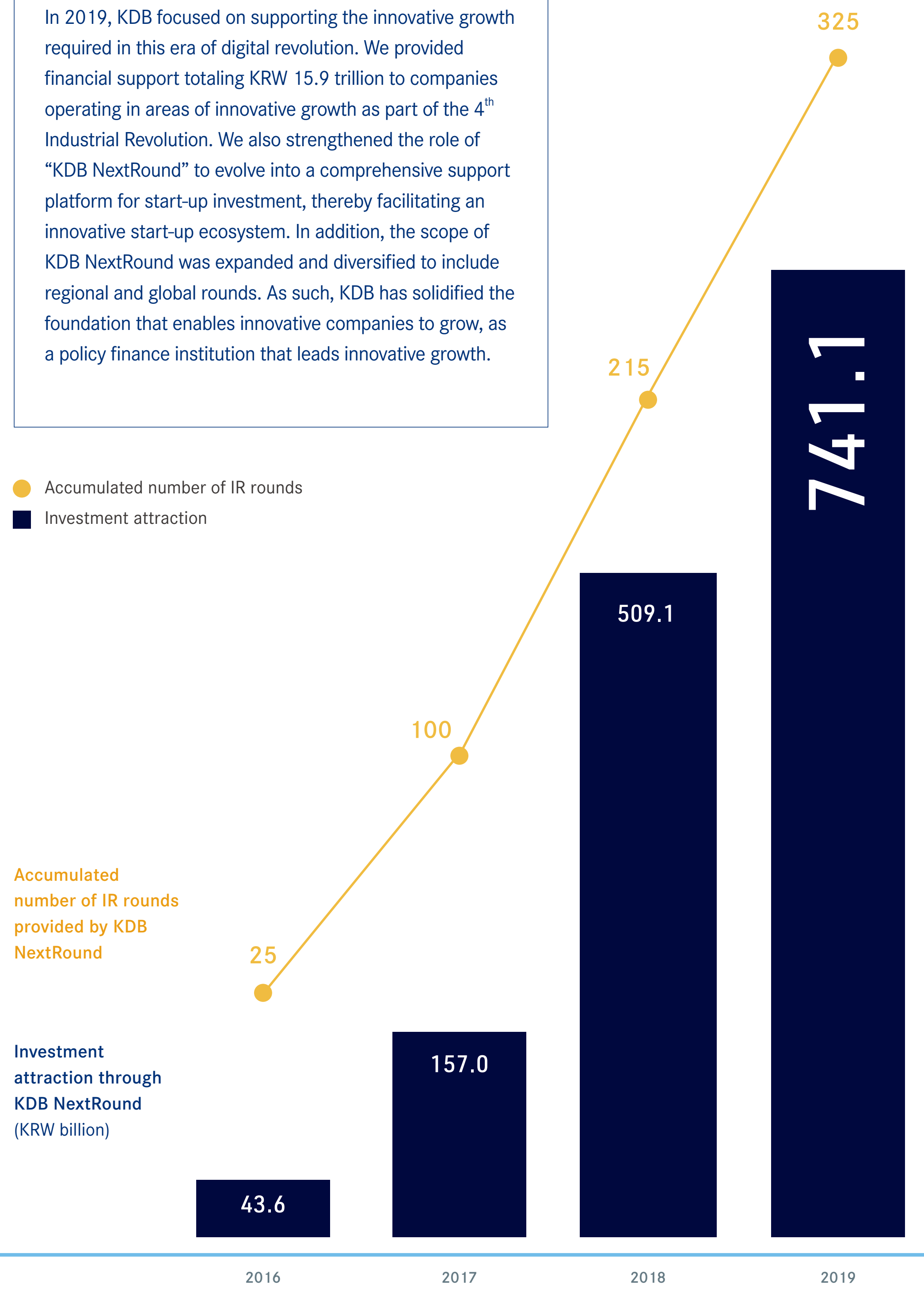
New
GROWTH

2019 Business Highlights

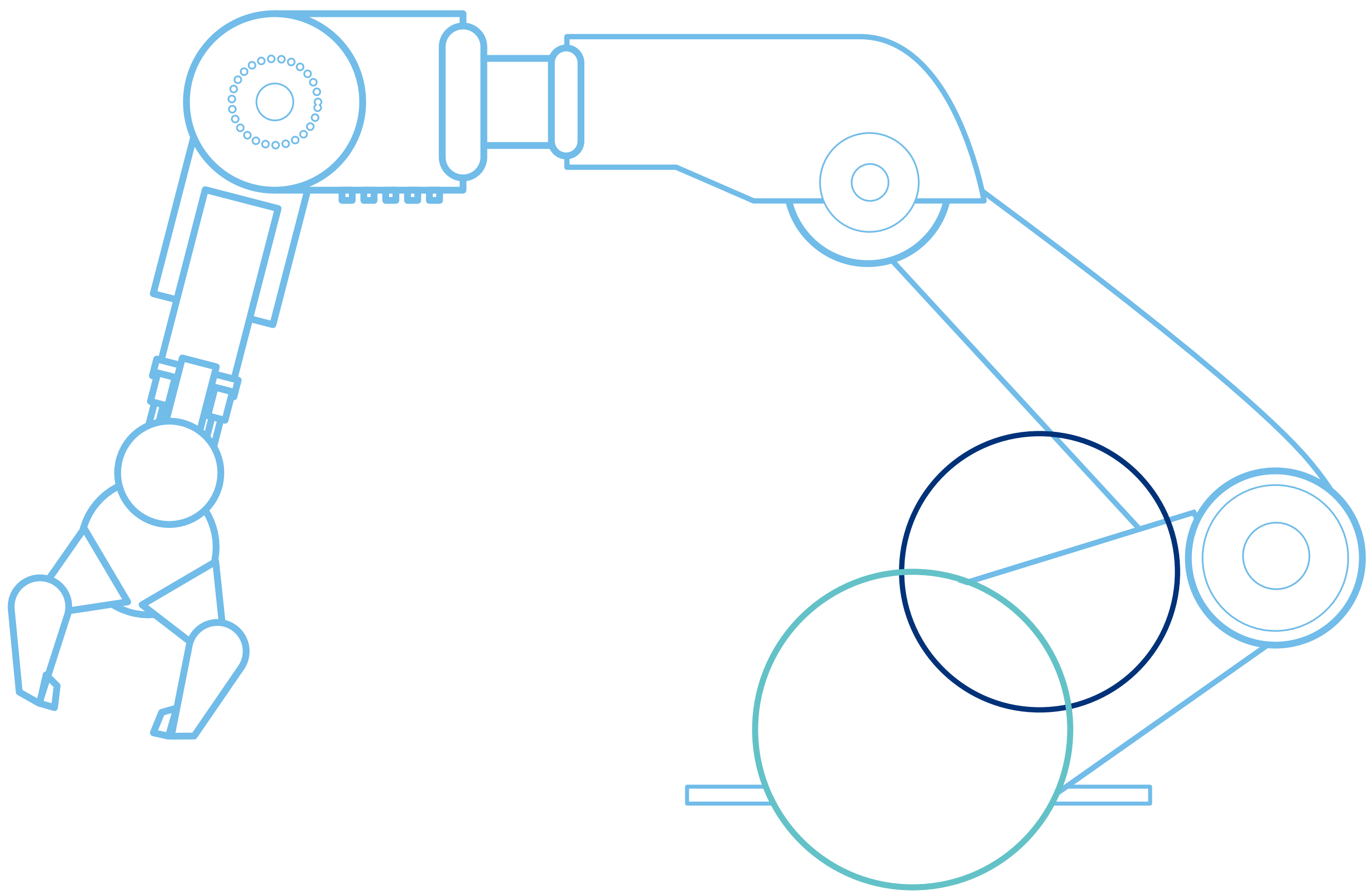
Innovation & Growth Banking | Venture Finance

Supported the growth of innovative industries

In 2019, KDB focused on supporting the innovative growth required in this era of digital revolution. We provided financial support totaling KRW 15.9 trillion to companies operating in areas of innovative growth as part of the 4th Industrial Revolution. We also strengthened the role of "KDB NextRound" to evolve into a comprehensive support platform for start-up investment, thereby facilitating an innovative start-up ecosystem. In addition, the scope of KDB NextRound was expanded and diversified to include regional and global rounds. As such, KDB has solidified the foundation that enables innovative companies to grow, as a policy finance institution that leads innovative growth.



INNOVATIVE GROWTH



194
Number of start-up participants for the NextRise 2019, Seoul

13,000+
Number of visitors of the NextRise 2019, Seoul

900+
Number of meetings held in relation to business cooperation and investment opportunities at NextRise 2019, Seoul

NextRise 2019, Seoul

In July 2019, KDB hosted "NextRise 2019, Seoul", the largest global start-up fair in Korea. Participants included major corporates and venture capital companies from Korea and overseas, and other members of the start-up ecosystem. By connecting start-up companies with major corporates and investors, NextRise 2019, Seoul, made significant contributions to the development of an innovative start-up ecosystem in Korea.

NextRise 2019, Seoul

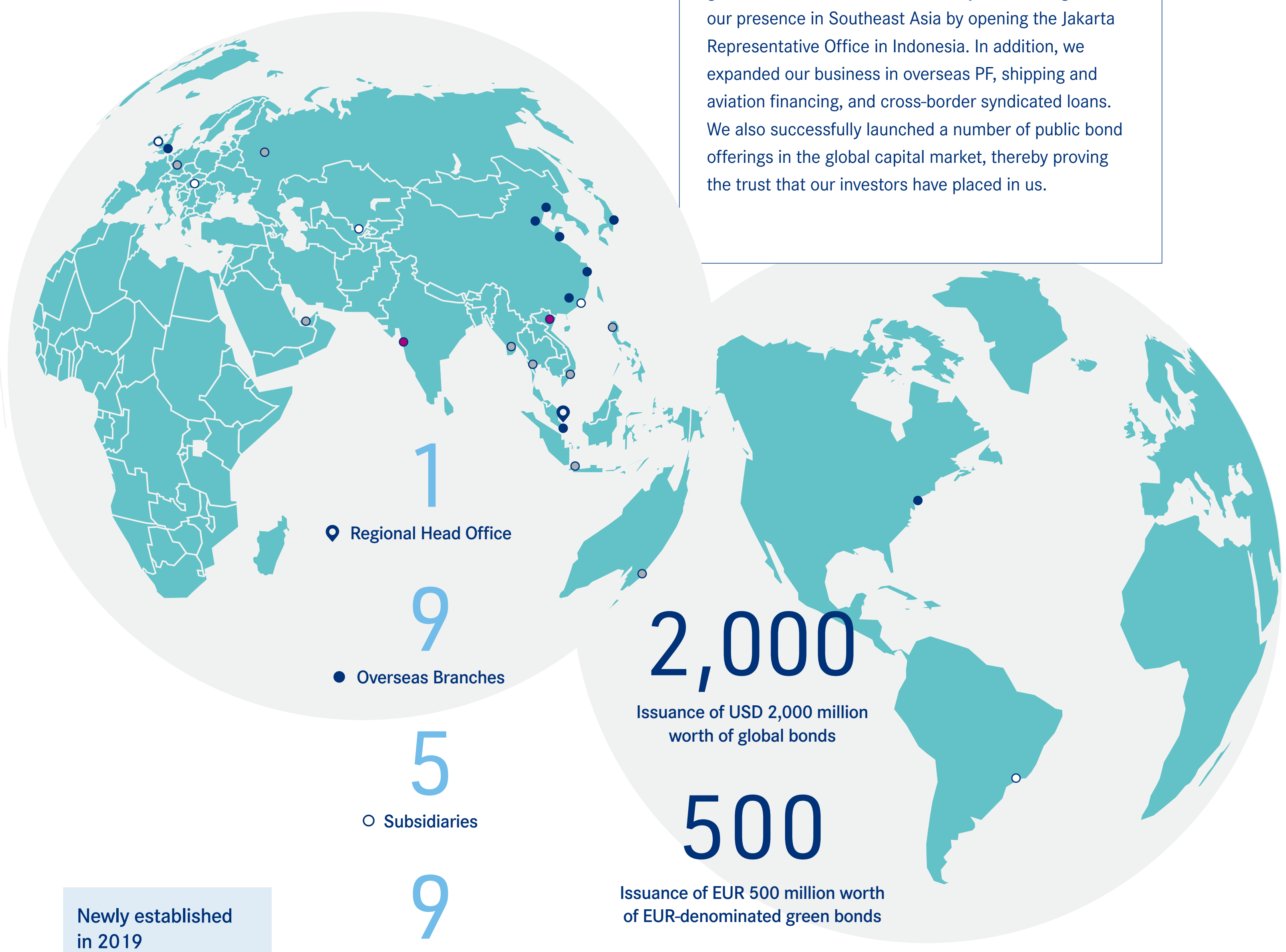
GLOBAL GROWTH

International Business | Project Finance | Liability Management

Identified new opportunities in overseas markets

In 2019, KDB solidified its overseas market presence, identified new promising business opportunities, and advanced further into global markets. We supported the government's "New Southern Policy" and strengthened our presence in Southeast Asia by opening the Jakarta Representative Office in Indonesia. In addition, we expanded our business in overseas PF, shipping and aviation financing, and cross-border syndicated loans. We also successfully launched a number of public bond offerings in the global capital market, thereby proving the trust that our investors have placed in us.

26 Global Networks in 19 Countries



1
Regional Head Office

9
Overseas Branches

5
Subsidiaries

9
Representative Offices

2
Expatriate Employees

2,000
Issuance of USD 2,000 million worth of global bonds

500
Issuance of EUR 500 million worth of EUR-denominated green bonds

700
Issuance of AUD 700 million worth of Kangaroo bonds

Newly established in 2019

Indonesia
Opened the Jakarta Representative Office

Hong Kong
Launched the IB Sales & Syndicate Desk

* As of December 31, 2019

SUSTAINABLE GROWTH

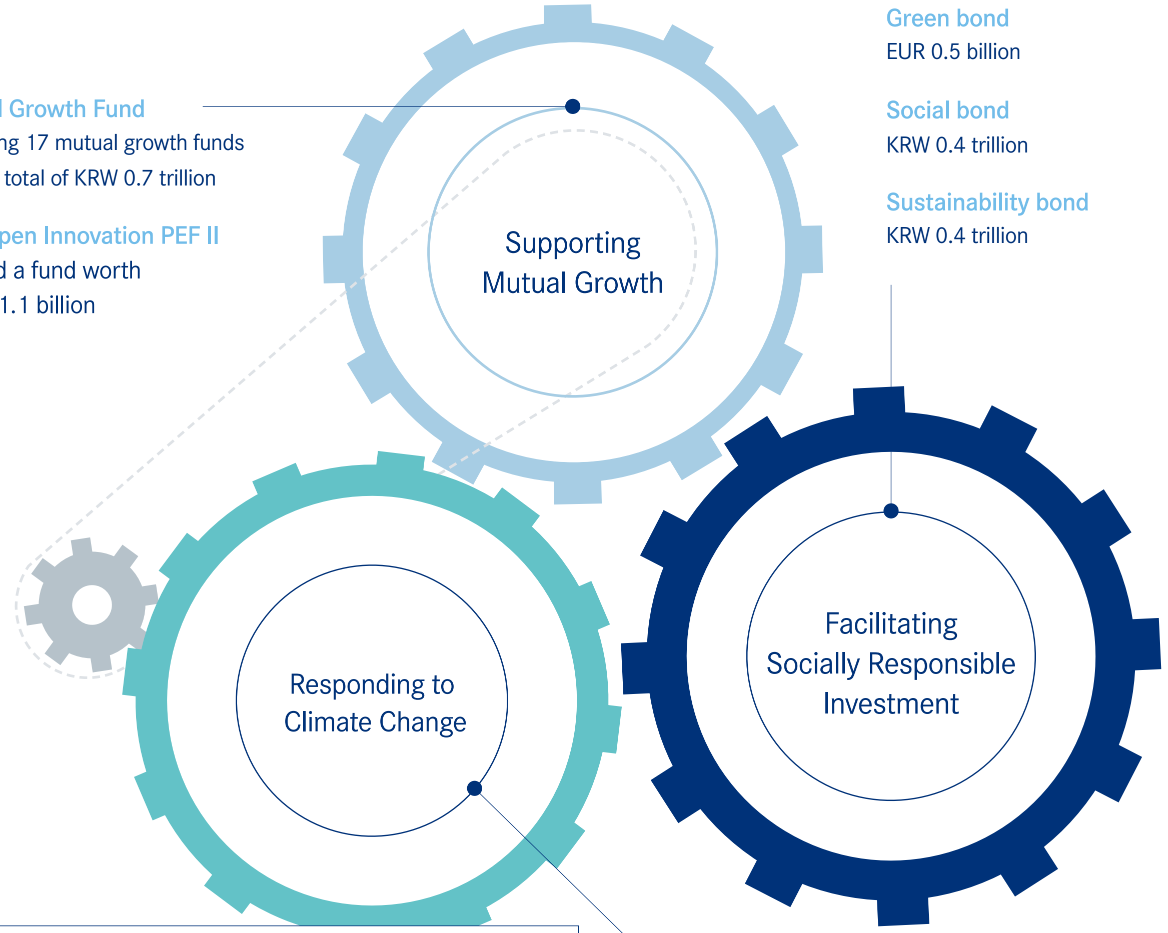
Mutual Growth Fund
Managing 17 mutual growth funds worth a total of KRW 0.7 trillion

KDB Open Innovation PEF II
Formed a fund worth KRW 21.1 billion

Green bond
EUR 0.5 billion

Social bond
KRW 0.4 trillion

Sustainability bond
KRW 0.4 trillion



Became a market maker for greenhouse gas emissions trading

Hosted the KDB-KEPCO Climate Finance Forum 2019

Corporate Banking & Restructuring | Venture Finance | Corporate Social Responsibility

Created social value through inclusive finance

In 2019, KDB strived to create social values through finance by strengthening the social role of policy finance with the goal of achieving mutual growth throughout society. We continued to run the Mutual Growth Fund, which aims at joint growth shared between large companies and SMEs & MEs. In addition, we encouraged the development of regional economies and the growth of innovative companies by establishing a fund which supports cooperation between local MEs and innovative SMEs & start-ups. KDB also led the financial industry's fulfillment of its social responsibilities and expanded the Korean ESG bond market by issuing green bonds, social bonds, and sustainability bonds.

* As of December 31, 2019

New
DIRECTION

CONNECT grow smarter

Mission & Vision   IT & Digital Transformation

KDB put its full effort into the digital transformation drive in 2019 in order to develop the technological capabilities required of a policy finance institution in the digital era.

In May, we expanded our future-oriented infrastructure by completing the development of the Next Generation Information System which was begun in 2017, and in June we completed the construction of the new “KDB Digital Square” data center. In addition, KDB set out its vision to become “Korea's Financial Platform Leading to a Bright Future”. To this end, we will look for new ways of thinking and acting required for digital transformation, in addition to digital innovation of our products and services, and will thus transform KDB into an advanced policy bank at the forefront of Korea’s sustainable growth.

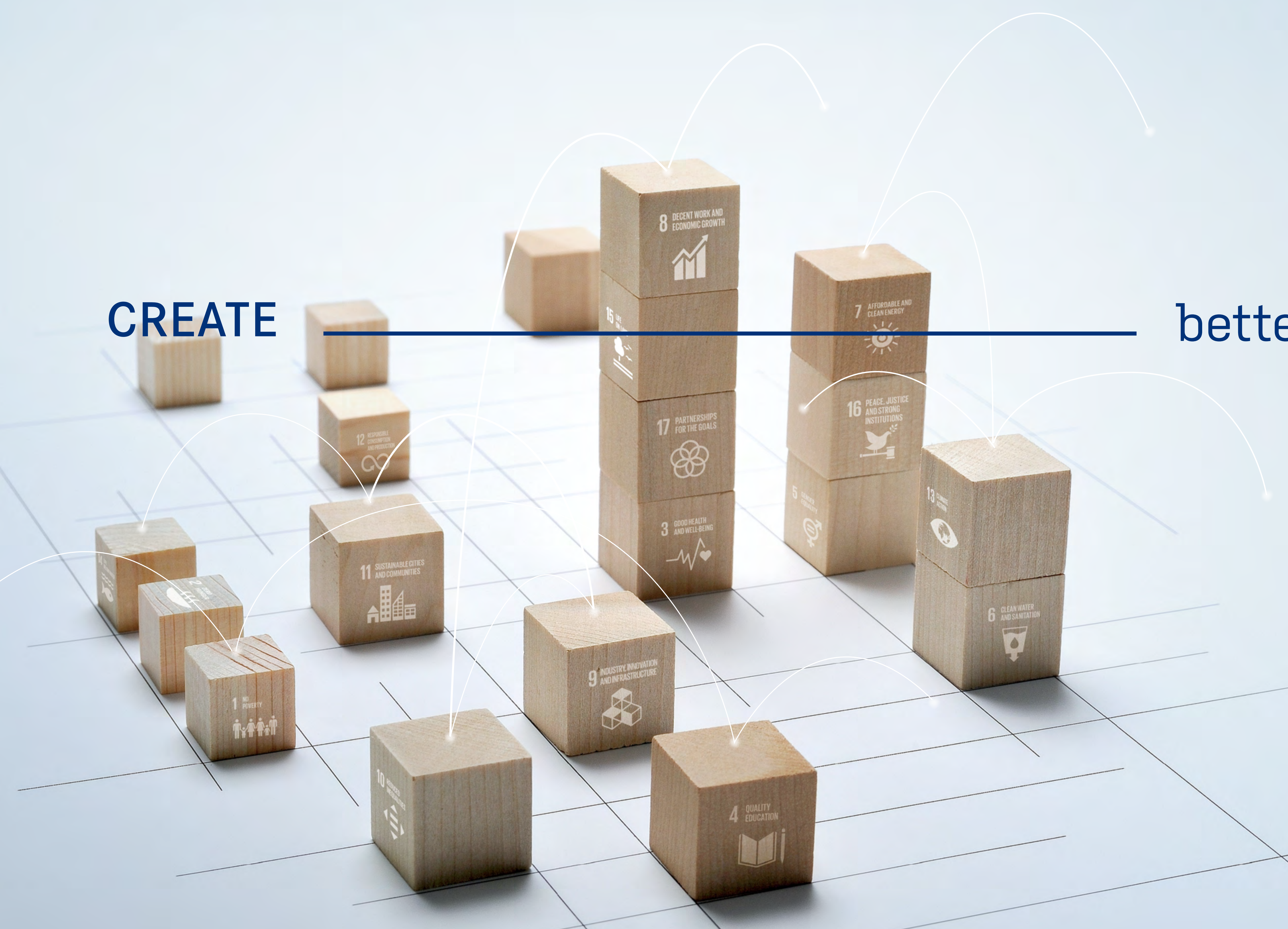
COLLABORATE — rise higher

Venture Finance

KDB seeks to prosper in partnership and cooperation with key players of the Korean economy, including SMEs and innovative companies which generate new growth.

In 2019, KDB partnered with Korea's top seven venture capital firms to launch the "Mega-7 Club", a joint investment council aimed at helping Korean companies grow into global unicorns. We will continue to expand the scope and scale of our policy finance support for innovative growth, so that Korean companies can enter global markets and become leading next-generation companies.

CREATE better tomorrow



Innovation & Growth Banking

KDB aims to amplify its positive social impact through finance.

As a part of this effort, in 2019, we made our first commitment to an impact fund, thus supporting companies that aim to solve social and environmental issues while also building sustainable business models, thereby contributing to creating a virtuous cycle in which businesses can both generate substantial social value and also grow in economic terms. Going forward, we will continue to lead the development of an investment ecosystem which focuses on social and environmental values as much as profitability.

New
CHAPTER

Mission & Vision

Long-term Growth Direction – Goals for 2040

KDB has set the direction for its long-term growth, targeting the year 2040, so that it can respond to changes in economic and social trends from a long-term perspective, and redefine the roles of an advanced policy bank.

Mission & Vision

KDB will realize its vision of becoming “Korea’s Financial Platform Leading to a Bright Future” through its mission of being an “Advanced Policy Bank at the Forefront of Korea’s Sustainable Growth”.

The Mission envisions “an advanced policy bank” whose identity and roles are supporting industrial and social development by promoting the national economy and improving people’s quality of life. Our Vision embodies our determination to develop into an innovative financial institution, spearheading the 4^{th} Industrial Revolution and embracing all our stakeholders. As a “financial platform”, KDB will become more than an intermediary for borrowers and lenders and instead provide comprehensive financial services, and connect all stakeholders so that they can exchange information in the most efficient and beneficial ways possible.

KDB Way & Long-term Tasks

KDB has selected eight strategic tasks based on the KDB Way, a set of guiding principles shared by all the members of KDB, in order to achieve the Vision. It will fulfill its Vision for 2040 by successfully completing the four business tasks and four tasks for internal innovation.

Mid-term Management Strategy (2019 - 2023)

Based on its Long-term Growth Direction, KDB has established mid-term management strategies for the period 2019-2023.
The Bank has set out 13 detailed strategic tasks with which it will achieve its five strategic goals – lead innovation & growth banking; support the reshaping of the industrial ecosystem; enhance the competitiveness of global & investment banking business; pioneer new areas of policy finance; and build stable, sustainable foundations.

KDB Digital Square (Hanam-si, Gyeonggi-do)

IT & Digital Transformation

Long-term Growth Direction (Goals for 2040)

MISSION

Advanced Policy Bank[1)]
at the Forefront of Korea's Sustainable Growth

VISION

Korea's Financial Platform[2)]
Leading to a Bright Future

KDB WAY

01 We heed voice of clients.	02 We step out of comfort zone into calculated challenges.	03 We cooperate with outside to find better ways.	04 We think forward to act forward.	05 We provide expert's solution.
06 We embrace change.	07 We communicate and initiate.	08 We find solution on the spot.	09 We take full responsibility to become a socially reliable bank.	10 We think digital.

KEY TASKS

TASKS FOR BUSINESS SUCCESS

- Focus on corporate and industrial innovation
- Secure global competitiveness
- Support the new economic era of the Korean Peninsula*
- Build a solid marketing foundation for policy finance

TASKS FOR INTERNAL INNOVATION

- Establish ourselves as the R&D hub for policy finance
- Pursue bank-wide digitalization
- Create a healthy organizational culture for friendly work environment
- Build a foundation for autonomous management

* To be implemented in connection with the progress in denuclearization negotiations and improvements in inter-Korean relations

Mid-term Management Strategy (2019 – 2023)

STRATEGIC GOALS	Lead innovation & growth banking	Support the reshaping of the industrial ecosystem	Enhance the competitiveness of global & investment banking business	Pioneer new areas of policy finance	Build stable, sustainable foundations
STRATEGIC TASKS	• Foster new industries and new technologies • Become a leading venture capital platform • Strengthen roles as a venture capital supplier	• Help traditional key industries enhance competitiveness • Help innovative SMEs and MEs grow	• Expand the platform for global operations • Increase profitability of global operations • Globalize IB operations and provide more support through policy financing	• Identify new demands for policy finance • Prepare for the new economic era of the Korean Peninsula	• Purse bank-wide digital transformation • Enhance stable revenue generation capabilities • Innovate the organization and internal processes

1) **An advanced policy bank** refers to a government-owned financial institution, which aims to support both industrial and social sectors by promoting the national economy and improving people's quality of life

2) A financial platform refers to an innovative financial institution that performs more than an intermediary for borrowers and lenders – it connects all stakeholders, allows information exchange, and provides comprehensive financial services

Management Plans for 2020

MANAGEMENT GOAL

Global KDB, the future-oriented powerhouse for Korea's innovative growth

KEY STRATEGIC TASKS

1. Accelerate innovative growth to build a foundation for future growth
2. Help companies improve their fundamentals and boost their industrial competitiveness
3. Discover new financial frontiers by boosting global & investment banking capacities
4. Promote common good and create social values through policy financing
5. Secure the stability and sustainability of policy finance operations

TASK DETAILS

1
- Facilitate the ecosystem for innovative start-ups and growth
- Expand financial support for future industries and innovative companies

2
- Boost growth potentials of SMEs and MEs
- Strengthen basic and core industries
- Ensure efficient business recoveries

3
- Continue to expand the platform for global operations
- Make further inroads into global wholesale financial market
- Enhance competitiveness of IB operations

4
- Strengthen financial inclusion through job creation, balanced regional growth, etc.
- Expand environmentally and socially responsible finance and undertake corporate social responsibility (CSR) activities

5
- Secure solid profit base and improve financial soundness
- Strengthen internal capacities through digital transformation and organizational innovation

BUSINESS REVIEW

In 2019, KDB fulfilled its policy financing roles by ensuring a constant and reliable supply of funds for industries, with a particular focus on SMEs & MEs as well as the industries of the future. We, as Korea’s financial platform leading to a bright future, also continued to accelerate the innovative growth of the Korean economy as we usher in the new era of the 4th Industrial Revolution, in order to support the stable and sustainable growth of the national economy.

Corporate Banking & Restructuring

Corporate Banking

REVIEW OF 2019 In 2019, growth in the global economy was limited by slowing production and investment from major economies, including China and the Eurozone, and by the deepening US-China trade dispute. On top of that, the trade conflict with Japan was also a grave risk factor specifically for the Korean economy.

In response to such challenges, KDB provided preemptive financial support for small and medium-sized enterprises (SMEs) and medium-sized enterprises (MEs), thereby bringing greater vitality to the whole economy. We also sought to solidify the foundations for the sustainable growth of the Korean economy by actively reaching out to SMEs and MEs in areas of innovative growth. In addition, we set up a task force to enhance Korea's industrial competitiveness over mid-to long-term in response to the prolonged Korea-Japan trade conflict. The Bank thoroughly analyzed the impact on industrial sectors that have been most affected by the trade conflict, and has suggested effective countermeasures.

As Korea's leading policy finance institution and corporate banking specialist, KDB has increased financial support for basic industries, including materials, parts, and equipment, helping them improve their overall competitiveness. The Bank is also actively supporting business realignments through syndicated and leveraged finance. In addition, the Joint Support Council for Overseas M&A and Investments, composed of 14 institutions including KDB, has been established, in order to provide comprehensive joint support for overseas M&A and investments by Korean companies. Moreover, KDB's efforts also include supporting regional job programs, preemptive corporate restructurings, and the 4th Industrial Revolution.

KDB plays an active role in shaping the economic and industrial policies of Korea in partnership with government agencies and other policy finance institutions. The Bank is at the forefront of creating an ecosystem for balanced growth between large corporate groups and SMEs & MEs through win-win programs for both players. KDB is also contributing to job creation and expanding its client base through its continued efforts on discovering new promising MEs and providing them with proper financial support.

As the leading policy finance institution for Korea's economic development, KDB supports the stable and sustainable growth of the national economy.

Landmark deals of 2019

Financial support to strengthen the competitiveness of key industries

OVERVIEW

- KDB provided financial facilities for CapEx investments and business realignments, with the goal of improving the competitiveness of core industries, including semiconductors, displays, and rechargeable batteries.

FEATURES

- SK hynix: Provided USD 500 million for CapEx investments into additional semiconductor manufacturing facilities
- LG Chem: Set up a USD 5 billion green loan program for CapEx investment to increase global production capacity for rechargeable batteries

SIGNIFICANCE

- KDB collaborated with its clients to strengthen their competitiveness in parts and materials industries by providing financial facilities for their business realignments and CapEx investments in rechargeable batteries – a core area of the 4th Industrial Revolution.

Support for win-win regional job programs

OVERVIEW

- KDB built a cooperation system with local governments and provided financial advice on the regional job programs in order to create jobs and ensure balanced regional development.

FEATURES

- Gwangju Global Motors (Paid-in capital: KRW 211 billion): Spurred regional job programs through an equity investment of KRW 25 billion, thereby facilitating investments from other parties

SIGNIFICANCE

- Hyundai Motor Company, the second largest shareholder of Gwangju Global Motors, has planned to build the first new car assembly plant in Korea since 1996, which is expected to create direct employment for some 1,000 workers and indirect employment for another 7,600.

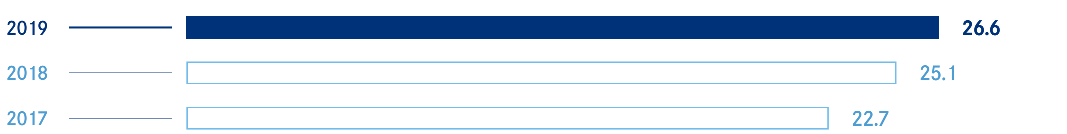
In 2019, KDB supplied funds totaling KRW 72.9 trillion, of which KRW 47.7 trillion or around 65.4% was provided to SMEs and MEs. In particular, the Bank provided a total of KRW 5.4 trillion to 333 companies through its Corporate Investment Support Program, which supports SMEs and MEs in their green and workplace safety investments.

Total funds supplied in 2019

72.9

Funds supplied to MEs*

(Unit: KRW trillion)



* MEs: Companies that neither fall under the legally defined scope of SMEs nor are affiliated to conglomerates restricted from cross-shareholdings

PLANS FOR 2020 In response to a slowing global economy, KDB will continue to provide comprehensive financial services for SMEs and MEs. The Bank will use special loan programs to provide them with much-needed liquidity, thereby invigorating the economy as a whole. In addition, KDB will overhaul its credit review practices by moving away from a focus on collaterals and adopting dynamic credit review methodologies based on the growth potential of a company, which will enable the Bank to actively support the growth and development of innovative SMEs and MEs. KDB will also boost the customized financing extended to advanced industries, and will help corporate clients with their business realignments and competitiveness improvements by offering syndicated and leveraged finance. Through these endeavors, we ultimately seek to secure the growth engine for the national economy and to expand our capabilities as the nation's leading policy finance institution.

Corporate Restructuring

REVIEW OF 2019 Based on its profound expertise in corporate banking, KDB has led many corporate restructuring cases in Korea since the Asian financial crisis of 1997. The Bank acts as a safety net for the Korean economy and its major industries by supporting principle-based and effective restructurings, focusing on the early recovery of target companies. In particular, the Bank responds promptly to potential insolvencies of major corporate groups which could have a major impact on the national economy, thereby playing its role as a market safety net and improving the fundamentals and competitiveness of Korean businesses.

KDB strives to minimize the negative impact of the slowdown in core industrial sectors on the Korean economy, while helping individual companies improve their business fundamentals. Moreover, in the case of Dongbu Steel, we were able to attract a third-party investor in 2019, bringing the restructuring process which had lasted some five years to an end. The Bank also encouraged a voluntary M&A of Asiana Airlines in order to prevent insolvency and to create opportunities for a rebound.

In addition, KDB has invested in the Corporate Restructuring Fund, in partnership with other financial institutions, with the goal of supplying liquidity to the market and encouraging voluntary and preemptive restructurings.

PLANS FOR 2020 In 2020, KDB will continue to adhere to its practice of principle-based corporate restructuring in order to facilitate the early recovery of distressed companies and act as a market safety net. In particular, the Bank will leverage its extensive experience and expertise in corporate restructuring to help companies undertake voluntary structural realignments and make financial improvements, thus avoiding insolvencies and improving competitiveness. We will also take prompt and efficient measures to ensure the effective restructuring of financially distressed companies, which will not only enable those companies to revive their operations but will also contribute to revitalization of the Korean economy and industrial ecosystem.

Capital Markets

Debt Capital Markets

REVIEW OF 2019 KDB is the only bank in Korea with a license to arrange corporate bond offerings. On the back of this privilege, the Bank arranges and/or underwrites the issuance of domestic securities, arranges the issuance of international bonds, and provides advisory services on structured finance.

In 2019, KDB supplied a substantial amount of foreign currency to the Korean economy by arranging public offerings and private placements of corporate bonds in international markets. Specifically, we became the first Korean institution to arrange a public bond offering for Korea Gas Corporation in international markets. We also arranged the issuance of sustainability bonds of Mirae Asset Daewoo, which was the first of its kind from a Korean securities firm, and the issuance of green bonds of Hanwha Energy USA, thereby facilitating funding for social and green projects.

In structured finance, KDB provided customized finance to SMEs and MEs through the securitization of accounts receivables, real estate, and other assets. In addition to typical structured finance based on accounts receivables, the Bank diversified its range of underlying assets for structured finance to include redeemable convertible preference shares (RCPS).

Landmark deal of 2019

Arrangement for the issuance of Korea Gas Corporation's sustainability bonds

OVERVIEW

- KDB arranged the successful issuance of sustainability bonds worth USD 500 million for Korea Gas Corporation (KOGAS) in July 2019.

FEATURES

- Actively publicized the role and importance of KOGAS as a public energy company against the backdrop of the Korean government's eco-friendly energy policies
- Attracted orders from 136 accounts for the total of 5.6 times the target size, with the final pricing landing at lower levels than KOGAS's secondary market pricing

SIGNIFICANCE

- This was the first sustainability bond of KOGAS, and was also the first 10-year Environmental, Social, Governance (ESG) bond issued by a Korean state-owned enterprise.
- KDB enhanced its stature as a top investment banking house in Korea by arranging a public offering for KOGAS in the international markets for the first time among Korean financial institutions.

KDB leads the development of Korea's financial industries by expanding its business scope and expertise based on the competitiveness it has accumulated in the global capital markets.

PLANS FOR 2020 In 2020, KDB will leverage its overseas network to attract new clients, and will arrange more bond issuances in non-USD currencies for clients who are sensitive to interest rates. In structured finance, the Bank will provide specialized financial products by diversifying its range of underlying assets to include RCPS, PF loans, and intellectual property rights, while continuing to provide existing structured finance products centered around private placement notes and accounts receivables.

M&A

REVIEW OF 2019 KDB provides financial advisory and M&A services to domestic and overseas companies, while also arranging financing for corporate clients to enable them to secure necessary funding and improve their capital structures.

There was an increase in transaction volumes in the Korean M&A market in 2019 as a result of active business reorganizations at large companies and increases in investments from major private equity funds (PEFs). KDB, first of all, provided M&A advisory services to the companies within its restructuring portfolio. For example, Dongbu Steel was able to close its M&A deal thanks to KDB's efforts to attract a third-party investor and perform debt rescheduling despite the challenging environment caused by the stagnant steel industry. The Bank also advised on the sales of investment portfolios of PEFs, namely Panax Etec. In addition, it has strengthened its cross-border M&A advisory capacities through partnerships with major international advisory firms, including Perella Weinberg Partners in the US, thereby helping Korean companies grow overseas.

PLANS FOR 2020 In 2020, large companies are expected to expand their businesses through the acquisition of overseas companies. In response to such a trend, KDB will boost its target-sourcing capacities by strengthening ties with relevant organizations and by establishing other global channels. This will strengthen support for overseas expansion of Korean companies through cross-border M&A.

Moreover, KDB will expand its M&A advisory services in support of innovative growth and industrial reorganization, and will actively provide consulting services in conjunction with M&As. The Bank will provide comprehensive M&A advisory services to its SME and ME clients through the KDB M&A Consulting Platform[1], and will also expand its post-merger integration (PMI) consulting connected to M&A advisory work.

Consulting

REVIEW OF 2019 Since 2003, KDB has been involved in over 800 consulting projects across a wide range of sectors, including management & finance, public service & development, in-house, overseas, and corporate turnarounds. The Bank leverages its expertise and experience across industries, as well as its extensive corporate databases and partnerships with other institutions in order to provide the most optimal solutions to clients.

In 2019, KDB focused on growth diagnostics and business strategy consulting for companies in their growth and maturity phases as a part of its efforts to offer the clients distinguished consulting service tailored to each phase of the business life cycle. We also offered corporate diagnostics and turnaround consulting for companies in financial distress. In addition, we established the KDB M&A Consulting Platform, based on which we actively responded to demand from SMEs and MEs for M&A advisory and consulting services. The scope of our consulting business has expanded to include consulting on overseas expansion of domestic companies and PMI consulting. Moreover, we launched the Corporate Growth Advisor Program[2], and thereby offered SMEs and MEs expert financial advices in order to help them grow and innovate.

[1] An online platform which covers extensive M&A-related contents from potential domestic and overseas M&A targets to management and financial consulting programs

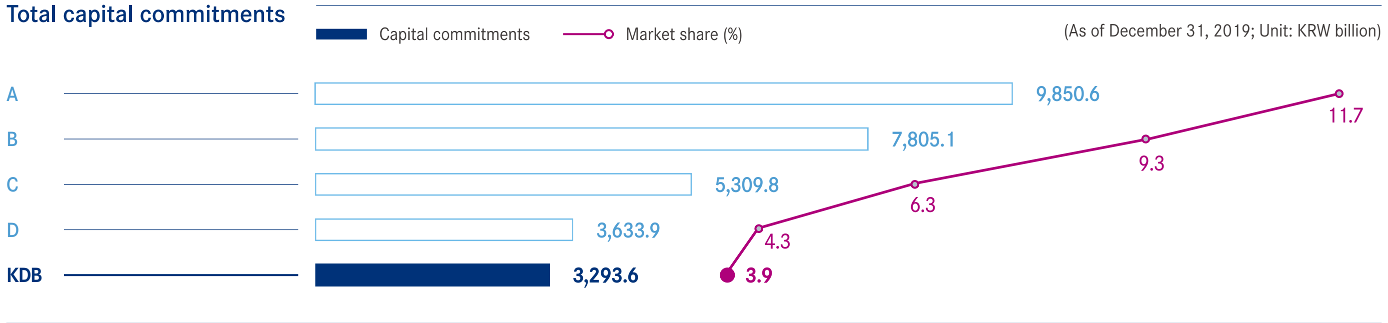
[2] A policy consulting program which supports corporate clients in need of financial advices by matching them with highly skilled experts of KDB

PLANS FOR 2020 In 2020, KDB will proactively respond to rising demands for cutting-edge consulting services by utilizing its superior start-up support system, and will continue to offer well-customized solutions for each phase of the business life cycle. Against the backdrop of slowing global economic growth, and an urgent need to foster innovative start-ups and SMEs & MEs to boost the nation's economic vitality, KDB will stand by them and offer the best solutions for innovation and growth.

Private Equity

REVIEW OF 2019 Since the beginning of its private equity business in January 2005, KDB has set up 28 PEFs, and has built up an extensive track record in fund management, including buy-out, growth, and mezzanine financing. As of the end of 2019, total capital commitments amounted to KRW 3,293.6 billion, with 12 funds under management. KDB ranks fifth in Korea as measured by total funds committed, with a market share of approximately 3.9%.

Total capital commitments



In a low interest rate environment, funds continued to flow rapidly into PEFs, chasing for higher rates of return. As a result, as of the end of 2019, the number of PEF managers in Korea had increased to 304, and total capital commitments amounted to around KRW 84 trillion. Consequently, large PEFs have become important players in major M&A transactions. In addition, new forms of transactions are being created, including secondary market transactions whereby investment targets are bought and sold amongst PEFs.

In these market conditions, KDB has sought to increase rates of return by adjusting its portfolio of project funds, including the KDB-Trinity DHIC PEF and KDB Value PEF VI, and blind pool funds such as the KDB Value PEF VII and KDB Sigma PEF for Corporate Financial Stability II. In addition, the Bank has continued to discover and invest in innovative companies and promising environmental and energy companies through the existing KDB Small Medium Mezzanine PEF and Infrastructure Initiative 1st PEF. The Bank also participated as a major investor through the KDB Asia PEF in a fund managed by the International Finance Corporation, thus contributing to infrastructure and industrial projects in Asian developing economies, including Bangladesh and Myanmar.

PLANS FOR 2020 Although the Korean PEF market is growing rapidly in size, it is becoming harder for the market participants to reap higher rates of return due to the fierce competition for profitable investment targets. Market liquidity is thus becoming highly concentrated to few top-tier managers, intensifying the competition among managers.

KDB will seek out more investment opportunities into material, parts, and equipment sectors for its blind pool funds dedicated to SMEs and MEs, and will also form new blind pool funds which provide tailored equity financing to companies starting new businesses or expanding overseas, as well as to companies planning M&A deals. Over the longer term, the Bank will leverage its successful management know-how earned from the ECOREA PEF and Infrastructure Initiative 1st PEF, which have invested in infrastructure assets in the environmental and energy sectors, to build a network with major overseas institutions and form blind pool funds for investment in Southeast Asian infrastructure markets.

Innovation & Growth Banking

Leading Innovative Growth

As the leading policy finance institution of Korea, KDB is strengthening its support system for innovative growth, with the Innovation & Growth Banking Division performing a central role in this task. The Division acts as the chief coordinator for innovative growth policy finance, nurturing an active start-up ecosystem and facilitating financial support for innovative growth.

Establishing a System for the 4th Industrial Revolution

REVIEW OF 2019 In 2019, growth in the global economy slowed further and external business conditions deteriorated significantly. As a result, there has been an unprecedented emphasis in Korea on enhancing economic vitality through innovative growth in order to reduce the negative impact of global uncertainty and volatility. Such a trend led policy finance institutions to preemptively support innovative SMEs and start-ups in order to develop new drivers for growth for the Korean economy, and to help establish a robust economic system centered on SMEs and start-ups.

In March 2019, New Growth Policy Finance Council, which comprised of 10 policy finance institutions, was upgraded to the Innovative Growth Policy Finance Council, which now includes four government ministries[1] and 11 policy finance institutions[2]. This action has greatly strengthened the support system for innovative growth policy finance.

The Innovative Growth Policy Finance Center, a department of the Bank, acts as the secretariat for the Innovative Growth Policy Finance Council, and is in charge of proposing policies and establishing measures for collaboration so that the government, policy finance institutions, and private financial institutions can effectively support innovative growth and sectors connected to the 4th Industrial Revolution. The Center collects and shares model cases of successful innovative growth support with the aim of creating an environment that is more conducive to innovative growth. It also oversees and manages the Common Criteria for Innovative Growth, with the goal of providing effective financial support for innovative growth. The Criteria are the universal standards adopted by policy finance institutions for supporting innovative growth and the 4th Industrial Revolution, and are designed to remove any potential inefficiencies in policy support for innovative growth, such as omission, unequal distribution, and redundancy.

The 2020 Common Criteria for Innovative Growth which is in effect from January 2020 classifies the innovative growth into 9 major themes, 46 sectors, and 300 items. This year's revision was conducted by the Advisory Team on the Common Criteria for Innovative Growth, which consisted of leading experts from each industry and technology sector. New items were added to reflect the latest trends in technology and market demand, and existing items underwent a thorough verification process for more precise definitions. Moreover, some items were merged to make the classification more efficient.

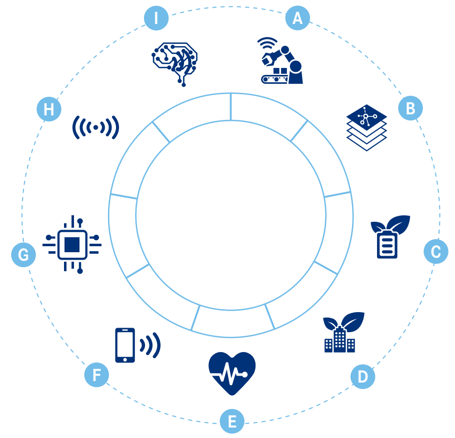
1) Ministry of Economy and Finance, Financial Services Commission, Ministry of Trade, Industry and Energy, Ministry of SMEs and Startups

2) KDB, Industrial Bank of Korea, The Export-Import Bank of Korea, Korea Credit Guarantee Fund, Korea Technology Finance Corporation, Korea Credit Information Services, Korea SMEs and Startups Agency, Korea Trade Insurance Corporation, Agriculture, Forestry and Fisheries Credit Guarantee Fund, Korea Growth Investment Corporation, Korea Venture Investment Corporation

KDB will accelerate the innovative growth of the Korean economy by leading the response to rapid changes in the business environment and market needs.

Breakdown of the 2020 Common Criteria for Innovative Growth

	Theme	Number of items	Portion (%)
A	State-of-the-art manufacturing and automation	31	10.3
B	Chemicals and new materials	37	12.3
C	Energy	40	13.3
D	Environment and sustainability	30	10.0
E	Health and diagnostics	40	13.3
F	Information and communications	43	14.4
G	Electrical and electronic	29	9.7
H	Sensor and measurement	23	7.7
I	Knowledge-based service	27	9.0
	Total	300	100.0



The Innovative Growth Policy Finance Center is also running the Innovation Growth Intelligence System in order to collect and analyze innovative growth policy finance data. This is the first platform ever to integrate data among Korean policy finance institutions. The System collects from the institutions data on the implementation performance of innovative growth policy finance, along with corporate employment and financial data, and uses it to update the Criteria, assess the status of policy finance implementation, and analyze the number of jobs created and value-added. In addition, a wide range of in-house and external reports on innovative growth industries are offered through a comprehensive innovative growth information service platform.

PLANS FOR 2020 KDB will continue to cooperate closely and actively with government ministries, including the Ministry of Economy and Finance and the Financial Services Commission, in order to support innovative growth of the Korean economy. The Bank will update the Common Criteria for Innovative Growth as and when necessary so that they reflect the latest government policies, as well as global demand and technology trends. In addition, we will work to expand the user pool of the Criteria to include not only policy finance institutions, but also the government and private financial institutions. Moreover, KDB will strive to increase financial support to the areas of innovative growth, and thus serve as a catalyst for the transformation of the industrial structure of Korea into one which is centered on promising innovative companies with outstanding creativity and technological prowess.

Indirect Investment

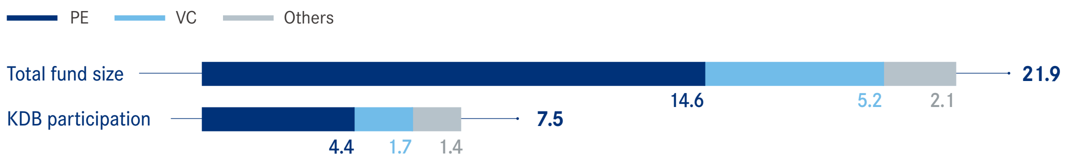
REVIEW OF 2019 KDB provides companies with customized funding according to the growth phase of each individual company. The funding is supplied via private equity (PE) and venture capital (VC) funds managed by private fund managers. The Bank has established the Growth Support Fund and the Growth Ladder Fund in order to support government policy. It is also leading the VC market in Korea by forming impact and regional investment funds which support innovative start-ups and growth in areas where private participation is lacking. The Growth Support Funds are aimed at start-ups and SMEs & MEs in their growth or exit phases, and are expected to grow to KRW 8 trillion in size by 2020. KDB formed 18 Growth Support Funds totaling KRW 2.9 trillion in 2018, and 19 more totaling KRW 2.8 trillion in 2019.

In October 2019, KDB formed the YD-SK-KDB Social Value Fund, an impact fund which aims to invest in companies with sustainable business models, while simultaneously addressing social and environmental issues. This fund, worth KRW 50 billion, is one of the largest of its type in Korea, and KDB has committed KRW 20 billion, along with SK Group, SKS PE, and Yellowdog as limited partners. In September, KDB formed the Moonlight Venture Fund worth KRW 25 billion in collaboration with local governments to promote the regional economy. This regional investment fund was formed to invest in SMEs and start-ups in Daegu and Gwangju, and is expected to contribute to balanced regional growth.

As of the end of 2019, KDB had invested a total of KRW 7,455.3 billion in 184 funds, establishing itself as a key investor in the Korean fund industry. Moreover, we are dedicated to spreading a more innovative investment culture in Korea through promotion of a VC market led by the private sector, increased autonomy for the fund managers, and emphasis on objective performance results.

Indirect investment volume

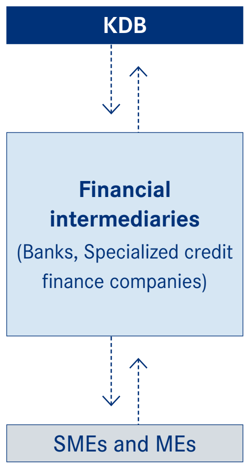
(As of December 31, 2019; Unit: KRW trillion)



PLANS FOR 2020 In 2020, KDB will continue to form new Growth Support Funds, supply growth capital to start-ups and SMEs, and support the 4th Industrial Revolution. In particular, the Bank plans to form a fund totaling KRW 400 billion dedicated to the materials, parts, and equipment industries in response to prevailing economic circumstances in Korea and overseas. Additional regional investment funds will be formed in order to spread innovative growth into regional economies, and new impact funds will stimulate the growth of the domestic impact fund ecosystem. KDB will thus actively perform its role as Korea's leading investment institution, fostering an innovative start-up ecosystem through an ample supply of venture capital.

On-lending

The basic scheme of on-lending program

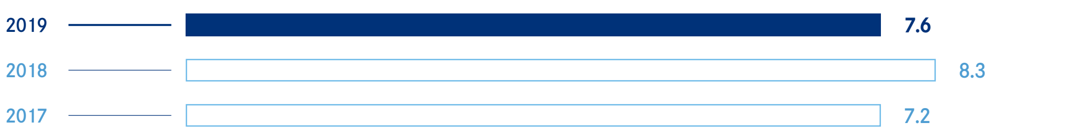


REVIEW OF 2019 On-lending is a market-friendly, indirect policy finance tool specifically developed for SMEs and MEs. Financial intermediaries request KDB for funds on behalf of their SME and ME clients, and then KDB supplies the intermediaries with long-term funds, after reviewing the qualifications of each client.

In 2019, through the on-lending program, KDB supplied a total of KRW 7.6 trillion to 7,397 qualified SMEs and MEs. 41.1% of the supplied funds was directed to companies with low credit ratings, and 63.9% was provided with maturities of three years or longer, thus helping SMEs and MEs add more competitive edge. In addition, two programs specially designed to actively support government policies – the Special On-lending for Innovative Growth Facility Investment and the Special On-lending for Biohealth – were released in July and October, respectively.

On-lending loans supplied by year

(Unit: KRW trillion)



PLANS FOR 2020 In 2020, KDB will raise the on-lending loan limits on innovative growth and the 4th Industrial Revolution, in order to support of the future industries and innovative companies. It will also launch new programs, namely Special On-lending for Materials, Parts, and Equipment Industries, to help small businesses facing hardships from trade disputes get back on their feet. In addition, KDB will step up the total volume of special on-lending programs aimed at creating jobs and boosting regional economies. The Bank will also build an online platform for on-lending users and end-borrowers which will improve online accessibility for financial intermediaries and corporate clients, and ultimately build a more user-friendly on-lending infrastructure.

Venture Finance

Venture & Technology Banking

REVIEW OF 2019 KDB began to make direct investments in venture capital (VC) in 1997 which was the very beginning of Korea's venture capital market. Since then, KDB has led the market by investing in equity, convertible bonds (CBs), and bonds with warrants (BWs) issued by promising start-ups and SMEs. The Bank has recently increased its investments in companies leading the 4th Industrial Revolution and those with outstanding technologies, in line with government policies discovering and developing new engines for innovative growth.

In order to identify and foster potential unicorn start-ups in Korea, in April 2019, KDB formed the Mega-7 Club, a joint investment council consisting of KDB and Korea's leading seven venture capital firms. The Club has so far arranged six rounds of investor relations (IR) opportunities for 10 companies which were hand-picked by the Club members.

In May 2019, KDB formed the Alzheimer's Open Innovation Alliance in order to support Korean biotech start-ups which experience difficulties during new drug development processes due to a lack of expertise in development, clinical studies, and commercialization. In October, the Alliance hosted a forum that was attended by around 220 participants from companies, the academic sector, and the media. Attendees actively exchanged their fresh ideas on drug development from technical and managerial angles. In addition to forming the Alliance, KDB has invested KRW 14 billion in four start-ups that are conducting research on Alzheimer's, thereby further strengthening its interest in promising new biotech start-ups.

In 2019, KDB implemented Value Chain Pooling investments targeting companies in the major industries of the 4th Industrial Revolution. After identifying key companies in the value chains for various industry sectors including but not limited to hydrogen energy, smart factories, Alzheimer's treatment, and next-generation mobility, new investments totaling KRW 44 billion were made. This achieved more than simply improving the value of individual companies, as it contributed to enhancing the overall value of each industry. In addition, investments were made into promising companies in the parts and materials industries, in order to infuse much-needed vitality into the Korean manufacturing sector and contribute to the balanced growth throughout the country.

KDB has been a loyal partner of start-ups from the beginnings of the venture capital market in Korea, and is helping small giants grow into global unicorns of the 4th Industrial Revolution.

Mega-7 Club Deal Sharing Day

KDB has continually supported the Research & Business Development (R&BD) ecosystem, and it invested KRW 25.5 billion in 2019 through the KDB Research & Business Development Program. This program provides funds needed by SMEs and ventures for technology development, transfer and commercialization, in partnership with government-funded research institutes, universities, and other organizations. KDB plans to provide funds totaling KRW 100 billion through this program by 2022.

Working jointly with the Korea Credit Guarantee Fund (KODIT), KDB has increased its investments into innovative start-ups and facilitated intellectual property (IP) financing. IR support was offered to companies which had previously received investments from KODIT, and joint investments worth KRW 6 billion were made. Moreover, KDB played a leading role in IP finance by launching the new IP-guaranteed loan program in connection with KODIT's IP value assessment & guarantee program, thereby further facilitating the growth of Korean IP finance market.

PLANS FOR 2020 In 2020, KDB created the Venture Finance Center in order to increase the supply of venture capital to the market, and also installed the Scale-up Banking Department to strengthen support for innovative companies in the maturity phase of business development. The Bank plans to use its boosted business capacity to expand investments into outstanding early-stage tech start-ups, and make new scale-up investments to promising start-ups by utilizing KDB's strong networking power. KDB will continue to fulfill its role as a leading pioneer for the 4th Industrial Revolution and innovative growth in Korea, by nurturing a vibrant start-up ecosystem and supporting start-ups throughout their entire business life cycles.

KDB NextRound

REVIEW OF 2019 KDB NextRound is a market-driven venture investment platform that provides start-ups with the opportunity to attract investments, and investors with the opportunity to discover investment targets, thus connecting start-ups with investors. Since its launch in 2016, 325 IR rounds were held for a total of 1,171 companies, introducing start-ups which had been identified by accelerators, venture capital firms, and government-funded research institutes to domestic and overseas venture capitals. Of these companies, 250 successfully attracted investments totaling KRW 1,450.8 billion. In 2019, KDB NextRound held special global rounds in collaboration with overseas venture capitals, as well as special rounds targeting particular industries and geographical regions. These qualitative and quantitative improvements have made KDB NextRound into Korea's leading venture investment platform.

KDB NextRound in Shanghai

The Chairman delivering opening remarks at NextRise 2019, Seoul

In addition, KDB hosted "NextRise 2019, Seoul" on July 23-24 to help ventures and start-ups attract investment and seek business cooperation opportunities. This B2B investment fair connected ventures and start-ups with domestic and overseas investors, and accelerated business cooperation between large companies, MEs, and start-ups. It was co-hosted by KDB, Korea International Trade Association, Korea Venture Business Association, Korean Venture Capital Association, and National Research Council of Science & Technology, with participation from domestic and overseas venture capitals, large companies, and MEs. There were around 13,000 visitors during the two days of the event, which saw participation from 194 start-ups and 47 domestic and overseas large companies and investors, making it one of the largest global start-up fairs ever to be held in Korea. It was thus a great success in helping to enhance the globalization and vitality of the Korean venture capital market.

KDB operates special-purpose funds to support the development of the Korean venture capital market. In 2019, the Bank formed the Global Partnership Fund IV, to help innovative Korean start-ups enter global markets and attract overseas investments. The Fund provides Korean start-ups access to global venture capital networks. Moreover, the Fund was successful in attracting private capital as investors, making it an important example of win-win cooperation between large companies and start-ups. In addition, the KDB Open Innovation PEF II was formed to identify opportunities for joint growth between MEs in regional areas and start-ups and venture capitals in metropolitan areas. With the size totaling KRW 21.1 billion, the PEF acts as a bridge connecting regional MEs to the metropolitan start-up ecosystem. KDB also formed the LOTTE-KDB Open Innovation Fund worth KRW 62.7 billion, in collaboration with the LOTTE Group. This fund will help Korean start-ups grow into unicorns, and will also enable large companies to discover new growth drivers. Specifically, the Fund will ensure a strong partnership between large companies and start-ups, and will support growth of start-ups through new investments, technology alliances, distribution channels, M&As, and utilization of the global networks of large companies.

KDB is also running a technology development-transfer-commercialization network for the industry-academia-research sectors. By hosting the KDB TechConnect Days, the Bank connects technology suppliers, such as research institutes, universities, and start-ups, with those needing advanced technologies, including large companies and MEs, thereby facilitating technology transactions and M&As. KDB has also signed MOUs with research hospitals to support the commercialization of medical technologies, and to facilitate innovative start-ups in the bio and health care sectors. There has been a total of 21 KDB TechConnect Days, with an average participation of around 40 organizations and 70 attendees each time. Moreover, KDB TechConnect Days have led to two technology innovation-oriented M&A deals, and new investments worth KRW 16.9 billion.

PLANS FOR 2020 In 2020, KDB will focus on establishing a venture ecosystem which supports the government's policies for developing innovative growth industries and facilitating start-ups. The Bank will continue to operate KDB NextRound, while making additional efforts to expand the venture ecosystem nationwide in response to the increasing and changing demands from both start-ups and investors. In addition, the Bank plans to join FRONT1, an innovation hub set to open in the first half of 2020, and work to incubate and accelerate early-stage start-ups as part of its efforts to foster the national innovative start-up ecosystem. Moreover, "NextRise 2020, Seoul" is expected to be double the size of the 2019 event as part of KDB's commitment to supporting the growth of start-up companies in Korea, and making it one of the leading global start-up fairs in Asia over the long term.

Project Finance

Domestic Project Finance

REVIEW OF 2019 KDB provides comprehensive financial solutions for project finance (PF), including social overhead capital (SOC), power, plants, and natural resources sector as well as regional development projects. The Bank also offers financial advisory and arrangement services for shipping and aviation financing. Since 1995, when it successfully arranged financing for the construction of the Incheon International Airport Expressway, KDB has led the development of the Korean PF market. It has always been at the forefront of the advances in Korea's PF market, while fulfilling its policy roles in supporting the expansion of the national infrastructure, improving energy supply, and fostering the regional economies by leveraging the creative capabilities of the private sector, and by attracting long-term investments from other financial institutions.

In 2019, KDB arranged project financing for 43 projects — 13 SOC and 30 real estate projects — totaling KRW 9.6 trillion. For the SOC sector, financing totaling KRW 4.4 trillion was arranged for new and refinancing projects, including Dongbuk Light Rapid Transit, Busan Mandeok-Centum Expressway, and the Gwangbaek 100MW photovoltaic power generation and ESS project, thereby contributing to the vitalization of the domestic infrastructure market. In the real estate sector, KDB invigorated regional economies by arranging financing totaling KRW 5.3 trillion, including the Cheongju Technopolis general industrial complex project, the Goyang-Jichuk cooperative-type commercial rental housing project, and the Yeongam-Haenam tourism & leisure-type enterprise city development project.

PLANS FOR 2020 In the SOC sector, KDB plans to develop project schemes where financial investors and engineering firms take more initiatives in project development, in a sharp contrast to previous approaches whereby large construction firms took the central role. We will also fulfill the government's new energy policies in the renewable energy market and lead sustainable finance by supporting small-to mid-sized photovoltaic projects and offshore wind farm projects. In the real estate sector, KDB will expand financial support to industrial complex, urban development, and logistics center construction projects. We will also increase our participation in environmental improvement projects, such as improving outdated industrial complexes and undertaking urban regeneration, as well as public housing projects in order to support government policies aimed at strengthening the national economy.

KDB will continue to contribute to the robust growth of the Korean economy, and grow into a leading global PF house based on 25 years of experience and know-how.

Overseas Project Finance

REVIEW OF 2019 KDB entered the overseas PF market in 2003, and has since created an overseas deal sourcing network by setting up PF desks headed by highly-skilled local experts in Singapore in 2011, in New York in 2015, and in London in 2016. After arranging financing for four projects in 2006, including Oman Aromatics Refinery, KDB fully launched its overseas PF business in 2011. As of the end of 2019, the Bank arranged financing for 144 overseas projects totaling USD 12.1 billion.

In 2019, KDB arranged financing for 28 overseas PF projects, worth USD 2,285 million, and 48 projects, worth USD 5,640 million, in the shipping and aviation sectors. Financings in major developed economies included the Silvertown Tunnel Project in the UK and the America Oberon 1A Project in the US. In developing nations, the Bank led the post-delivery financing for Angolan Sonangol Drillship Project, and a UT-1 216MW Hydropower Project in Nepal. It also saw a solid performance in shipping and aviation financing by successfully providing finance for seven new LNG carriers in GasLog LNG Shipping Financing Project and arranging AerDragon Aviation Portfolio Financing for 10 aircrafts. In addition, Nitrogen 1.2GW Portfolio Financing in the US, the Silvertown Tunnel Project in the UK, the Saudi Arabian Dumat Al Jandal Onshore Wind Power Project, and ADNOC pipeline Acquisition Financing in Abu Dhabi were selected as the Deals of the Year by Project Finance International (PFI).

Landmark deal of 2019

Silvertown Tunnel PPP Project in the UK

OVERVIEW

- KDB closed the financial agreement in November 2019 for the Silvertown Tunnel PPP Project to build dual two-lane tunnels passing under the Thames, with a total length of 1.4 km, connecting Silvertown and Greenwich in London, UK.

SIGNIFICANCE

- Supported Korean companies' entry into the infrastructure market in Western Europe
- Enhanced KDB's stature in the global PF market

FEATURES

- Successfully completed arranging PF amounting to GBP 1,272 million as a mandated lead arranger, together with export credit agencies of Korea — Korea Eximbank, Korea Trade Insurance Corporation — and 11 global banks
- SK E&C was awarded the engineering, procurement, and construction (EPC) contract for the Project, making the Project the first public-private partnership (PPP) SOC project in Western Europe to be participated by a Korean EPC company

PLANS FOR 2020 KDB strives to evolve into a leading global PF house by establishing and pursuing marketing strategies tailored to each geographical region. The Bank will also seek out more opportunities for financial advisory and arranger roles, and increase equity investments through reputable infrastructure funds. In addition, KDB will leverage its expertise in renewable energy projects and corporate power purchase agreements (PPA)[1] to work with Korean companies on overseas renewable energy projects and promote the RE100[2] initiative. The Bank will increase its shipping financing assets by undertaking more financings for global top-tier shipping companies, and will also diversify its product range in aviation financing to include tax-lease financing, pre-delivery payment, etc.

1) Corporate PPA: A legal contract whereby a company purchases electricity from an independent power producer instead of a utility company

2) RE100: A global corporate leadership initiative to generate 100% of electricity from renewable sources

Corporate Banking & Restructuring
Capital Markets
Innovation & Growth Banking
Venture Finance
Project Finance
Trading
International Business
Pension & Trust

Trading

F/X & Derivatives Trading

REVIEW OF 2019 KDB has been pioneering the Korean trading market since the 1980s when F/X and derivatives products were scarce in Korea. In 1998, KDB led the development of the KRW interest rate swap and KRW/USD currency option markets, and has been a leader in the KRW derivatives market ever since. Over some 30 years, we have built up broad expertise required to deal in a wide variety of products, ranging from F/X, swaps, options, and other basic derivatives to complex structured derivatives, which enables us to provide hedging solutions tailored to each client's needs.

2019 saw short- and long-term yield curve inversions in the US bond market, on the backdrop of the prolonged US-China trade dispute. This was widely interpreted as a sign of a potential economic downturn, and resulted in additional volatility in global financial markets. The Bank of Korea therefore cut its base rate twice in 2019, causing the USD/KRW exchange rate to exceed KRW 1,200 at one point.

Despite this challenging environment, KDB leveraged its extensive experience and expertise to offer hedging products customized to the specific needs of its clients. Upon entering an agreement with the Korean government, the Bank became a market maker for greenhouse gas emissions trading, making its first transaction in June 2019, and has since contributed to reductions in bid-offer spreads and price volatility. In addition, we offered derivatives, such as currency swaps, to overseas investment funds in order to facilitate domestic asset managers' investments into offshore real estates, aircrafts, etc.

Moreover, we provided training courses to working-level personnel at SMEs and MEs with the goal of boosting their F/X and interest rate risk management capabilities. We also offered interest rate swaps, which converted floating rate loans to fixed rate, along with F/X risk advisory services which helped SMEs and MEs improve their competitiveness. Besides that, KDB has actively played its role as a market maker by entering into currency swap transactions with foreign currency-denominated bond issuers and ultimately supplying foreign currency liquidity to the domestic currency swap market.

KDB will contribute to the development of the national economy and sustain its growth momentum by leveraging the experience it has accumulated in the global trading market over many years.

PLANS FOR 2020 Market conditions are forecast to remain highly volatile in 2020 with the global and domestic economy experiencing the worst downturn in decades. KDB will focus on expanding its sales network and providing a wider range of products and services customized to the needs of its clients in order to help them run their businesses smoothly. Besides increasing derivatives transactions with offshore non-residents, KDB will also offer structured products developed in-house to meet the specific needs of its clients. The Bank will also proactively respond to global changes in regulations and market rules. We will adopt a new calculation system in preparation for the new initial margin rules that are expected to take in effect from September 2020, and also prepare for the transition from LIBOR to alternative reference rates. Finally, KDB will continue to act as a market maker for the greenhouse gas emissions trading market, as well as engage in policy consultations and advisory services, while continuing to support SMEs and MEs with their risk management capabilities.

Money Market & Capital Market Trading

REVIEW OF 2019 KDB leverages its overseas financial networks, namely New York and London Branches, to employ a round-the-clock trading system, enabling it to stay ahead of market volatility at home and abroad. Following the opening of the Chinese stock market to foreign investors, KDB became the first Korean bank to win Qualified Foreign Institutional Investor (QFII) and RMB Qualified Foreign Institutional Investor (RQFII) licenses in 2009 and 2015, respectively. This has helped the Bank to make active inroads into securities markets in China and other emerging markets. In addition, KDB was designated as a primary dealer (PD) for the Korea Treasury Bonds in 1999, and has since contributed to the healthy growth of primary and secondary markets. The Bank's hard work and dedication towards the task was rewarded with five consecutive years (2015-2019) of commendation from the Minister of Economy and Finance.

In 2019, KDB maximized returns and minimized risks from volatility by implementing flexible hedging and duration adjustment strategies. We also improved our liquidity management by increasing the proportion of our investments in AA or higher-rated corporate and sovereign bonds.

PLANS FOR 2020 Global economy in 2020 is expected to be hit hard by a sharp drop in private consumption and investments as well as disruption in global supply chains. We also foresee heightened volatility within the global financial market until the world begins to recover from this economic turmoil. Against such backdrop, KDB will lock in sound profits through preemptive risk management and portfolio diversification by utilizing investment grade papers. Specifically, we will seamlessly collect and analyze global financial market data to stay ahead of the market and be prepared for any market disruption. In China, we will continue to keep our assets diversified in stocks, bonds, MMF, and CD, and work together with our local branches to respond flexibly to market changes. Moreover, KDB will continue to play a vital role in the domestic securities market by supporting the bond issuances of its clients and undertaking its privileged duty as a primary dealer.

Corporate Banking & Restructuring
Capital Markets
Innovation & Growth Banking
Venture Finance
Project Finance
Trading
International Business
Pension & Trust

International Business

Active Overseas Expansion

KDB plays a leading role in the globalization of Korean financial institutions, and is leveraging its overseas networks in order to support the government's New Southern Policy. The Bank supports domestic companies in their efforts to advance into global markets, and also offers its clients a comprehensive range of corporate banking services, including loans, bond issuance, PF, M&A, shipping & aviation financing, consulting, and derivatives, based on the know-how it has accumulated over many years in international financial market.

KDB has 26 overseas locations across 19 countries – one regional head office, nine branches, five subsidiaries, nine representative offices, and two expatriate employees – and continues to pursue a globalization strategy by expanding its overseas network and diversifying its operations. In 2019, KDB increased its presence in Southeast Asia, a region with high growth potentials. As a part of its move to support New Southern Policy and expand its global presence, the Bank opened the Jakarta Representative Office in March. We also joined the ASEAN Plus Three Inter-Bank Cooperation Mechanism (APTIBCM), and entered into an MOU with the Vietnamese Ministry of Finance when the ASEAN-Republic of Korea Commemorative Summit took place in November. In addition, a new Sales & Syndicate Desk was set up at KDB Asia Ltd., located in Hong Kong, in order to better serve our Asian clients and further expand our global network. With the Asia Regional Head Office located in Singapore overseeing business strategies for the Asian region, we continued to expand our operations and move deeper into the Asian financial market.

In 2020, KDB will leverage its global business capabilities to provide active support for the globalization of Korean financial institutions and the implementation of the government's New Southern Policy. In particular, we will prioritize Southeast Asia, given that Korean companies are actively entering this fast-growing market and there is significant demand for PF and infrastructure investments. The Bank will, first of all, establish networks and strengthen its market presence in Indonesia and Myanmar.

Backed by its strong global networks and business competencies, KDB will support the overseas expansion of Korean businesses and lead the globalization of Korea's financial industry.

The Launching Ceremony of Jakarta Representative Office

Cross-Border Syndicated Loans

In 2019, KDB improved its profitability and increased its high-quality overseas assets by actively entering emerging markets. The Bank arranged deals for Ctrip.com (China), Reliance Industries (India), Emirates NBD Bank P.J.S.C. (U.A.E), Commercial Bank PSQC (Qatar), PT Perusahaan Listrik Negara (Indonesia), and Doha Bank Q.P.S.C. (Qatar), thus leading Korean financial institutions into the global financial market. Of particular note was the arrangement of a USD 1 billion syndicated loan for PT Perusahaan Listrik Negara, an Indonesian state electricity corporation. This deal was structured through general syndication, involving sell-downs, with global top-tier investment banks, and enabled KDB to gain a strong foothold in Indonesian financial market.

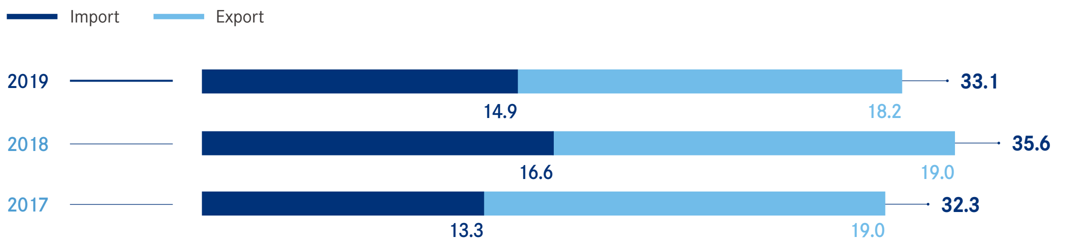
KDB will move forward to proactively support the New Southern Policy in 2020 by boosting its presence in global syndicated loan markets, with a particular focus on emerging economies in Asia. It will work in partnership with global financial institutions, and will develop specific strategies for each target country, with a focus on their growth industries. This will establish a strong overseas presence for KDB, and further enhance its reputation in global markets.

Trade Finance

KDB offers comprehensive trade finance services to domestic companies through a wide range of products, including letters of credit (LC), documents against acceptance (DA), documents against payment (DP), and open account (OA). In addition to traditional export & import finance, the Bank trades with global banks in risk participation, and provides trade finance credit lines which are guaranteed by major international financial institutions to banks from emerging nations. The total trade loan volume more than quadrupled by the end of 2019 since we first began our trade loans business in 2018. On the other hand, growth in the volume of exports and imports declined in 2019 due to uncertainties in the global economy. Under such a challenging environment, our overall export & import finance volume fell slightly year-on-year to USD 33 billion. However, KDB's leading position in the domestic trade finance market was well marked by its strong market share, currently ranked fifth.

Export and import financing supplied to Korean companies by year

(Unit: USD billion)



Despite continued uncertainties at home and abroad, including the on-going US-China trade dispute and slowing growth in major economies, KDB will expand its trade finance business in 2020 by providing comprehensive trade finance services to its clients. We will also increase the volume of our risk participation trade, and diversify the pool of banks for trade loans business, thereby broadening our asset base and business scope.

Pension & Trust

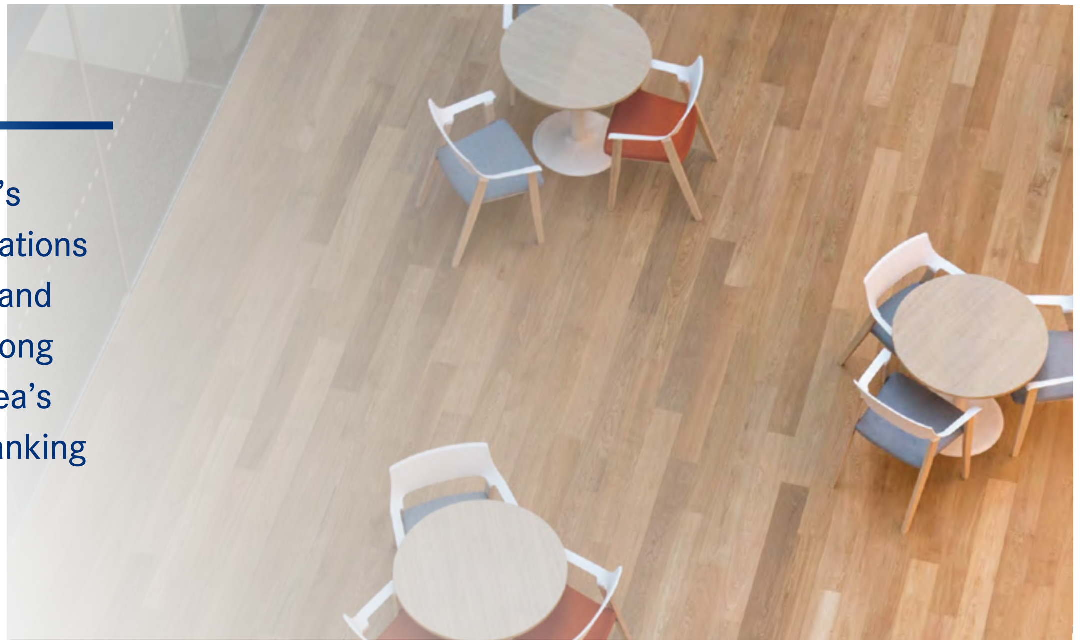
Pension

As of the end of 2019, KDB ranked 11th in terms of pension assets under management (AUM) among 43 domestic pension operators in Korea. KDB's pension AUM increased by 10.6% from 2018, reaching KRW 6.4 trillion at the end of 2019. The pension market is expected to grow further on growing attention to post-retirement finances in an era of aging population, low-growth, and low-interest rates.

True to its mission and legacy, KDB is committed to government pension policies and the stable growth of Korea's retirement pension market. Specifically, KDB will hone its strategies to respond effectively to the fast-evolving retirement pension market as well as boost its pension asset management capabilities. Moreover, in 2020, KDB will continue to further expand its market share by launching new products, increasing rates of return through portfolio optimization, and enhancing online user experience through IT system upgrades.

Pension assets under management

(Unit: KRW billion)



The strength of KDB's pension & trust operations lies in the expertise and know-how we have long accumulated as Korea's leading corporate banking specialist.

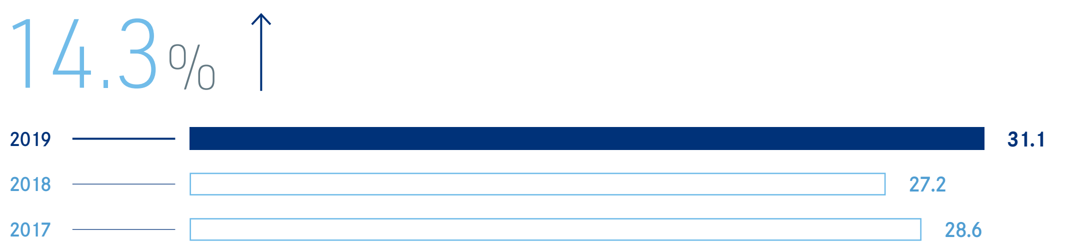
Trust

KDB began its money trust business in 1989, and then expanded into property trust and custody business over the years. The Bank guarantees post-retirement financial security to retail customers through stable rates of return and tax benefits. It also offers its corporate clients comprehensive money and property trust service aimed at efficient management of company assets. Moreover, through its custody business, the Bank actively supports funding activities of the corporate clients by acting as an agent bank.

In 2019, in tandem with the active marketing of banks and product launches, total trust balance of the entire banking industry grew 8% year-on-year. For instance, KDB freshly rolled out USD-denominated money market trust (MMT), the first of its kind for the Korean banking industry. This new product was well received by the corporate clients, leading to a surge in corporate MMT balance. We facilitated funding operations of SMEs and MEs through accounts receivables trusts, while also actively carrying out policy financing roles by supporting distressed companies through the utilization of bankruptcy-remote trusts. As a result, KDB attracted KRW 5.4 trillion in property trust from SMEs and MEs in 2019. For our custody business, we actively marketed to policy finance funds, resulting in a year-on-year increase of 8.0% in the average balance of investment fund assets. There was also a year-on-year increase of 20.2% in the average balance in the agency business, mainly attributable to the growth of syndicated loans.

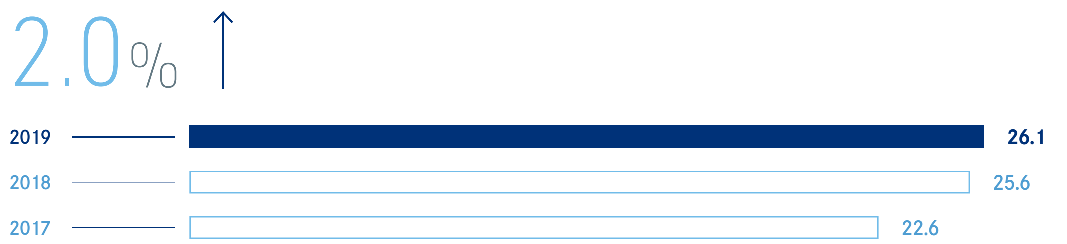
Trust assets balance

(Unit: KRW trillion)



Custody balance

(Unit: KRW trillion)



While the property trust market is expected to grow further in 2020, the money trust market is forecast to see slowing growth due to tightened regulations on equity linked trusts. Product development and marketing for money trust products will therefore be focused more on consumer protection, rather than on profitability.

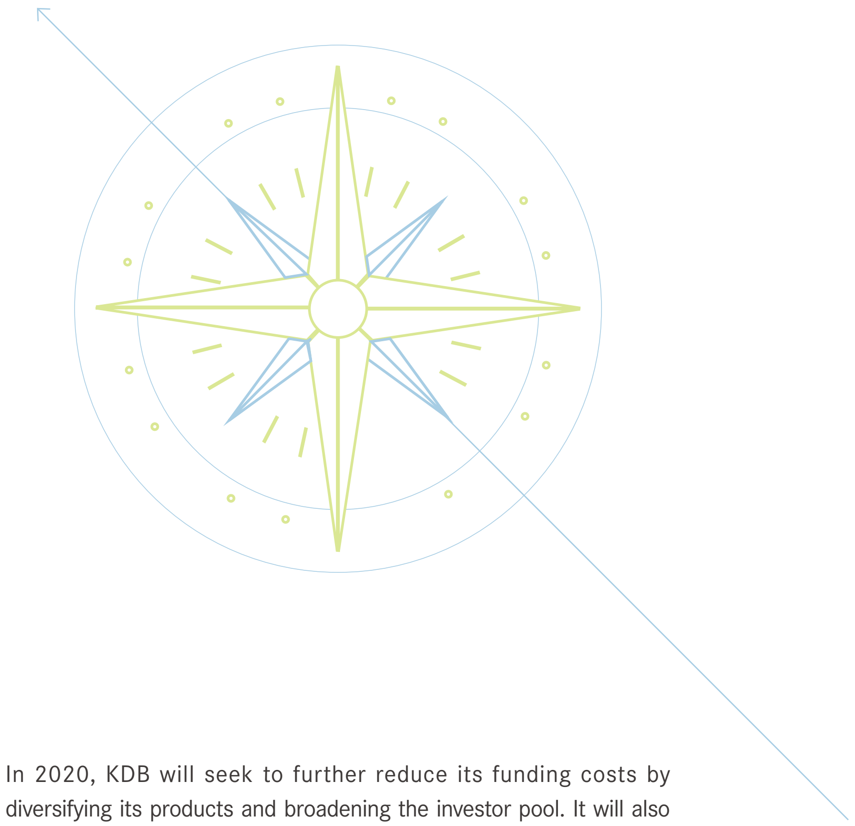
KDB plans to improve the IT system for its money market trust business, and expand the domestic and overseas sales networks for its property trust business. For the custody business, we will actively target investment funds, and will bring more proficiency and efficiency to the agency service by placing more emphasis on syndicated loans.

SUSTAINABILITY REVIEW

In 2019, we have made continuous efforts to run our business in a way that is ethical, responsible, and sustainable, while accelerating our transformation into a digital bank. At KDB, our commitment to business success and social progress is deeply embedded in our organizational culture. We are committed to improving economic, social, and environmental conditions throughout the nation in line with our mission to be an advanced policy bank at the forefront of Korea's sustainable growth.

Liability Management

KDB supports the stable growth and sustainable development of the national economy through flexible and timely funding in domestic and global markets.



KDB Bonds

KDB issues Industrial Finance Bonds (KDB Bonds) in KRW and foreign currencies in order to procure necessary funding for the development and promotion of industries, expansion of social infrastructure, regional development, stabilization of financial markets, and facilitation of sustainable growth, etc., in accordance with the Korea Development Bank Act. As stipulated in the Act, KDB is protected against insolvency by the government as a state-owned policy bank, and its credit risk is treated equal to that of the government under Basel III. As a result, KDB Bonds are issued at the lowest spreads against the benchmarks compared to any other domestic special bonds (bonds issued by public organizations) or financial institution (FI) bonds.

KRW-denominated Despite the Bank of Korea's base rate cuts in July and October, Korean bond market exhibited weak signs throughout the second half of 2019, mainly attributable to an upward yield trend driven by anticipation of a resolution to the US-China trade dispute, and the foreign investors' shorting of Korean treasury bond futures. Notwithstanding this increased volatility, KDB successfully achieved its annual issuance target, thus securing the financial resources much needed for policy finance. In 2019, new KDB Bonds were issued for a total of KRW 46.6 trillion, and the outstanding balance stood at KRW 94.9 trillion at the end of the year.

The issuance volume of KDB Bonds has been increasing steadily, and the total outstanding balance is the third largest in Korea behind Korea Treasury Bonds and Monetary Stabilization Bonds, making KDB the largest issuer in the domestic bond market excluding government organizations. Moreover, the bond yield rates of KDB Bonds are widely used as benchmarks for domestic bonds, alongside those of Korea Treasury Bonds and Monetary Stabilization Bonds.

KDB is also the largest issuer in the Korean structured note market, accounting for 56% of the market. In 2019, the Bank issued 22 structured notes worth KRW 590 billion, leading to lower overall funding costs. In addition, KDB issued KRW-denominated sustainability bonds totaling KRW 400 billion, becoming the first domestic institution to issue all three types of ESG bonds – green, social, and sustainability bonds. KDB also promoted socially responsible financing by issuing social bonds worth KRW 400 billion in support of job-creating companies.

In 2020, KDB will seek to further reduce its funding costs by diversifying its products and broadening the investor pool. It will also keep supplying new ESG bonds to the market and help the domestic ESG bond market, which is still in its infancy, grow bigger. In addition, the Bank will ensure a stable supply of capital for the development and promotion of industries through flexible, timely funding.

Foreign currency-denominated Despite three rate cuts by the U.S. Federal Reserve and increased volatility in financial markets in 2019, KDB was able to secure foreign currency funds totaling USD 5.5 billion by actively identifying and meeting investor needs. In particular, the Bank issued global bonds and EUR-denominated green bonds, thus establishing benchmarks for other Korean issuers' foreign currency funding. Moreover, the Bank diversified its funding channels by entering niche markets, including Kangaroo bonds and BRL-denominated notes. This has reduced our dependence on the USD market, and has attracted supranational, sub-sovereign, and agency (SSA) investors from different regions. On top of that, KDB promoted socially responsible finance by setting up the KDB Sustainable Bond Framework and issuing EUR-denominated green bonds worth EUR 500 million in support of new & renewable energy projects. This deal was chosen as the "Best Green Bond – Bank" at The Asset Triple A Sustainable Capital Markets Regional Awards 2019, thus further enhancing KDB's reputation as a leading policy finance institution.

In 2020, KDB's funding strategy will continue to focus on flexibility, bracing for potential volatility in the market caused by changes in base rates and geopolitical risks. As well as continuing to be active in USD-denominated global bonds, KDB will constantly monitor markets in order to serve as Korea's benchmark borrower across various markets, including EUR, JPY-denominated bonds, etc. The Bank will also make concerted efforts to improve funding conditions for Korean issuers by expanding the SSA investor base for Korean papers.

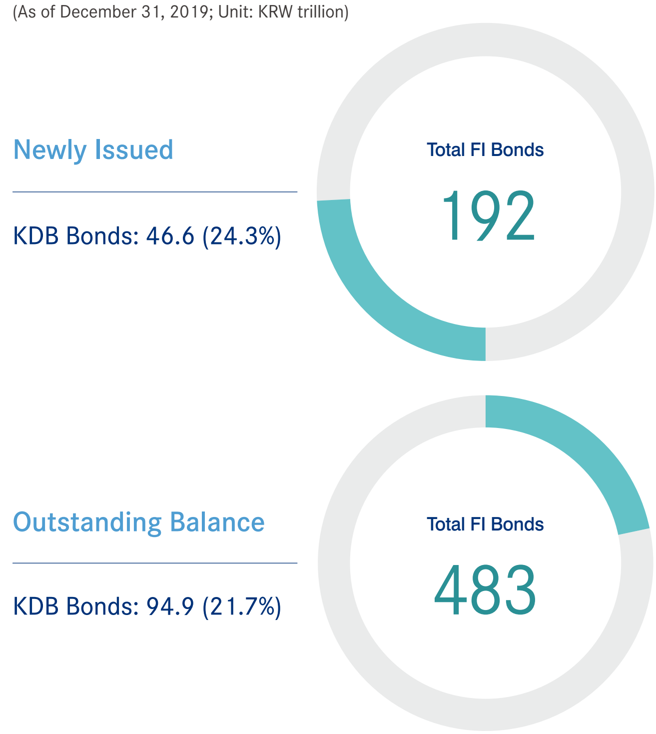
Market interest rate of major domestic bonds

(As of December 31, 2019; Unit: %)

	1Y	3Y	5Y	10Y
Korea Treasury Bonds	1.339	1.355	1.470	1.672
KDB Bonds	1.471	1.525	1.637	1.851
Bank Debentures (AAA)	1.507	1.575	1.669	1.945

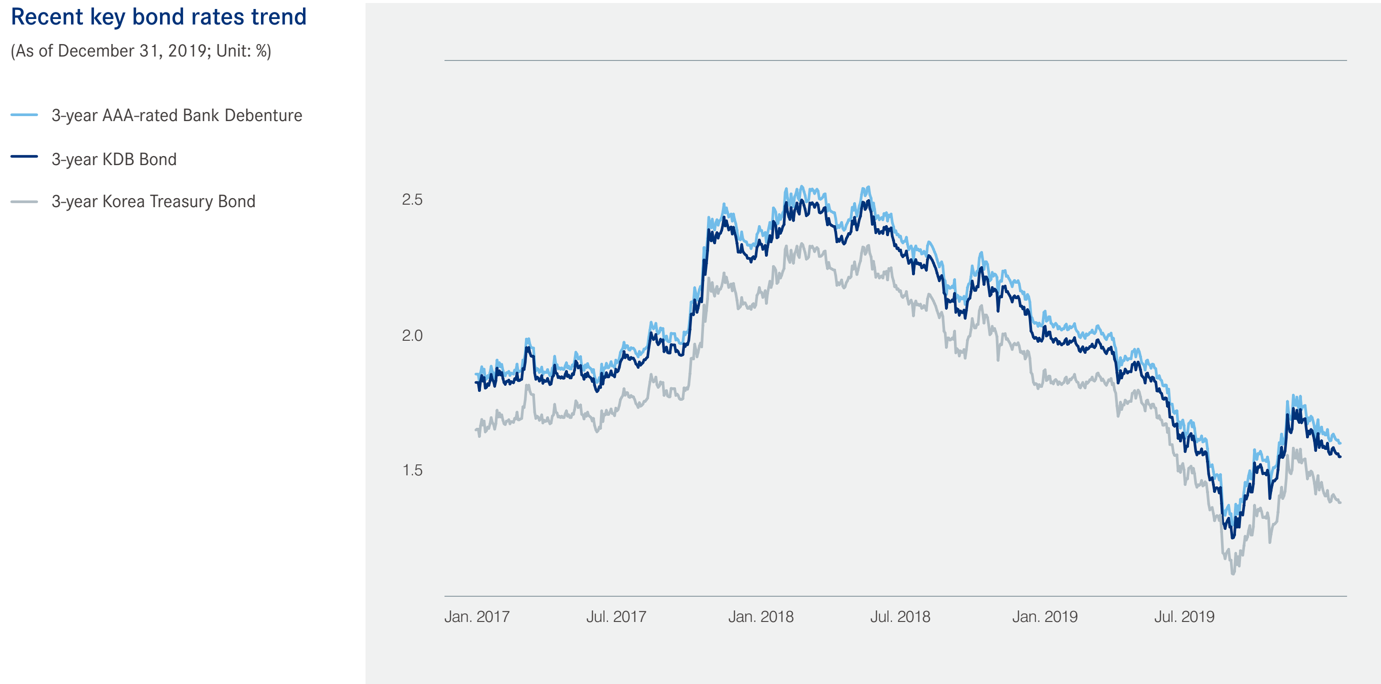
KDB Bonds and outstanding balance (KRW-denominated)

(As of December 31, 2019; Unit: KRW trillion)

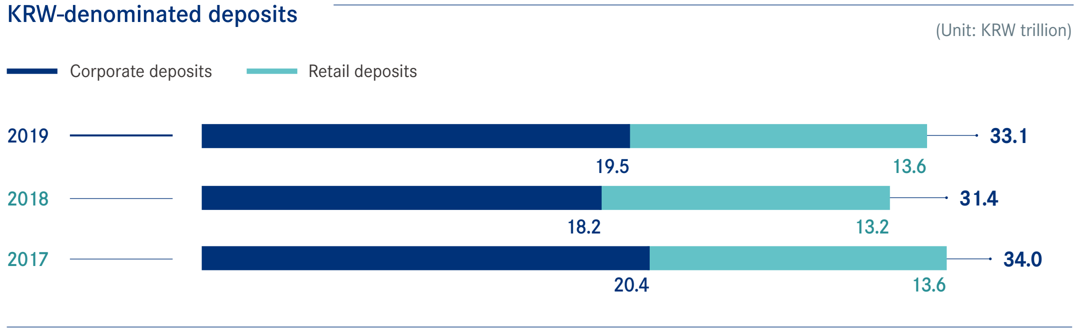


Recent key bond rates trend

(As of December 31, 2019; Unit: %)



KRW-denominated deposits



Number of retail customers

Deposits

KDB ensures the efficient supply of policy funds by taking deposits to supplement KDB Bonds, which can be sensitive to market conditions. By attracting money market accounts and other low-cost deposits, the Bank diversifies away its funding risks and reduces its funding costs, thus enhancing its competitiveness as a policy bank.

Despite increased global economic volatility and intensified competition among banks following the full implementation of open banking services in December, KDB's total deposits rose by KRW 1.7 trillion – KRW 1.3 trillion from corporate and KRW 0.4 trillion from retail customers – in 2019, thanks to the launch of distinctive non-face-to-face products. In particular, the Bank attracted some 46,000 new accounts through the KDB x T high5 Installment Savings product, launched in alliance with a fintech company.

Banks are being required to reduce household loans and increase corporate loans due to the new loan-to-deposit ratio regulations which will come into force in 2020. However, considering limitations on adjusting their loan portfolios over such a short period, banks are attempting to attract more deposits, which in turn will lead to more intense competition in the deposit-taking market.

Against this backdrop, KDB will leverage its strength as a corporate banking specialist to expand its deposit services and financial support for SMEs and MEs. The Bank will also expand its wealth management services for premier customers, and train more private banking (PB) specialists. In addition, in the face of a digital era, the Bank will strengthen its partnerships with fintech companies in order to provide high-quality non-face-to-face banking services.

Liquidity Management

For effective liquidity management, KDB makes various investment decisions for its liquidity pool by closely monitoring market conditions and flexibly adapting to internal supply-and-demand swings. KDB undertakes preemptive risk management measures to minimize liquidity gaps and maintain an optimal level of liquidity. The Bank employs diverse short-term instruments, such as call loans and money, repo, MMF, and CP programs, to efficiently manage its excess liquidity. In addition, it maintains extensive USD Money Market Lines with numerous central banks and multiple Reciprocal Money Market Line Agreements with global financial institutions to secure stable sources of short-term foreign currency liquidity.

Risk Management

KDB maintains financial soundness and stability in its business activities through the effective management of a diverse range of risks based on fundamental principles of risk management.

KDB's Risk Management Principles

- Risk must be managed in a manner that is independent, comprehensive, and uniform on a bank-wide basis;
- Risk must be accurately identified, measured and evaluated, and then properly managed;
- Risk must be maintained at a level in balance to profit;
- Risk must be diversified to prevent a buildup of assets concentrated in a specific category; and
- Risk must be managed within certain limits or guidelines in order to prevent undue exposure.

Effective Risk Management by Specialized Councils

KDB operates independent risk management committee and council to ensure prompt and effective risk management decision-making. The Risk Management Committee (RMC) is KDB's highest decision-making body that examines important matters such as yearly risk management plans and total risk limits for the Bank. The RMC members are mainly comprised of independent directors with extensive experience and knowledge in finance and economic matters. Chaired by one of the independent directors, the Committee is armed with a decision-making mechanism that ensures balanced views on critical risk management agenda. All agenda items resolved by the RMC are reported to the Board of Directors.

In 2019, a total of 21 agenda items were presented for discussion to the Committee. Major agenda items adopted for resolution included the risk management plans for 2019, and the country exposure management plans. Other important risk management issues were also reported to the Committee, including the analysis report on bank-wide stress test results and verification report on the BIS capital ratio.

The Risk Management Council is comprised of Division Heads, and its roles and responsibilities include the monitoring of the Bank's constant risk variables, and the orchestration of operations, so that risks can be effectively managed within each operation unit. Following the limits set by the Committee, the Council discusses and distributes the risks among Divisions, sets limits for trading losses and F/X positions. In 2019, the Council was convened nine times with agenda items including the credit portfolio management plans and the distribution of internal capital limits.

Risk Management Methodologies

Credit risks Credit risks refer to possible losses in the event that debts cannot be collected as a result of a failure of counterparties to make repayments or to fulfill their payment obligations in other ways. While monitoring all assets that are exposed to credit risk, we also measure and manage credit concentration risk, which can occur as a result of excessive exposure to individual companies or corporate groups.

Market risks Market risks refer to possible losses to the Bank's assets resulting from fluctuations of interest rates, stock prices, F/X rates, and other variables. KDB measures and manages possible losses in trading positions, including positions in securities and derivatives held for trading, due to negative movements in market indices. Moreover, we classify the severity of market changes into three stages – precautionary, semi-crisis, and crisis stages – and operate Market Risk Contingency Plans appropriate to each of the three stages. KDB also conducts stress tests to measure the potential scale of losses based on scenarios replicating significant fluctuations in major market indices over the last three years and the financial crisis in 2008.

Interest risks Interest rate risks refer to possible losses due to interest rate fluctuations that cause a decrease in net present value (NPV) or net interest income (NII) of rate-sensitive assets and an increase in interest expenses on rate-sensitive liabilities at the Bank's accounts. KDB manages interest rate risks mainly through Value at Risk (VaR), and also employs Earnings at Risk (EaR), duration gap, and repricing gap as auxiliary management indices.

Liquidity risks Liquidity risk is defined as the possibility of potential loss due to a temporary shortage in funds caused by a maturity mismatch or an unexpected capital outlay. Liquidity risk soars when funding rates rise, assets are sold below a normal price, or a good investment opportunity is missed. KDB uses Basel III's short-term liquidity regulation index, the liquidity coverage ratio (LCR), and a mid to long-term liquidity regulation index, the net stable funding ratio (NSFR) to manage its liquidity risks and to meet regulatory requirements.

Liability Management
Risk Management
IT & Digital Transformation
Research & Credit Review
Ethical Management
Human Resources Management
Corporate Social Responsibility

Key committees and councils for risk management

Board of Directors

Risk Management Committee
- A committee within the Board of Directors (Chair: Independent director, Members: Independent and inside directors, excluding the Chairman)
- Makes decisions on annual limit on internal capital and basic measures for risk management, etc.

Risk Management Council
- A risk management council composed of Division Heads (Chair: Vice Chairman, Members: All Division Heads)
- Makes decisions on the distribution of internal capital limits by Divisions, sets industry and country exposure limits, etc.

Chief Risk Officer
- Head of the Risk Management Division
- Plans, supervises, and monitors risk management, reports key issues to the management, etc.

Operational risks Operational risks refer to possible losses that may occur due to inadequate internal procedures, failed system, employee errors, as well as external events that disrupt business processes. Through a Control Self-Assessment (CSA) program implemented at three-month intervals, we make sure that the relevant staff at each department is fully aware of the potential operational risks associated with their job functions, and can properly manage those risks. We established business continuity plans for each job function to prepare for potential disruptions due to disasters, strikes, and other emergencies. Annual mock drills are held to ensure that major operations can be resumed within a target timeframe in the event of an emergency.

Asset Soundness Management

KDB categorizes the soundness of its assets as “normal”, “precautionary”, “substandard”, “doubtful”, or “estimated loss” based on an evaluation of the possibility of insolvency and sets loan loss provisions according to the categorization. Starting from 2018, the Bank makes reasonable estimates of the probability of defaults as well as loss given defaults, and sets aside adequate level of loan loss provisions using the expected credit loss (ECL) impairment model in line with the International Financial Reporting Standards 9 (IFRS 9).

KDB constantly strives to minimize the insolvencies and puts necessary measures into place, including requiring additional collateral and the early collection of debts. If assets become non-performing, we seek possibilities for business recoveries, or manage the assets through sales or write-offs.

Review of 2019 In 2019, KDB expanded its pool of high-quality assets under adequate risk control through the operation of its credit exposure limit system. It also overhauled designation criteria for Stressed Sectors so as to ensure effective risk management. In addition, the Bank established risk management measures for market making activities for the greenhouse gas emissions trading market, thereby improving its market risk management functions. It also established processes through which it can forecast future liquidity ratios and adjust its highly liquid asset portfolio in order to improve its liquidity risk management capacities. Moreover, the risk management infrastructure was upgraded by integrating the business continuity plan (BCP) centers into one, and improvements to IT systems made BCP implementations and mock drills more effective.

Plans for 2020 In preparation for the Basel large exposures framework to be adopted in 2021, KDB will set appropriate credit exposure limits by each corporate group based on thorough analysis of unique risk factors of each group. In addition, the Bank will build a new system to ensure smooth adoption of new Basel regulations for the risk-weighted assets which will come into force in 2023.

KDB is verifying its evaluation models and strengthening internal controls in response to new initial margin requirements for non-centrally cleared derivatives. Moreover, KDB will actively respond to changing regulations and market environments resulting from the adoption of the Interest Rate Risk in the Banking Book (IRRBB) standards in 2020. As such, we will continue to make practical and reasonable risk-based decisions based on timely risk analyses and efficient operations of risk management bodies.

IT & Digital Transformation

KDB will fulfill its roles required for a policy finance institution in the digital era through digital innovation of its products and services, and through digital transformation of the way it works.

Beginning of the Digital KDB Era

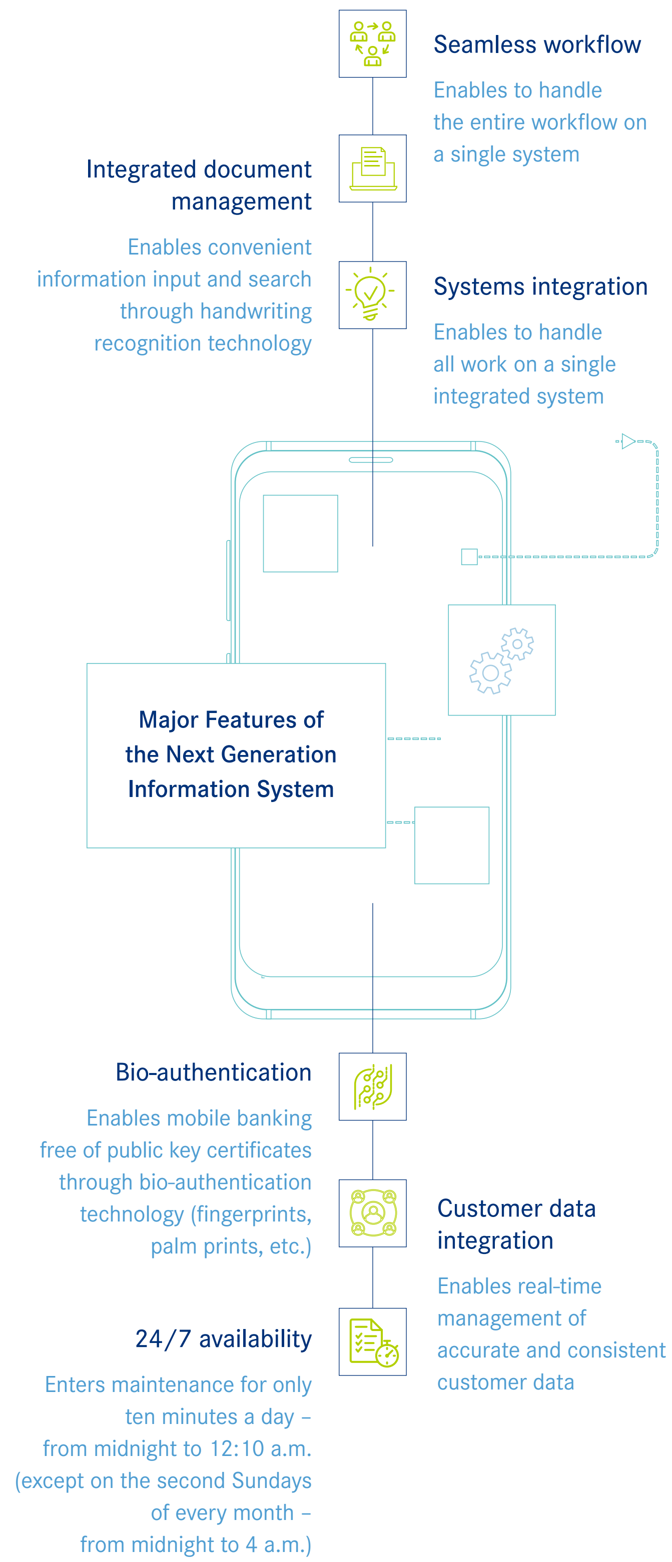
2019 saw the full launch of the digital finance era in Korea. Financial companies competed to become the first to launch financial services which make use of new information technologies, including big data, artificial intelligence, and cloud computing. In response to such a trend, KDB successfully completed its new Next Generation Information System. Moreover, it also constructed the KDB Digital Square on a 16,784 m^2 site in Hanam-si, Gyeonggi-do, which is another significant milestone indicating that the Bank has successfully completed its preparations for a digital era.

Next Generation Information System

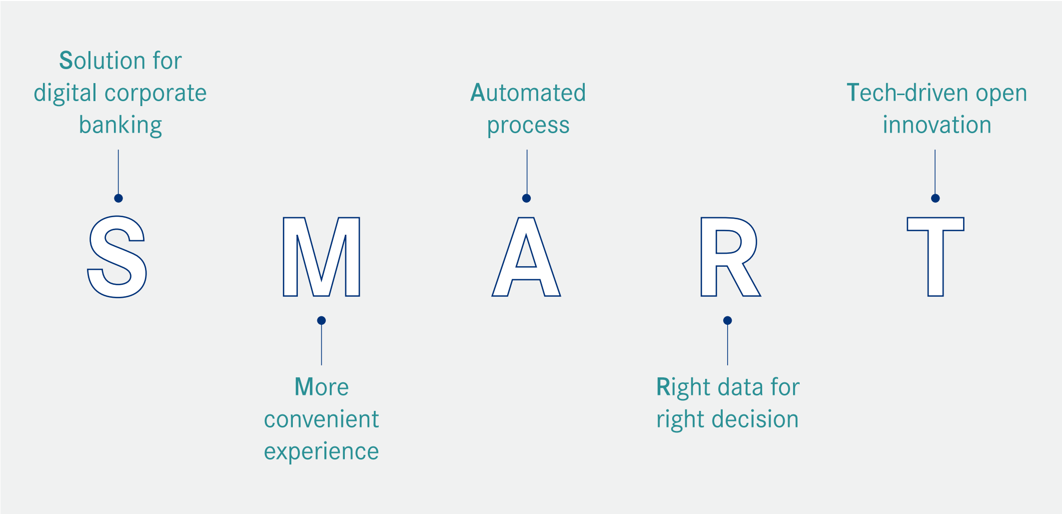
KDB embarked on its Next Generation Information System project in April 2017, for which the total workforce exceeded 1,600 engineers during the full project term of 26 months. 90% of the existing IT system was redeveloped, and the new system began operating in May 2019. Work productivity has been greatly improved, thanks to the streamlined workflow-based user interface, adoption of electronic forms, and systems integration. In addition, customer convenience has been increased significantly through the introduction of biometric authentication, integration of customer data, and 24/7 availability.

KDB Digital Square

KDB began construction of its new data center in July 2017 in order to secure state-of-the-art IT capacities. The project was completed in June 2019 after 24 months, and the center was named “KDB Digital Square”, embodying the determination of KDB to transform to a digital bank. Located in Hanam-si, Gyeonggi-do, the center consists of a six-story IT center and a nine-story office building.



Digital transformation strategy specialized for corporate banking



KDB Digital Square is designed to accommodate the high-performance/large-capacity IT systems which have recently become a necessity. A network cabling structure and containment system have made cooling more efficient, and non-stop power supply system and base isolation structure will maintain business continuity even in the event of a disaster. Moreover, KDB Digital Square was awarded Tier III Certification of Design Documents by Uptime Institute, in recognition of its top-level stability and efficiency. Equipped with cutting-edge smart offices and multi-level security, KDB Digital Square will serve as an outpost for KDB in the digital era, taking the lead in KDB's digital strategies, R&D, and process innovations.

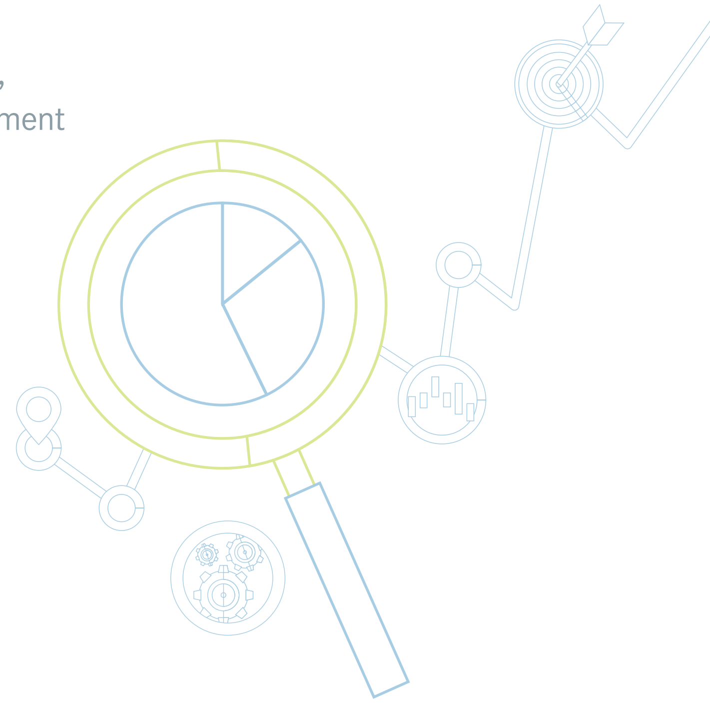
Digital Transformation

In 2019, KDB established "S.M.A.R.T", a digital transformation strategy specialized for corporate banking. Based on this strategy, we focused on providing non-face-to-face services to our corporate clients using online channels, building a financial platform to enable start-ups, SMEs, and MEs to attract investments, and supporting fintech companies. In addition, a robotic process automation (RPA) pilot project was launched to automate standard, repetitive work by using a software robot. RPA will be expanded to enable staff to concentrate on more creative, higher value-adding work. Moreover, a pilot smart office project is also underway to create a more open, horizontal organizational culture through spatial innovation.

In 2020, KDB will strengthen its data expert pool and convert conventional industry data into smart data, thereby boosting its big data capabilities, a key tool for digital transformation. In addition, to foster fintech companies and industry, KDB will work with other fintech companies to develop new open API business models. We will also actively seek investment opportunities for outstanding fintech companies so that we can perform a pivotal role in the nurturing of fintech ecosystem and the digital transformation of Korean industries. In order to cultivate a young, lively, and smart organizational culture, more innovations will take place in 2020 such as adoption of paperless office, improvement of workplace communications, and promotion of knowledge management.

Research & Credit Review

As Korea's leading think tank for industry and technology, KDB supports innovative growth and sustainable development of the Korean economy, and suggests the direction for economic development on the Korean Peninsula.



Industry & Technology Research

KDB undertakes comprehensive research on industry and technology, including industry sector ratings and outlook, technology reviews, and Technology Credit Bureau (TCB) evaluations. This function serves two purposes: effective risk management for the Bank and enhancement of industrial structure for the whole economy. These roles are expected to become ever more important in the fast-changing era of the 4^{th} Industrial Revolution.

In 2019, KDB's research focus was on new industries and technologies, such as cloud computing and artificial intelligence, as well as finding ways for traditional major industries to hone their competitiveness. It also carried out in-depth analysis of the impact that Japan's export controls have on major industries, including semiconductor, display, and electric vehicles, and suggested potential solutions for each industry sector. Moreover, KDB continued to serve as a leading tech evaluation center in 2019 based on the Level 4 TCB Certification it has received from Korea Credit Information Services in 2018.

In 2020, KDB will step up its efforts for research in innovative growth so that Korea can maintain its leadership in the 4^{th} Industrial Revolution, while also carrying on with its research for major industries. In addition, the Bank will increase the number of target industries and speed up the procedure for industry sector ratings, and make improvements to its TCB reporting system.

Credit Review

In 2018, KDB adopted "Credit Review System for New Industries and Innovative Companies" to better respond to the diverse funding needs of innovative companies at various growth stages. In 2019, the Bank organized special teams dedicated to credit review of new industries, and adopted an agile credit review methodology. Under this methodology, experts visit innovative companies and conduct credit reviews on-site, providing the companies the opportunity to explain their business plans and technologies in-person. Through these approaches, KDB actively supports innovative companies which have earned recognition for their innovation and potential for growth, but have not had timely access to capital due to lack of a proven track record. In addition, the Bank has been strengthening its management of corporate group exposures, by setting working capital credit limits for every large exposure. The Bank is also enhancing its credit review system through utilization of an integrated database which provides comprehensive information on industries and corporate groups.

In 2020, in line with its global expansion plans and the New Southern Policy, KDB will gradually boost its credit review capacities in major business hubs, including Singapore and Hong Kong. Moreover, we will further enhance our credit review expertise by running comprehensive training programs for in-house credit specialists.

Research on Reunification Finance

KDB conducts in-depth research on North Korea's economy and industries in order to support the government's "New Economic Map of the Korean Peninsula". It also researches the means of inter-Korean economic cooperation in anticipation of smooth progress of North Korea's denuclearization. Although North Korea-US denuclearization negotiations did not lead to an agreement in 2019, the negotiation process pointed to many possibilities for the future. The government has been striving to build foundations for an inter-Korean community based on the New Economic Map of the Korean Peninsula, and KDB has accordingly put significant efforts into research in preparation for the resumption of economic cooperation. The Bank also hosted the 27th seminar of the North Korea Policy Forum on the theme of joint growth for the two Koreas through start-up cooperation, with top experts on North Korea discussing inter-Korean exchange and cooperation.

In 2020, vigorous efforts will continue to be made for peace on the Korean Peninsula and across Northeast Asia by the two Koreas and their neighbors, including the US, China, and Russia. KDB will widen its research into North Korea's economy and industries in order to realize a successful and peaceful economy on the Korean Peninsula. It will also actively support government policies by cooperating with domestic and overseas research institutes and international financial institutions.

Ethical Management

KDB prioritizes ethical management with a particular focus on customer protection in a bid to spread fairness and transparency within the organization.

Compliance

Review of 2019 KDB has built an effective internal control system to ensure that it abides by regulations, prevents any financial incident, and fulfills its anti-money laundering obligations. It continues to make improvements to its anti-corruption infrastructure, and runs a wide range of compliance programs to practice a bank-wide ethical management. Regular training is provided to employees in order to boost ethical awareness, and to build a fair and transparent workplace.

In 2019, the government emphasized the importance of ethical management for the public sector in order to fully establish public integrity, and to spread a culture of respect for human rights and mutual cooperation. KDB received integrity consulting from the Anti-Corruption & Civil Rights Commission, and overhauled its internal regulations, including the Code of Conduct. As a result of such endeavors, the government upgraded the Bank's integrity evaluation rating by one notch in 2019. In addition, we built a human rights management system to meet the new obligations imposed on public institutions starting from 2019, and made a joint labor-management declaration on human rights management. We also operate internal and external report centers for *gapjil*[1], and conduct surveys with our partners and clients to prevent any damage or take corrective actions, in an active response to the government's commitment to eradicating *gapjil*.

KDB also made improvements to its anti-money laundering infrastructure. The Bank successfully integrated its anti-money laundering function to the Next Generation Information System, and also amended internal regulations and self-checklists on anti-money laundering for its overseas networks. Moreover, system improvements are being consistently made to prevent transactions which are in violation of international sanctions including those imposed by the US and UN.

Plans for 2020 Social demand for ethical management will further increase in 2020, especially demands for stemming *gapjil*, respecting human rights, and increasing integrity. Internal control systems will also be further upgraded in order to ensure that all internal and external regulations are observed.

KDB will therefore continue to strengthen its efforts around anti-corruption and ethical management, including human rights management and *gapjil* eradication. It will adopt a human rights impact assessment system for its management activities in order to prevent human rights violations and *gapjil*. It will also increase the efficiency of its integrity policies by making its compliance-related IT systems more convenient, and will strengthen internal control systems at overseas branches to ensure full compliance to local regulations. Compliance reports will be overhauled to focus on local regulations, and communication and coordination between local compliance officers and headquarters compliance staff will be further strengthened.

Furthermore, KDB will ensure that its anti-money laundering activities are always in line with ever-tightening global standards. We will closely monitor suspicious transactions and carefully check for any beneficial ownership. We will also support anti-money laundering efforts at our branches through regular on-site inspections.

[1] Abuse of power by someone against a person in a weaker position

Major compliance management programs

Programs	Details
Compliance monitoring	Conducts monitoring on compliance reports, self-inspection reports from branches, and monthly compliance training results
Preliminary compliance review	Conducts compliance reviews on internal regulations, T&C, product disclosures, BoD agenda items, etc.
Anti-money laundering	Conducts Suspicious Transaction Reporting (STR), monitors large cash transactions, and operates the know-your-customer (KYC) and know-your-employee (KYE) systems
Financial investment report system	Requires employees to report on their financial investments to prevent them from using undisclosed information
Cryptocurrency possession report system	Requires employees engaging in cryptocurrency business to report their possession of cryptocurrency biannually
Integrity idea contest and ethics awards for branches and employees	Encourages and incentivizes employees to identify areas vulnerable to corruption
Clean Report Center / No Gift Campaign	Prohibits solicitation and acceptance of gifts exceeding specified amounts
Solicitation report system	Requires employees to report on unlawful solicitation from fellow employees and people outside the Bank
Executive Pledge of Ethics	Mandates registered directors to maintain integrity in job performance
Code of Conduct Pledge	Mandates new hires to comply with the Code of Conduct
Gapjil Report Center	Builds a report system for unfair demands or treatment to fellow employees or people outside the Bank
Whistleblowing system	Prevents financial incidents and ensures whistleblowers' anonymity
Report system for outside lecture requests	Requires employees to report outside lecture requests tied to their job functions or influences
Compliance self-check system	Checks the compliance status of all employees biannually
Ethical trainings	Provides training to new employees, promoted employees, high-level management, and employees engaged in job functions vulnerable to corruption

Consumer Protection

Review of 2019 KDB continuously strives to improve its consumer protection systems in response to the ever-strengthening standards for financial consumer protection.

KDB has established a consumer protection process for each phase of the product life cycle — from development to sales and post-sales stages. We regularly examine across all phases for any factor that may impinge on consumer rights in order to prevent improper or incomplete product sales. The product development and sales departments communicate seamlessly by sharing up-to-date information on recent consumer protection issues through the Financial Consumer Protection Council. As a result of these efforts, KDB has earned "Excellent" ratings across all categories of the "Evaluation of Consumer Protection Status" conducted by the Financial Supervisory Service every year.

We have also set up a coherent complaint handling system to address customer complaints more promptly. We are also working to reduce the number of complaints by analyzing the root cause of the most frequent complaints, providing in-depth training on complaints handling, and distributing a checklist for complaints prevention.

2019 milestones and performance for consumer protection

Milestones	Performance
Established a consumer protection system for each phase of the product life cycle	• Planning & development stage: Conducted preliminary reviews on possible consumer right infringements • Sales stage: Prevented incomplete sales by providing appropriate information on key product features and risks • After-sales stage: Enhanced consumer protection levels through on-site reviews of consumer protection status
Increased customer satisfaction by collecting their opinions	• Collected diverse customer opinions through the Voice of Customer (VOC) system • Facilitated customer satisfaction (CS) training by analyzing the results of 'Public-service Customer Index (PSCI)' survey • Received & handled complaints, and then conducted follow-up checks
Disclosed information to ensure the public's right to know	• Provided up-to-date information and actively responded to information disclosure requests • Provided group training to employees in charge of information disclosure
Conducted personal information protection activities for customers	• Conducted regular reviews on browsing history and provision history to a third party • Ran a campaign to delete critical personal information files stored on work PCs
Conducted monitoring to prevent losses from electronic financial fraud	• Improved the electronic financial fraud prevention and monitoring system • Provided training on preventing voice phishing attacks

Moreover, we conduct in-house customer satisfaction surveys to enhance employee awareness, thereby further enhancing the levels of consumer satisfaction.

In addition, KDB makes the utmost effort to protect the personal information of its customers. We have established detailed standards for the handling of personal information and make regular checks on the implementation status of these standards. We also operate electronic financial fraud prevention and monitoring systems to protect consumers from voice phishing.

Plans for 2020 In 2020, KDB will continue to build a stronger consumer protection system for the mutual benefits of the Bank and its customers. To this end, KDB plans to strengthen financial consumer protection measures for every stage of product sales, observe "Consumer Protection Days", and expand employee training to boost their consumer protection capabilities.

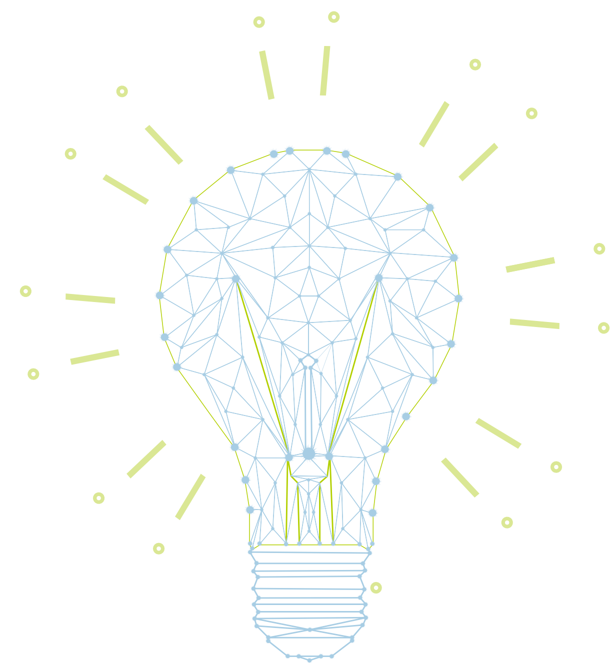
We will also further increase customer satisfaction by improving our work processes. In addition to providing our employees more customer satisfaction trainings, KDB plans to make further improvements to its electronic financial fraud protection system. Moreover, we will continue to make timely reports in accordance to relevant global financial regulations, and further enhance our personal information protection capabilities.

Human Resources Management

KDB seeks to recruit forward-looking global talent driven by passion and determination, and also possessing the qualifications and sense of ethics needed to lead the development of the Korean financial industry.

Fair and Competency-driven Recruitment System

KDB hires new employees every year in order to respond effectively to the ever-changing economic and business environments, and to strengthen its organizational competencies. We ensure equal opportunity and fairness in our recruitment process by adopting "blind recruitment" practices. Recruitment is driven above all by job competencies, with an emphasis on a candidate's basic capabilities and organizational fit within the financial industry.



KDB hired 35 new employees in 2019, all of whom had undergone a multi-dimensional evaluation at each stage of the hiring process in line with National Competency Standards (NCS). We increased the proportion of new employees with digital, technological background, including computer science, big data, and biotech. These talented new recruits will take the lead in shaping the future of Korean industries in the era of the 4th Industrial Revolution.

Programs to Foster Digital Talent

KDB is making extensive efforts to recruit and train interdisciplinary talent who can lead the digitalization of finance. It is triggering a bank-wide digitalization by providing special lectures and coding classes to its employees. The Bank is also running digital immersion courses in collaboration with colleges and other educational institutions. In addition, KDB offers a wide range of opportunities for employees to expand their knowledge both inside and outside their current job functions. It offers personalized career development programs and in-house training courses for each job function and level of proficiency. In particular, the Bank enables its employees to learn anytime and anywhere by offering online courses at the KDB e-Campus or through other online training providers.

KDB also runs a range of overseas programs to develop global talent. KDB offers programs aimed at training regional specialists in countries where the Bank is planning to expand, and which have strong potential for growth, including Indonesia and Vietnam. Moreover, selected employees also receive on-the-job trainings at KDB offices in New York, London, and Singapore.

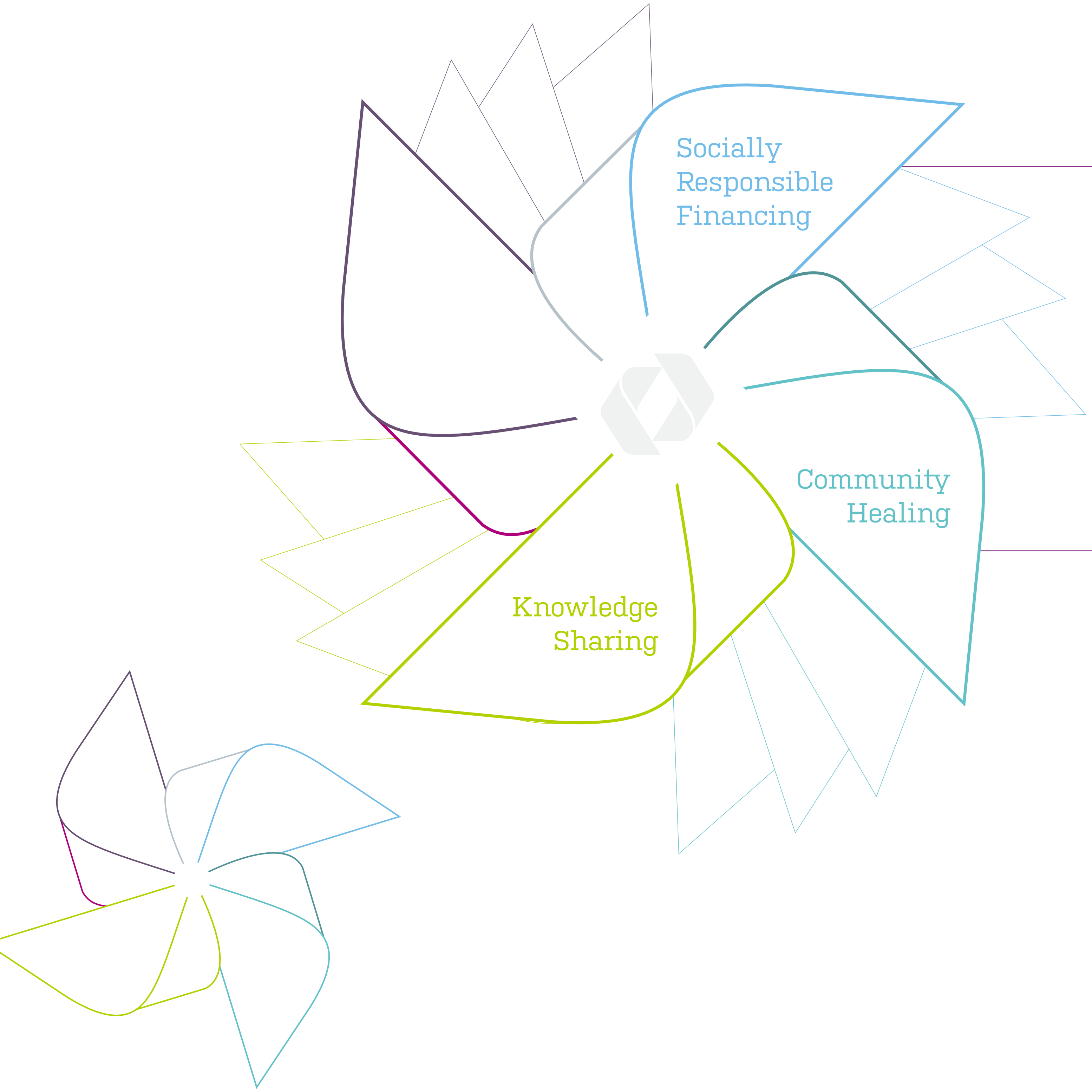
Strengthening Job Competencies

We segment job functions at KDB into 172 categories with the aim of maximizing organizational competencies through enhancement of individual job competencies. We support employees in their individual development through a wide range of personalized career development programs (CDPs) which are divided into exploration, development, and master phases. Employees in the exploration phase can improve their skills in their own job functions while also gaining experience within other areas. Subsequently, more support is given to employees to help them further develop their expertise as they move towards the master phase.

For specialized job positions requiring higher level of expertise, positions are filled through a competitive in-house recruitment process. In 2019, KDB recruited staff for positions in project finance (PF), regional development, shipping and aviation finance, M&A, private equity fund, VC, DCM, credit review, consulting, and portfolio management. The Bank also operates an open position system which emphasizes the importance of expertise, and imbues the Bank's organizational culture with added vitality. In 2019, KDB proceeded with in-house and external recruitment to hire qualified experts in four areas – PF, litigation, risk management, and industry & technology research – and thus continued its efforts to secure distinguished experts in each field.

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to the sustainable growth of local communities, and strive to make a positive difference to society through social contribution activities.



Knowledge Sharing

Community Healing

Socially Responsible Financing

KDB's Founding Mission

To contribute to the sound development of the financial industry and national economy

KDB's corporate social responsibility (CSR) activities can be categorized into three types as follows:

01 **Socially Responsible Financing**

Support important public values, such as job creation, industrial and economic development through KDB's financial activities

02 **Community Healing**

Promote and maintain a healthy society by extending a helping hand to various groups in society through a range of non-financial activities

03 **Knowledge Sharing**

Share knowledge and experience accumulated from the aforementioned activities, to provide yet another foundation for advancement and create positive momentum and value

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to the sustainable growth of local communities, and strive to make a positive difference to society through social contribution activities.

Socially Responsible Financing

KDB maintains a keen interest in fostering future growth engines, pursuing balanced growth across regions, expanding public infrastructure, and improving the environment, and thereby provides socially responsible financial products and services.

2019 Summary for socially responsible financing

(Unit: KRW billion)

Objectives of funds	Amount supplied by KDB	Number of projects
Fostering the growth of SMEs and MEs	3,140	1,391
Invigorating regional economies and pursuing balanced growth	358	132
Repairing and ramping up social infrastructure	1,797	73
Nurturing eco-friendly industries	1,218	199
Contributing to improving industrial safety	794	178

Knowledge Sharing

Community Healing

Socially Responsible Financing

Case 1

Environmental and Social Risk Management

KDB recognizes that the finance industry has a critical role to play in promoting responsible stewardship and socially responsible development. Accordingly, we work in partnership with our clients to ensure that the projects we finance and advise on are developed in a manner that is socially responsible, and reflects sound environmental management practices. The environmental and social (E&S) performance of our clients is intrinsically linked to our own success and commitment to society.

KDB's approach to tackling E&S risks in projects and other transactions follows the Equator Principles (EP), the finance industry's gold standard for E&S risk management. Our due diligence processes ensure that E&S risks in large infrastructure and industrial projects are effectively identified, and appropriate measures are put in place to mitigate risk in a structured way. In 2019, our dedicated team undertook E&S due diligence on more than 40 projects and transactions. KDB provided multiple rounds of staff training and hosted many seminars in order to raise awareness of EP, and to ensure that EP are maintained consistently throughout the Bank.

As Korea's first and only bank to adopt the EP to date, KDB is expanding its outreach activities to help disseminate and advance E&S risk management practices. During the course of the year, we shared our experiences in E&S risk management with other Korean banks that have shown interest or have taken preliminary steps to become a signatory of the EP. At the 2019 Annual Meeting of the EP Association where the fourth version of the EP (EP4) was launched, KDB stepped up to take on the leadership role of EP4 transition coordinator. Responsibility includes overseeing the issuance of supplementary guidance documents before the EP4 becomes effective in July 2020.

KDB will continue to improve the rigor of its internal procedures in order to manage the E&S risks of the projects it finances. The priority for 2020 will be the effective implementation of EP4 across the Bank's operations, which will in turn enable us to guide our clients in addressing emerging E&S risks.

KDB's E&S risk management process

New project-related transactions
- Project finance
- Corporate loans

→ E&S risk categorization
- Category A (High risk)
- Category B (Medium risk)
- Category C (Low risk)

→ E&S due diligence (in conjunction with credit review)
- Compliance review against the EP requirements (commensurate with project's risk category)

→ Loan approval

→ Financing documentation
- Incorporate covenants on client's E&S undertakings into financial documents

→ Monitoring and reporting
- Client conducts monitoring and reporting to validate continued compliance with the EP requirements

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to the sustainable growth of local communities, and strive to make a positive difference to society through social contribution activities

Case 2

KDB-KEPCO Climate Finance Forum 2019

KDB and Korea Electric Power Corporation (KEPCO) hosted the KDB-KEPCO Climate Finance Forum 2019 in October, with participation from climate change project staff from both organizations, as well as climate change experts from KPMG. This annual forum enables KEPCO and KDB, two of Korea's leaders in climate change projects, to come together to share information on overseas projects and look at opportunities for new projects. Forum 2019 focused on cooperation in overseas carbon emissions trading markets. KEPCO's project progress, KPMG's analysis on emissions right business model, and KDB's climate change project blueprints were also shared among the participants.

Case 3

MOU for Joint Collaboration for GCF Projects

GREEN CLIMATE FUND

In December 2019, KDB signed an MOU with the Korea International Cooperation Agency (KOICA) and the Korea Environmental Industry & Technology Institute (KEITI) for the joint development of Green Climate Fund (GCF) projects. The MOU will actively pioneer global climate change markets by combining KOICA's know-how in official development assistance (ODA), KEITI's environmental expertise, and KDB's financial capabilities. It will also enhance mutual cooperation in helping Korean companies expand overseas. As the only domestic Accredited Entity of GCF, KDB is implementing the "EV Paradigm Shift Acceleration Project in Vietnam" in partnership with KOICA and KEITI. Through this MOU, the three organizations will continue to work together on GCF projects that will best support the development of emerging nations.

Case 4

Establishment of the KDB Sustainable Bond Framework

In June 2019, KDB established the KDB Sustainable Bond Framework in order to increase transparency in bond markets through a standardized framework for ESG bonds. A second party opinion from Sustainalytics confirmed the quality and rigor of the Framework. The Framework is in line with all international standards, including ICMA's Green Bond Principles, Social Bond Principles, and Sustainability Bond Guidelines, and specifies detailed criteria for eligible projects. The Framework consists of four core components – use of proceeds, processes for project evaluation and selection, management of proceeds, and reporting.

Eligibility criteria under the Framework

Eligible Green Categories	Eligible Social Categories
Renewable energy	Employment generation
Clean transportation	Social enterprises
Energy efficiency	
Pollution prevention and control	
Sustainable water management and wastewater management	

Knowledge Sharing

Community Healing

Socially Responsible Financing

Case 5

Issuance of EUR-denominated Green Bond

Following its USD-denominated green bond issued in 2017, KDB successfully priced a EUR-denominated green bond for EUR 500 million, with a 5-year maturity, in July 2019. The proceeds will be used for new & renewable energy projects, including photovoltaic and wind power generation. The bond won "Best Green Bond – Bank" at The Asset Triple A Sustainable Capital Markets Regional Awards 2019.

Case 6

Issuance of KRW-denominated Sustainability Bond

In May 2019, KDB issued sustainability bonds worth KRW 400 billion, with a 2-year maturity and an annual coupon rate of 1.79%. The proceeds will be used for environmental improvement and job creation projects. This sustainability bond follows the issuance of KRW-denominated green and social bonds in 2018, and is contributing to the development of the Korean environmental, social, and governance (ESG) bond market. KDB allocated 77.5% of the proceeds to social projects, such as job creation, and 22.5% to green projects, such as photovoltaic and wind power. The number of target companies for social projects was 88, and the total number of employees at those companies rose from 19,533 at the end of 2017 to 22,119 at the end of 2018, an increase of 13%. The total annual reduction in CO_2 emissions resulting from green projects is expected to be 125,372 tons, of which KDB's contribution was 28,867 tons, or 321 tons per KRW 1 billion of proceeds as calculated according to the proportion of support that was funded by the Bank's sustainability bonds.

Social impacts

Sector	Number of target companies	Number of new employments		
		2017-end (A)	2018-end (B)	Increase (B-A)
Employment generation	88	19,533	22,119	2,586

Environmental impacts

Sector	Power Generation Capacity (MW/Year)	Reduction of CO_2 emissions* (tCO_2/Year)		
		By Projects	Share of KDB Sustainability Bond	Per KRW 1 billion of proceeds
Solar Power	85,410	42,385	9,687	215
Wind Power	167,228	82,987	19,180	426
Total		125,372	28,867	321

* Key methodologies for the measurement of CO_2 emissions
"EIB Project Carbon Footprint Methodologies" (EIB, 2018)
"Projected Costs of Generating Electricity" (IEA, 2015)

Liability Management
Risk Management
IT & Digital Transformation
Research & Credit Review
Ethical Management
Human Resources Management
Corporate Social Responsibility

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to the sustainable growth of local communities, and strive to make a positive difference to society through social contribution activities

Case 7

Issuance of KRW-denominated Social Bonds

In October 2019, KDB issued a KRW-denominated social bond worth KRW 200 billion, with a 1-year maturity and an annual coupon rate of 1.38%. It also issued a KRW-denominated social bond worth KRW 200 billion, with a 2.5-year maturity and an annual coupon rate of 1.49%. All proceeds were allocated towards financial support for SMEs and MEs, thus contributing to the creation of quality jobs and the resolution of social issues such as unemployment and job insecurity. By issuing these social bonds, KDB is strengthening the social safety net, by addressing unemployment and job insecurity issues, and also by raising public interest in socially responsible investment.

Social impacts

Employment Generation[1]		Allocation Information		Social Indicators	
Signed amount	Share of KDB Social Bond	Total proceeds	Allocated amount	Employment generation	Rate of increase
KRW 490 billion	KRW 400 billion (82%)	KRW 400 billion	100%	1,652	12.3%

[1] Employment generation projects newly funded in the period from March to September 2019

Case 8

Strengthening of Social Roles of Policy Finance

In addition to the activities mentioned above, KDB also ran a wide range of financial programs in 2019 in order to promote socially responsible finance and balanced growth within the society.

Expansion of the Mutual Growth Funds

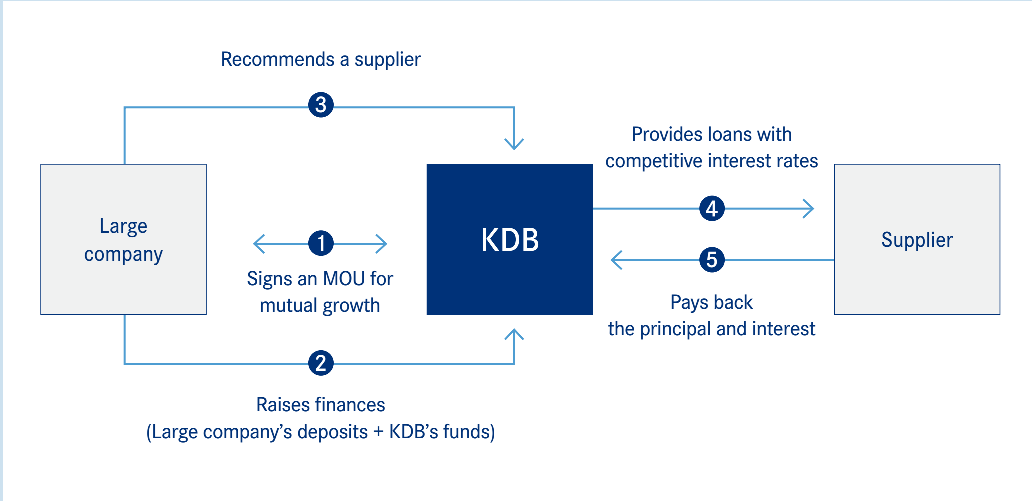
The Mutual Growth Funds were launched in May 2011 to encourage win-win cooperation between large companies and SMEs & MEs. KDB's own financial resources are added to deposits from large companies to provide SME and ME suppliers loans with competitive interest rates. In 2019, KDB created four new funds – KRW 10 billion for GS Caltex, KRW 10 billion for Sungwoo Hitech, KRW 20 billion for Celltrion, and KRW 6 billion for Doosan Corporation. It also extended 13 existing funds worth KRW 688 billion. As a result, KDB is managing 17 mutual growth funds worth a total of KRW 734 billion in partnership with 11 large companies and five MEs as of the end of 2019.

(Unit: KRW billion)

	2016	2017	2018	2019
Number of funds	11	12	13	17
Size of funds	567	601	733	734
Amount of loans	448	426	509	484
Number of beneficiary companies	217	214	256	238

Knowledge Sharing
Community Healing
Socially Responsible Financing

Overview & Summary of Mutual Growth Funds



Special loan programs for social enterprises and job creation

In 2019, KDB supported social enterprises as well as the creation of new jobs at SMEs and MEs by running special loan programs designed for socially responsible businesses and job creating companies, etc.

Special loan programs

Program beneficiaries	Description
Socially responsible businesses	• Supports social enterprises and eco-friendly companies
Job creating companies	• Supports job creation and stronger job security
Regional economies	• Supports companies that are located in or have relocated to regional areas

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to the sustainable growth of local communities, and strive to make a positive difference to society through social contribution activities.

Community Healing

Under the slogan of "A sharing hand, a warm-hearted society", KDB carries out community service activities that involve long-term commitment under the four key themes of neighborhood, education, culture, and nation.

Neighborhood

KDB volunteer group

Since 1996, KDB employees and their families have been paying regular visits to welfare facilities, such as rehab centers, and facilities for the hearing-impaired. The volunteers undertake a range of activities that embody their neighborly love including quarterly deliveries of much-needed supplies.

Support for people living in welfare blind spots

This program identifies underprivileged people who are caught in welfare support blind spots, and supports them in the spirit of neighborly love. In 2019, sponsorships were provided to crime victims based on recommendations made by the Korean National Police Agency and also to visually-impaired cellists.

***Kimchi* sharing**

Every year since 2008, KDB and the Seoul City Women's Society have worked together to deliver *kimchi* to neighbors in need, especially elderly people who live alone. In November 2019, we delivered 12,000 cabbages of *kimchi* to elderly people living alone, low-income families, and welfare facilities.

Regular sharing events

In partnership with the Yeongdeungpo Senior Welfare Center, KDB visits elderly people living alone to deliver rice and other daily necessities, as well as goods needed to stay warm during the winter. We also take part in a wide range of volunteer activities, including free meals, financial donations, special activities on major national holidays, as well as fundraising and volunteering activities involving all employees at the end of each year.

Blood drives

KDB runs blood drives in which all employees are encouraged to participate, with the aim of helping pediatric patients with leukemia. Participants deliver their blood donation certificates and also make financial donations to relevant institutions.

Employee donations

KDB collects the last four-digit portion of its employees' monthly wages, and donates the sum in the form of scholarships and support for low-income and single-parent households.

Education

KDB has provided biannual pro-bono financial education programs targeting teenagers. Also, since 1985, we have invited children living in remote places to Seoul to help them experience life in the biggest city in Korea.

Culture

KDB's various mécénat activities are bringing culture, arts, and sports closer to the public, and we also sponsor a wide range of arts & cultural events and performances. We co-host the annual "KDB Sharing Concert" alongside the KBS Symphony Orchestra, inviting people from welfare facilities, volunteers, and underprivileged seniors to come along and enjoy the music.

Nation

One-Company-for-One-Village & One-Company-for-One-Platoon campaigns

2019 marks the 14th year of our "One-Company-for-One-Village" campaign, through which we host events to promote the purchase of local products, provide a helping hand to farmers, and invite village residents to cultural performances. KDB also runs the "One-Company-for-One-Platoon" campaign which provides financial supports to Korean armed forces and encourages our employees to experience the importance of national security.

Corporate Social Responsibility

All members of KDB are aware of our responsibility in contributing to

KDB Foundation

Established in 2007, the KDB Foundation runs projects in three areas – socially responsible finance, community service, and talent development. The following projects run by the Foundation reflect KDB's commitment to creating social value through sustainable finance.

In 2019, a total of 455 teams applied for "KDB Start-up Program", a program supporting start-ups run by young people, and 25 teams were chosen to participate in the final round. They were provided with a range of training programs, including professional start-up training, mentoring, and venture capital support. 7 teams were finally selected to be offered start-up funds totaling KRW 180 million, as well as other follow-up programs. Since its launch in 2013, the Program has selected 131 teams, 103 of which were successful in launching their business, creating 1,350 jobs, and generating cumulative sales of around KRW 76 billion. The "KDB Entrepreneurship Support Program" also began in 2013, and it aims to spread a start-up business culture among college students. In 2019, 1,051 students from 26 colleges across the nation participated in the program.

In 2019, KDB provided start-up fund loans to 12 small businesses through the 'KDB Microcredit Fund', which helps underprivileged people build more stable finances. In addition to financial support, the Bank offered management consulting and one-on-one mentoring to help these businesses generate strong sales and profitability after their launch of business. KDB is also helping people excluded from the financial services become financially independent, with the goal of expanding the infrastructure for inclusive finance. The project was launched in 2005, and as of the end of 2019, a total of 224 start-up loans have been provided, thus expanding the social safety net and helping the underprivileged to become more economically independent.

"KDB Social Economy Enterprise Support Program" aims to support the creation of jobs for the underprivileged. In 2019, we provided 19 social enterprises with resources for facility investments, as well as customized mentoring on marketing, finance, and labor. This program has supported a total of 47 social enterprises since its launch in 2015, and has created jobs for 139 people, thereby contributing to the establishment of a sustainable ecosystem for social economy.

Knowledge Sharing

Knowledge Sharing

KDB does its utmost to enable society to move forward in a more constructive direction by sharing its vast knowledge database with the public, accumulated over many years of experience.

Corporate Social Responsibility

Sharing Know-how in Policy Finance

KDB shares its policy finance expertise with various countries and organizations by providing customized training courses which meet their specific requirements, including in areas such as risk management, compliance, and PF. In February 2019, the Bank shared its expertise and experience in development finance with employees from the National Bank of Cambodia, including details about the role and functions of a policy bank at each stage of national development. It also partnered with the Korea Banking Institute in June 2019 to offer training on project finance to trainees from Uzbekistan. In July, KDB explained its roles in building a venture ecosystem to high-level public officials from the China Banking and Insurance Regulatory Commission who had been invited to Korea by the Korea International Trade Association. These officials also attended “NextRise 2019, Seoul”, a global start-up event organized by KDB. In August, KDB provided training on compliance to visitors from the Bank for Investment and Development of Vietnam, and in November, it offered a training session covering the full range of the Bank’s businesses to a team from the Saudi Industrial and Development Fund, a development finance institution in Saudi Arabia. KDB is also a member of the Council on International Financial Cooperation, which consists of policy finance institutions, and actively cooperates on events and trainings organized by the Council. In June 2019, we shared information about the KDB’s role and expertise in development finance with a group of high-level visitors from Armenia, including the CEOs of major institutions such as the Central Bank of Armenia, the Armenia Securities Exchange, etc. A similar event was also held for employees of the Central Bank of Uzbekistan in November.

Developing Global Talent

In July 2019, KDB Foundation held the “KDB Global Leadership Program” for 35 ethnic Korean university students from five countries – Uzbekistan, Kazakhstan, Kyrgyzstan, Russia, and the Philippines. During this four-week program, students shared the diverse cultures of their home countries. This experience helped them embrace a global mindset, which is now a prerequisite for becoming a global leader. They also developed a more in-depth understanding of Korea through intensive Korean language lessons and cultural experiences. In 2019, KDB expanded the countries covered by the Program to include Southeast Asia, thus supporting non-governmental diplomacy with ASEAN countries. Launched in 2012, the Program has produced a total of 258 graduates, with 166 of them being admitted to prestigious universities or hired by major companies, including Seoul National University, Yonsei University, Korea Development Institute, KDB Bank Uzbekistan, Yahoo US Headquarters, and public institutions. KDB will continue to foster next-generation global leaders who can act a bridge between Korea and the rest of the world.

Blood drives

Invitation for children living in remote places to Seoul

KDB Sharing Concert

KDB Start-up Program

FINANCIAL REVIEW

Management's Discussion & Analysis

The 2019 financial statements prepared by KDB conform to the Korean International Financial Reporting Standards (K-IFRS). K-IFRS refers to Korea's adoption of the standards and interpretations released by the International Accounting Standards Board (IASB). The 2019 financial statements of KDB cover financial performance from January 1 to December 31 of the year, and the financial figures in this Management's Discussion & Analysis (MD&A), unless specified otherwise, are based on consolidated financial statements.

2019 Review

The global economy saw slowing growth in 2019, with total world output up by 2.9% according to International Monetary Fund (IMF), and 3.6% the year before. This was caused by several factors, including uncertainties due to the US-China trade dispute and Brexit, an economic slowdown in a number of emerging markets, and wider geopolitical tensions, which caused major economies, including the US, the Eurozone, China, and India to achieve a lower GDP growth rate in 2019.

The Korean economy likewise experienced slower growth. Factors affecting growth included reduced investment in plant & equipment, continued sluggishness in construction, and lackluster growth in exports. Overall consumption rose by 3.1%, with a major contribution from government spending, but the overall GDP growth rate recorded 2.0%, down from 2.7% in 2018. Inflation for the year was 0.4%, compared to 1.5% in 2018, and the current account surplus fell from USD 775 billion in 2018 to USD 600 billion in 2019, mainly due to a reduction in the volume of global trade.

According to preliminary figures from the Financial Supervisory Service, the combined net income of the Korean banking industry in 2019 was KRW 14.4 trillion, down from KRW 15.6 trillion in 2018. This decline was mainly due to increases in selling, general and administrative (SG&A) expenses and impairment losses at subsidiaries. Nevertheless, the industry saw further improvements in its asset quality, as evidenced by a decrease in loan loss provisions and a rise in NPL coverage ratios.

In 2019, KDB focused more on the new growth and innovative industries associated with the 4th Industrial Revolution in order to fulfill its roles and responsibilities as Korea's leading policy finance institution and to ensure the stability and revitalization of the national economy. "KDB NextRound", which was launched in 2016, continues to be a success as an investment platform linking promising start-ups with potential investors and venture capital companies at home and abroad. KDB also encouraged the preemptive restructuring of corporate groups suffering from a temporary shortage in liquidity, and implemented effective financial measures to prevent any potential spread of risk.

We made continuous efforts to promote the overseas businesses of Korean companies, as well as expanding our own global presence by managing overseas project finance transactions and establishing the Jakarta Representative Office as our business hub in Southeast Asia. KDB has also helped to create a positive ecosystem for start-ups, and contributed to the further development of SMEs.

KDB's position as Korea's representative financial institution and its strong capital adequacy have been evaluated and recognized by the major international credit rating agencies. In 2019, KDB maintained credit ratings of Aa2 with Moody's, AA with S&P and AA- with Fitch, and its BIS capital ratio stood at 14.05%.

2020 Outlook

With the onset of the COVID-19 pandemic, the world economy is facing unprecedented challenges and hardships. Major economies, including the US, Japan, and Germany, are expected to experience sharp contractions in GDP, and there are still no clear signs of a turnaround. Countries around the world are struggling to contain the spread of the virus, including by implementing strict measures for social distancing and stay-at-home, and this has already translated into severe damage to trade volumes and new investments in the global economy.

In April, IMF forecast that world output will decline by 3.0% year-on-year in 2020, with advanced economies, such as US (-5.9%), Eurozone (-7.5%) and Japan (-5.2%), experiencing the highest rates of contraction. Major emerging markets, such as China (+1.2%) and India (+1.9%), are still expected to grow, but are expected to suffer their worst slowdown in decades.

There are many predictions being made for Korea's GDP growth rate in 2020, but forecasts range widely, from -1.2% (IMF) to +1.3% (ADB), as the course of the pandemic is still hard to predict and the Korean economy is heavily reliant on global trade. Private consumption and investments in plant & equipment are expected to slump further, and trade volume will also grow slowly in 2020, if at all. However, it is important to note that Korea has built a substantial economic buffer against turbulent times. Korea's foreign exchange reserves stood at USD 409 billion at the end of March 2020, the 9th highest total in the world.

Despite this challenging environment, KDB will continue to fulfill its role as an "Advanced Policy Bank at the Forefront of Korea's Sustainable Growth" by further increasing its support for innovative industries and SMEs. KDB will spearhead progress in the era of the 4th Industrial Revolution, invigorating the national economy and monitoring global and domestic market conditions in order to provide a market safety net.

2020 will see a rapidly changing, volatile financial environment. KDB will therefore strive to carry out its functions as a policy bank based on its strong credit ratings, globally competitive financial expertise, and thorough risk management. It will also play a leading role in supporting the national economy throughout the COVID-19 crisis as "Korea's Financial Platform Leading to a Bright Future".

Income Analysis

Summary Statement of Income

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Net operating revenue	2,663.8	3,172.0	(508.2)	(16.0)
Net interest income	1,870.5	2,174.8	(304.3)	(14.0)
Non-interest income	793.2	997.2	(204.0)	(20.5)
Provision for credit losses	208.6	94.1	114.5	121.6
G&A expenses	1,529.2	1,388.7	140.5	10.1
Operating income	926.0	1,689.2	(763.2)	(45.2)
Non-operating income	(847.2)	945.3	(1,792.5)	(189.6)
Income tax expenses	98.2	444.7	(346.5)	(77.9)
Profit for the period from continuing operations	(19.5)	2,189.8	(2,209.3)	(100.9)
Profit from discontinued operations	298.6	(1,483.9)	1,782.5	120.1
Net profit	279.1	706.0	(426.8)	(60.5)

KDB recorded a net profit of KRW 279 billion in 2019, KRW 427 billion less than the previous year. Operating income decreased by KRW 763 billion year-on-year to KRW 926 billion, mainly attributable to a reduction in net interest income and an increase in G&A expenses. Non-operating income fell by KRW 1,793 billion compared to the previous year, mainly due to net losses from investments in associates. This resulted in a negative non-operating income for the year of KRW 847 billion. Moreover, KDB classified a disposal group of Daewoo Shipbuilding & Marine Engineering as assets and liabilities held for sale, and profit or loss on Daewoo Shipbuilding & Marine Engineering as profit or loss from discontinued operations.

Interest Income and NIM

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Interest-earning assets (Annual average balance)	160,340	160,775	(435)	(0.3)%
Yield rate (%)	3.07	3.08		(0.01)%p
Interest-bearing liabilities (Annual average balance)	177,487	175,157	2,330	1.3%
Cost rate (%)	2.30	2.17		0.13%p
NIM (%)	0.52	0.71		(0.19)%p

* Non-consolidated basis

Interest-earning assets decreased by 0.3% year-on-year to KRW 160,340 billion, while interest-bearing liabilities increased by 1.3% to KRW 177,487 billion. The yield rate decreased by 0.01%p to 3.07%, and the cost rate increased by 0.13%p to 2.30%. As a result, the net interest margin for the year fell by 0.19%p to stand at 0.52%.

Financial Statement

Summary Statement of Financial Position

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Assets	268,839.7	260,076.2	8,763.5	3.4
Cash & due from banks	7,761.2	8,730.0	(968.8)	(11.1)
Securities	78,179.8	77,412.0	767.8	1.0
Loans	149,926.9	142,936.0	6,990.9	4.9
Other assets	32,971.7	30,998.2	1,973.5	6.4
Liabilities	233,762.6	225,822.7	7,939.9	3.5
Deposits	36,315.3	33,949.2	2,366.1	7.0
Borrowings	24,968.4	26,379.5	(1,411.1)	(5.3)
Bonds	125,206.8	123,175.4	2,031.4	1.6
Other liabilities	47,272.1	42,318.6	4,953.5	11.7
Equity	35,077.1	34,253.4	823.7	2.4
Issued capital	18,663.1	18,108.1	555.0	3.1
Capital surplus	1,000.6	813.8	186.8	23.0
Retained earnings	10,658.8	10,518.9	139.9	1.3
Capital adjustments	278.0	316.4	(38.4)	(12.1)
Accumulated other comprehensive income	40.9	24.7	16.2	65.6
Non-controlling interests	4,435.6	4,471.5	(35.9)	(0.8)

At the end of 2019, KDB's assets amounted to KRW 268,840 billion, up 3.4% compared to the previous year. This was mainly attributable to an increase in outstanding loans, which rose by 4.9% to KRW 149,927 billion.

KDB's liabilities rose by 3.5% year-on-year to record KRW 233,763 billion, mainly attributable to increases in deposits and other liabilities. Deposits stood at KRW 36,315 billion at year-end, up 7.0%, and other liabilities recorded KRW 47,272 billion, up 11.7% year-on-year.

KDB's issued capital increased by KRW 555 billion in 2019, with total equity standing at KRW 35,077 billion, up 2.4% compared to the previous year. This was the result of the issuance of new KDB shares to the Korean government during the year, as well as increases in capital surplus and retained earnings.

Loans

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Corporate loans	126,971	119,636	7,335	6.1
Large enterprises	102,155	95,635	6,520	6.8
SMEs	24,816	24,001	815	3.4
Household loans	367	698	(331)	(47.4)
Public and others	1,008	1,363	(355)	(26.0)
Total loans	128,346	121,697	6,649	5.5

* Non-consolidated basis

Total loans in 2019 recorded KRW 128,346 billion, up 5.5% from the previous year. Corporate loans, which account for the largest proportion of total loans, rose by 6.1% year-on-year to KRW 126,971 billion, mainly attributable to a 6.8% increase in loans to large enterprises.

Funding

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Deposits	36,315	33,949	2,366	7.0
Borrowings	24,968	26,380	(1,412)	(5.3)
Bonds	125,207	123,175	2,032	1.6

Deposits of KDB increased by 7.0% year-on-year, while borrowings decreased by 5.3%. Bonds rose by 1.6% year-on-year, resulting in the proportion of funding sourced from bonds staying unchanged at 67.1%.

Asset Quality

(Unit: KRW billion)

	2019	2018	Change	
			Amount	%
Total credit	128,346	121,697	6,649	5.5
Normal	118,176	110,819	7,357	6.6
Precautionary	6,688	5,726	962	16.8
Sub-standard	1,985	3,703	(1,718)	(46.4)
Doubtful	221	315	(94)	(29.8)
Estimated loss	1,276	1,134	142	12.5
Sub-standard and below loans (NPL)	3,482	5,152	(1,670)	(32.4)
NPL ratio	2.71%	4.23%		(1.52)%p
Loan loss reserve	3,668	4,261	(593)	(13.9)
NPL coverage ratio	105.3%	82.7%		22.6%p

* Non-consolidated basis

Total credit at the end of 2019 amounted to KRW 128,346 billion, up 5.5% or KRW 6.6 trillion year-on-year. NPLs decreased by 32.4% to KRW 3,482 billion, as a number of major corporate clients completed their restructurings and were thus classified as precautionary. As a result, the NPL ratio fell from 4.23% in 2018 to 2.71% in 2019.

Loan loss reserves at year-end stood at KRW 3,668 billion, down 13.9% compared to the previous year. As a result of the decrease in NPLs, the NPL coverage ratio rose by 22.6%p to 105.3%.

Capital Adequacy

Capital Adequacy Ratio and Tier 1 Ratio

(Unit: %)

	2019	2018	Change (%p)
Capital adequacy ratio	14.05	14.80	(0.75)
Tier 1 ratio	12.13	12.69	(0.56)

The BIS capital adequacy and Tier 1 ratios of KDB, as calculated in accordance with Basel III standards, stood at 14.05% and 12.13%, respectively at the end of 2019, down 0.75%p and 0.56%p compared to the previous year. The BIS capital recorded KRW 35.0 trillion at year-end, up by 1.7% year-on-year, thanks to the KRW 0.56 trillion capital injection from the Korean government. Risk-weighted assets (RWA) went up by 7.1% to KRW 249.1 trillion, mainly attributable to changes in the calculations for RWAs associated with over-the-counter (OTC) derivatives, such as SA-CCR, increases in indirect investments, and the funding of corporate restructurings. The BIS capital adequacy ratio of KDB is well maintained above the minimum requirement of 8%.

Independent Auditors' Report

Based on a report originally issued in Korean

The Board of Directors and Shareholders
Korea Development Bank

Opinion

We have audited the accompanying consolidated financial statements of Korea Development Bank and its subsidiaries (collectively, the "Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS").

Basis for Opinion

We conducted our audit in accordance with Korean Standards on Auditing. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion

Other Matter

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such financial statements may differ from those generally accepted and applied in other countries.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Korean IFRS, and for such internal control as management determines is 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, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

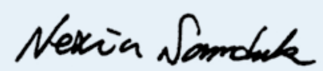
Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

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 to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Korean Standards on Auditing will always detect a material misstatement when it exists. 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.

As part of an audit in accordance with Korean Standards on Auditing, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, 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 opinion. 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 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 the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's 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 our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. 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 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 represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

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.



Seoul, Korea
March 27, 2020

This report is effective as of March 27, 2020, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Korea Development Bank and Subsidiaries

Consolidated Statements of Financial Position

December 31, 2019 and 2018

(In millions of won)

	Notes	December 31, 2019		December 31, 2018
ASSETS				
Cash and due from banks	4, 41, 49, 50, 53	₩	7,761,244	8,730,028
Securities measured at FVTPL	5, 49, 50, 53		13,291,845	13,490,715
Securities measured at FVOCI	6, 41, 49, 50, 53		31,992,665	30,277,386
Securities measured at amortized cost	7, 41, 49, 50, 53		5,551,600	5,691,616
Loans measured at FVTPL	8, 49, 50, 53		605,077	779,520
Loans measured at amortized cost	9, 43, 49, 50, 53		149,321,851	142,156,494
Derivative financial assets	10, 49, 50, 51, 53		5,406,004	3,925,505
Investments in associates	11, 52		27,343,738	27,952,330
Property and equipment, net	12, 52		2,535,271	5,951,840
Investment property, net	13, 52		525,009	367,271
Intangible assets, net	14, 52		883,450	939,784
Deferred tax assets	39		955,669	924,659
Current tax assets			86,722	86,459
Other assets	15, 49, 50, 53		12,062,635	18,660,416
Assets held for sale	16		10,516,884	142,138
Total assets		₩	268,839,664	260,076,161
LIABILITIES				
Financial liabilities measured at FVTPL	17, 49, 50, 53	₩	2,465,541	2,164,538
Deposits	18, 49, 50, 53		36,315,343	33,949,175
Borrowings	19, 49, 50, 53		24,968,407	26,379,539
Debentures	20, 49, 50, 53		125,206,809	123,175,447
Derivative financial liabilities	10, 49, 50, 51, 53		4,184,604	3,229,104
Policy reserves	21		16,763,825	16,325,334
Defined benefit liabilities	22		303,414	447,116
Provisions	23		997,644	2,157,120
Deferred tax liabilities	39		3,177,800	3,713,425
Current tax liabilities			189,664	96,270
Other liabilities	24, 49, 50, 53		13,206,875	14,185,647
Liabilities held for sale	16		5,982,675	-
Total liabilities		₩	233,762,601	225,822,715

December 31, 2019 and 2018

(In millions of won)

	Notes	December 31, 2019		December 31, 2018
EQUITY				
Issued capital	25	₩	18,663,099	18,108,099
Capital surplus	25		1,000,599	813,820
Capital adjustment	25		278,039	316,429
Accumulated other comprehensive income	25		40,936	24,710
Retained earnings	25		10,658,792	10,518,889
(Regulatory reserve for credit losses of ₩1,257,673 million and ₩1,405,853 million as of December 31, 2019 and 2018, respectively)				
(Required reversal of regulatory reserve for credit losses of ₩(82,217) million and ₩(148,180) million as of December 31, 2019 and 2018, respectively)				
(Planned reversal of regulatory reserve for credit losses of ₩(82,217) million and ₩(148,180) million as of December 31, 2019 and 2018, respectively)				
Total equity attributable to owners of the parent			30,641,465	29,781,947
Non-controlling interests	46		4,435,598	4,471,499
Total equity			35,077,063	34,253,446
Total liabilities and equity		₩	268,839,664	260,076,161

See accompanying notes to the consolidated financial statements.

Korea Development Bank and Subsidiaries

Consolidated Statements of Comprehensive Income

Years ended December 31, 2019 and 2018

(In millions of won, except earnings per share information)

	Notes	2019	2018
Continuing operations:			
Interest income	26	₩ 6,081,209	6,058,724
Interest expense	26	(4,210,671)	(3,883,881)
Net interest income		1,870,538	2,174,843
Net fees and commission income	27	451,561	423,255
Dividend income	28	300,162	274,587
Net gain (loss) on securities measured at FVTPL	29	466,507	(15,858)
Net loss on financial instruments designated at FVTPL	30	(6,760)	(55,947)
Net gain on securities measured at FVOCI	31	118,184	41,191
Net gain (loss) on securities measured at amortized cost	32	584	(14)
Net loss on derivatives	33	(439,718)	(103,771)
Net foreign currency transaction gain	34	88,948	226,493
Other operating income (expense), net	35	(186,253)	207,268
Non-interest income, net		793,215	997,204
Provision for credit losses	36	208,563	94,109
General and administrative expenses	37	1,529,219	1,388,720
Operating income		925,971	1,689,218
Net gain (loss) related to investments in associates	11	(816,764)	1,222,465
Other non-operating income	38	335,569	180,192
Other non-operating expense	38	(366,024)	(457,381)
Non-operating income (expense), net		(847,219)	945,276
Profit before income taxes		78,752	2,634,494
Income tax expenses	39	98,227	444,653
Profit (loss) for the period from continuing operations		(19,475)	2,189,841
Discontinued operations:			
Profit (loss) from discontinued operations	16	298,622	(1,483,861)
Profit for the year	25	₩ 279,147	705,980
(Profit for the year adjusted for regulatory reserve for loan losses: ₩361,364 million and ₩854,160 million for the years ended December 31, 2019 and 2018, respectively)			

Years ended December 31, 2019 and 2018

(In millions of won, except earnings per share information)

	Notes	2019	2018
Other comprehensive income (loss) for the year, net of tax	25	₩ 13,359	(262,080)
Items that are or may be reclassified subsequently to profit or loss:			
Net gain (loss) on securities measured at FVOCI		14,590	(51,762)
Share of other comprehensive income (loss) of associates		17,912	(106,818)
Exchange differences on translation of foreign operations		(13,703)	34,326
Valuation gain on cash flow hedge		538	3,770
Net gain on hedges of net investments in foreign operations		4,015	-
Others		25,687	(522)
		49,039	(121,006)
Items that will not be reclassified to profit or loss:			
Remeasurements of defined benefit liabilities		(39,745)	(46,156)
Fair value changes on financial liabilities designated at fair value due to credit risk		(7,759)	(6,342)
Net gain (loss) on securities measured at FVOCI		15,017	(54,323)
Share of other comprehensive loss of associates		(3,193)	(34,253)
		(35,680)	(141,074)
Total comprehensive income for the year		₩ 292,506	443,900
Profit attributable to:			
Owners of the parent	25	₩ 275,466	529,266
Non-controlling interests		3,681	176,714
Profit for the year		₩ 279,147	705,980
Total comprehensive income attributable to:			
Owners of the parent		₩ 312,009	266,310
Non-controlling interests		(19,503)	177,590
Total comprehensive income for the year		₩ 292,506	443,900
Earnings per share:			
Basic and diluted earnings per share (in won)	40	₩ 74	147
Earnings per share from continuing operations:			
Basic and diluted earnings per share (in won)	40	₩ (12)	561

See accompanying notes to the consolidated financial statements.

Korea Development Bank and Subsidiaries

Consolidated Statements of Changes in Equity

Years ended December 31, 2019 and 2018 (In millions of won)

	Attributable to owners of the parent							
	Issued capital	Capital surplus	Capital adjustment	Accumulated other comprehensive income	Retained earnings	Total	Non-controlling interests	Total equity
Balance at January 1, 2018	₩ 17,938,099	1,058,374	324,596	694,547	9,827,095	29,842,711	3,728,093	33,570,804
Changes in accounting policy	-	(372)	-	(372,123)	274,862	(97,633)	(115,803)	(213,436)
Restated balance at January 1, 2018	17,938,099	1,058,002	324,596	322,424	10,101,957	29,745,078	3,612,290	33,357,368
Profit for the year	-	-	-	-	529,266	529,266	176,714	705,980
Net gain (loss) on securities measured at FVOCI	-	-	-	(144,170)	34,758	(109,412)	3,327	(106,085)
Share of other comprehensive loss of associates	-	-	-	(139,150)	-	(139,150)	(1,921)	(141,071)
Exchange differences on translation of foreign operations	-	-	-	14,690	-	14,690	19,636	34,326
Valuation gain on cash flow hedge	-	-	-	3,770	-	3,770	-	3,770
Remeasurements of defined benefit liabilities	-	-	-	(25,386)	-	(25,386)	(20,770)	(46,156)
Fair value changes on financial liabilities designated at fair value due to credit risk	-	-	-	(6,342)	-	(6,342)	-	(6,342)
Others	-	-	-	(1,126)	-	(1,126)	604	(522)
Total comprehensive income for the year	-	-	-	(297,714)	564,024	266,310	177,590	443,900
Dividends	-	-	-	-	(147,092)	(147,092)	-	(147,092)
Paid-in capital increase	170,000	(824)	-	-	-	169,176	-	169,176
Acquisition on / disposal of interest in subsidiaries while maintaining control	-	(243,358)	(8,167)	-	-	(251,525)	681,619	430,094
Transaction with owners	170,000	(244,182)	(8,167)	-	(147,092)	(229,441)	681,619	452,178
Balance at December 31, 2018	₩ 18,108,099	813,820	316,429	24,710	10,518,889	29,781,947	4,471,499	34,253,446
Balance at January 1, 2019	₩ 18,108,099	813,820	316,429	24,710	10,518,889	29,781,947	4,471,499	34,253,446
Changes in accounting policy	-	-	-	-	(65)	(65)	(42)	(107)
Restated balance at January 1, 2019	18,108,099	813,820	316,429	24,710	10,518,824	29,781,882	4,471,457	34,253,339
Profit for the year	-	-	-	-	275,466	275,466	3,681	279,147
Net gain (loss) on securities measured at FVOCI	-	-	-	(2,762)	20,317	17,555	12,052	29,607
Share of other comprehensive loss of associates	-	-	-	16,527	-	16,527	(1,808)	14,719
Exchange differences on translation of foreign operations	-	-	-	8,506	-	8,506	(22,209)	(13,703)
Valuation gain (loss) on cash flow hedge	-	-	-	680	-	680	(142)	538
Net gain on hedges of net investments in foreign operations	-	-	-	4,015	-	4,015	-	4,015
Remeasurements of defined benefit liabilities	-	-	-	(14,659)	-	(14,659)	(25,086)	(39,745)
Fair value changes on financial liabilities designated at fair value due to credit risk	-	-	-	(7,759)	-	(7,759)	-	(7,759)
Others	-	-	-	11,678	-	11,678	14,009	25,687
Total comprehensive income for the year	-	-	-	16,226	295,783	312,009	(19,503)	292,506
Dividends	-	-	-	-	(144,865)	(144,865)	-	(144,865)
Paid-in capital increase	555,000	(2,673)	-	-	-	552,327	-	552,327
Acquisition on / disposal of interest in subsidiaries while maintaining control	-	189,452	(38,390)	-	(10,950)	140,112	(16,356)	123,756
Transaction with owners	555,000	186,779	(38,390)	-	(155,815)	547,574	(16,356)	531,218
Balance at December 31, 2019	₩ 18,663,099	1,000,599	278,039	40,936	10,658,792	30,641,465	4,435,598	35,077,063

See accompanying notes to the consolidated financial statements.

Korea Development Bank and Subsidiaries

Consolidated Statements of Cash Flows

Years ended December 31, 2019 and 2018 (In millions of won)

	Notes	2019	2018
Cash flows from operating activities			
Profit for the year		₩ 279,147	705,980
Adjustments for:			
Income tax expense	39	95,815	472,787
Interest income	26	(6,081,209)	(6,112,194)
Interest expense	26	4,210,671	4,031,035
Dividend income	28	(300,162)	(274,734)
Loss (gain) on valuation of securities measured at FVTPL		(352,951)	15,491
Loss on valuation of financial instruments designated at fair value through profit or loss		6,781	54,190
Net gain on securities measured at FVOCI	31	(118,184)	(41,191)
Net loss (gain) on securities measured at amortized cost	32	(584)	16
Gain on valuation of loans measured at FVTPL	8	(42,982)	(32,227)
Gain on valuation of derivatives		(425,857)	(178,788)
Net loss on fair value hedged items	33	645,768	36,381
Gain on foreign exchange translation	34	(18,529)	(175,519)
Loss (gain) on disposal of investments in associates		(7,218)	285,187
Impairment loss on investments in associates	11	105,007	347,317
Share of loss of associates		711,294	449,474
Provision for loan losses allowance	9, 36	193,286	172,686
Provision for due from banks	36	42	45
Increase (reversal) of provision for payment guarantees	23, 36	(255,114)	69,769
Increase (reversal) of provision for unused commitments	23, 36	39,095	(15,916)
Reversal of provision for financial guarantee provision	23, 36	(76,426)	(39,825)
Increase (reversal) of lawsuit provision	23	(14)	10,458
Increase (reversal) of provision for restoration	23	258	(430)
Increase of other provisions	23	127,207	73,687
Increase (reversal) of provision for other assets	36	307,680	(559,035)
Defined benefit costs	22	103,993	163,088
Depreciation of property and equipment	12	194,570	276,323
Net loss (gain) on property and equipment		86,251	(4,077)
Depreciation of investment property	13	10,222	6,083
Net loss (gain) on investment property		(15,846)	21,484
Amortization of intangible assets	14	196,698	214,411
Net loss (gain) on intangible assets	38	(96,955)	219,332
Net loss on assets held for sale	38	7,210	26,122
Net loss on share capital repayable on demand	35	89,950	106,398
Gain on redemption of debentures	35	(12)	(8)
		₩ (660,245)	(382,180)

See accompanying notes to the consolidated financial statements.

Years ended December 31, 2019 and 2018 (In millions of won)

	Notes	2019	2018
Changes in operating assets and liabilities:			
Due from banks		₩ (1,044,534)	(1,430,715)
Securities measured at FVTPL		496,726	(6,638,000)
Loans measured at FVTPL		376,437	386,262
Loans measured at amortized cost		(9,939,553)	(42,647)
Derivative financial instruments		(56,662)	(94,861)
Other assets		1,769,475	3,611,943
Deposits		2,339,724	(341,516)
Policy reserves		438,491	738,495
Defined benefit liabilities		(294,027)	(106,710)
Provisions		397,022	(120,213)
Other liabilities		2,280,684	(4,286,560)
		(3,236,217)	(8,324,522)
Income taxes paid		(287,598)	(567,370)
Interest received		6,110,641	6,028,806
Interest paid		(4,165,663)	(3,548,469)
Dividends received		578,418	709,490
Net cash used in operating activities		₩ (1,381,517)	(5,378,265)
Cash flows from investing activities			
Net, decrease (increase) in securities measured at FVTPL		₩ (197,029)	1,368,215
Disposal of securities measured at FVOCI		24,806,162	16,319,720
Acquisition of securities measured at FVOCI	6	(26,126,057)	(11,362,496)
Redemption of securities measured at amortized cost		937,578	390,743
Acquisition of securities measured at amortized cost	7	(747,812)	(2,246,392)
Disposal of property and equipment		69,361	148,746
Acquisition of property and equipment	12	(208,850)	(296,965)
Acquisition of investment property	13	(87,533)	(1,908)
Disposal of intangible assets		19,471	14,217
Acquisition of intangible assets	14	(100,774)	(106,810)
Disposal of assets and liabilities held for sale		63,546	152,248
Disposal of investment in associates		928,043	553,136
Acquisition of investments in associates		(1,292,332)	(2,044,736)
Net cash flows by the change of subsidiaries		102,636	257,957
Net cash provided by (used in) investing activities		₩ (1,833,590)	3,145,675

Years ended December 31, 2019 and 2018 (In millions of won)

	Notes	2019	2018
Cash flows from financing activities			
Net, increase in financial liabilities designated at FVTPL		₩ 282,834	485,839
Proceeds from borrowings		35,610,506	36,576,654
Repayment of borrowings		(35,974,505)	(38,902,233)
Proceeds from issuance of debentures		101,858,078	111,594,315
Repayment of debentures		(100,142,991)	(108,745,920)
Repayment of lease liabilities		(156,569)	-
Paid-in capital increase		552,327	169,176
Decrease of share capital repayable on demand		(144,865)	(9,461)
Increase (decrease) of non-controlling interests		(46,043)	1,132
Dividends paid		(3,665)	(147,092)
Net cash provided by financing activities		1,835,107	1,022,410
Effects from changes in foreign currency exchange rate for cash and cash equivalents held		204,372	(83,402)
Net decrease in cash and cash equivalents		(1,175,628)	(1,293,582)
Cash and cash equivalents at beginning of the year		9,041,408	10,334,990
Cash and cash equivalents included in assets held for sale		(1,082,314)	-
Cash and cash equivalents at end of the year	47	₩ 6,783,466	9,041,408

See accompanying notes to the consolidated financial statements.

Korea Development Bank and Subsidiaries

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

1. Reporting Entity

The accompanying consolidated financial statements comprise Korea Development Bank ("KDB" or the "Bank") and its subsidiaries (collectively the "Group"). General information of the Bank and its subsidiaries is stated below.

(1) Controlling company

KDB was established on April 1, 1954, in accordance with *the Korea Development Bank Act* to finance and manage major industrial projects, in order to expedite industrial development and enhance the national economy.

The Bank is engaged in the banking industry under *the Korea Development Bank Act* and other applicable statutes, and in the fiduciary in accordance with *the Financial Investment Services and Capital Markets Act.*

Korea Finance Corporation (KoFC), the former ultimate parent company, and KDB Financial Group Inc. (KDBFG), the former immediate parent company, were established by spin-offs of divisions of the Bank as of October 28, 2009. KoFC and KDBFG were merged into the Bank, effective as of December 31, 2014. Issued capital is ₩18,663,099 million with 3,732,619,768 shares of issued and outstanding as of December 31, 2019 and the government of the Republic of Korea owns 100% of the Bank's shares.

The Bank's head office is located in 14, Eunhaeng-ro, Yeouido-dong, Yeongdeungpo-gu, Seoul and its service network as of December 31, 2019, is as follows:

	Domestic		Overseas			Total
	Head Office	Branches	Branches	Subsidiaries	Representative offices	
KDB	1	74	9	5	9	98

(2) Consolidated subsidiaries

The Group's equity ownership in its consolidated direct and indirect subsidiaries as of December 31, 2019 and 2018 are summarized as follows:

Investor	Investee	Country	Industry	Fiscal year end	Ownership (%) 2019	Ownership (%) 2018
	Subsidiaries:					
KDB	KDB Asia (HK) Ltd.	Hong Kong	Finance	December	100.00	100.00
	KDB Ireland Ltd.	Ireland	Finance	December	100.00	100.00
	KDB Bank Uzbekistan Ltd.	Uzbekistan	Finance	December	86.32	86.32
	KDB Bank Europe Ltd.	Hungary	Finance	December	100.00	100.00
	Banco KDB Do Brazil S. A.	Brazil	Finance	December	100.00	100.00
	KDB Capital Corporation	Korea	Financial lease	December	99.92	99.92
	KDB Biz Co., Ltd.	Korea	Service	December	100.00	-
	KDB Investment Co., Ltd.	Korea	Financial investment	December	100.00	-
	KDB Infrastructure Investment Asset Management Co., Ltd.	Korea	Asset management	December	84.16	84.16
	Daewoo Shipbuilding & Marine Engineering Co., Ltd. (*1)	Korea	Manufacturing	December	55.72	55.72
	Shinhan Heavy Industries Co., Ltd. (*2) (*5)	Korea	Manufacturing	December	89.22	89.22
	Samwoo Heavy Industry Co., Ltd. (*2) (*5)	Korea	Manufacturing	December	100.00	100.00
	Daehan Shipbuilding Co., Ltd. (*2) (*5)	Korea	Manufacturing	December	70.04	70.04
	Korea Infrastructure Fund	Korea	Financial investment	December	85.00	85.00
	Korea Education Fund (*3)	Korea	Financial investment	Half-yearly	50.00	50.00
	Korea BTL Fund I (*3)	Korea	Financial investment	Half-yearly	41.67	41.67
	Korea Railroad Fund I (*3)	Korea	Financial investment	Half-yearly	50.00	50.00
	Principals and interests guaranteed trusts (*4)	Korea	Financial investment	December	-	-
	Principals guaranteed trusts (*4)	Korea	Financial investment	December	-	-
	KDB Venture M&A Private Equity Fund	Korea	Financial investment	December	57.56	57.56

Investor	Investee	Country	Industry	Fiscal year end	Ownership (%) 2019	Ownership (%) 2018
KDB	KDB Consus Value Private Equity Fund	Korea	Financial investment	December	68.20	68.20
	Components & Materials M&A Private Equity Fund	Korea	Financial investment	December	83.33	83.33
	KDB Value Private Equity Fund VI (*11)	Korea	Financial investment	December	-	99.84
	KDB Investment PEF NO.1 (*11)	Korea	Financial investment	December	99.46	-
	KDB Value Private Equity Fund VII (*5)	Korea	Financial investment	December	55.00	55.00
	KDB Sigma Private Equity Fund II (*5)	Korea	Financial investment	December	73.33	73.33
	KDB Asia Private Equity Fund (*5)	Korea	Financial investment	December	65.00	65.00
	KoFC-KBIC Frontier Champ 2010-5 PEF (*6)	Korea	Financial investment	December	-	50.00
	KDBC IP Investment Fund 2 (*6)	Korea	Financial investment	December	-	66.66
	KoFC-KDBC Pioneer Champ 2010-4 venture investment fund (*6)	Korea	Financial investment	December	-	100.00
	NVESTOR 2016 Private Equity Fund (*10)	Korea	Financial investment	December	-	80.00
	KDB-IAP OBOR Private Equity Fund (*5) (*8)	Korea	Financial investment	December	44.69	44.69
	KDB Small Medium Mezzanine PEF (*5)	Korea	Financial investment	December	73.33	73.33
	K-Five 5th Securitization Specialty Co., Ltd. and 7 others (*7)	Korea	Financial investment	December	-	-
	KIAMCO Road Investment Private Fund Special Asset Trust 2 and 28 beneficiary certificates	Korea	Financial investment	December	-	-
	Sub-subsidiaries:					
KDB Capital Corporation	Vietnam Int'l Leasing Co., Ltd.	Vietnam	Finance	December	81.65	81.65
	I-Cube Investment Fund 1 (*6)	Korea	Financial investment	December	-	18.70
	KDBC Biomedical New Growth Investment Fund (*6)	Korea	Financial investment	December	-	60.00
	KDBC Food Industry Investment Fund 1 (*6)	Korea	Financial investment	December	-	50.00
	Special money trust of Apache Golf Bond with Warrant	Korea	Financial investment	December	100.00	100.00
	DB Financial Investment MMT (*6)	Korea	Financial investment	December	-	100.00
	Shinyoung Securities MMT (*6)	Korea	Financial investment	December	-	100.00
	Kyobo Securities MMT (*6)	Korea	Financial investment	December	-	100.00
	SK Securities MMT (*6)	Korea	Financial investment	December	-	100.00
	DB curious Private Equity Fund L. P.	Korea	Financial investment	December	98.74	98.74
	KCLAVIS Meister Fund No.49 (*6)	Korea	Financial investment	December	-	58.82
	ST Capital the Third New Technology Combination	Korea	Financial investment	December	81.97	81.97
	Curious rainbow Private Equity Fund for corporate financial stability	Korea	Financial investment	December	98.08	-
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	DSME Shangdong Co., Ltd.	China	Parts of watercraft manufacturing	December	100.00	100.00
	Shinhan Heavy Industries Co., Ltd. (*2)	Korea	Parts of watercraft manufacturing	December	-	-
	Samwoo Heavy Industry Co., Ltd. (*2)	Korea	Parts of watercraft manufacturing	December	-	-
	DK Maritime S. A.	Panama	Shipping industry	December	100.00	100.00
	DSME Far East LLC (*6)	Russia	Shipbuilding	December	-	100.00
	DSME Information Consulting Co., Ltd.	Korea	IT Service	December	100.00	100.00
	DSME Kazakhstan LLP	Kazakhstan	Ship repairing	December	100.00	100.00
KDB Consus Value Private Equity Fund	KDB Life Insurance Co., Ltd. (*9)	Korea	Finance	December	92.73	92.73
KDB Value Private Equity Fund VI	Daewoo Engineering & Construction Co., Ltd. (*9)	Korea	Construction	December	51.34	51.34

Korea Development Bank and Subsidiaries

Notes to the Consolidated Financial Statements

(In millions of won)

December 31, 2019 and 2018

(*1) The Group reclassified the disposal group of Daewoo Shipbuilding & Marine Engineering Co., Ltd. to assets held for sale as described in Note 16.

(*2) The Group consolidates directly the investee which was a subsidiary of Daewoo Shipbuilding & Marine Engineering Co., Ltd., because it has power over the investee to control the financial and operating policies of the entity as a principal creditor bank for the subsidiary.

(*3) The investees are financed by the Bank and managed by KDB Infrastructure Investment Asset Management Co., Ltd. They are included in the scope of consolidation even though the Bank holds less than half of the voting rights because the Bank is exposed to variable returns, and has the ability to affect those returns through its power over the investee.

(*4) The trusts are included in the scope of consolidation because the Bank has power over the trusts to control the financial and operating policies of the entity, and is exposed to variable returns through the contract for preservation of principal and interest or principal only.

(*5) Indirect ownership through subsidiaries is included.

(*6) The investees are excluded from the scope of consolidation as of December 31, 2019 due to liquidation.

(*7) The investees are established for the investor's business, or are structured entities that the investor has rights to obtain the majority of the benefits of the investee or retains the majority of the risks related to the investee. The investees are included in the scope of consolidation because the investor has power over the investees to control the financial and operating policies of the entity, exposure or rights to variable returns from its involvement with the investees and the ability to use its power over the investees to affect those returns.

(*8) Those entities have been consolidated even though the investor's ownership is not over 50%, because the investor, as an executive partner, has power over the investees to control the financial and operating policies of the entity, exposure or rights to variable returns from its involvement with the investees and the ability to use its power over the investees to affect those returns.

(*9) The parent company of the sub-subsidiary is a SPE, which is not separately disclosed in the consolidated financial statements.

(*10) The investee is excluded from the scope of consolidation as of December 31, 2019 as it is reclassified to investments in associates.

(*11) For the year ended December 31, 2019, KDB Value PEF VI was liquidated and KDB Investment PEF No.1 is acquired. Through this transaction, the shares of Daewoo Engineering & Construction Co., Ltd. held by KDB Value PEF VI as sub-subsidiary were transferred to KDB Investment PEF No.1 whereby the Group maintained its control over Daewoo Engineering & Construction Co., Ltd. The Group considered the transfer as a transaction between subsidiaries under common control and does not recognized gain or loss on the transfer in the separate financial statements.

(3) Changes in subsidiaries

Subsidiaries that are newly included in the consolidated financial statements and those that are excluded from the consolidated financial statements as of December 31, 2019 are as follows:

(i) Subsidiaries newly included in scope of consolidation as of December 31, 2019

Reason	Subsidiaries
New investment	KDB Biz Co., Ltd., KDB Investment Co., Ltd., KDB Investment PEF No.1
ABCP line of credit and purchase commitment	U-BEST 5th Securitization Specialty Co., Ltd., K-Five 8th Securitization Specialty Co., Ltd.

(ii) Subsidiaries excluded from scope of consolidation as of December 31, 2019

Reason	Subsidiaries
Liquidation	KoFC-KBIC Frontier Champ 2010-5 PEF, KDB WIN-WIN TOGETHER fund 1, Multiasset green authentication private securities investment trust 1, K-Five 5th Securitization Specialty Co., Ltd., Sinokor SF 1st Co., Ltd., KoFC-KDBC Pioneer Champ 2010-4 venture investment fund, KDBC IP Investment Fund 2, KDB OCEAN VALUE-UP FUND NO. 5, KIAMCO EURASIA TUNNEL FUND, KDB Value PEF VI
Reclassification to investments in associates	NVESTOR 2016 Private Equity Fund

(4) Financial information of subsidiaries

Financial information of subsidiaries included in the consolidated financial statements as of and for the years ended December 31, 2019 and 2018 are as follows:

	2019					
	Assets	Liabilities	Equity	Operating revenue	Net profit (loss)	Total comprehensive income (loss)
KDB Asia (HK) Ltd.	₩ 2,777,476	2,287,958	489,518	123,138	18,871	30,694
KDB Ireland Ltd.	436,368	335,440	100,928	31,404	6,818	14,164
KDB Bank Uzbekistan Ltd.	466,389	395,726	70,663	29,555	11,291	5,403
KDB Bank Europe Ltd.	1,274,243	1,188,166	86,077	68,749	7,584	4,532
Banco KDB Do Brazil S. A.	304,220	225,841	78,379	76,423	6,099	5,933
KDB Capital Corporation	5,884,821	4,924,781	960,040	454,281	104,141	104,287
KDB Infrastructure Investment Asset Management Co., Ltd.	57,428	11,676	45,752	35,291	19,478	19,422
KDB Biz Co., Ltd.	5,135	3,438	1,697	12,966	197	197
KDB Investment Co., Ltd.	74,223	2,673	71,550	4,556	1,737	1,675
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	11,276,079	7,521,182	3,754,897	8,358,745	(46,485)	(85,325)
Shinhan Heavy Industries Co., Ltd.	310,463	328,024	(17,561)	235,832	(59,495)	(58,749)
Samwoo Heavy Industry Co., Ltd.	270,365	249,128	21,237	155,997	(11,542)	(12,036)
Daehan Shipbuilding Co., Ltd.	637,978	786,612	(148,634)	642,586	(31,747)	(32,901)
Korea Infrastructure Fund	5,526	5	5,521	663	595	595
Korea Education Fund	114,228	6	114,222	7,173	6,871	6,871
Korea BTL Fund I	433,060	284	432,776	40,240	38,966	38,966
Korea Railroad Fund I	197,732	9	197,723	10,965	10,459	10,459
Principals and interests guaranteed trusts	272,718	236,913	35,805	32,359	25,501	25,501
Principals guaranteed trusts	263,508	257,314	6,194	7,060	4	4
KDB Venture M&A Private Equity Fund	120	7,910	(7,790)	-	-	-
KDB Consus Value Private Equity Fund	19,192,695	18,449,320	743,375	3,653,764	(157,839)	(33,496)
Components & Materials M&A Private Equity Fund	1,081	1,819	(738)	5	(62)	(62)
KDB Investment PEF No.1	10,246,043	7,849,961	2,396,082	8,847,952	47,432	31,369
KDB Value Private Equity Fund VII	41,729	163	41,566	32,913	21,502	21,502
KDB Sigma Private Equity Fund II	197,849	497	197,352	3,228	8,008	7,980
KDB Asia Private Equity Fund	30,112	191	29,921	-	(3,986)	2,401
KDB-IAP OBOR Private Equity Fund	151,973	51,756	100,217	-	7,371	10,749
KDB Small Medium Mezzanine PEF	75,726	756	74,970	5,018	4,754	4,880
K-Five 6th Securitization Specialty Co., Ltd. and 7 others	659,218	764,797	(105,579)	33,010	(4,652)	(4,652)
KIAMCO Road Investment Private Fund Special Asset Trust 2 and 28 beneficiary certificates	2,331,721	2,766	2,328,955	191,783	193,558	210,278

	2018					
	Assets	Liabilities	Equity	Operating revenue	Net profit (loss)	Total comprehensive income (loss)
KDB Asia (HK) Ltd.	₩ 1,956,143	1,615,419	340,724	84,594	19,153	30,281
KDB Ireland Ltd.	460,344	373,580	86,764	26,832	7,245	7,190
KDB Bank Uzbekistan Ltd.	633,731	568,471	65,260	26,901	8,993	10,400
KDB Bank Europe Ltd.	917,265	835,739	81,526	85,749	2,478	(398)
Banco KDB Do Brazil S. A.	328,486	256,040	72,446	149,042	11,764	2,641
KDB Capital Corporation	5,594,986	4,694,534	900,452	480,479	121,616	121,110
KDB Infrastructure Investment Asset Management Co., Ltd.	47,347	8,617	38,730	31,468	17,705	17,655
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	11,918,522	8,078,300	3,840,222	9,644,384	344,722	332,469
Shinhan Heavy Industries Co., Ltd.	331,754	290,565	41,189	252,022	13,592	12,284
Samwoo Heavy Industry Co., Ltd.	271,540	238,267	33,273	116,797	107	89
Daehan Shipbuilding Co., Ltd.	620,478	736,212	(115,734)	521,071	(52,747)	(54,366)
Korea Infrastructure Fund	7,655	6	7,649	671	580	580
Korea Education Fund	120,183	7	120,176	4,938	4,614	4,614
Korea BTL Fund I	439,795	301	439,494	17,279	15,913	15,913
Korea Railroad Fund I	203,497	9	203,488	5,635	5,081	5,081
Principals and interests guaranteed trusts	248,069	237,766	10,303	11,008	3,693	3,693

	2018					
	Assets	Liabilities	Equity	Operating revenue	Net profit (loss)	Total comprehensive income (loss)
Principals guaranteed trusts	268,233	262,043	6,190	7,041	187	187
KDB Venture M&A Private Equity Fund	120	7,910	(7,790)	-	-	-
KDB Consus Value Private Equity Fund	18,700,778	17,896,897	803,881	3,909,771	51,684	171,878
Components & Materials M&A Private Equity Fund	1,136	1,812	(676)	4	(26)	(26)
KDB Value Private Equity Fund VI	9,358,161	7,578,192	1,779,969	10,733,868	(99,183)	(111,750)
KDB Value Private Equity Fund VII	96,390	3,226	93,164	40,487	12,973	18,127
KDB Sigma Private Equity Fund II	220,445	543	219,902	994	(1,215)	(1,958)
KoFC-KBIC Frontier Champ 2010-5 PEF	469	3	466	1,460	1,453	1,453
KDB Asia Private Equity Fund	42,549	200	42,349	-	(4,643)	616
KDBC IP Investment Fund 2	10,096	3,085	7,011	1,143	712	712
KoFC-KDBC Pioneer Champ 2010-4 venture investment Fund	6,050	2	6,048	1,432	(394)	(394)
NVESTOR 2016 Private Equity Fund	70,452	25,252	45,200	29,149	8,711	8,711
KDB-IAP OBOR Private Equity Fund	146,697	49,982	96,715	-	6,870	10,885
KDB Small Medium Mezzanine PEF	17,968	1,278	16,690	7	(1,520)	(1,520)
K-Five 5th Securitization Specialty Co., Ltd. and 7 others	687,997	788,889	(100,892)	37,217	(3,886)	(3,886)
KIAMCO Road Investment Private Fund Special Asset Trust 2 and 32 beneficiary certificates	2,431,919	5,768	2,426,151	193,451	130,009	127,939

2. Basis of Preparation

(1) Application of accounting standards

These consolidated financial statements have been prepared in accordance with the Korean International Financial Reporting Standards (K-IFRS) enacted by the Act on External Audit of Stock Companies.

(2) Changes and disclosures of accounting policies

(i) New and amended standards and interpretations adopted

The Group newly applied the following amended and enacted standards for the annual period beginning on January 1, 2019. The nature and the impact of each new standard or amendment are described below:

Enactment of K-IFRS 1116 'Leases'

K-IFRS 1116 *'Leases'* replaced K-IFRS 1017 *'Leases'*, Interpretation 2104 *'Determining whether an Arrangement contains a Lease'*, Interpretation 2015 *'Operating Leases-Incentives'*, and Interpretation 2027 *'Evaluating the Substance of Transactions Involving the Legal Form of a Lease'*.

According to single accounting model for lessees of K-IFRS 1116, the Group as lessee recognized the right-of-use assets that represent a lessee's right to use underlying assets and lease liabilities that represent a lessee's obligation to make payments to the lessor. The accounting model for lessors of K-IFRS 1116 is similar to the model of the Group's prior accounting policy.

(a) Accounting for a lessee

A lessee shall apply this standard to its leases either (a) retrospectively to each prior reporting period presented applying K-IFRS 1008 *'Accounting Policies, Changes in Accounting Estimates and Errors'* (Full retrospective application); or (b) with the cumulative effect of initially applying the standard being recognized at the date of initial application.

The Group applied K-IFRS 1116 retrospectively as of January 1, 2019. However, the financial statements for the year ended December 31, 2018 was not restated. Therefore reclassification and adjustments under the new K-IFRS were recognized in the financial statements beginning on January 1, 2019. The details of changes in accounting policies are disclosed below.

At inception of a contract, the Group shall assess whether the contract is, or contains, a lease. The Group also identify whether the contract is, or contains, a lease according to K-IFRS at the date of initial application. However, the contracts written before the date of initial application are permitted to applying a practical expedient and the Group do not have to go through all the contracts. The Group shall assess whether the contract is, or contains, a lease based at the date of initial application.

For a contract that is, or contains, a lease, a lessee or lessor shall account for each lease component within the contract as a lease separately from non-lease components of the contract. Moreover, a lessee is permitted to elect, by class of underlying asset, not to separate non-lease components from lease components, and instead account for each lease component and any associated non-lease components as a single lease component. The Group applies practical expedient to all (or a part of) contracts that are, or contain a lease and elects to combine non-lease components with a lease component and to account for them as a single lease component.

A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset (lease assets) and a lease liability representing its obligation to make lease payments. Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives
- variable lease payments that depend on an index or a rate
- amounts expected to be payable by the lessee under residual value guarantees
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option
- payments for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease

The lease payments shall be discounted using the interest rate implicit in the lease, if the rate can be readily determined. The Group has to determine the incremental borrowing rate if the interest rate cannot be readily determined, which defined as the rate of interest that a lessee would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment.

The cost of the right-of-use asset shall comprise:

- the amount of the initial measurement of the lease liability
- any lease payments made at or before the commencement date, less any lease incentives received
- any initial direct costs incurred by the lessee
- an estimate of costs restoring the site

However, the Group elected not to apply the requirement of K-IFRS 1116 to lease of low-value assets and short-term lease. The Group recognizes the lease payments associated with these leases as expenses on a straight-line basis over the lease term.

(b) Accounting for a lessor

The lease accounting as the lessor dose not significantly change comparing with K-IFRS 1017. As a lessor, the enactment of K-IFRS 1116 does not have a significant impact on the Group's financial statements.

(c) Adjustments on K-IFRS 1116

According to K-IFRS 1116, the Group recognized the right-of-use assets and lease liabilities at the date of the initial application. The adjustments on K-IFRS 1116 are as follows (Korean won in millions):

Description	Adjustments	
Assets:		
Right-of-use assets included in property and equipment	₩	208,276
Investment property		156,798
Finance lease receivables		6,084
Total assets	₩	371,158
Liabilities:		
Lease liabilities	₩	414,062
Other provision		(42,839)
Total liabilities	₩	371,223
Equity:		
Retained earnings	₩	(65)
Total equity	₩	(65)

Korea Development Bank and Subsidiaries

Notes to the Consolidated Financial Statements

December 31, 2019 and 2018

The Group measured the lease liabilities using incremental borrowing rates at the date of initial application. The used incremental borrowing rates are 1.75% to 3.26%.

According to K-IFRS 1116, the Group recognizes depreciation and interest expense on behalf of rent expenses. The Group recognized depreciation of property and equipment amounting to ₩112,181 million and interest expense amounting to ₩12,588 million relating to lease accounting treatments.

Amendments to K-IFRS 1109 'Financial Instruments'

The narrow-scope amendments made to K-IFRS 1109 *"Financial Instruments"* enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. The amendments do not have a significant impact on the Group's financial statements.

Amendments to K-IFRS 1019 'Employee Benefits'

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized because of the impact of the asset ceiling. The amendments do not have a significant impact on the Group's financial statements.

Amendments to K-IFRS 1028 'Investments in Associates and Joint Ventures'

The amendments clarify that an entity shall apply K-IFRS 1109 to financial instruments in an associate or joint venture to which the equity method is not applied. These include long-term interests that, in substance, form part of the entity's net investment in an associate or joint venture. The amendments do not have a significant impact on the Group's financial statements.

Enactment of Interpretation of K-IFRS 2123 'Uncertainty over Income Tax Treatments'

The interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered separately or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. The enactment does not have a significant impact on the Group's financial statements.

Annual Improvements to K-IFRSs 2015-2017 Cycle

The annual improvements to K-IFRS 1103 *'Business Combination'* clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. Additionally, the annual improvements to K-IFRS 1111 *'Joint Agreements'*, K-IFRS 1012 *'Income Tax'* and K-IFRS 1023 *'Borrowing Cost'* are newly applied. The improvements do not have a significant impact on the Group's financial statements.

(ii) New standards and interpretations issued but not effective

The following new standards, interpretations and amendments to existing standards have been issued but not effective for annual periods beginning after January 1, 2019, and the Bank has not early adopted them. The Bank is currently in progress of analyzing the potential impact on the financial statements resulting from the application of these standards, interpretations and amendments.

Amendments to K-IFRS 1001 *'Presentation of Financial Statements'* and K-IFRS 1008 *'Accounting Policies, Changes in Accounting Estimates and Errors' - Definition of Material*

The amendments to K-IFRS 1001 and K-IFRS 1008 are issued to align the definition of 'material' across the standards and to clarify certain aspects of the definition. The new definition states that information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity. The amendments are applied prospectively for annual periods beginning on or after January 1, 2020, with earlier application permitted.

Amendments to K-IFRS 1103 'Business Combinations' - Definition of a Business

To consider the integration of the required activities and assets as a business, the amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and excludes economic benefits from the lower costs. An entity can apply a concentration test, an optional test, where substantially all of the fair value of gross assets acquired is concentrated in a single asset or a group of similar assets, the assets acquired would not represent a business. These amendments should be applied for annual periods beginning on or after January 1, 2020, with earlier application of permitted.

(3) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis except for the following material items in the consolidated statement of financial position:

- Derivative financial instruments measured at fair value
- Financial instruments measured at fair value through profit or loss
- Available-for-sale financial instruments measured at fair value
- Fair value hedged financial instruments with changes in fair value, due to hedged risks, recognized in profit or loss
- Liabilities for defined benefit plans, which are recognized as net of the total present value of defined benefit obligations less the fair value of plan assets

(4) Functional and presentation currency

In preparing the Group's consolidated financial statements, transactions in foreign currencies are initially recorded by the Group entities at their respective functional currency rates prevailing at the date of the transaction. The Group's consolidated financial statements are presented in Korean won, which is also the Group's functional currency. The following entities of the Group have different functional currency from the presentation currency:

Functional currency	Subsidiaries
USD	KDB Asia Ltd.
	KDB Ireland Ltd.
	KDB Asia Private Equity Fund
	KDB-IAP OBOR Private Equity Fund
	Multi-Asset KDB Shipping Private Fund SPO-1
	Multi-Asset KDB Shipping Private Fund SNT-1
	Multi-Asset KDB Shipping Private Fund DA-3
	Multi-Asset KDB Shipping Private Fund KLC-1
	Multi-Asset KDB Ocean Value-up Private Fund 6th
UZS	KDB Bank Uzbekistan Ltd.
HUF	KDB Bank Europe Ltd.
BRL	Banco KDB Do Brazil S. A.

(5) Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Management's estimates may differ from actual outcomes if management's estimates and assumptions based on management's best judgment at the reporting date are different from the actual environment.

Estimates and underlying assumptions are evaluated on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future years affected.

The following are the key assumptions concerning the future and other key sources of estimation uncertainty at the end of the reporting period that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year:

(i) Fair value of financial instruments

Financial instruments measured at fair value through profit or loss and other comprehensive income, and derivative instruments are recognized and measured at fair value. If the market for a financial instrument is not active, fair value is determined either by using a valuation technique or independent third-party valuation service. Valuation techniques include using recent arm's length market transactions between knowledgeable, willing parties, if available, referencing to the current fair value of another instrument that is substantially the same, discounted cash flow analysis and option pricing models.

Financial instruments, which are not actively traded in the market and those with less transparent market prices, will have less objective fair values and require broad judgment on liquidity, concentration, uncertainty in market factors and assumptions in price determination and other risks.

Diverse valuation techniques are used to determine the fair value of financial instruments, from generally accepted market valuation models to internally developed valuation models that incorporate various types of assumptions and variables.

(ii) Credit losses allowance

The Group tests impairment and recognizes loss allowances on financial assets classified at amortized cost, debt instruments measured at fair value through other comprehensive income and recognizes provisions for payment guarantee, financial guarantee and unused commitments. Accuracy of allowances and provisions for credit losses is dependent upon estimation of expected cash flows of the borrower for individually assessed allowances of loans, and upon assumptions and methodology used for collectively assessed allowances for groups of loans, guarantees and unused loan commitments.

(iii) Deferred taxes

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date. Deferred income tax assets are recognized to the extent that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Actual income taxes in the future may not be identical to the recognized deferred tax assets and liabilities,

(iv) Defined benefit liabilities

The Group operates a defined benefit plan. Defined benefit liability is calculated by annual actuarial valuations as of the reporting date. In order to perform the actuarial valuations, assumptions for discount rates, future salary increases and others are required to be estimated. Defined benefit plans contain significant uncertainties in estimations due to its long-term nature.

(6) Approval date for the consolidated financial statements

The consolidated financial statements were authorized for issue by the Board of Directors on March 25, 2020, which will be submitted for approval to the shareholders' meeting to be held on March 30, 2020.

3. Significant Accounting Policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements.

(1) Basis of consolidation

(i) Subsidiaries and business combinations

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has right to, variable returns from its involvement with the entity and has the ability to affect those returns through its power of the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which controls ceases.

If a subsidiary of the Group uses accounting policies other than those adopted in the consolidated financial statements for like transactions and events in similar circumstances, appropriate adjustments are made to its financial statements in preparing the consolidated financial statements.

For acquisitions meeting the definition of a business combination, the acquisition method of accounting is used.

Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. Any goodwill arising from initial consolidation is tested for impairment at least once a year and whenever events or changes in circumstances indicate the need for impairment. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date in fair value of the assets transferred, equity instruments issued and liabilities incurred or assumed and the amount of any non-controlling interests in the acquire. Costs related to acquisition are recognized as expenses when occurred.

The excess of the cost of acquisition over the fair value of the Group's share of the identifiable net assets acquired is recorded as goodwill. If the cost of acquisition is less than the fair value of the Group's share of the net assets acquired, the difference is recognized directly in the consolidated statement of comprehensive income.

Intra-group balances, income and expenses, unrealized gain and loss and dividends resulting from intra-group transactions are fully eliminated

A change in the ownership interest of a subsidiary, without a change of control, is accounted for as an equity transaction. If the Group loses control over a subsidiary, it recognizes any investment retained at fair value and any surplus or deficit in profit or loss.

(ii) Investments in associates

Associates are all entities over which the Group has significant influence but not control. Significant influence is presumed to exist when the Group holds between 20% and 50% of the voting power. Investments in associates are accounted for by the equity method of accounting and are initially recognized at cost. The Group's investment in associates includes goodwill (net of any accumulated impairment loss) identified on acquisition. When the investors' share on the fair value of the associates' identifiable assets and liabilities exceeds acquisition cost of the associates' interest, the excess portion is recognized as the current profit for the year of acquisition.

The Group's share of its associates' post-acquisition profits or loss is recognized in the statement of comprehensive income, and its share of post-acquisition movements in reserves is recognized in reserves. When the Group's share of loss in an associate equals or exceeds its interest in the associate, including any other unsecured receivables, the Group does not recognize further loss, unless it has incurred obligations or made payments on behalf of the associates. The carrying amount of equity method investments and the long-term interest that partially consists of investors' net investment are included in interest in the associate.

Unrealized gain and loss on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associate. Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group.

(iii) Acquisitions from entities under common control

The assets and liabilities acquired are recognized at the carrying amounts recognized previously in the Group controlling shareholder's consolidated financial statements. The difference between cash paid and acquired net assets are recorded in equity.

(iv) Non-controlling Interests

Non-controlling interests in a subsidiary are accounted for separately from the parent's ownership interests in a subsidiary. Each component of net profit or loss and other comprehensive income is attributed to the owners of the parent and non-controlling interest holders, even when the allocation reduces the non-controlling interests balance below zero.

(v) Changes in the parent company's ownership interest

Changes in the parent company's ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions with owners in their capacity as owners. Adjustments to non-controlling interests are based on a proportionate amount of the net assets of the subsidiary. The difference between the consideration and the adjustments made to non-controlling interests is recognized directly in equity attributable to the owners of the parent company.

(2) Operating segments

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with any of the Group's other components. Segment results that are reported to the chief operating decision maker include items directly attributable to a segment as well as those that can be allocated on a reasonable basis. Unallocated items mainly comprise corporate assets (primarily the Group's headquarters), head office expenses, and income tax assets and liabilities. The Group recognizes the CEO as the chief operating decision maker.

(3) Foreign exchange

(i) Foreign currency transactions

Transactions in foreign currencies are translated to the functional currency of company entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies at the reporting date are translated to the functional currency at the exchange rate at that date. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are translated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction.

Foreign currency differences arising on translation are recognized in profit or loss, except for differences arising on the translation of available for sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or in a qualifying cash flow hedge, which are recognized in other comprehensive income. Exchange rate effect of the gain (or loss) from non-monetary item is categorized according to whether the gain (or loss) is recognized as other comprehensive income or as profit or loss.

(ii) Foreign operations

If the presentation currency of the Group is different from a foreign operation's functional currency, the financial statements of the foreign operation are translated into the presentation currency using the following methods:

Unless the functional currency of foreign operations is in a state of hyperinflation, assets and liabilities of foreign operations are translated at the closing exchange rate at the end of the reporting period. Revenues and expenses on the statement of comprehensive income are translated at the exchange rates of the date of transaction. Foreign currency differences that arise from translation are recognized as other comprehensive income.

Any goodwill arising on the acquisition of a foreign operation, and any adjustments in fair value to the carrying amounts of assets and liabilities due to such acquisition, are treated as assets and liabilities of the foreign operation. Therefore, such are expressed in the functional currency of the foreign operations and, alongside other assets and liabilities of the foreign operation, translated at the closing exchange rate.

In the case of the disposal of a foreign operation, cumulative amounts of exchange difference regarding the foreign operation, recognized separately from other comprehensive income, are re-categorized from assets to profit or loss as of the moment the disposal profit or loss is recognized.

(iii) Foreign exchange of net investment in foreign operations

Monetary items receivable from or payable to a foreign operation, with none or little possibility of being settled in the foreseeable future, are considered a part of the net investment in the foreign operation. Therefore, the exchange difference is recognized as comprehensive income or loss in the consolidated financial statement, and re-categorized to profit or loss as of the disposal of the related net investment.

(4) Recognition and measurement of financial instruments

(i) Initial recognition

The Group recognizes a financial asset or a financial liability in its statement of financial position when the Group becomes a party to the contractual provisions of the instrument. A regular way purchase or sale of financial assets is recognized and derecognized using trade date accounting.

The Group classifies financial assets as financial assets at fair value through profit or loss, financial assets at fair value through other comprehensive income, or financial assets at amortized cost on the basis of the Group's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets. The Group classifies financial liabilities as financial liabilities at fair value through profit or loss, or financial liabilities at amortized cost.

At initial recognition, a financial asset or financial liability is measured at its fair value plus or minus, in the case of a financial asset or financial liability not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

(ii) Subsequent measurement

After initial recognition, financial instruments are measured at amortized cost or fair value based on classification at initial recognition.

Amortized cost

The amortized cost is the amount at which the financial asset or financial liability is measured at initial recognition minus the principal repayments, plus or minus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any loss allowance.

Fair value

Fair values, which the Group primarily uses for the measurement of financial instruments, are the published price quotations based on market prices or dealer price quotations of financial instruments traded in an active market where available. These are the best evidence of fair value. A financial instrument is regarded as quoted in an active market if quoted prices are readily and regularly available from an exchange, dealer, broker, an entity in the same industry, pricing service or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis.

If the market for a financial instrument is not active, fair value is determined either by using a valuation technique or independent third-party valuation service. Valuation techniques include using recent arm's length market transactions between knowledgeable, willing parties, if available, referencing to the current fair value of another instrument that is substantially the same, discounted cash flow analysis and option pricing models.

The Group uses valuation models that are commonly used by market participants and customized for the Group to determine fair values of common over-the-counter (OTC) derivatives such as options, interest rate swaps and currency swaps which are based on the inputs observable in markets. For more complex instruments, the Group uses internally developed models, which are usually based on valuation methods and techniques generally used within the industry, or a value measured by an independent external valuation institution as the fair values if all or some of the inputs to the valuation models are not market observable and therefore it is necessary to estimate fair value based on certain assumptions.

If the valuation technique does not reflect all factors which market participants would consider in setting a price, the fair value is adjusted to reflect those factors. Those factors include counterparty credit risk, bid-ask spread, liquidity risk and others.

The chosen valuation technique makes maximum use of market inputs and relies as little as possible on entity-specific inputs. It incorporates all factors that market participants would consider in setting a price and is consistent with economic methodologies applied for pricing financial instruments. Periodically, the Group calibrates the valuation technique and tests its validity using prices of observable current market transactions of the same instrument or based on other relevant observable market data.

(iii) Derecognition

Derecognition is the removal of a previously recognized financial asset or financial liability from the statement of financial position. The Group derecognizes a financial asset or a financial liability when, and only when:

Derecognition of financial assets

Financial assets are derecognized when the contractual rights to the cash flows from the financial assets expire or the financial assets have been transferred and substantially all the risks and rewards of ownership of the financial assets are also transferred, or all the risks and rewards of ownership of the financial assets are neither substantially transferred nor retained and the Group has not retained control. If the Group neither transfers nor disposes of substantially all the risks and rewards of ownership of the financial assets, the Group continues to recognize the financial asset to the extent of its continuing involvement in the financial asset.

If the Group transfers the contractual rights to receive the cash flows of the financial asset, but retains substantially all the risks and rewards of ownership of the financial asset, the Group continues to recognize the transferred asset in its entirety and recognize a financial liability for the consideration received.

Derecognition of financial liabilities

Financial liabilities are derecognized from the statement of financial position when the obligation specified in the contract is discharged, cancelled or expires.

(iv) Offsetting

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously.

(5) Cash and cash equivalents

Cash and cash equivalents comprise balances with original maturities of or less than three months' maturity from the date of acquisition that are subject to an insignificant risk of changes in their fair value, including cash on hand, deposits held at call with banks and other highly liquid short-term investments with original maturities of three months or less.

(6) Non-derivative financial assets

(i) Financial assets at fair value through profit or loss

Any non-derivative financial asset classified as held for trading or not classified as financial assets at fair value through other comprehensive income or financial assets measured at amortized cost is categorized under financial assets at fair value through profit or loss.

The Group may designate certain financial assets upon initial recognition as at fair value through profit or loss when the designation eliminates or significantly reduces a measurement or recognition inconsistency (sometimes referred to as 'an accounting mismatch') that would otherwise arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases.

After initial recognition, a financial asset at fair value through profit or loss is measured at fair value and gains or losses arising from a change in the fair value are recognized in profit or loss. Interest income and dividend income from financial assets at fair value through profit or loss are also recognized in the statement of comprehensive income.

(ii) Financial assets at fair value through other comprehensive income

The Group classifies financial assets as financial assets at fair value through other comprehensive income if they meet the following conditions: 1) debt instruments that are a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets, and consistent with representing solely payments of principal and interest on the principal amount outstanding or 2) equity instruments, not held for trading with the objective of generating a profit from short-term fluctuations in price or dealer's margin, designated as financial assets at fair value through other comprehensive income.

After initial recognition, a financial asset at fair value through other comprehensive income is measured at fair value. Gain and loss from changes in fair value, other than dividend income and interest income amortized using effective interest method and exchange differences arising on monetary items which are recognized directly in income as interest income or expense, are recognized as other comprehensive income in equity.

At disposal of financial assets at fair value through other comprehensive income, cumulative gain or loss is recognized as profit or loss for the reporting period. However, cumulative gain or loss of equity instrument designated as fair value through other comprehensive income are not recycled to profit or loss at disposal.

Financial assets at fair value through other comprehensive income denominated in foreign currencies are translated at the closing rate. Exchange differences resulting from changes in amortized cost are recognized in profit or loss, and other changes are recognized as equity.

(iii) Financial assets measured at amortized cost

A financial asset, which are held within the business model whose objective is to hold assets in order to collect contractual cash flows and consistent with representing solely payments of principal and interest on the principal amount outstanding, are classified as a financial asset at amortized cost. Financial assets at amortized cost are subsequently measured at amortized cost using the effective interest method after initial recognition and interest income is recognized using the effective interest method.

(7) Expected Credit Loss of Financial Assets

The Group measures expected credit loss and recognizes loss allowance at the end of the reporting period for financial assets measured at amortized cost and fair value through other comprehensive income with the exception of financial asset measured at fair value through profit or loss.

The expected credit loss ("ECL") is the weighted average amount of possible outcomes within a certain range, reflecting the time value of money, estimates on the past, current and future situations, and information accessible without excessive cost of effort.

The Group uses the following three measurement techniques in accordance with K-IFRS:

- General approach: for financial assets and off-balance-sheet unused credit line that are not applied below two approaches
- Simplified approach: for receivables, contract assets and lease receivables
- Credit-impaired approach: for purchased or originated credit-impaired financial assets

The general approach is applied differently depending on the significance of the increase of the credit risk. If, at the reporting date, the credit risk on a financial instrument has not increased significantly since initial recognition, an entity shall measure the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses. If the credit risk on that financial instrument has increased significantly since initial recognition, an entity shall measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses at each reporting date.

The Group applies the simplified approach to 1) trade receivables and contract assets that do not have a significant financing component or 2) trade receivables, contract assets and lease receivables upon determining the Group's accounting policies as the application of the simplified approach. The approach requires expected lifetime losses to be recognized from initial recognition of the financial assets. Under credit-impaired approach, the Group shall only recognize the cumulative changes in lifetime expected credit losses since initial recognition as a loss allowance for purchased or originated credit-impaired financial assets.

The following non-exhaustive list of information may be relevant in assessing changes in credit risk:

- Significant changes in internal price indicators of credit risk as a result of a change in credit risk since inception
- Other changes in the rates or terms of an existing financial instrument that would be significantly different if the instrument was newly originated or issued at the reporting date
- An actual or expected significant change in the financial instrument's external credit rating.
- An actual or expected internal credit rating downgrade for the borrower or decrease in behavioural scoring used to assess credit risk internally
- An actual or expected significant change in the operating results of the borrower
- Past due information

(i) Forward-looking information

The Group uses forward-looking information, when it determines whether the credit risk has increased significantly since initial recognition and measures expected credit losses.

The Group assumes the risk component has a certain correlation with the business cycle, and calculates the expected credit loss by reflecting the forward-looking information with macroeconomic variables on the measurement inputs.

Forward looking information used in calculation of expected credit loss is derived after comprehensive consideration of a variety of factors including scenario in management planning, worst-case scenario used for stress testing, third party forecast, and others.

(ii) Measuring expected credit losses on financial assets at amortized cost

The amount of the loss on financial assets at amortized cost is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate. The Group estimates expected future cash flows for financial assets that are individually significant (individual assessment of impairment).

For financial assets that are not individually significant, the Group collectively estimates expected credit loss by grouping loans with homogeneous credit risk profile (collective assessment of impairment).

Individual assessment of impairment

Individual assessment of impairment losses is calculated using management's best estimate on present value of expected future cashflows. The Group uses all the available information including operating cash flow of the borrower and net realizable value of any collateral held.

Collective assessment of impairment

Collective assessment of loss allowance involves historical loss experience along with incorporation of forward-looking information. Such process incorporates factors such as type of collateral, product and borrowers, credit rating, size of portfolio and recovery period and applies probability of default on a group of assets and loss given default by type of recovery method. Also, the expected credit loss model involves certain assumption to determine input based on loss experience and forward-looking information. These models and assumptions are periodically reviewed to reduce gap between loss estimate and actual loss experience.

The expected credit loss for financial assets measured at amortized cost is recognized as the loss allowance, and when the financial asset is determined to be irrecoverable, the carrying amount and loss allowance are decreased. If financial assets previously written off are recovered, the loss allowance is increased and the difference is recognized in the current profit or loss.

(iii) Measuring expected credit losses on financial assets at fair value through other comprehensive income

Measuring method of expected credit losses on financial assets at fair value through other comprehensive income is equal to the method of financial assets at amortized cost, except for changes in loss allowances that are recognized as other comprehensive income. Amounts recognized in other comprehensive income for sale or repayment of financial assets at fair value through other comprehensive income are reclassified to profit or loss.

(8) Derivative financial instruments including hedge accounting

Derivative financial instruments are initially recognised at fair value upon agreement of the contract and re-estimated at fair value subsequently. The recognition of profit or loss due to changes in fair value of derivative instruments is as stated below:

(i) Hedge accounting

Derivative financial instruments are accounted differently depending on whether hedge accounting is applied, and therefore, are classified into trading purpose derivatives and hedging purpose derivatives.

Upon the transaction of hedging purpose derivatives, two different types of hedge accounting are applied; a fair value hedge, and a cash flow hedge. A fair value hedge is a hedge of the exposure to changes in fair value of a recognised asset or liability or an unrecognised firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect profit or loss. A cash flow hedge is a hedge of the exposure to variability in cash flows that (i) is attributable to a particular risk associated with a recognised asset or liability (such as all or some future interest payments on variable rate debt) or a highly probable forecast transaction and (ii) could affect profit or loss.

At inception of the hedge relationship, the Group formally documents the relationship between the hedged item and the hedging instrument, including the nature of the risk, the objective and strategy for undertaking the hedge, and the method that will be used to assess the effectiveness of the hedging relationship.

Fair value hedge

For designated and qualifying fair value hedges, the change in the fair value of a hedging derivative is recognised in profit or loss in the statement of comprehensive income. Meanwhile, the change in the fair value of the hedged item, attributable to the risk hedged, is recorded as part of the carrying value of the hedged item and is also recognised in profit or loss in the statement of comprehensive income. When the hedge no longer meets the criteria for hedge accounting, the hedge relationship is terminated. For hedged item recorded at amortized cost, the difference between the carrying value of the hedged item on termination and the face value is amortized over the remaining term of the original hedge using the EIR.

Cash flow hedge

For designated and qualifying cash flow hedges, the effective portion of gain or loss on the hedging instruments is initially recognised directly in equity. The ineffective portion of the gain or loss on the hedging instrument is recognised immediately in the statement of comprehensive income. When the hedged cash flow affects the profit or loss in statement of comprehensive income, the gain or loss on the hedging instrument is recorded in the corresponding income or expense line in profit or loss in the statement of comprehensive income. When a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the hedged forecasted transaction is ultimately recognised in the statement of comprehensive income. When a forecasted transaction is no longer expected to occur, the cumulative gain and loss that was reported in equity is immediately transferred to profit or loss in the statement of comprehensive income.

Hedges of net investments in foreign operations

The Group designates non-derivative financial instruments as hedging instruments for foreign currency risk arising from net investments in foreign operations and recognises the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge in other comprehensive income. The cumulative amounts recognised in other comprehensive income relating to both the foreign exchange differences arising on translation of the results and financial position of the foreign operation and the gain or loss on the hedging instrument that is determined to be an effective hedge of the net investment are reclassed from equity to profit or loss as a reclassification adjustment when the Group disposes of the foreign operation.

(ii) Trading purpose derivatives

For trading purpose derivatives transaction, changes in the fair value of derivatives are recognised in net income.

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(9) Day one profit or loss recognition

For financial instruments classified as level 3 on the fair value level hierarchy measured using assess variables not observable in the market, the difference between the fair value at initial recognition and the transaction price, which is equivalent to Day one profit or loss, is amortized by using the straight-line method over time.

(10) Property and equipment

The Group's property and equipment is recognized at the carrying amount as historical costs less accumulated depreciation and accumulated impairment in value. Historical costs include the expenditures directly related to the acquisition of assets.

Subsequent costs are recognized in the carrying amount of assets or, if appropriate, as separate assets if the probabilities future economic benefits associated with the assets will flow into the Group and the costs can be measured reliably; the carrying amount of the replaced part is derecognized. Furthermore, any other repairs or maintenances are charged to profit or loss as incurred.

Land is not depreciated. Depreciation on other assets is calculated using the straight line method to the amount of residual value less acquisition cost over the following estimated useful lives:

Type	Useful lives (years)
Buildings	12 ~ 60
Structure	10 ~ 51
Leasehold improvements	4
Vehicles	4
Equipment	4 ~ 8
Other properties	2 ~ 40

Property and equipment are impaired when its carrying amount exceeds the recoverable amount. The Group assesses residual value and economic life of its assets at each reporting date and adjusts its useful life when necessary. Any gain or loss arising from the disposal of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is recognized in non-operating income (expense) in the consolidated statement of comprehensive income.

(11) Investment property

The Group classifies property held for the purpose of rental income or benefits from capital appreciation as investment property. Investment property is measured initially at cost, including transaction costs. Subsequent to initial recognition, the cost model is applied. Subsequent to initial recognition, an item of investment property is carried at its cost less any accumulated depreciation and any accumulated impairment loss.

Investment properties are derecognized either when they have been disposed of or when the investment property is permanently withdrawn from use and no future economic benefit is expected from its disposal. The difference between the net disposal proceeds and the carrying amount of the asset is recognized in the statement of comprehensive income in the period of de-recognition. Reclassification to or from other account is made if there is a change in use of corresponding investment property.

Depreciation of investment property is calculated using the straight line method over their estimated useful lives as follows:

Type	Useful lives (years)
Buildings	20 ~ 50
Structure	10 ~ 40

(12) Intangible assets

An intangible asset is recognized only when its cost can be measured reliably, and the probabilities future economic benefits from the asset will flow into the Group are high. Separately acquired intangible assets are recognized at the acquisition cost, and subsequently, the cost less accumulated depreciation and accumulated impairment is recognized as the carrying amount.

Intangible assets with finite lives are amortized over the 4-year to 30-year period of useful economic lives using the straight line method. At the end of each reporting period, the Group reviews intangible assets for any evidence that indicate impairment, and upon the presence of such evidence, the Group estimates the amount recoverable and recognizes the loss accordingly. Intangible assets are derecognized either when they have been disposed of or when the intangible assets are permanently withdrawn from use and no future economic benefit is expected from its disposal.

Intangible assets with indefinite useful lives are not amortized, but are tested for impairment annually. Furthermore, the Group reviews such intangible assets to determine whether it is appropriate to consider these assets to have indefinite useful lives. If in the case the Group concludes an asset is not qualified to be classified as non-finite, prospective measures are taken to consider such an asset as finite.

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

(13) Leases

(i) Lessee accounting

The Group recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease. The Group elected not to apply the requirements to the short-term leases and low value assets.

Right-of-use asset

The right-of-use asset is measured at its cost less subsequent accumulated depreciation and accumulated impairment loss with adjustments reflected arising from remeasurements of the lease liability. The cost of the right-of-use asset comprise the amount of the initial measurement of the lease liability, any initial direct costs incurred by the lessee and any lease payments made at or before the commencement date, less any lease incentive received. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis from the commencement date of the lease.

Lease liabilities

At the commencement date, the lease liability is measured at present value of the lease payments that are not paid at that date. Lease payments include fixed payments (including in-substance fixed payments), less any lease incentives receivable, variable lease payments that depend on an index or a rate, amounts expected to be payable by the lessee under residual value guarantees, the exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and payments of penalties for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease. The variable lease payments that do not depend on an index or a rate are recognized as an expense in the period in which the event or condition that triggers those payments occurs.

When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Group uses the Group's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made.

Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or a rate;
- Changes in amounts expected to be payable by the lessee under residual value guarantees;
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised; or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Leases of low-value assets and short-term leases

The Group applies the recognition exemption for leases of low-value assets (e.g., office supplies and IT equipment) and short-term leases (i.e., leases with a lease term of 12 months or less). In these cases, lease payments are charged to profit or loss on a straight-line basis over the period of lease.

(ii) Lessor accounting

The classification of leases is based on the extent to which risks and rewards incidental to ownership of a leased asset lie with the lessor.

Finance lease

Leases of assets where the Group has substantially all the risks and rewards of ownership are classified as finance leases, and the Group presents them as a receivable at an amount equal to the net investment in the lease. Also, initial direct cost that includes directly and additionally incurred commission fee, legal expenses, and internal accrued costs are included in finance lease receivables. The Group accounts for lease payment by apportioning into finance lease receivables and interest revenue, and interest revenue is recognized using the EIR method on uncollected finance lease net investment.

Operating lease

A lease is classified as operating lease if it does not transfer substantially all the risks and rewards incidental to ownership, and the related asset is presented as acquisition cost less accumulated depreciation. Moreover, the minimum lease payment excluding guaranteed residual value is recognized as revenue on a straight line basis over the lease term. Initial direct costs incurred by lessors in negotiating and arranging an operating lease shall be added to the carrying amount of the leased asset and recognized as an expense over the lease term, and the depreciation policy for depreciable leased assets shall be consistent with the lessors' normal depreciation policy for similar assets.

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(14) Impairment of non-financial assets

The Group tests for any evidence of impairment in assets and reviews whether the impairment has taken place by estimating the recoverable amount, at the end of each reporting period. The Group estimates the recoverable amount of each asset or a whole cash-generating unit unless it is possible to estimate the amount of the asset in that unit. The recoverable amount is the higher of the fair value less cost and value in use, of an asset. The Group recognizes the difference between the carrying amount and the recoverable amount of the asset as an impairment loss if the carrying amount exceeds the recoverable amount.

Any goodwill arising on the acquisition of a business is allocated to each cash-generating unit that is expected to gain the benefits of the synergy effect. Impairment on cash-generating unit deducts other assets in proportion to their carrying amounts after deducting the carrying amount of goodwill allocated in that unit. Impairment loss on goodwill cannot be reversed once it is recognized.

Except for impairment losses in respect of goodwill that are never reversed, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceeds the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years.

(15) Assets held for sale

Non-current assets (or disposal groups) that are expected to be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal groups) must be available for immediate sale in its present condition and its sale must be highly probable. The assets (or disposal groups) that are classified as assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell.

The Group recognizes an impairment loss for any initial or subsequent write-down of an asset (or disposal groups) to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized.

Non-current assets that are classified as held for sale or part of a disposal group classified as held for sale are not depreciated (or amortized).

(16) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liability. The Group recognizes these financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

(i) Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss in the current year include financial liabilities held for trading and financial liabilities designated at FVTPL upon initial recognition. Financial liabilities and derivatives are classified as financial instruments held for trading if they are acquired for the purpose of repurchasing in the near future. Financial liabilities are classified as financial liabilities at FVTPL upon initial recognition, if the profit or loss from the liabilities indicates to be more purpose-appropriate to be recognized as profit or loss. Financial liabilities at FVTPL are designated at fair value in subsequent measurements, and any related un-realized profit or loss is recognized as profit or loss.

(ii) Financial liabilities measured at amortized cost

Financial liabilities measured at amortized cost are recognized at fair value less cost less transaction cost upon initial recognition, and subsequently at amortized costs. The difference between the proceeds (net of transaction cost) and the redemption value is recognized in the statement of comprehensive income over the periods of the liabilities using the EIR.

Fees paid on the establishment of a loan facility are recognized as transaction costs of the loan, if the probability that some or all of the facility will be drawn down is high. The amount is deferred until the financial liability would be withdrawn. If, however, there is not enough evidence to conclude a draw-down of some or all of the facility will occur, the fee is capitalized as a prepayment for liquidity services and amortized over the period of the facility to which it relates.

(iii) De-recognition of financial liabilities

A financial liability is de-recognized when the obligation under the liability is discharged, cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a de-recognition of the original liability and the recognition of a new liability. The difference between the carrying value of the original financial liability and the consideration paid is recognized in profit or loss.

(17) Employee benefits

(i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled wholly before 12 months after the end of the reporting period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

(ii) Retirement benefits: defined contribution plans

A defined contribution plan is a pension plan under which the Group pays fixed contributions into a separate fund.

The Group is no longer responsible for any foreseeable future liability after a certain amount or percentage of money is set aside for defined contribution plans. If the pension plan allows for early retirement, payments are recognized as employee benefits. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

(iii) Retirement benefits: defined benefit plans

The Group classifies all the pensions as defined benefit plans except defined contribution plans. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets. The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and have terms to maturity similar to the terms of the related pension liability.

Remeasurements of the net defined benefit liabilities (assets), which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income.

(18) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

(19) Financial guarantees

Financial guarantee contracts are contracts that require the issuer (the Group) to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due, in accordance with the original or changed terms of a debt instrument. Financial guarantees are initially recognized in the financial statements at fair value on the date the guarantee was given.

Subsequent to initial recognition, the Group's liabilities under such guarantees are measured at the higher of:

- The amount determined in accordance with K-IFRS 1109 'Financial Instruments' and
- The initial amount recognized, less, when appropriate, cumulative amortization recognized in accordance with K-IFRS 1115 'Revenue from Contracts with Customers'.

(20) Securities under resale or repurchase agreements

Securities purchased under agreements to resell are recorded as other loans and receivables and the related interest from these securities is recorded as interest income; Securities sold under agreements to repurchase are recorded as borrowings, and the related interest from these securities is recorded as interest expense.

(21) Policy reserves for insurance contracts

In accordance with the Insurance Business Act and related insurance standards, the Group is required to maintain policy reserves, which consist of premium reserve, unearned premium reserve, reserve for outstanding claims, reserve for participating policyholders' dividends, excess participating policyholders' dividend reserve and reserve for loss on participating insurance policies, as a liability which is measured in accordance with the Manual for Calculation of Premium and Policy Reserves as approved by the Financial Supervisory Commission. Details are as follows:

(i) Premium reserve

Premium reserve represents an amount calculated based on a net premium valuation, which is the greater of an amount calculated by using the standard interest rate and standard risk rate issued by the Financial Supervisory Service (FSS), and an amount calculated using an internally generated rate derived by the Group. If the reserve is at zero or less, the amount is to be recorded at nil.

(ii) Unearned premium reserve

Unearned premium reserve represents an amount allocated for certain premiums whose initial payment date falls within the current reporting period and future payments, if any, fall subsequent to the end of the reporting period.

(iii) Guaranteed benefit reserve

Guaranteed benefit reserve guarantees a certain level of the insurance claims considering expected loss in the future. The Group's guaranteed benefit reserve consists of the following:

- Guaranteed minimum accumulation benefit: reserves that guarantee financial resources for the pension benefit amount that equals to the predetermined value in the contract.
- Guaranteed minimum death benefit: reserves that guarantee death benefit amount that equals to the predetermined value in the contract.
- Guaranteed minimum withdrawal benefit: reserves that guarantee the interim withdrawals amount that equals to the predetermined value in the contract during the period for interim withdrawals.
- Guaranteed lifetime withdrawal benefit: reserves that guarantee the interim withdrawals amount that equals to the predetermined value in the contract during lifetime.
- Other guaranteed benefits: guaranteed benefit reserves other than those listed above for a guarantee of insurance proceeds in excess of a certain level.

(iv) Reserve for outstanding claims

Reserve for outstanding claims represents a reserve based on estimate of loss for insured events that have occurred prior to the reporting date but have not yet been settled or determined, including:

- Outstanding losses: losses that have been reported to the insurer but are still in the process of settlement (in cases where a claim is partially paid, the remnant is reported).
- Incurred but not reported (IBNR): an estimate of the amount based on historical information of an insurer's liability for claim-generating events that have taken place but have not yet been reported to the insurer.
- Reserve for lapsed insurance contracts: reserve for insurance cancellation refund for lapsed insurance contracts due to non-payment of insurance premium that still can be revived or deferred within a certain period.
- Outstanding claims: legitimate claims, such as compensation, refund, dividend that an insurer has not yet paid to policy holder.

(v) Reserve for participating policyholders' dividends

The reserve for participating policyholders' dividends is classified into interest dividend reserve, mortality dividend reserve, interest rate difference guarantee reserve and long-term duration dividend reserve.

(vi) Excess participating policyholders' dividend reserve

Pursuant to relevant laws and contracts, the Group may provide an excess participating policyholder dividend reserve based on the operating results of related insurance products. The reserve may be used to pay participating policyholder dividends or additional dividends.

(22) Equity

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects.

When the Group repurchases its share capital, the amount of the consideration paid is recognized as a deduction from equity and classified as treasury shares. The profits or loss from the purchase, disposal, reissue, or retirement of treasury shares are not recognized as current profit or loss. If the Group acquires and retains treasury shares, the consideration paid or received is directly recognized in equity.

Non–controlling interests refer to equity in a subsidiary not attributable, directly or indirectly, to a parent. Non- controlling interests consist of the minority interest net income calculated under K-IFRS 1103 'Business Combinations' at the date of the initial combination, and minority interest of changes in equity after the business combination.

(23) Government subsidy

Government subsidy without repayment obligation, which is used for the acquisition of certain assets, is accounted for as a deduction from the acquisition cost of the acquired assets. Such subsidy amount is offset against the depreciation or amortization of the acquired assets during such assets' useful life.

(24) Interest income and expense

Interest income and expense are recognized in profit or loss using the effective interest method. The effective interest method measures the amortized costs of financial instruments and allocates the interest income or expense during the related period.

Upon the calculation of the effective interest rate, the Group estimates future cash flows by taking into consideration all contractual terms of the financial instrument, but not future credit loss. The calculation also reflects any fees or points paid or received, transaction costs and any related premiums or discounts. In the case that the cash flow and expected duration of a financial instrument cannot be estimated reliably, the effective interest rate is calculated by the contractual cash flow during the contract period.

Once an impairment loss has been recognized on a financial asset or a group of similar assets, subsequent interest income is recognized on the interest rate that was used to discount future cash flow for the purpose of measuring the impairment loss.

(25) Fees and commission income

Fees and commission income and expense are classified as follows according to related regulations:

(i) Fees and commission from financial instruments

Fees and commission income and expense that are integral to the effective interest rate on a financial asset or liability are included in the measurement of the effective interest rate. It includes those related to evaluation of the borrowers' financial status, guarantee, collateral, other agreements and related evaluation as well as business transaction, rewards for activities, such as document preparation and recording and setup fees incurred during issuance of financial liabilities. However, when financial instruments are classified as financial instruments at fair value through profit or loss, fees and commission are recognized as revenue upon initial recognition.

(ii) Fees and commission from services

Fees and commission income charged in exchange for services to be performed during a certain period of time such as asset management fees, consignment fees and assurance service fees are recognized as the related services are performed. When a loan commitment is not expected to result in the draw-down of a loan and K-IFRS 1109 'Financial Instrument' is not applied for the commitment, the related loan commitment fees are recognized as revenue proportionally to time over the commitment period.

(iii) Fees and commission from significant transaction

Fees and commission from significant transactions, such as trading stocks and other securities, negotiation and mediation activities for third parties, for instance business transfer and takeover, are recognized when transactions are completed.

(26) Dividend income

Dividend income is recognized upon the establishment of the Group's right to receive the payment.

(27) Income tax expense

Income tax expense comprises current and deferred income tax. Current income tax and deferred income tax are recognized in profit or loss except to the extent that the tax arises from a transaction or event, which is recognized in other comprehensive income or directly in equity, or a business combination.

Deferred income tax assets and liabilities are measured at the tax rates that are expected to apply to the reporting period when the assets are realized or the liabilities settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred income tax assets and liabilities reflects the income tax effects that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Subsidiaries calculate income tax based on their tax laws and report the amount as current income tax liability.

The Group recognizes deferred income tax liabilities for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Group recognizes deferred income tax assets for all deductible temporary differences arising from investments in associates, to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred income tax asset is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred income tax asset to be utilized.

Deferred income tax assets and liabilities are offset only if the Group has a legally enforceable right to offset the related current income tax assets and liabilities, and the assets and liabilities relate to income tax levied by the same tax authority and are intended to be settled on a net basis.

(In millions of won) December 31, 2019 and 2018

(28) Accounting for trust accounts

The Group, for the purpose of financial reporting, differentiates trust assets from identifiable assets according to the Financial Investment Services and Capital Markets Act. Furthermore, the Group receives trust fees from the application, management and disposal of trust assets, and appropriates such amounts for fees from trust accounts.

Meanwhile, in the case the fee from an unspecified principal or interests guaranteed money in trust does not meet the principal or interest amount, even after appropriating deficit with trust fees and special reserve, the Group fills in the remaining deficit in the trust account and appropriates such amounts for losses on trust accounts.

(29) Regulatory reserve for credit losses

When the total sum of allowance for possible credit losses under K-IFRS is lower than the amount prescribed in Article 29(1) of the Regulations on supervision of Banking Business, the Group records the difference as a regulatory reserve for credit losses at the end of each reporting period.

In the case that the existing regulatory reserve for credit losses exceeds the amount needed to be set aside at the reporting date, the surplus may be reversed. Furthermore, in the case that undisposed deficit exists, a regulatory reserve for credit losses is saved from the time the undisposed deficit is disposed.

(30) Earnings per share

The Group represents its diluted and basic earnings per common share in the consolidated statement of comprehensive income. Basic earnings per share is calculated by dividing net profit attributable to shareholders of the Group by the weighted average number of common shares outstanding during the reporting period. Diluted earnings per share is calculated by adjusting net profit attributable to common shareholders of the Group, considering dilution effects from all potential common shares, and the weighted average number of common shares outstanding.

(31) Correction of errors

Prior period errors shall be corrected by retrospective restatement in the first set of financial statements authorised for issue after their discovery except to the extent that it is impracticable to determine either the period-specific effects or the cumulative effect of the error.

4. Cash and Due from Banks

(1) Cash and due from banks as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Cash	₩	306,152	559,610
Due from banks in Korean won:			
Due from Bank of Korea		1,824,441	3,375,325
Other due from banks in Korean won		1,338,157	1,288,122
		3,162,598	4,663,447
Due from banks in foreign currencies/off-shores		4,292,494	3,506,971
	₩	7,761,244	8,730,028

(2) Restricted due from banks as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Reserve deposit	₩	1,885,915	2,070,742
Deposit of monetary stabilization account		150,000	1,460,000
Others		636,084	972,978
	₩	2,671,999	4,503,720

5. Securities Measured at FVTPL

(1) Details of securities in financial assets at fair value through profit or loss as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
		Face value	Acquisition cost	Fair value (Carrying amounts)
Securities denominated in Korean won:				
Stocks	₩	-	1,616,251	1,494,228
Equity investments		-	1,048,104	1,078,996
Beneficiary certificates		-	5,105,646	5,008,421
Government and public bonds		1,450,000	1,450,337	1,445,558
Financial bonds		1,744,741	1,739,381	1,746,258
Corporate bonds		825,295	805,329	836,307
Commercial paper		45,000	44,422	44,399
Others		473,398	412,689	443,805
		4,538,434	12,222,159	12,097,972
Securities denominated in foreign currencies/off-shores:				
Stocks		-	3,885	3,958
Equity investments		-	28,431	24,408
Beneficiary certificates		-	523,598	520,283
Debt securities		631,659	632,714	645,224
		631,659	1,188,628	1,193,873
	₩	5,170,093	13,410,787	13,291,845

	December 31, 2018			
		Face value	Acquisition cost	Fair value (Carrying amounts)
Securities denominated in Korean won:				
Stocks	₩	-	1,599,836	1,433,758
Equity investments		-	1,002,650	1,046,920
Beneficiary certificates		-	5,483,266	5,337,309
Government and public bonds		579,000	583,584	590,661
Financial bonds		2,174,641	2,162,733	2,162,170
Corporate bonds		811,016	793,201	1,166,400
Commercial paper		115,000	114,549	115,879
Others		242,595	363,349	385,527
		3,922,252	12,103,168	12,238,624
Securities denominated in foreign currencies/off-shores:				
Stocks		-	2,938	2,694
Equity investments		-	23,768	34,992
Beneficiary certificates		-	373,426	511,338
Debt securities		653,850	650,657	642,658
		653,850	1,050,789	1,191,682
Loaned securities		60,000	60,455	60,409
	₩	4,636,102	13,214,412	13,490,715

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(2) Equity securities with disposal restrictions in financial assets at fair value through profit or loss as of December 31, 2019 and 2018 are as follows:

Company	December 31, 2019			
	Number of shares		Carrying amount	Restricted period
National Happiness Fund Co., Ltd.	34,066	₩	73,320	Undecided
Shinhan Metal Co., Ltd.	7,692		-	Undecided
	41,758	₩	73,320	

Company	December 31, 2018			
	Number of shares		Carrying amount	Restricted period
National Happiness Fund Co., Ltd.	34,066	₩	68,757	Undecided

6. Securities Measured at FVOCI

(1) Details of securities measured at FVOCI as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
		Face value	Acquisition cost	Fair value (Carrying amounts)
Securities denominated in Korean won:				
Stocks and equity investments	₩	-	10,010,625	10,113,791
Government and public bonds		4,952,075	4,257,816	4,338,314
Financial bonds		2,890,000	2,897,780	2,898,724
Corporate bonds		6,379,576	6,402,229	6,435,275
Others		1,443,052	1,448,953	1,143,149
		15,664,703	25,017,403	24,929,253
Securities denominated in foreign currencies/off-shores:				
Stocks		-	4,665	1,643
Debt securities		6,542,442	6,623,922	6,978,134
Others		43,574	43,564	43,576
		6,586,016	6,672,151	7,023,353
Loaned securities		40,000	40,005	40,059
	₩	22,290,719	31,729,559	31,992,665

	December 31, 2018			
		Face value	Acquisition cost	Fair value (Carrying amounts)
Securities denominated in Korean won:				
Stocks and equity investments	₩	-	10,114,953	10,193,423
Government and public bonds		3,673,435	3,563,031	3,562,665
Financial bonds		1,702,000	1,702,746	1,703,597
Corporate bonds		7,624,117	7,648,220	7,661,575
Others		103,839	103,120	481,954
		13,103,391	23,132,070	23,603,214
Securities denominated in foreign currencies/off-shores:				
Stocks		-	4,241	1,844
Debt securities		6,794,405	7,737,794	6,636,516
Others		35,820	35,684	35,812
		6,830,225	7,777,719	6,674,172
	₩	19,933,616	30,909,789	30,277,386

Equity instruments that are held by acquisition due to conversion from debt instruments, investment in kind and investment in ventures and SMEs are designated as measured at FVOCI. The realized pre-tax income and loss on disposal of equity securities for the years ended December 31, 2019 and 2018 are the amount of ₩28,023 million of gain and ₩44,013 million of gain, respectively, which is directly recognized in retained earnings.

(2) Changes in securities measured at FVOCI for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	₩	30,277,386	35,092,658
Acquisition		26,126,057	11,362,496
Disposal		(24,641,676)	(16,274,473)
Change due to amortization		(6,416)	(23,479)
Change in fair value		40,785	(131,956)
Reclassification		(38,779)	(11,786)
Foreign exchange differences		192,910	207,705
Others (*)		42,398	56,221
Ending balance	₩	31,992,665	30,277,386

(*) For the year ended December 31, 2019, others represent the increase in securities measured at FVOCI including shares of Ecopro BM Co., Ltd., Kuk-Il Paper MFG Co., Ltd., TRUWIN Co., Ltd., Solid, Inc. and others acquired through exercise of conversion rights of the convertible bonds. For the year ended December 31, 2018, others represent the increase in securities measured at FVOCI including shares of STX Heavy Industries Co., Ltd., STX Engine Co., Ltd., Wooyang HC Co., Ltd. and Namkwang Engineering & Construction Co., Ltd. acquired in accordance with the rehabilitation plan under the Debtor Rehabilitation and Bankruptcy Act, shares of Ecomaister Co., Ltd., Aribio Co., Ltd. and others acquired through exercise of conversion rights of the convertible bonds, and shares of DIB Co., Ltd. acquired pursuant to debt-to-equity swap decision of the Council of Financial Creditors under the Corporate Restructuring Promotion Act.

(3) Equity securities with disposal restrictions in securities measured at FVOCI as of December 31, 2019 and 2018 are as follows:

Company	December 31, 2019			
	Number of shares		Carrying amount	Restricted period
UAMCO., Ltd.	85,050	₩	122,850	Undecided
ENGINE TECH CO.,LTD.	500,000		77	Undecided
Taihan Electric Wire Co., Ltd. (*1)	15,892,055		9,790	Undecided
CREA IN Co., Ltd.	14,383		56	Until December 21, 2021
Kumho Tire Co., Inc.	21,339,320		89,518	Until July 6, 2023 (*2)
	37,830,808	₩	222,291	

Company	December 31, 2018			
	Number of shares		Carrying amount	Restricted period
UAMCO., Ltd.	85,050	₩	118,130	Undecided
Taihan Electric Wire Co., Ltd. (*1)	15,926,991		16,166	Undecided
EM-Tech.Co., Ltd.	81,621		1,396	Until February 7, 2019
Hanjin Heavy Industries & Construction Co., Ltd.	1,208,588		2,000	Until December 31, 2019
Pyeongsan Co., Ltd.	222,222		-	Until December 31, 2019
HMR Co., Ltd.	35,972		-	Until December 31, 2019
CREA IN Co., Ltd.	14,383		46	Until December 21, 2021
Kumho Tire Co., Inc.	21,339,320		113,312	Until July 6, 2023 (*2)
	38,914,147	₩	251,050	

(*1) Some shares were disposed of through the lifting of the restriction.

(*2) From July 6, 2021, 50% of the shares may be sold every year.

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(4) Changes in the loss allowance in relation to securities measured at FVOCI for the years ended December 31, 2019 and 2018 are as follows:

	2019			
	12-month expected credit loss	Lifetime expected credit losses		Total
		Non credit-impaired	Credit-impaired	
Beginning balance	₩ 5,675	2,318	70,135	78,128
Transfer to 12-month expected credit loss	25	(25)	-	-
Transfer to lifetime expected credit losses:				
Transfer to non credit-impaired debt securities	(116)	116	-	-
Provision (reversal) for loss allowance	361	(42)	(1,805)	(1,486)
Disposal	(1,699)	(2,125)	-	(3,824)
Foreign currency translation	117	-	2,588	2,705
Others	(301)	23	58	(220)
Ending balance	₩ 4,062	265	70,976	75,303

	2018			
	12-month expected credit loss	Lifetime expected credit losses		Total
		Non credit-impaired	Credit-impaired	
Beginning balance	₩ 5,988	8,096	107,010	121,094
Transfer to 12-month expected credit loss	40	(40)	-	-
Transfer to lifetime expected credit losses:				
Transfer to non credit-impaired debt securities	(2,111)	2,111	-	-
Provision (reversal) for loss allowance	4,448	(7,261)	17,559	14,746
Write-offs	-	-	(4,848)	(4,848)
Disposal	(1,556)	(5)	-	(1,561)
Debt-to-equity swap	-	-	(30,950)	(30,950)
Foreign currency translation	160	2	476	638
Others	(1,294)	(585)	(19,112)	(20,991)
Ending balance	₩ 5,675	2,318	70,135	78,128

7. Securities Measured at Amortized Cost

(1) Securities measured at amortized cost as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	
	Amortized cost	Fair value
Securities denominated in Korean won:		
Government and public bonds	₩ 1,525,169	1,578,384
Financial bonds	1,290,408	1,291,538
Corporate bonds	1,301,954	1,359,535
Others	2	2
	4,117,533	4,229,459
Securities denominated in foreign currencies:		
Corporate bonds	1,436,633	1,468,650
	5,554,166	5,698,109
Less:		
Loss allowance	(2,566)	
	₩ 5,551,600	

	December 31, 2018	
	Amortized cost	Fair value
Securities denominated in Korean won:		
Government and public bonds	₩ 1,684,759	1,689,794
Financial bonds	1,281,169	1,281,452
Corporate bonds	1,306,067	1,334,464
Others	104	104
	4,272,099	4,305,814
Securities denominated in foreign currencies:		
Corporate bonds	1,422,345	1,307,909
	5,694,444	5,613,723
Less:		
Loss allowance	(2,828)	
	₩ 5,691,616	

(2) Changes in available-for-sale financial assets for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Beginning balance	₩ 5,691,616	3,784,622
Acquisition	747,812	2,246,392
Redemption	(936,626)	(389,465)
Change due to amortization	5,504	8,007
Impairment loss	(368)	(1,296)
Foreign exchange differences	43,486	43,356
Reclassification, etc.	176	-
Ending balance	₩ 5,551,600	5,691,616

8. Loans Measured at FVTPL

(1) Loans measured at FVTPL as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	
	Amortized cost	Fair value (Carrying amounts)
Loans in Korean won:		
Privately placed corporate bonds	₩ 600,845	604,380
Others	866	697
	₩ 601,711	605,077

	December 31, 2018	
	Amortized cost	Fair value (Carrying amounts)
Loans in Korean won:		
Loans for facility development	₩ 1,639	1,620
Privately placed corporate bonds	794,682	777,264
Others	866	636
	₩ 797,187	779,520

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(2) Gains (losses) related to loans measured at FVTPL for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Transaction gains (losses) on loans measured at FVTPL		
Transaction gains	₩ 23,456	17,507
Transaction losses	(27,231)	(29,456)
	(3,775)	(11,949)
Valuation gains (losses) on loans measured at FVTPL		
Valuation gains	59,780	80,637
Valuation losses	(16,798)	(48,410)
	42,982	32,227
	₩ 39,207	20,278

9. Loans Measured at Amortized Cost

(1) Loans measured at amortized cost and allowance for loan losses as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	
	Amortized cost	Fair value
Loans in Korean won:		
Loans for working capital	₩ 53,819,927	53,955,925
Loans for facility development	49,267,067	49,756,842
Loans for households	1,530,825	1,523,860
Inter-bank loans	2,300,258	2,273,821
Others	29,514	29,358
	106,947,591	107,539,806
Loans in foreign currencies:		
Loans	17,578,569	18,845,338
Inter-bank loans	2,528,386	2,998,415
Off-shore loans	14,227,196	14,427,038
	34,334,151	36,270,791
Other loans:		
Bills bought in foreign currency	1,967,950	1,962,596
Advances for customers on acceptances and guarantees	170,424	16,050
Privately placed corporate bonds	1,559,308	1,330,455
Credit card loans	140,185	139,671
Others	6,688,399	6,776,216
	10,526,266	10,224,988
	151,808,008	154,035,585
Less:		
Allowance for loan losses	(2,465,546)	
Present value discount	(15,832)	
Deferred loan origination costs and fees	(4,779)	
	₩ 149,321,851	

	December 31, 2018	
	Amortized cost	Fair value
Loans in Korean won:		
Loans for working capital	₩ 50,817,833	51,209,468
Loans for facility development	49,318,944	50,062,006
Loans for households	1,938,506	1,938,735
Inter-bank loans	2,335,704	2,233,284
Others	19,544	17,800
	104,430,531	105,461,293
Loans in foreign currencies:		
Loans	14,331,909	15,697,934
Inter-bank loans	2,359,674	2,783,581
Loans borrowed from overseas financial institutions	139,186	142,882
Off-shore loans	11,321,258	12,042,473
	28,152,027	30,666,870
Other loans:		
Bills bought in foreign currency	1,364,594	1,351,344
Advances for customers on acceptances and guarantees	93,009	7,595
Privately placed corporate bonds	1,882,546	1,595,981
Credit card loans	129,975	129,417
Others	8,927,518	7,927,060
	12,397,642	11,011,397
	144,980,200	147,139,560
Less:		
Allowance for loan losses	(2,821,778)	
Present value discount	(6,749)	
Deferred loan origination costs and fees	4,821	
	₩ 142,156,494	

(2) Changes in allowance for loan losses for the years ended December 31, 2019 and 2018 are as follows:

	2019			
	12-month expected credit loss	Lifetime expected credit losses		Total
		Non credit-impaired	Credit-impaired	
Beginning balance	₩ 191,557	1,127,118	1,503,103	2,821,778
Transfer to 12-month expected credit loss	15,553	(15,338)	(215)	-
Transfer to lifetime expected credit losses:				
Transfer to non credit-impaired loans	(54,486)	58,810	(4,324)	-
Transfer to credit-impaired loans	(136,075)	(294,658)	430,733	-
Provision for (reversal of) loss allowance	175,196	(637,343)	655,433	193,286
Write-offs	-	-	(185,496)	(185,496)
Recovery	-	-	23,960	23,960
Sale	-	-	(241,150)	(241,150)
Debt-to-equity swap	-	-	(231,880)	(231,880)
Foreign currency translation	1,057	13,685	11,221	25,963
Other	460	41,801	16,824	59,085
Ending balance	₩ 193,262	294,075	1,978,209	2,465,546

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	2018				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	307,032	755,784	1,982,609	3,045,425
Transfer to 12-month expected credit loss		5,345	(5,330)	(15)	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired loans		(68,534)	535,953	(467,419)	-
Transfer to credit-impaired loans		(110,508)	(92,961)	203,469	-
Provision for (reversal of) loss allowance		99,888	(88,558)	161,356	172,686
Write-offs		-	-	(238,338)	(238,338)
Recovery		-	-	72,894	72,894
Sale		(215)	-	(114,954)	(115,169)
Debt-to-equity swap		-	-	(120,236)	(120,236)
Foreign currency translation		1,123	26,306	6,794	34,223
Other		(42,574)	(4,076)	16,943	(29,707)
Ending balance	₩	191,557	1,127,118	1,503,103	2,821,778

(3) Losses related to loans measured at amortized cost for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Provision for loan losses	₩	(193,286)	(172,686)
Losses on disposal of loan		(96,251)	(101,146)
	₩	(289,537)	(273,832)

(4) Changes in net deferred loan origination costs and fees for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	₩	4,821	(2,921)
New deferrals		848	14,065
Amortization		(10,448)	(6,323)
Ending balance	₩	(4,779)	4,821

10. Derivative Financial Instruments

The Group's derivative financial instruments consist of trading derivatives and hedging derivatives, depending on the nature of each transaction. The Group enters into hedging derivative transactions mainly for the purpose of hedging risk related to changes in fair values of the underlying assets and liabilities and future cash flows.

The Group enters into trading derivative transactions such as futures, forwards, swaps and options for arbitrage transactions by speculating on the future value of the underlying asset. Trading derivative transactions include contracts with the Group's clients and its liquidation position.

For the purpose of hedging the exposure to the variability of fair values and future cash flows of funds in Korean won by changes in interest rate, the Group mainly uses interest swaps or currency swaps. The main counterparties are foreign financial institutions and local banks. In addition, to hedge the exposure to the variability of fair values of bonds in foreign currencies by changes in interest rate or foreign exchange rate, the Group mainly uses interest swaps or currency swaps.

The Group applies net investment hedge accounting by designating non-derivative financial instruments as hedging instruments and any gain or loss on the hedging instruments relating to the effective portion of the hedge is recognised in other comprehensive income and accumulated in the foreign currency translation reserve.

Gains and losses on the hedging instrument accumulated in the foreign currency translation reserve are reclassified to profit or loss on the disposal or partial disposal of the foreign operation.

(1) The notional amounts outstanding for derivative contracts and the carrying amounts of the derivative financial instruments as of December 31, 2019 and 2018 are as follows:

	December 31, 2019				
		Notional amounts		Carrying amounts (*1)	
		Buy	Sell	Assets	Liabilities
Trading purpose derivative financial instruments:					
Interest rate					
Futures	₩	-	1,885,190	-	-
Swaps		220,854,055	220,541,918	1,206,945	703,839
Options		7,480,126	12,736,326	246,636	312,188
		228,334,181	235,163,434	1,453,581	1,016,027
Currency					
Futures		17,367	-	-	-
Forwards		87,879,331	81,860,470	1,755,000	1,526,573
Swaps		51,179,697	56,571,297	1,238,629	1,427,303
Options		214,646	171,284	1,134	2,813
		139,291,041	138,603,051	2,994,763	2,956,689
Stock					
Futures		-	3,563	-	-
Options		59,964	89,672	20,955	641
		59,964	93,235	20,955	641
Others		866	-	-	-
Allowance and other adjustments		-	-	(5,080)	(622)
		367,686,052	373,859,720	4,464,219	3,972,735
Hedging purpose derivative financial instruments:					
Interest rate (*2)					
Swaps		22,409,724	22,409,724	827,858	16,913
Currency					
Forwards		-	4,205,658	16,550	14,023
Swaps		7,681,686	10,322,324	98,168	185,721
		7,681,686	14,527,982	114,718	199,744
Allowance and other adjustments		-	-	(791)	(4,788)
		30,091,410	36,937,706	941,785	211,869
	₩	397,777,462	410,797,426	5,406,004	4,184,604

(*1) Derivative financial assets and liabilities of Deawoo Shipbuilding & Marine Engineering Co., Ltd. classified as assets and liabilities held for sale as of December 31, 2019, are excluded.

(*2) The expected maximum period for which derivative contracts, applied the cash flow hedge accounting, are exposed to risk of cash flow fluctuation is until August 28, 2029.

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	December 31, 2018			
	Notional amounts		Carrying amounts	
	Buy	Sell	Assets	Liabilities
Trading purpose derivative financial instruments:				
Interest rate				
Futures	₩ -	689,556	-	-
Swaps	224,625,012	224,267,154	1,023,098	768,141
Options	3,522,037	9,170,743	78,355	143,062
	228,147,049	234,127,453	1,101,453	911,203
Currency				
Futures	16,772	-	-	-
Forwards	58,264,628	55,296,313	722,550	729,166
Swaps	45,384,061	49,880,825	1,199,601	1,135,874
Options	185,957	80,891	771	1,643
	103,851,418	105,258,029	1,922,922	1,866,683
Stock				
Futures	1,515	-	-	-
Forwards	-	500,000	128,063	-
Options	182,777	335,551	19,701	763
	184,292	835,551	147,764	763
Others	866	-	-	-
Allowance and other adjustments	-	-	(4,149)	(489)
	332,183,625	340,221,033	3,167,990	2,778,160
Hedging purpose derivative financial instruments:				
Interest rate (*)				
Futures	-	26,834	-	-
Swaps	24,581,227	24,581,227	613,658	160,246
	24,581,227	24,608,061	613,658	160,246
Currency				
Forwards	2,965	2,475,914	45,553	15,726
Swaps	7,065,363	8,106,884	99,158	280,193
	7,068,328	10,582,798	144,711	295,919
Allowance and other adjustments	-	-	(854)	(5,221)
	31,649,555	35,190,859	757,515	450,944
	₩ 363,833,180	375,411,892	3,925,505	3,229,104

(*) The expected maximum period for which derivative contracts, applied the cash flow hedge accounting, are exposed to risk of cash flow fluctuation is until September 11, 2020.

(2) The notional amounts outstanding for the hedging instruments by period as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Within 1 month	1~3 months	3~12 months	1~5years	Over 5 years	Total
Interest rate:						
Notional amounts outstanding	₩ 86,603	1,204,456	3,751,455	10,354,523	7,012,687	22,409,724
Currency:						
Notional amounts outstanding	60,099	58,009	1,734,965	8,051,067	418,184	10,322,324

	December 31, 2018					
	Within 1 month	1~3 months	3~12 months	1~5years	Over 5 years	Total
Interest rate:						
Notional amounts outstanding	₩ 152,871	1,158,547	2,161,580	12,041,881	9,066,348	24,581,227
Currency:						
Notional amounts outstanding	-	53,711	1,777,382	4,821,900	412,370	7,065,363

(3) Details of the balances of the hedging instruments by risk type as of December 31, 2019 and 2018 are as follows:

	December 31, 2019				
	Notional amounts		Balances		Changes in fair value for 2019
	Buy	Sell	Assets	Liabilities	
Cash flow hedge accounting:					
Interest rate risk					
Swaps	₩ 340,000	340,000	-	508	302
Currency risk					
Swaps	-	186,467	1,796	-	1,289
	340,000	526,467	1,796	508	1,591
Fair value hedge accounting:					
Interest rate risk					
Swaps	22,069,724	22,069,724	827,858	16,405	490,938
Currency risk					
Forwards	-	4,205,658	16,550	14,023	30,983
Swaps	7,681,686	10,135,857	96,372	185,721	(19,778)
	7,681,686	14,341,515	112,922	199,744	11,205
	29,751,410	36,411,239	940,780	216,149	502,143
	₩ 30,091,410	36,937,706	942,576	216,657	503,734

	December 31, 2018				
	Notional amounts		Balances		Changes in fair value for 2018
	Buy	Sell	Assets	Liabilities	
Cash flow hedge accounting:					
Interest rate risk					
Swaps	₩ 1,250,000	1,250,000	65	3,831	4,393
Fair value hedge accounting:					
Interest rate risk					
Futures	-	26,834	-	-	-
Swaps	23,331,227	23,331,227	613,593	156,415	78,475
	23,331,227	23,358,061	613,593	156,415	78,475
Currency risk					
Forwards	2,965	2,475,914	45,553	15,726	166,944
Swaps	7,065,363	8,106,884	99,158	280,193	(219,736)
	7,068,328	10,582,798	144,711	295,919	(52,792)
	30,399,555	33,940,859	758,304	452,334	25,683
	₩ 31,649,555	35,190,859	758,369	456,165	30,076

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(4) Details of the balances of the hedged items by risk type as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Carrying amounts		Adjustments from fair value hedge accounting		Changes in fair value for 2019	Other comprehensive income for cash flow hedge
	Assets	Liabilities	Assets	Liabilities		
Cash flow hedge accounting:						
Interest rate risk						
Debt debentures	₩ -	340,000	-	-	-	644
Currency risk						
Securities measured at FVOCI	186,467	-	-	-	(1,289)	(403)
	186,467	340,000	-	-	(1,289)	241
Fair value hedge accounting:						
Interest rate risk						
Securities measured at FVOCI	2,460,824	-	12,483	-	48,291	-
Debt debentures	-	29,448,480	-	288,377	(513,063)	-
Other liabilities (Deposits, etc.)	-	118,785	-	3,005	(9,424)	-
	2,460,824	29,567,265	12,483	291,382	(474,196)	-
Currency risk (*)						
Securities measured at FVOCI	960,928	-	(4,972)	-	(4,972)	-
Debt debentures	-	9,384,387	-	43,847	15,932	-
	960,928	9,384,387	(4,972)	43,847	10,960	-
	3,421,752	38,951,652	7,511	335,229	(463,236)	-
	₩ 3,608,219	39,291,652	7,511	335,229	(464,525)	241

	December 31, 2018					
	Carrying amounts		Adjustments from fair value hedge accounting		Changes in fair value for 2018	Other comprehensive income for cash flow hedge
	Assets	Liabilities	Assets	Liabilities		
Cash flow hedge accounting:						
Interest rate risk						
Debt debentures	₩ -	1,250,000	-	-	-	(744)
Fair value hedge accounting:						
Interest rate risk						
Securities measured at FVOCI	2,022,991	-	(11,308)	-	(2,001)	-
Debt debentures	-	22,750,065	-	(238,234)	(74,840)	-
Other liabilities (Deposits, etc.)	-	105,611	-	(6,199)	4,386	-
	2,022,991	22,855,676	(11,308)	(244,433)	(72,455)	-
Currency risk (*)						
Securities measured at FVOCI	3,518,929	-	(34,540)	-	(24,824)	-
Debt debentures	-	7,184,750	-	(227,240)	236,445	-
	3,518,929	7,184,750	(34,540)	(227,240)	211,621	-
	5,541,920	30,040,426	(45,848)	(471,673)	139,166	-
	₩ 5,541,920	31,290,426	(45,848)	(471,673)	139,166	(744)

(*) The case that firm commitments, etc. are designated as hedged items is excluded.

(5) Details of hedge ineffectiveness recognized in profit or loss from derivatives for the years ended December 31, 2019 and 2018 is as follows:

	2019	2018
Interest rate risk	₩ 16,742	6,020
Currency risk (*)	22,165	5,364
	₩ 38,907	11,384

(*) The case that firm commitments, etc. are designated as hedged items is excluded.

(6) The summary of the amounts that have affected the statement of comprehensive income as a result of applying cash flow hedge accounting for the years ended December 31, 2019 and 2018 is as follows:

	2019		
	Change in the value of the hedging instrument recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss (*)	Amount reclassified from other comprehensive income to profit or loss (*)
Interest rate risk and currency risk	₩ 1,589	2	1,876

	2018		
	Change in the value of the hedging instrument recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss (*)	Amount reclassified from other comprehensive income to profit or loss (*)
Interest rate risk	₩ 4,284	109	468

(*) Recognized in gains or losses related to hedging purpose derivatives.

(7) Details of net investments in foreign operations for the year ended December 31, 2019 are as follows and the hedge of net investment in a foreign operation was not applied in 2018:

	2019	
	Changes in fair value	Other comprehensive income (loss) for hedges of a net investment in a foreign operation
Currency (foreign exchange risk)	₩ (5,538)	5,538

(8) Detail of hedging instruments in hedge of net investment in a foreign operation as of December 31, 2019 is as follows and the hedge of net investment in a foreign operation was not applied in 2018:

	December 31, 2019			
	Book value	Changes in fair value for 2019	Change in the value of the hedging instrument recognized in other comprehensive income for 2019	Hedge ineffectiveness recognized in profit or loss for 2019
Debentures in foreign currencies	₩ 734,718	5,538	5,538	-

11. Investments in Associates

(1) The market value of marketable investments in associates as of December 31, 2019 and 2018 are as follows:

	Market value		Carrying amounts	
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Korea Electric Power Co., Ltd.	₩ 5,872,340	6,991,887	22,209,346	22,948,911
Hyundai Merchant Marine Co., Ltd.	146,258	152,231	-	-
Dongbu Steel Co., Ltd.	103,622	68,880	118,065	32,028
Hanjin Heavy Industries & Construction Co., Ltd.	67,001	-	66,665	-

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(2) Changes in investments in associates for the years ended December 31, 2019 and 2018 are as follows:

	2019								
	January 1, 2019	Acquisition/ transfer	Disposal / transfer	Share of profit (loss)	Impairment loss (*)	Share of other comprehensive income (loss)	Dividends	Others	December 31, 2019
Korea Electric Power Co., Ltd.	₩ 22,948,911	-	-	(771,781)	-	32,216	-	-	22,209,346
Korea Tourism Organization	341,233	-	-	1,350	-	(263)	-	-	342,320
Hyundai Merchant Marine Co., Ltd.	-	-	-	(114,223)	-	(3,410)	-	117,633	-
GM Korea Company	22,681	-	(81)	26,306	(48,143)	-	-	(763)	-
Korea Infrastructure Fund II	233,806	-	(456)	16,242	-	-	(4,909)	-	244,683
Korea Ocean Business Corporation	134,307	497,470	-	(39,731)	-	54	-	3,402	595,502
Hanjin Heavy Industries & Construction Co., Ltd.	-	139,110	-	14,689	(74,251)	(12,883)	-	-	66,665
Others	4,271,392	874,108	(1,187,938)	155,391	17,387	2,226	(273,347)	26,003	3,885,222
	₩ 27,952,330	1,510,688	(1,188,475)	(711,757)	(105,007)	17,940	(278,256)	146,275	27,343,738

(*) The Group recognized ₩105,007 million as impairment losses considering the decrease in fair values of cash-generating units due to the decline in expected cash flows as indications of impairment for GM Korea Company and 20 others for the year ended December 31, 2019. Recoverable amount is ₩159,462 million as of December 31, 2019.

	2018								
	January 1, 2018	Acquisition/ transfer	Disposal / transfer	Share of profit (loss)	Impairment loss (*)	Share of other comprehensive income (loss)	Dividends	Others	December 31, 2018
Korea Electric Power Co., Ltd.	₩ 23,586,443	-	-	(432,552)	-	(38,104)	(166,876)	-	22,948,911
Korea Tourism Organization	340,605	-	-	12,778	-	(10,298)	(1,852)	-	341,233
Hyundai Merchant Marine Co., Ltd.	117,532	-	-	(106,485)	-	(88,725)	-	77,678	-
GM Korea Company	-	809,025	-	(486,340)	(303,222)	-	-	3,218	22,681
Korea Infrastructure Fund II	234,167	-	(618)	8,477	-	-	(8,220)	-	233,806
Korea Ocean Business Corporation	-	134,307	-	-	-	-	-	-	134,307
Others	3,777,383	1,101,944	(841,455)	554,648	(44,095)	16,201	(257,808)	(35,426)	4,271,392
	₩ 28,056,130	2,045,276	(842,073)	(449,474)	(347,317)	(120,926)	(434,756)	45,470	27,952,330

(*) The Group recognized ₩347,317 million as impairment losses considering the decrease in fair values of cash-generating units due to the decline in expected cash flows as indications of impairment for GM Korea Company and 21 others for the year ended December 31, 2018. Recoverable amount is ₩380,877 million as of December 31, 2018.

(3) The key financial information of associates invested and ownership ratios as of and for the years ended December 31, 2019 and 2018 are as follows:

	December 31, 2019									
	Country	Fiscal year end	Industry	Assets	Liabilities	Equity	Operating revenue	Profit (loss) for the year	Total comprehensive income (loss)	Ownership (%)
Korea Electric Power Co., Ltd.	Korea	December	Electricity generation	₩197,597,792	128,708,143	68,889,649	59,172,890	(2,345,517)	(2,239,147)	32.90
Korea Tourism Organization	Korea	December	Culture and tourism administration	1,569,185	497,038	1,072,147	787,216	6,803	5,430	43.58
Hyundai Merchant Marine Co., Ltd. (*1)	Korea	December	Shipping	7,160,187	6,069,878	1,090,309	5,513,089	(589,927)	(612,482)	12.94
GM Korea Company (*2)	Korea	December	Manufacturing	5,492,399	3,550,438	1,941,961	8,438,789	(356,831)	(356,831)	17.02
Korea Infrastructure Fund II	Korea	December	Financial investment	929,296	70,245	859,051	106,095	99,085	99,085	26.67
Korea Ocean Business Corporation	Korea	December	Financial investment	4,358,100	2,069,521	2,288,579	205,269	(167,419)	(167,181)	22.37
Hanjin Heavy Industries & Construction Co., Ltd. (*1)	Korea	December	Construction	2,470,222	2,225,228	244,994	1,628,751	305,753	267,121	16.14

	December 31, 2018									
	Country	Fiscal year end	Industry	Assets	Liabilities	Equity	Operating revenue	Profit (loss) for the year	Total comprehensive income (loss)	Ownership (%)
Korea Electric Power Co., Ltd.	Korea	December	Electricity generation	₩185,249,061	114,156,299	71,092,762	60,627,610	(1,314,567)	(1,426,477)	32.90
Korea Tourism Organization	Korea	December	Culture and tourism administration	1,428,674	370,333	1,058,341	738,061	9,053	5,690	43.58
Hyundai Merchant Marine Co., Ltd. (*1)	Korea	December	Shipping	4,121,440	3,081,769	1,039,671	5,222,124	(790,739)	(807,995)	13.05
GM Korea Company (*2)	Korea	December	Manufacturing	6,128,492	3,862,366	2,266,126	9,341,988	(833,987)	(828,248)	17.02
Korea Infrastructure Fund II	Korea	December	Financial investment	850,334	32,069	818,265	61,021	54,008	54,008	26.67
Korea Ocean Business Corporation (*3)	Korea	December	Financial investment	2,715,960	344,344	2,371,616	30,663	(195,474)	(200,715)	4.62

(*1) Although the Group's shareholding in Hyundai Merchant Marine Co., Ltd. and Hanjin Heavy Industries & Construction Co., Ltd. is less than 20%, the equity method is applied as the Group is considered to have significant influence over Hyundai Merchant Marine Co., Ltd. as a principal creditor bank of Council of Financial Creditors.

(*2) Equity method is applied to GM Korea Company, even though the Group's shareholding is less than 20%, because the Group is considered to have significant influence over GM Korea Company by exercising rights to elect board of directors.

(*3) Although the Group's shareholding in Korea Ocean Business Corporation is less than 20% as of December 31, 2018, the Group is considered to have significant influence.

12. Property and Equipment

Changes in property and equipment for the years ended December 31, 2019 and 2018 are as follows:

	2019								
	January 1, 2019	Changes in accounting policy	January 1, 2019 (Restated)	Acquisition/ depreciation	Disposal	Reclassifi-cation (*2)	Foreign exchange differences	Others	December 31, 2019
Acquisition cost:									
Land	₩ 2,617,675	-	2,617,675	5,566	(6,753)	(1,658,701)	(1)	139	957,925
Buildings and structures	3,460,350	-	3,460,350	10,617	(1,639)	(2,171,041)	2,647	(1,158)	1,299,776
Leasehold improvements	45,247	(40,892)	4,355	2,309	(1)	40,930	(80)	(1,424)	46,089
Vehicles	305,317	-	305,317	3,435	(1,639)	(183,789)	2,635	(4,668)	121,291
Equipment	864,269	-	864,269	29,291	(21,251)	(635,114)	2,127	(4,797)	234,525
Construction in progress	643,391	-	643,391	140,798	(338)	(591,835)	-	3,325	195,341
Right-of-use assets	-	249,427	249,427	263,814	(90,958)	7,871	(55)	17,788	447,887
Others	2,250,409	-	2,250,409	16,871	(19,029)	(1,401,954)	2,055	(13,213)	835,139
	10,186,658	208,535	10,395,193	472,701	(141,608)	(6,593,633)	9,328	(4,008)	4,137,973
Accumulated depreciation: (*1)									
Buildings and structures	1,248,992	-	1,248,992	33,348	(916)	(882,239)	(62)	(9,958)	389,165
Leasehold improvements	35,991	(32,501)	3,490	3,854	-	32,501	(160)	(668)	39,017
Vehicles	240,065	-	240,065	15,419	(772)	(142,322)	23	(4,668)	107,745
Equipment	638,176	-	638,176	15,812	(20,459)	(432,106)	148	(4,789)	196,782
Construction in progress	2,810	-	2,810	-	-	-	-	-	2,810
Right-of-use assets	-	32,760	32,760	60,793	(39,759)	543	3	5,194	59,534
Others	1,419,785	-	1,419,785	65,344	(15,746)	(820,067)	(358)	(11,061)	637,897
	3,585,819	259	3,586,078	194,570	(77,652)	(2,243,690)	(406)	(25,950)	1,432,950

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	2019								
	January 1, 2019	Changes in accounting policy	January 1, 2019 (Restated)	Acquisition/ depreciation	Disposal	Reclassification (*2)	Foreign exchange differences	Others	December 31, 2019
Accumulated impairment losses:									
Land	95,924	-	95,924	74,896	-	(92,900)	-	-	77,920
Buildings and structures	198,443	-	198,443	6,064	(2)	(150,302)	-	(180)	54,023
Vehicles	31,265	-	31,265	2	-	(30,970)	-	-	297
Equipment	153,444	-	153,444	165	(173)	(149,787)	-	-	3,649
Construction in progress	26,360	-	26,360	9,443	-	(15,640)	-	-	20,163
Right-of-use assets	-	-	-	-	(924)	-	-	924	-
Others	143,563	-	143,563	2,469	(285)	(131,303)	-	(744)	13,700
	648,999	-	648,999	93,039	(1,384)	(570,902)	-	-	169,752
	₩ 5,951,840	208,276	6,160,116	185,092	(62,572)	(3,779,041)	9,734	21,942	2,535,271

(*1) The amounts include government grants.

(*2) The property and equipment of Deawoo Shipbuilding & Marine Engineering Co., Ltd. are reclassified as assets held for sale as of December 31, 2019.

	2018						
	January 1, 2018	Acquisition/ depreciation	Disposal	Reclassification	Foreign exchange differences	Others	December 31, 2018
Acquisition cost:							
Land	₩ 2,603,869	2,716	(7,871)	56,138	38	(37,215)	2,617,675
Buildings and structures	3,666,906	28,614	(258,121)	(1,210)	202	23,959	3,460,350
Leasehold improvements	44,643	4,938	(4,231)	(38)	(65)	-	45,247
Vehicles	356,136	17,041	(61,441)	-	2	(6,421)	305,317
Equipment	821,996	32,590	(7,486)	(158)	(17)	17,344	864,269
Construction in progress	621,394	111,363	(781)	(79,304)	-	(9,281)	643,391
Others	2,240,615	99,703	(92,557)	166	(2)	2,484	2,250,409
	10,355,559	296,965	(432,488)	(24,406)	158	(9,130)	10,186,658
Accumulated depreciation: (*)							
Buildings and structures	1,258,571	96,580	(90,513)	(355)	1,588	(16,879)	1,248,992
Leasehold improvements	35,762	4,262	(3,888)	-	(145)	-	35,991
Vehicles	243,462	19,101	(22,506)	-	8	-	240,065
Equipment	607,175	37,382	(5,519)	-	12	(874)	638,176
Construction in progress	2,810	-	-	-	-	-	2,810
Others	1,389,278	118,998	(62,656)	-	13	(25,848)	1,419,785
	3,537,058	276,323	(185,082)	(355)	1,476	(43,601)	3,585,819
Accumulated impairment losses:							
Land	98,111	(9)	(2,178)	-	-	-	95,924
Buildings and structures	289,946	(5,426)	(86,098)	-	21	-	198,443
Vehicles	38,669	1	(7,405)	-	-	-	31,265
Equipment	153,424	182	(162)	-	-	-	153,444
Construction in progress	24,762	2,379	(781)	-	-	-	26,360
Others	186,678	1,653	(4,892)	-	-	(39,876)	143,563
	791,590	(1,220)	(101,516)	-	21	(39,876)	648,999
	₩ 6,026,911	21,862	(145,890)	(24,051)	(1,339)	74,347	5,951,840

(*) The amounts include government grants.

13. Investment Property

Changes in investment property for the years ended December 31, 2019 and 2018 are as follows:

	2019						
	January 1, 2019	Changes in accounting policy	January 1, 2019 (Restated)	Acquisition/ depreciation/ impairment	Reclassification	Others	December 31, 2019
Acquisition cost:							
Land	₩ 261,031	-	261,031	35,900	(95,917)	3,542	204,556
Buildings and structures	233,805	156,798	390,603	51,633	(5,019)	442	437,659
	494,836	156,798	651,634	87,533	(100,936)	3,984	642,215
Accumulated depreciation:							
Buildings and structures	101,644	-	101,644	10,222	-	130	111,996
Accumulated impairment losses:							
Land	19,488	-	19,488	(3,337)	(15,232)	744	1,663
Buildings and structures	6,433	-	6,433	(6,932)	3,341	705	3,547
	25,921	-	25,921	(10,269)	(11,891)	1,449	5,210
	₩ 367,271	156,798	524,069	87,580	(89,175)	2,535	525,009

	2018				
	January 1, 2018	Acquisition/ depreciation/ impairment	Reclassification	Others	December 31, 2018
Acquisition cost:					
Land	₩ 278,635	-	(17,604)	-	261,031
Buildings and structures	236,856	1,908	(4,959)	-	233,805
	515,491	1,908	(22,563)	-	494,836
Accumulated depreciation:					
Buildings and structures	96,808	6,083	355	(1,602)	101,644
Accumulated impairment losses:					
Land	2,966	18,182	(1,660)	-	19,488
Buildings and structures	3,131	3,302	-	-	6,433
	6,097	21,484	(1,660)	-	25,921
	₩ 412,586	(25,659)	(21,258)	1,602	367,271

The fair value of the Group's investment property, as determined on the basis of valuation by an independent appraiser, amounts to ₩533,975 million and ₩391,734 million as of December 31, 2019 and 2018, respectively. Additionally, fair value of investment in property is classified as level 3 according to the fair value hierarchy in Note 49.

14. Intangible Assets

Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows:

	2019								
	January 1, 2019	Acquisition	Disposal	Reclassification	Amortization	Impairment loss	Foreign exchange differences	Others	December 31, 2019
Goodwill	₩ 5,537	-	(4,742)	-	-	-	8	-	803
Customers related	222,916	-	-	-	(59,932)	42,213	-	-	205,197
Membership	34,102	1,426	(3,247)	(776)	(1,441)	(453)	9	-	29,620
Others	677,229	99,348	(10,965)	(38,720)	(135,325)	54,678	(110)	1,695	647,830
	₩ 939,784	100,774	(18,954)	(39,496)	(196,698)	96,438	(93)	1,695	883,450

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	2018								
	January 1, 2018	Acquisition	Disposal	Reclassification	Amortization	Impairment loss	Foreign exchange differences	Others	December 31, 2018
Goodwill	₩ 107,361	-	-	-	-	(101,826)	2	-	5,537
Customers related	328,200	-	-	-	(61,501)	(43,783)	-	-	222,916
Membership	37,661	-	(1,846)	33	(1,243)	(14)	4	(493)	34,102
Others	819,204	106,810	(12,271)	-	(151,667)	(73,809)	(40)	(10,998)	677,229
	₩ 1,292,426	106,810	(14,117)	33	(214,411)	(219,432)	(34)	(11,491)	939,784

15. Other Assets

Other assets as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Accounts receivable	₩ 3,836,827	3,709,630
Domestic exchange receivables	1,622,128	1,741,236
Accrued income	703,475	748,108
Guarantee deposits	445,272	596,576
Trade accounts receivables	3,001,720	8,671,984
Inventories	901,858	2,261,047
Prepaid expenses	317,531	249,888
Advance payments	773,436	949,739
Deferred acquisition cost	452,118	485,150
Separate account assets	638,027	636,853
Financial guarantee asset	30,078	22,638
Others	77,379	187,053
	12,799,849	20,259,902
Allowance for credit losses	(733,828)	(1,595,571)
Present value discount	(3,386)	(3,915)
	₩ 12,062,635	18,660,416

The carrying amounts of financial assets included in other assets above amounted to ₩9,639,501 million and ₩15,490,171 million as of December 31, 2019 and 2018, respectively, and their fair value amounted to W9,556,451 million and W15,405,204 million as of December 31, 2019 and 2018, respectively.

16. Assets and Liabilities Held for Sale

(1) Contract between the Group and Hyundai Heavy Industries Co., Ltd.

For attracting investment in Daewoo Shipbuilding & Marine Engineering Co., Ltd. ("Daewoo Shipbuilding & Marine Engineering"), the Group's subsidiary, the Group and Hyundai Heavy Industries Co., Ltd. ("Hyundai Heavy Industries") made the basic agreement on January 31, 2019 and the contract on investment on March 8, 2019. According to the contract, Hyundai Heavy Industries will make shipbuilding segment, special ship segment, industrial plant segment and engine & machinery segment into each new company and surviving company, Korea Shipbuilding & Offshore Engineering Co., Ltd. ("Korea Shipbuilding & Offshore Engineering"), into holding company defined in the Monopoly Regulation and Fair Trade Act. The Group will invest the common shares of Daewoo Shipbuilding & Marine Engineering into the common shares and redeemable convertible preference shares of Korea Shipbuilding & Offshore Engineering. Also, Korea Shipbuilding & Offshore Engineering will finance new common shares of Daewoo Shipbuilding & Marine Engineering and the Group will be obliged to fund Daewoo Shipbuilding & Marine Engineering.

The Group made the adjusted contract on investment with Korea Shipbuilding & Offshore Engineering Co., Ltd. on March 6, 2020, reflecting some adjustments to the previous contract on investment made between the Bank and Hyundai Heavy Industries on March 8, 2019.

The contract will be completed after the satisfaction of the contract's precondition including governmental permission of different countries.

The Group classified a disposal group of Daewoo Shipbuilding & Marine Engineering as assets and liabilities held for sale and profit or loss on Daewoo Shipbuilding & Marine Engineering as profit or loss from discontinued operations. The classification of profit or loss from discontinued operations is also applied to the comparative consolidated statement of comprehensive income.

(2) Assets and liabilities held for sale as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Assets held for sale		
Cash and cash equivalents	₩ 1,082,314	-
Due from banks	836,603	-
Securities measured at FVTPL	28,681	-
Securities measured at FVOCI	19,087	-
Securities measured at amortized cost	24,976	-
Investments in associates (*1)	10,433	14,711
Derivative financial instruments	86,851	-
Inventories	1,159,031	-
Property and equipment (*2)	3,768,435	127,427
Investment property	7,676	-
Intangible assets	24,722	-
Deferred tax assets	2,159	-
Current tax assets	4,373	-
Other assets	3,461,543	-
	10,516,884	142,138
Liabilities held for sale		
Debentures	628,085	-
Borrowings	1,092,220	-
Derivative financial instruments	128,393	-
Lease liabilities	34,036	-
Provisions	1,397,325	-
Deferred tax liabilities	83,769	-
Current tax liabilities	1,114	-
Other liabilities	2,617,733	-
	5,982,675	-
Net assets	₩ 4,534,209	142,138

(*1) These amounts consist of securities planned to be sold by Daewoo Engineering & Construction Co., Ltd.

(*2) These amounts consist of property and equipment, investments in associates and others planned to be sold by Daewoo Engineering & Construction Co., Ltd.

(3) Other comprehensive income in relation to assets and liabilities held for sale as of December 31, 2019 are as follows:

	December 31, 2019
Net loss on securities measured at FVOCI	₩ (3,527)

(4) Details of profit and loss from discontinued operations and cash flows from discontinued operating activities for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Profit (loss) from discontinued operations		
Profit (loss) before income taxes	₩ 296,210	(1,455,727)
Income tax expense (benefit)	(2,412)	28,134
Profit (loss) for the year	₩ 298,622	(1,483,861)

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		2019	2018
Cash flows from discontinued operations			
Net cash flows from operating activities	₩	1,177,604	460,441
Net cash flows from investing activities		(143,481)	(51,118)
Net cash flows from financing activities		(287,915)	(263,295)
Effects from changes in foreign currency exchange rate for cash and cash equivalents held		(1,428)	(634)
Net cash flows from discontinued operations	₩	744,780	145,394

17. Financial Liabilities Designated at Fair Value Through Profit or Loss

(1) Financial liabilities designated at fair value through profit or loss as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Debentures (*)	₩	2,465,541	2,164,538

(*) Changes in fair value of structured debentures which hedge accounting are applied, are recognized in profit or loss, but structured debentures with no hedge accounting applied to, are measured at amortized costs. Therefore, such structured debentures, not applied to hedge accounting, have been designated at FVTPL in order to eliminate mismatch in measurements of accounting profit and loss.

(2) The difference between the carrying amount and contractual cash flow amount of financial liabilities designated at fair value through profit or loss as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Carrying amount	₩	2,465,541	2,164,538
Contractual cash flow amount		2,323,560	2,040,344
Difference	₩	141,981	124,194

18. Deposits

Deposits as of December 31, 2019 and 2018 are as follows:

		December 31, 2019		December 31, 2018	
		Amortized cost	Fair value	Amortized cost	Fair value
Deposits in Korean won:					
Demand deposits	₩	110,411	110,411	96,884	96,884
Time and savings deposits		26,799,306	26,804,900	24,991,770	25,005,060
Certificates of deposit		188,375	188,310	52,457	52,481
		27,098,092	27,103,621	25,141,111	25,154,425
Deposits in foreign currencies:					
Demand deposits		2,161,939	2,161,939	1,634,268	1,634,268
Time and savings deposits		2,508,641	2,508,639	2,587,657	2,527,790
Certificates of deposit		3,786,180	3,786,180	4,024,479	3,219,921
		8,456,760	8,456,758	8,246,404	7,381,979
Off-shore deposits in foreign currencies:					
Demand deposits		760,491	760,491	561,660	561,660
	₩	36,315,343	36,320,870	33,949,175	33,098,064

19. Borrowings

(1) Borrowings as of December 31, 2019 and 2018 are as follows:

	December 31, 2019				
	Minimum interest rate (%)	Maximum interest rate (%)		Amortized cost	Fair value
Borrowings in Korean won	-	7.55	₩	5,693,745	5,664,240
Borrowings in foreign currencies	-	5.49		13,150,406	12,804,149
Off-shore borrowings in foreign currencies	1.79	5.85		1,720,019	1,713,640
Share capital repayable on demand	-	-		1,631,838	1,631,838
Others	0.01	3.66		2,782,753	2,781,963
				24,978,761	24,595,830
Present value discount				(10,249)	
Deferred borrowing costs				(105)	
			₩	24,968,407	

	December 31, 2018				
	Minimum interest rate (%)	Maximum interest rate (%)		Amortized cost	Fair value
Borrowings in Korean won	-	3.28	₩	6,673,377	6,654,888
Borrowings in foreign currencies	0.05	5.45		13,796,993	13,838,257
Off-shore borrowings in foreign currencies	1.46	4.32		1,178,016	1,180,969
Share capital repayable on demand	-	-		1,683,381	1,683,381
Others	0.15	5.30		3,119,668	3,180,971
				26,451,435	26,538,466
Present value discount				(71,396)	
Deferred borrowing costs				(500)	
			₩	26,379,539	

(2) Borrowings in Korean won before adjusting for deferred borrowing costs as of December 31, 2019 and 2018 are as follows:

Lender	Classification	Annual interest rate (%)		December 31, 2019	December 31, 2018
The Bank of Korea	Borrowings from Bank of Korea	0.50 ~ 0.75	₩	224,356	113,825
Ministry of Strategy and Finance	Borrowings from government fund (*)	0.34 ~ 0.87		154,667	193,790
Industrial Bank of Korea	Borrowings from IT industry promotion fund	0.10 ~ 1.00		190	920
Small & Medium Business Corp.	Borrowings from small and medium enterprise promotion fund	0.55 ~ 3.04		73,709	87,023
Ministry of Culture and Tourism	Borrowings from tourism promotion fund	0.05 ~ 2.50		2,578,317	2,665,403
Korea Energy Management Corporation	Borrowings from fund for rational use of energy	0.25 ~ 3.10		387,943	551,411
Local governments	Borrowings from local small and medium enterprise promotion fund	0.00 ~ 3.28		47,834	53,420
Others	Borrowings from petroleum enterprise fund	0.00 ~ 7.55		2,226,729	3,007,585
			₩	5,693,745	6,673,377

(*) Borrowings from government fund are subordinated borrowings.

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(3) Borrowings and off-shore borrowings in foreign currencies before adjusting for deferred borrowing costs as of December 31, 2019 and 2018 are as follows:

Lender	Classification	Annual interest rate (%)	December 31, 2019	December 31, 2018
Japan Bank for International Cooperation (JBIC)	Borrowings from JBIC	-	₩ -	139,187
Mizuho and others	Bank loans from foreign funds	3M Libor + 0.25 ~ 3M Libor + 0.78	694,680	1,118,100
Ministry of Strategy and Finance	Exchange equalization fund borrowings in foreign currencies	3M Libor + 0.22 ~ 3M Libor + 0.74	653,613	910,878
Central Bank of the Republic Uzbekistan and others	Off-shore short term borrowings	1.79 ~ 5.85	1,493,957	721,081
HSBC and others	Off-shore long term borrowings	3M Libor + 0.36 ~ 3M Libor + 0.62	226,062	444,159
JBIC	Off-shore borrowings from JBIC	-	-	12,776
Others	Short term borrowings in foreign currencies	0.00 ~ 5.49	10,521,672	10,185,337
	Long term borrowings in foreign currencies	0.12 ~ 3.34	1,280,441	1,443,491
			₩ 14,870,425	14,975,009

20. Debentures

Debentures as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
	Minimum interest rate (%)	Maximum interest rate (%)	Amortized cost	Fair value
Debentures in Korean won:				
Debentures	1.22	6.60	₩ 97,344,032	98,431,421
Discount on debentures			(67,623)	
Premium on debentures			24	
Valuation adjustment for fair value hedges			100,969	
			97,377,402	
Debentures in foreign currencies:				
Debentures	-	6.97	14,904,100	15,797,241
Discount on debentures			(34,600)	
Premium on debentures			221	
Valuation adjustment for fair value hedges			203,484	
			15,073,205	
Off-shore debentures:				
Debentures	-	7.20	12,751,332	12,820,674
Discount on debentures			(23,075)	
Premium on debentures			155	
Valuation adjustment for fair value hedges			27,790	
			12,756,202	
			₩ 125,206,809	127,049,336

	December 31, 2018			
	Minimum interest rate (%)	Maximum interest rate (%)	Amortized cost	Fair value
Debentures in Korean won:				
Debentures	1.30	6.90	₩ 99,390,926	99,964,005
Discount on debentures			(220,847)	
Premium on debentures			114	
Valuation adjustment for fair value hedges			(35,014)	
			99,135,179	
Debentures in foreign currencies:				
Debentures	0.02	6.97	13,908,908	13,712,548
Discount on debentures			(29,947)	
Valuation adjustment for fair value hedges			(160,260)	
			13,718,701	
Off-shore debentures:				
Debentures	-	7.73	10,617,785	10,349,626
Discount on debentures			(26,037)	
Valuation adjustment for fair value hedges			(270,181)	
			10,321,567	
			₩ 123,175,447	124,026,179

21. Policy Reserves

Details of policy reserves categorized by insurance type as of December 31, 2019 and 2018 are as follows:

	Classification	December 31, 2019	December 31, 2018
Premium reserve	Pure endowment	₩ 5,268,627	5,118,313
	Death	6,013,425	5,583,240
	Endowment	4,357,150	4,597,906
	Group	29,427	31,239
		15,668,629	15,330,698
Unearned premium reserve	Pure endowment	1	1
	Death	162	197
	Group	1,847	1,377
		2,010	1,575
Reserve for outstanding claims	Pure endowment	98,210	105,956
	Death	295,527	295,475
	Endowment	573,805	490,689
	Group	4,518	6,064
		972,060	898,184
Reserve for participating policyholders' dividends	Pure endowment	37,413	34,770
	Death	3,460	3,809
	Endowment	1,902	1,966
	Group	6	10
		42,781	40,555
Excess participating policyholders' dividend reserve		6,938	11,340
Reserve for losses on participating insurance		6,507	7,158
Guaranteed benefit reserve		64,900	35,824
		₩ 16,763,825	16,325,334

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22. Defined Benefit Liabilities

(1) Details of defined benefit liabilities as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Present value of defined benefit obligation	₩	942,542	1,322,447
Fair value of plan assets (*)		(642,544)	(900,151)
Net defined benefit liabilities		299,998	422,296
Liabilities for other long-term employment benefits		3,416	24,820
	₩	303,414	447,116

(*) The plan assets are in trusts with Kookmin Bank, Samsung Life Insurance Co., Ltd., etc.

(2) Changes in defined benefit liabilities for the years ended December 31, 2019 and 2018 are as follows:

		2019			
		Present value of defined benefit obligation	Fair value of plan assets	Net defined benefit liabilities	Liabilities for other long-term employment benefits
Beginning balance	₩	1,322,447	(900,151)	422,296	24,820
Current service costs		92,952	-	92,952	-
Past service costs		136	-	136	-
Interest expense (income)		22,708	(11,803)	10,905	-
Remeasurements of defined benefit liabilities:					
Demographic assumption		256	-	256	-
Financial assumption		48,731	-	48,731	-
Return on plan assets		-	2,838	2,838	-
Experience adjustment		(5,493)	-	(5,493)	-
		43,494	2,838	46,332	-
Payments from the plan		(71,570)	52,664	(18,906)	-
Reclassification		(463,797)	277,751	(186,046)	(21,404)
Contribution to the plan		-	(65,384)	(65,384)	-
Others		(3,828)	1,541	(2,287)	-
Ending balance	₩	942,542	(642,544)	299,998	3,416

		2018			
		Present value of defined benefit obligation	Fair value of plan assets	Net defined benefit liabilities	Liabilities for other long-term employment benefits
Beginning balance	₩	1,229,449	(853,367)	376,082	27,010
Current service costs		140,219	-	140,219	-
Interest expense (income)		36,145	(13,276)	22,869	-
Remeasurements of defined benefit liabilities:					
Demographic assumption		(4,679)	-	(4,679)	-
Financial assumption		47,940	4,349	52,289	-
Return on plan assets		-	5,820	5,820	-
		43,261	10,169	53,430	-
Payments from the plan		(136,507)	70,829	(65,678)	-
Contribution to the plan		-	(105,382)	(105,382)	-
Others		9,880	(9,124)	756	(2,190)
Ending balance	₩	1,322,447	(900,151)	422,296	24,820

(3) Fair value of plan assets for each type as of December 31, 2019 and 2018 are as follows:

		December 31, 2019		December 31, 2018	
		Quoted market prices	Unquoted market prices	Quoted market prices	Unquoted market prices
Equity securities	₩	168	-	633	-
Debt securities		17,947	-	12,176	-
Due from banks		284,403	339,391	538,728	348,127
Others		635	-	487	-
	₩	303,153	339,391	552,024	348,127

(4) Defined benefit costs recognized in profit or loss for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Current service costs	₩	92,952	140,219
Past service costs		136	-
Interest expense, net		10,905	22,869
	₩	103,993	163,088

(5) The principal actuarial assumptions used as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Discount rate (%)	1.50 ~ 2.44	2.20 ~ 2.77
Future salary increasing rate (%)	2.00 ~ 6.23	2.00 ~ 6.23

(6) The present value sensitivity of defined benefit liabilities as changes in principal actuarial assumptions as of December 31, 2019 is as follows:

	Sensitivity	
	1% increase in assumption	1% decrease in assumption
Discount rate	9.89% decrease	11.73% increase
Future salary increasing rate	10.99% increase	9.48% decrease

23. Provisions

(1) Provisions as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Provision for payment guarantees	₩	293,541	520,726
Provision for unused commitments		120,101	72,037
Financial guarantee provision		35,880	111,661
Lawsuit provision		35,569	589,499
Provision for restoration		16,869	1,389
Other provision		495,684	861,808
	₩	997,644	2,157,120

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(2) Changes in provision for payment guarantees for the years ended December 31, 2019 and 2018 are as follows:

	2019				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	224,018	53,321	243,387	520,726
Transfer to 12-month expected credit loss		41,125	(41,119)	(6)	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		(59,838)	59,838	-	-
Transfer to credit-impaired exposures		(181,313)	(10,120)	191,433	-
Provision for (reversal of) unused commitments		96,662	(60,153)	(291,623)	(255,114)
Foreign currency translation		2,813	8,802	16,380	27,995
Others		(66)	-	-	(66)
Ending balance	₩	123,401	10,569	159,571	293,541

	2018				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	9,597	213,519	205,761	428,877
Transfer to 12-month expected credit loss		71,411	(71,411)	-	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		(421)	1,171	(750)	-
Transfer to credit-impaired exposures		(12,804)	(23,216)	36,020	-
Provision for (reversal of) unused commitments		153,089	(76,840)	(6,480)	69,769
Foreign currency translation		3,081	10,098	8,836	22,015
Others		65	-	-	65
Ending balance	₩	224,018	53,321	243,387	520,726

(3) Changes in provision for unused commitments for the years ended December 31, 2019 and 2018 are as follows:

	2019				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	36,785	35,252	-	72,037
Transfer to 12-month expected credit loss		349,455	(349,455)	-	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		3,265	(3,265)	-	-
Provision for (reversal of) unused commitments		(378,344)	417,439	-	39,095
Foreign currency translation		7,748	1,232	-	8,980
Others		(11)	-	-	(11)
Ending balance	₩	18,898	101,203	-	120,101

	2018				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	16,676	55,904	19	72,599
Transfer to 12-month expected credit loss		212,697	(212,697)	-	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		(2,899)	2,899	-	-
Transfer to credit-impaired exposures		-	-	-	-
Provision for (reversal of) unused commitments		(204,266)	188,369	(19)	(15,916)
Foreign currency translation		14,513	777	-	15,290
Others		64	-	-	64
Ending balance	₩	36,785	35,252	-	72,037

(4) Changes of financial guarantee provision for the years ended December 31, 2019 and 2018 are as follows:

	2019				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	1,881	71,546	38,234	111,661
Transfer to 12-month expected credit loss		27	(27)	-	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		(7)	7	-	-
Transfer to credit-impaired exposures		(909)	(633)	1,542	-
Provision for (reversal of) unused commitments		602	(48,822)	(28,206)	(76,426)
Foreign currency translation		10	1,050	-	1,060
Others		(415)	-	-	(415)
Ending balance	₩	1,189	23,121	11,570	35,880

	2018				
		12-month expected credit loss	Lifetime expected credit losses		Total
			Non credit-impaired	Credit-impaired	
Beginning balance	₩	3,236	72,267	73,458	148,961
Transfer to 12-month expected credit loss		75	(7)	(68)	-
Transfer to lifetime expected credit losses:					
Transfer to non credit-impaired exposures		(443)	493	(50)	-
Transfer to credit-impaired exposures		(474)	(3,343)	3,817	-
Provision for (reversal of) unused commitments		(520)	(49)	(39,256)	(39,825)
Foreign currency translation		7	2,185	333	2,525
Ending balance	₩	1,881	71,546	38,234	111,661

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(5) Changes of lawsuit provision and other provision for the years ended December 31, 2019 and 2018 are as follows:

	2019			
		Lawsuit provision	Provision for restoration	Other provision
Beginning balance	₩	589,499	1,389	861,808
Increase (reversal) of provision		(14)	258	127,207
Provision used		-	(529)	(127,419)
Foreign currency translation		(7)	-	1
Reclassification		(553,374)	-	(354,138)
Others		(535)	15,751	(11,775)
Ending balance	₩	35,569	16,869	495,684

	2018			
		Lawsuit provision	Provision for restoration	Other provision
Beginning balance	₩	645,313	2,073	859,751
Increase (reversal) of provision		10,458	(430)	73,687
Provision used		(123,251)	(217)	(251,285)
Foreign currency translation		(29)	-	(5)
Others		57,008	(37)	179,660
Ending balance	₩	589,499	1,389	861,808

(6) Provision for payment guarantees and financial guarantee

Confirmed acceptances and guarantees, unconfirmed acceptances and guarantees and bills endorsed are not recognized on the statement of financial position, but are disclosed as off-statement of financial position items in the notes to the financial statements. The Group provides a provision for such off-statement of financial position items, applying a Credit Conversion Factor (CCF) and provision rates under the Group's expected credit loss model, and records the provision as a reserve for expected credit losses on acceptances and guarantees.

In the case of financial guarantee contracts, when the amount calculated using the same method as above is greater than the initial amount less amortization of fees recognized, the difference is recorded as provision for financial guarantee.

(7) Provision for unused commitments

The Group records a provision for a certain portion of unused credit lines which is calculated using a CCF as provision for unused commitments applying provision rates under the Group's expected credit loss model.

(8) Provision for possible losses from lawsuits

As of December 31, 2019, the Group is involved in 185 lawsuits as a plaintiff and 388 lawsuits as a defendant. The aggregate amounts of claims as a plaintiff and a defendant amounted to W2,157,663 million and W1,729,398 million, respectively. The Group provided a provision against contingent loss from pending lawsuits as of December 31, 2019 and additional losses may be incurred depending on the final result of pending lawsuits.

Some investors who bought the DSME's shares, corporate bonds and commercial papers sued the DSME, certain accounting firm and others for damage claims asserting that they had misled by false audit report, business report, registration of securities, prospectus, etc. and these lawsuits are included in the Group's lawsuits as a defendant.

Major lawsuits in progress as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
	Contents		Amounts	Status of lawsuit
Plaintiff:				
Korea Trade Insurance Corporation and one other	Claim for guarantee insurance	₩	136,538	1st trial ruled against the Group; 2nd trial in progress
Gyeonggi Urban Innovation Corp.	Claim for refund of investments		160,293	1st, 2nd trial ruled partially in favor of the Group; 3rd trial in progress
KAMCO 1st JV Securitization Specialty Co., Ltd.	Transfer of claim		8,792	1st trial in progress
STX Offshore and shipbuilding Co., Ltd.	Objection for trial for determination of investigation		4,800	1st trial in progress
Global Display Co., Ltd.	Claim for guaranteed debt		3,474	1st, trial ruled in favor of the Group; 2nd trial in progress
Korea Land and Housing Corporation	Claim for guaranteed debt		3,533	1st trial ruled against the Group; 2nd trial ruled partially in favor of the Group; 3rd trial in progress
Plaza Rakyat	Claim for construction cost due to termination of contractor contract		266,981	1st trial in progress
Defendant:				
Shinhan Bank and one other	Claim for damages		58,474	1st trial in progress
Defense Acquisition Program Administration	Claim for guaranteed debt		56,977	1st, 2nd trial ruled partially against the Group; 3rd trial in progress
Dongbu Corporation	Claim for nullity of table of rehabilitation creditor		33,997	1st trial ruled in favor of the Group; 2nd trial ruled against the Group; 3rd trial in progress
Dongbu Corporation	Claim for objection of request (participation to support)		19,658	1st trial in progress
Woori Bank	Claim for disposal of debt		12,470	1st, trial ruled in favor of the Group; 2nd trial in progress
KAMCO 8th JV Securitization Specialty Co., Ltd.	Claim for refund of impairment sale payment		13,898	1st trial ruled partially against the Group; 2nd trial ruled in favor of the Group; 3rd trial in progress
Korea Gas Corporation	Claim for damages		308,000	1st trial in progress

	December 31, 2018			
	Contents		Amounts	Status of lawsuit
Plaintiff:				
Korea Trade Insurance Corporation and one other	Claim for guarantee insurance	₩	136,538	1st trial ruled against the Group; 2nd trial in progress
Korea Credit Guarantee Fund	Claim for damages		60,100	1st trial ruled against the Group; 2nd trial in progress
Gyeonggi Urban Innovation Corp.	Claim for refund of investments		160,293	1st, 2nd trial ruled partially in favor of the Group; 3rd trial in progress
KAMCO 1st JV Securitization Specialty Co., Ltd.	Transfer of claim		8,792	1st trial in progress
Plaza Rakyat	Claim for construction cost due to termination of contractor contract		244,750	1st trial in progress
Defendant:				
Shinhan Bank and one other	Claim for damages		58,474	1st trial in progress
Defense Acquisition Program Administration	Claim for guaranteed debt		56,977	1st trial ruled partially against the Group; 2nd trial in progress
Dongbu Corporation	Claim for nullity of table of rehabilitation creditor		33,997	1st, trial ruled in favor of the Group; 2nd trial in progress
Dongbu Corporation	Claim for objection of request (participation to support)		19,658	1st trial in progress
KAMCO 8th JV Securitization Specialty Co., Ltd.	Claim for refund of impairment sale payment		13,898	1st trial ruled partially against the Group, 2nd trial in progress
Korea Gas Corporation	Claim for damages		308,000	1st trial in progress

(9) Other provision

The Group recognized other provision as a reserve for other miscellaneous purpose.

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24. Other Liabilities

(1) Other liabilities as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Accounts payable	₩	3,682,965	3,088,043
Lease liabilities		613,987	-
Accrued expense		2,844,817	3,016,865
Domestic exchange payable		363,546	312,911
Borrowing from trust accounts		1,494,569	751,885
Advance receipts		1,397,741	3,885,929
Guarantee money received		1,092,020	680,849
Trade payable		422,265	1,040,178
Unearned income		305,917	310,414
Deposits withholding tax		69,005	51,148
Foreign exchanges payable		18,799	10,960
Separate account liabilities		643,380	645,171
Financial guarantee liability		67,224	54,853
Contractor equity adjustments		45,597	41,884
Others		162,084	315,953
		13,223,916	14,207,043
Present value discount		(17,041)	(21,396)
	₩	13,206,875	14,185,647

The carrying amount of financial liabilities included in other liabilities above amounted to ₩10,612,043 million and ₩8,965,058 million as of December 31, 2019 and 2018, respectively, and their fair value amounted to ₩10,708,027 million and ₩9,202,084 million as of December 31, 2019 and 2018, respectively.

(2) Details of lease liabilities as of December 31, 2019 are as follows:

		Face value	Discount	Carrying amounts
Real estate	₩	657,636	(89,544)	568,092
Vehicles		47,189	(1,434)	45,755
Others		142	(2)	140
	₩	704,967	(90,980)	613,987

Cash payments for the principal portion of the lease liabilities are ₩156,569 million and cash payments for the interest portion of the lease liabilities are ₩12,588 million for the year ended December 31, 2019.

25. Equity

(1) Issued capital

The Group is authorized to issue up to 6,000 million shares of common stock and has 3,732,619,768 shares and 3,621,619,768 shares issued as of December 31, 2019 and 2018, respectively, and outstanding with a total par value (₩5,000 of par value per share) of ₩18,663,099 million ₩18,108,099 million as of December 31, 2019 and 2018, respectively. Due to the Group's paid-capital increase, total number and par value of the shares increased in 2019.

(2) Capital surplus

Capital surplus as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Paid-in capital in excess of par value	₩	59,636	62,309
Surplus from capital reduction		47,973	47,973
Share of capital surplus of associates		122,810	122,810
Other capital surplus		770,180	580,728
	₩	1,000,599	813,820

(3) Capital adjustments

Capital adjustments as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Share of capital adjustment of associates	₩	220,605	220,605
Other capital adjustment		57,434	95,824
	₩	278,039	316,429

(4) Accumulated other comprehensive income

(i) Accumulated other comprehensive income as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Net loss on securities measured at FVOCI:			
Valuation loss on securities measured at FVOCI (before tax)	₩	(244,570)	(237,065)
Loss allowance for securities measured at FVOCI (before tax)		75,303	78,128
Income tax effect		52,190	44,622
		(117,077)	(114,315)
Share of other comprehensive income of associates:			
Share of other comprehensive income of associates (before tax)		447,784	428,035
Income tax effect		9,431	12,653
		457,215	440,688
Exchange differences on translation of foreign operations:			
Exchange differences on translation of foreign operations (before tax)		(392,504)	(395,785)
Income tax effect		112,759	107,534
		(279,745)	(288,251)
Valuation gain (loss) on cash flow hedge:			
Valuation gain (loss) on cash flow hedge (before tax)		194	(744)
Income tax effect		47	305
		241	(439)
Net gain on hedges of net investments in foreign operations			
Net gain on hedges of net investments in foreign operations (before tax)		5,538	-
Income tax effect		(1,523)	-
		4,015	-
Remeasurements of defined benefit liabilities:			
Remeasurements of defined benefit liabilities (before tax)		(44,977)	(23,793)
Income tax effect		11,758	5,233
		(33,219)	(18,560)

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		December 31, 2019	December 31, 2018
Fair value changes on financial liabilities designated at fair value due to credit risk:			
Valuation gain (loss) on financial liabilities designated at fair value due to credit risk (before tax)		(6,319)	4,383
Income tax effect		1,738	(1,205)
		(4,581)	3,178
Others:			
Others (before tax)		17,089	882
Income tax effect		(3,002)	1,527
		14,087	2,409
	₩	40,936	24,710

(ii) Changes in accumulated other comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

		2019			
		January 1, 2019	Increase (Decrease)	Tax Effect	December 31, 2019
Net gain (loss) on securities measured at FVOCI	₩	(114,315)	(10,330)	7,568	(117,077)
Share of other comprehensive income of associates		440,688	19,749	(3,222)	457,215
Exchange differences on translation of foreign operations		(288,251)	3,281	5,225	(279,745)
Valuation gain (loss) on cash flow hedge		(439)	938	(258)	241
Net gain (loss) on hedges of net investments in foreign operations		-	5,538	(1,523)	4,015
Remeasurements of defined benefit liabilities		(18,560)	(21,184)	6,525	(33,219)
Fair value changes on financial liabilities designated at fair value due to credit risk		3,178	(10,702)	2,943	(4,581)
Others		2,409	16,207	(4,529)	14,087
	₩	24,710	3,497	12,729	40,936

		2018			
		January 1, 2018	Increase (Decrease)	Tax Effect	December 31, 2018
Net gain (loss) on securities measured at FVOCI	₩	29,855	(172,922)	28,752	(114,315)
Share of other comprehensive income of associates		579,838	(119,004)	(20,146)	440,688
Exchange differences on translation of foreign operations		(302,941)	72,629	(57,939)	(288,251)
Valuation gain (loss) on cash flow hedge		(4,209)	4,752	(982)	(439)
Remeasurements of defined benefit liabilities		6,826	(32,687)	7,301	(18,560)
Fair value changes on financial liabilities designated at fair value due to credit risk		9,520	(8,748)	2,406	3,178
Others		3,535	363	(1,489)	2,409
	₩	322,424	(255,617)	(42,097)	24,710

(5) Retained earnings

In accordance with the Korea Development Bank Act, the Group is required to appropriate at least 40% of net income as a legal reserve. This reserve can be transferred to paid-in capital or offset an accumulated deficit.

In accordance with the Korea Development Bank Act, the Group offsets an accumulated deficit with reserves. If the reserve is insufficient to offset the accumulated deficit, the Korean government is responsible for the deficit.

(i) Retained earnings as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Legal reserve	₩	1,177,851	173,913
Voluntary reserve			
Regulatory reserve for credit losses (*)		1,227,700	1,372,030
Unappropriated retained earnings		8,253,241	8,972,946
	₩	10,658,792	10,518,889

(*) This amount is regulatory reserve for credit losses recognized by the Bank, controlling company, in the separate financial statements according to the Article 29(1) and (2) of *the Regulation on Supervision of Banking Business.*

(ii) Changes in legal reserve for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	₩	173,913	-
Transfer from retained earnings		1,003,938	173,913
Ending balance	₩	1,177,851	173,913

(iii) Changes in unappropriated retained earnings for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Beginning balance	₩	8,972,946	8,518,595
Changes in accounting policy		(65)	274,862
Profit attributable to owners of the parent for the year		275,466	529,266
Contribution to legal reserve		(1,003,938)	(173,913)
Dividends		(144,865)	(147,092)
Reclassification of valuation gain or loss on equity securities measured at FVOCI		20,317	34,758
Transfer from (contribution to) regulatory reserve for credit losses		148,180	(58,231)
Others		(14,800)	(5,299)
Ending balance	₩	8,253,241	8,972,946

(6) Regulatory reserve for credit losses

The Group is required to provide regulatory reserve for credit losses in accordance with Regulation on Supervision of Banking Business 29(1) and (2). The details of regulatory reserve for credit losses are as follows:

(i) Regulatory reserve for credit losses as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Beginning balance	₩	1,257,673	1,405,853
Planned reversal of regulatory reserve for credit losses		(82,217)	(148,180)
Ending balance	₩	1,175,456	1,257,673

(In millions of won) December 31, 2019 and 2018

(ii) Obligated amount of provision for regulatory reserve for loan losses and profit after adjusting regulatory reserve for loan losses for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Profit for the year	₩	279,147	705,980
Obligated amount of reversal of regulatory reserve for loan losses		82,217	148,180
Profit after adjusting regulatory reserve for loan losses	₩	361,364	854,160
Earnings per share after adjusting regulatory reserve for loan losses (in won)	₩	98	237

26. Net Interest Income

Net interest income for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Interest income:			
Due from banks	₩	112,467	109,927
Securities measured at FVTPL		226,744	150,985
Securities measured at FVOCI		552,034	594,410
Securities measured at amortized cost		151,650	130,878
Loans measured at FVTPL		17,775	38,161
Loans measured at amortized cost		5,020,539	5,034,363
		6,081,209	6,058,724
Interest expense:			
Financial liabilities designated at fair value through profit or loss		(90,883)	(79,695)
Deposits		(635,312)	(525,349)
Borrowings		(475,139)	(464,962)
Debentures		(3,009,337)	(2,813,875)
		(4,210,671)	(3,883,881)
	₩	1,870,538	2,174,843

27. Net Fees and Commission Income

Net fees and commission income for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Fees and commission income:			
Loan commissions	₩	132,181	144,379
Underwriting and investment consulting commissions		122,028	116,611
Brokerage and agency commissions		6,800	6,769
Trust and retirement pension plan commissions		31,660	30,553
Fees on asset management		4,878	2,870
Other fees		200,923	159,386
		498,470	460,568
Fees and commission expenses:			
Brokerage and agency fees		(11,625)	(11,525)
Other fees		(35,284)	(25,788)
		(46,909)	(37,313)
	₩	451,561	423,255

28. Dividend Income

Dividend income for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Securities measured at FVTPL	₩	176,465	134,410
Securities measured at FVOCI		123,697	140,177
	₩	300,162	274,587

29. Net Gain (Loss) on Securities Measured at FVTPL

Net gain (loss) related to securities measured at FVTPL for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Gains on securities measured at FVTPL:			
Gains on redemption	₩	1,097	12,490
Gains on sale		331,535	115,023
Gains on valuation		379,068	267,846
		711,700	395,359
Losses on securities measured at FVTPL:			
Losses on redemption		(9,580)	(6,120)
Losses on sale		(57,805)	(74,208)
Losses on valuation		(177,714)	(330,417)
Purchase related expense		(94)	(472)
		(245,193)	(411,217)
	₩	466,507	(15,858)

30. Net Loss on Financial Instruments Designated at Fair Value Through Profit or Loss

Net loss related to financial instruments designated at FVTPL for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Gains on financial instruments designated at FVTPL:			
Gains on redemption	₩	827	-
Gains on sale		-	4
Gains on valuation		19,664	15,444
		20,491	15,448
Losses on financial instruments designated at FVTPL:			
Losses on redemption		(2,991)	-
Losses on sale		(1)	(10,042)
Losses on valuation		(24,259)	(61,353)
		(27,251)	(71,395)
	₩	(6,760)	(55,947)

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31. Net Gain on Securities Measured at FVOCI

Net gain related to securities measured at FVOCI for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Gains on securities measured at FVOCI:			
Gains on redemption	₩	711	154
Gains on sale		143,688	97,832
Reversal of impairment losses		2,520	8,439
		146,919	106,425
Losses on securities measured at FVOCI:			
Losses on redemption		(19)	(746)
Losses on sale		(27,682)	(41,303)
Impairment losses		(1,034)	(23,185)
		(28,735)	(65,234)
	₩	118,184	41,191

32. Net Gain (Loss) on Securities Measured at Amortized Cost

Net gain (loss) related to securities measured at amortized cost for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Gains on securities measured at amortized cost:			
Gains on redemption	₩	107	1,160
Gains on sale		845	121
		952	1,281
Losses on securities measured at amortized cost:			
Impairment losses		(368)	(1,295)
	₩	584	(14)

33. Net Loss on Derivatives

Net loss on derivatives for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Net gain (loss) on trading purpose derivatives:			
Gains on trading purpose derivatives:			
Interest rate	₩	2,341,874	2,224,802
Currency		9,412,376	6,556,061
Stock		28,063	187,382
Commodities		-	743
Embedded derivatives		32	638
Gains on adjustment of derivatives		19,744	2,036
		11,802,089	8,971,662
Losses on trading purpose derivatives:			
Interest rate		(2,224,468)	(2,084,586)
Currency		(9,415,364)	(6,483,494)
Stock		(176,372)	(69,545)
Commodities		-	(743)
Losses on adjustment of derivatives		(28,820)	(12,931)
		(11,845,024)	(8,651,299)
		(42,935)	320,363
Net gain (loss) on hedging purpose derivatives:			
Gains on hedging purpose derivatives:			
Interest rate		564,218	228,252
Currency		282,247	321,611
Gains on adjustment of derivatives		272	139
		846,737	550,002
Losses on hedging purpose derivatives:			
Interest rate		(80,563)	(156,655)
Currency		(516,518)	(780,134)
Losses on adjustment of derivatives		(671)	(966)
		(597,752)	(937,755)
		248,985	(387,753)
Net loss on fair value hedged items:			
Gains on fair value hedged items:			
Gains on valuation		119,243	288,431
Gains on redemption		155,607	301,620
		274,850	590,051
Losses on fair value hedged items:			
Losses on valuation		(741,494)	(292,057)
Losses on redemption		(179,124)	(334,375)
		(920,618)	(626,432)
		(645,768)	(36,381)
	₩	(439,718)	(103,771)

Related with cash flow hedge, the Group recognized ₩2 million and ₩109 million of gain in the consolidated statement of comprehensive income as the ineffective portion for the years ended December 31, 2019 and 2018, respectively.

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34. Net Foreign Currency Transaction Gain

Net foreign currency transaction gain for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Net gain on foreign exchange transactions:			
Gains on foreign exchange transactions	₩	618,406	565,016
Losses on foreign exchange transactions		(547,987)	(548,198)
		70,419	16,818
Net gain on foreign exchange translations:			
Gains on foreign exchange translations		4,129,436	1,764,940
Losses on foreign exchange translations		(4,110,907)	(1,555,265)
		18,529	209,675
	₩	88,948	226,493

35. Other Operating Income (Expense), net

Other operating income and expense for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Other operating income:			
Insurance gains	₩	2,747,832	2,914,527
Gains on sale of investments in associates		65,245	280,296
Gains on sale of loans		82,007	46,883
Gains on disposal of loans measured at FVTPL		23,456	17,507
Gains on valuation of loans measured at FVTPL		59,780	80,637
Gains on demand equity redemption		58,186	12,942
Reversal of provisions		3,909	4,202
Income from construction business		9,064,706	10,866,960
Gains on redemption of debentures		16	13
Others		672,669	745,883
		12,777,806	14,969,850
Other operating expense:			
Insurance losses		(3,323,005)	(3,513,491)
Losses on sale of investments in associates		(56,114)	(72,227)
Losses on sale of loans		(178,258)	(148,029)
Losses on disposal of loans measured at FVTPL		(27,231)	(29,456)
Losses on valuation of loans measured at FVTPL		(16,798)	(48,410)
Losses on demand equity redemption		(148,136)	(119,340)
Increase of provisions		(131,361)	(75,625)
Cost of construction business		(8,216,976)	(9,858,506)
Losses on redemption of debentures		(4)	(5)
Others		(866,176)	(897,493)
		(12,964,059)	(14,762,582)
	₩	(186,253)	207,268

36. Provision for Credit Losses

Provision for credit losses for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Provision for loss allowance	₩	193,286	172,686
Provision for (reversal of) other manufacturing-related assets		(46,243)	30,151
Provision for (reversal of) other assets		353,923	(123,792)
Provision for due from banks		42	45
Provision for (reversal of) unused commitments		39,095	(15,916)
Reversal of financial guarantees		(76,426)	(38,834)
Provision for (reversal of) payment guarantees		(255,114)	69,769
	₩	208,563	94,109

37. General and Administrative Expenses

General and administrative expenses for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Payroll costs:			
Short-term employee benefits	₩	627,020	581,439
Defined benefit costs		62,495	62,652
Defined contribution costs		7,706	5,482
		697,221	649,573
Depreciation and amortization:			
Depreciation of property and equipment		119,088	45,364
Amortization of intangible assets		194,501	212,345
		313,589	257,709
Other:			
Employee welfare benefits		83,295	75,596
Rent expenses		18,770	64,071
Taxes and dues		50,461	41,298
Advertising expenses		25,936	23,492
Others		339,947	276,981
		518,409	481,438
	₩	1,529,219	1,388,720

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38. Other Non-Operating Income and Expense

Other non-operating income and expense for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Other non-operating income:			
Gain on exemption of debt	₩	357	-
Interest income of non-financial business		59,695	39,505
Gain on assets held for sale		4,678	58,136
Gain on disposal of property and equipment		7,607	3,908
Reversal of impairment loss of property and equipment		4,430	9
Reversal of impairment loss of investment property		14,454	-
Rental income on investment property		5,480	4,771
Gain on disposal of intangible assets		523	143
Reversal of impairment loss of intangible assets		96,891	-
Others		141,454	73,720
		335,569	180,192
Other non-operating expense:			
Interest expense of non-financial business		(145,631)	(132,554)
Loss on assets held for sale		(11,888)	(7,773)
Loss on disposal of property and equipment		(1,570)	(2,012)
Impairment loss of property and equipment		(97,470)	(6,177)
Impairment loss of investment property		(4,184)	(21,484)
Depreciation of investment property		(3,219)	(3,676)
Loss on disposal of intangible assets		(6)	(43)
Impairment loss of intangible assets		(453)	(219,385)
Donations		(19,094)	(12,572)
Others		(82,509)	(51,705)
		(366,024)	(457,381)
	₩	(30,455)	(277,189)

39. Income Tax Expenses

(1) Income tax expenses for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Current income tax	₩	652,631	134,422
Changes in deferred income taxes on temporary differences		(566,635)	390,153
Income tax recognized directly to equity:			
Other comprehensive income (owners of the parent)		12,729	(42,097)
Other comprehensive income (non-controlling interests)		4,796	3,118
Retained earnings (including non-controlling interests)		(7,706)	(12,809)
Income tax expenses:	₩	95,815	472,787
Continuing operations		98,227	444,653
Discontinued operations		(2,412)	28,134

(2) Profit before income taxes and income tax expenses for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Profit before income taxes	₩	78,752	2,634,494
Income taxes calculated using enacted tax rates		21,657	724,486
Adjustments:			
Non-deductible losses and tax-free gains		(12,787)	(21,895)
Non-recognition effect of deferred income taxes		(120,178)	(435,215)
Net adjustments for prior years		(6,832)	29,897
Consolidation adjustments		(102,757)	(96,228)
Others		319,124	243,608
		76,570	(279,833)
Income tax expenses	₩	98,227	444,653
Effective tax rate		124.73%	16.88%

(3) Changes in deferred income taxes recognized directly to equity for the years ended December 31, 2019 and 2018 are as follows:

		2019				
		December 31, 2019		January 1, 2019		Changes in tax effect
		Amounts before tax	Tax effect	Amounts before tax	Tax effect	
Net gain (loss) on securities measured at FVOCI	₩	(169,267)	52,190	(158,937)	44,622	7,568
Share of other comprehensive income (loss) of associates		447,784	9,431	428,035	12,653	(3,222)
Exchange differences on translation of foreign operations		(392,504)	112,759	(395,785)	107,534	5,225
Gain (loss) on valuation of cash flow hedge		194	47	(744)	305	(258)
Net gain on hedges of net investments in foreign operations		5,538	(1,523)	-	-	(1,523)
Remeasurements of defined benefit liabilities		(44,977)	11,758	(23,793)	5,233	6,525
Fair value changes on financial liabilities designated at fair value due to credit risk		(6,319)	1,738	4,383	(1,205)	2,943
Others		17,089	(3,002)	882	1,527	(4,529)
	₩	(142,462)	183,398	(145,959)	170,669	12,729

₩7,706 million of income tax expenses which is directly recognized in retained earnings consist of tax effects from ₩28,023 million of realized gain on disposal of equity securities measured at FVOCI.

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	2018					
		December 31, 2018		January 1, 2018		Changes in tax effect
		Amounts before tax	Tax effect	Amounts before tax	Tax effect	
Net gain (loss) on securities measured at FVOCI	₩	(158,937)	44,622	13,985	15,870	28,752
Share of other comprehensive income (loss) of associates		428,035	12,653	547,039	32,799	(20,146)
Exchange differences on translation of foreign operations		(395,785)	107,534	(468,414)	165,473	(57,939)
Losses on valuation of cash flow hedge		(744)	305	(5,496)	1,287	(982)
Remeasurements of defined benefit liabilities		(23,793)	5,233	8,894	(2,068)	7,301
Fair value changes on financial liabilities designated at fair value due to credit risk		4,383	(1,205)	13,131	(3,611)	2,406
Others		882	1,527	519	3,016	(1,489)
	₩	(145,959)	170,669	109,658	212,766	(42,097)

₩12,809 million of income tax benefits which is directly recognized in retained earnings consist of tax effects from ₩44,013 million of realized gain on disposal of equity securities measured at FVOCI.

(4) Changes in temporary differences and deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018 are as follows:

	2019				
		January 1, 2019	Increase/decrease	December 31, 2019	Deferred tax assets (liabilities)
Temporary differences from recognized deferred tax assets and liabilities:					
Derivatives	₩	(329,811)	(447,780)	(777,591)	(213,703)
Investments in associates		(8,743,879)	1,599,051	(7,144,828)	(2,282,670)
Securities measured at FVOCI		(203,908)	58,592	(145,316)	469
Impairment losses on debt securities		65,933	-	65,933	18,132
Impairment losses on equity securities		191,157	(42,603)	148,554	38,122
Others		(678,086)	2,172,791	1,494,705	69,789
		(9,698,594)	3,340,051	(6,358,543)	(2,369,861)
Temporary differences from unrecognized deferred tax assets and liabilities:					
Investments in associates		1,957,997	(45,390)	1,912,607	-
Undisposed accumulated deficit by deferred corporate taxes:					
Undisposed accumulated deficit		774,293	(163,839)	610,454	147,730
	₩	(6,966,304)	3,130,822	(3,835,482)	(2,222,131)

	2018				
		January 1, 2018	Increase/decrease	December 31, 2018	Deferred tax assets (liabilities)
Temporary differences from recognized deferred tax assets and liabilities:					
Derivatives	₩	(113,946)	(215,865)	(329,811)	(90,748)
Investments in associates		(6,292,226)	(2,451,653)	(8,743,879)	(2,371,699)
Securities measured at FVOCI		(158,946)	(44,962)	(203,908)	(14,099)
Impairment losses on debt securities		251,823	(185,890)	65,933	18,132
Impairment losses on equity securities		587,443	(396,286)	191,157	48,303
Others		80,859	(758,945)	(678,086)	(566,034)
		(5,644,993)	(4,053,601)	(9,698,594)	(2,976,145)
Temporary differences from unrecognized deferred tax assets and liabilities:					
Investments in associates		4,271,656	(2,313,659)	1,957,997	-
Undisposed accumulated deficit by deferred corporate taxes:					
Undisposed accumulated deficit		625,660	148,633	774,293	187,379
	₩	(747,677)	(6,218,627)	(6,966,304)	(2,788,766)

(5) Deferred income tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current income tax liabilities and assets, and they relate to income tax levied by the same tax authority and they intend to settle current income tax liabilities and assets on a net basis.

40. Earnings per Share

(1) Basic earnings per share

The Group's basic earnings per share for the years ended December 31, 2019 and 2018 are computed as follows:

(i) Basic earnings per share

		2019	2018
Profit for the year (in won)	₩	279,147,208,760	705,980,417,334
Profit attributable to non-controlling interests (in won)		3,680,719,884	176,714,165,283
Profit attributable to ordinary shareholders of the Group (A) (in won)		275,466,488,876	529,266,252,051
Profit (loss) from continuing operations		(43,737,373,730)	2,021,795,612,501
Profit (loss) from discontinued operations		319,203,862,606	(1,492,529,360,450)
Weighted-average number of ordinary shares outstanding (B)		3,703,721,138	3,605,597,850
Basic earnings per share (A/B) (in won)	₩	74	147
Basic earnings per share - continuing operations (in won)		(12)	561
Basic earnings per share -discontinued operations (in won)		86	(414)

(ii) Weighted-average number of ordinary shares outstanding

	2019		
	Number of ordinary shares	Days	Cumulative shares
Number of ordinary shares outstanding at the beginning of the year (A)	3,621,619,768	365	1,321,891,215,320
Increased paid-in capital (B)	100,000,000	289	28,900,000,000
Increased paid-in capital (C)	11,000,000	97	1,067,000,000
Cumulative shares (D = A+B+C)			1,351,858,215,320
Weighted-average number of ordinary shares outstanding (D/365)			3,703,721,138

(In millions of won)

	2018		
	Number of ordinary shares	Days	Cumulative shares
Number of ordinary shares outstanding at the beginning of the year (A)	3,587,619,768	365	1,309,481,215,320
Increased paid-in capital (B)	34,000,000	193	6,562,000,000
Cumulative shares (C = A+B)			1,316,043,215,320
Weighted-average number of ordinary shares outstanding (C/365)			3,605,597,850

(2) Diluted earnings per share

Diluted and basic earnings per share for the years ended December 31, 2019 and 2018 are equal because there is no potential dilutive instrument.

41. Pledged Assets

Assets pledged by the Group as collateral as of December 31, 2019 and 2018 are as follows:

	December 31, 2019		December 31, 2018	
	Pledged assets	Related liabilities	Pledged assets	Related liabilities
Cash and due from banks (*1)	₩ 351,525	349,036	249,652	247,179
Securities (*2)	6,465,185	7,871,611	7,545,914	8,351,152
Others (*3)	5,922,311	3,051,271	6,290,357	3,554,103
	₩ 12,739,021	11,271,918	14,085,923	12,152,434

(*1) Pledged as collateral for bidding deposits and others.
(*2) Pledged as collateral for bonds sold under repurchase agreements, BOK loans and back overdrafts.
(*3) Property and equipment, etc. are pledged as collateral for borrowings and new business.

42. Guarantees and Commitments

Guarantees and commitments as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Confirmed acceptances and guarantees:		
Acceptances in foreign currency	₩ 335,261	645,360
Guarantees for bond issuance	2,427,525	2,069,094
Guarantees for loans	355,619	408,907
Letter of guarantee	51,277	51,129
Guarantees for on-lending debt	11,908	17,910
Others	3,631,490	3,376,346
	6,813,080	6,568,746
Unconfirmed acceptances and guarantees:		
Letter of credit	1,585,217	1,782,372
Others	963,290	757,132
	2,548,507	2,539,504
Commitments:		
Commitments on loans	30,089,200	28,127,786
Commitments on purchase of securities	2,954,171	2,101,154
Others	127,384	155,198
	33,170,755	30,384,138
Bills endorsed:		
With recourse	2,207	7,469
	₩ 42,534,549	39,499,857

43. Leases

(1) Finance lease

Details of finance lease receivables of the Group as lessor as of December 31, 2019 and 2018 are as follows:

	December 31, 2019		
	Finance lease receivables in Korean won	Finance lease receivables in foreign currency	Total
Within 1 year	₩ 304,882	50,547	355,429
Over 1 year through 5 years	786,792	75,695	862,487
Over 5 years	1,851	-	1,851
Gross investment in the lease	1,093,525	126,242	1,219,767
Unearned finance income	(3,294)	(12,977)	(16,271)
Net investment in the lease (*)	₩ 1,090,231	113,265	1,203,496
Contingent rent recognized in the current profit or loss	₩ (329)	-	(329)

	December 31, 2018		
	Finance lease receivables in Korean won	Finance lease receivables in foreign currency	Total
Within 1 year	₩ 374,558	37,359	411,917
Over 1 year through 5 years	720,078	57,892	777,970
Gross investment in the lease	1,094,636	95,251	1,189,887
Unearned finance income	(120,445)	-	(120,445)
Net investment in the lease (*)	₩ 974,191	95,251	1,069,442
Contingent rent recognized in the current profit or loss	₩ (293)	-	(293)

(*) Finance lease receivables are included in loans measured at amortized cost on the consolidated statements of financial position.

(2) Operating lease

Future minimum lease payments under non-cancellable operating leases as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Within 1 year	₩ 1,783	6,034
Over 1 year through 5 years	239	194
	₩ 2,022	6,228
Contingent rent recognized in the current loss	₩ (17)	(47)

(3) Cancellable lease

Cancellable lease as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Acquisition cost	₩ 5,040	4,176

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(4) Advanced payment for leased assets

The amount of capital paid for a new lease that the Group enters into before the commencement of lease term as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Advanced payment for leased assets	₩	6,409	8,526
Allowance for credit losses		(30)	(54)
	₩	6,379	8,472

(5) Leasehold deposits

The Group withholds collateral money received from the lessees as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Leasehold deposits	₩	303,701	283,383

44. Trust Accounts

(1) Trust accounts as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Accrued trust fees	₩	6,555	6,360
Deposits		665	9,082
Borrowings from trust accounts		1,434,110	702,862
Accrued interest on deposits		1,555	2,422

(2) Transactions with trust accounts for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Fees on trust accounts	₩	25,991	27,198
Interest expenses on deposits		198	300
Interest expenses of borrowings from trust accounts		21,630	14,887

45. Related Party Transactions

(1) The Group's related parties as of December 31, 2019 are as follows:

Classification	Corporate name
Associates	Korea Electric Power Co., Ltd., Korea Tourism Organization, Korea Appraisal Board, GM Korea Company, Hyundai Merchant Marine Co., Ltd., Hanjin Heavy Industries & Construction Co., Ltd., Korea Ocean Business Corporation and 77 others, Troika Resources Investment PEF and 100 others, KIP Overseas Expansion Platform Fund and 109 others
Others	Key management personnel

(2) Significant outstanding balances with related parties as of December 31, 2019 and 2018 are as follows:

	Account		December 31, 2019	December 31, 2018
Associates:				
Korea Electric Power Co., Ltd.	Securities	₩	26,263	29,484
	Loans		138,845	151,947
	Allowances for loan losses		(844)	(2,769)
	Derivative financial assets		10,719	37,760
	Other assets		11,777	65
	Deposits		82,202	36,148
	Borrowings		63,680	4,355
	Derivative financial liabilities		96,504	36,277
	Other liabilities		1,773	-
	Other provisions		3	14
Dongbu Steel Co., Ltd.	Loans		625,249	978,743
	Allowances for loan losses		(117,356)	(454,726)
	Other assets		369	-
	Deposits		-	10,391
	Borrowings		59	-
	Other liabilities		415	261
	Other provisions		34,592	47,451
Hyundai Merchant Marine Co., Ltd.	Securities		694,832	363,615
	Loans		513,801	500,156
	Allowances for loan losses		(97,777)	(35,423)
	Other assets		5,308	-
	Deposits		371,965	561,979
	Other liabilities		1,965	-
Hanjin Heavy Industries & Construction Co., Ltd.	Loans		217,764	-
	Other assets		522	-
	Deposits		88,240	-
	Other liabilities		1,802	-
	Other provisions		119,882	-
Korea Ocean Business Corporation	Loans		18,031	-
	Other assets		45	-
Others	Securities		5,665	6,139
	Loans		1,006,600	1,049,129
	Allowances for loan losses		(734,729)	(769,269)
	Other assets		161,575	152,478
	Deposits		632,700	704,376
	Other liabilities		2,183	-
	Other provisions		105,880	121,468

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(3) Significant profit or loss from transactions with related parties for the years ended December 31, 2019 and 2018 are as follows:

	Account	2019	2018
Associates:			
Korea Electric Power Co., Ltd.	Interest income	₩ 4,830	4,860
	Dividend income	-	166,876
	Reversal of allowance for loan losses	1,931	-
	Fees and commission income, other income	15,479	13,179
	Interest expenses	(2,152)	(4,984)
	Provision for loan losses	(6)	(2,738)
	Other operating expenses	(146,873)	(54,992)
Dongbu Steel Co., Ltd.	Interest income	39,387	54,236
	Reversal of allowance for loan losses	337,370	-
	Fees and commission income, other income	50,879	2,712
	Interest expenses	(345)	(126)
	Provision for loan losses	-	(225,435)
	Other operating expenses	(32,610)	(35,268)
Hyundai Merchant Marine Co., Ltd.	Interest income	28,822	4,687
	Reversal of allowance for loan losses	8,942	37,011
	Fees and commission income, other income	188,357	38,845
	Interest expenses	(4,529)	(4,463)
	Provision for loan losses	(71,296)	-
	Other operating expenses	(1,118)	(38,440)
Hanjin Heavy Industries & Construction Co., Ltd.	Interest income	6,181	-
	Reversal of allowance for loan losses	62,892	-
	Fees and commission income, other income	121,534	-
	Interest expenses	(588)	-
	Other operating expenses	(993)	-
Korea Ocean Business Corporation	Interest income	419	-
	Fees and commission income, other income	45	-
	Other operating expenses	(297)	-
Others	Interest income	12,228	19,658
	Dividend income	217,290	171,696
	Reversal of allowance for loan losses	38,194	24
	Fees and commission income, other income	31,434	8,611
	Interest expenses	(6,442)	(6,102)
	Provision for loan losses	(3,719)	(39,427)
	Other operating expenses	(4,934)	(887)

(4) Details of guarantees and commitments to the related parties as of December 31, 2019 and 2018 are as follows:

	Account	December 31, 2019	December 31, 2018
Associates:			
Dongbu Steel Co., Ltd.	Confirmed acceptances and guarantees	₩ 37,111	178,752
	Unconfirmed acceptances and guarantees	11,285	32,411
	Loan commitments	320,588	-
Hanjin Heavy Industries & Construction Co., Ltd.	Confirmed acceptances and guarantees	358,785	-
	Unconfirmed acceptances and guarantees	3,062	-
	Loan commitments	2,148	-
Others	Confirmed acceptances and guarantees	113,256	128,836
	Unconfirmed acceptances and guarantees	106,422	124,797
	Loan commitments	347,391	18,591
		₩ 1,300,048	483,387

(5) Details of compensation to key management personnel for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Short-term employee benefits	₩ 6,088	3,568
Post-employment benefits	294	204
	₩ 6,382	3,772

(6) The Group is not pledged any assets as collaterals to the related parties and from the related parties as of December 31, 2019 and 2018.

46. Disclosure of Interests in Other Entities

(1) Commitments of financial support for consolidated structured entities

The contractual commitments offered by the Group to the consolidated structured entities as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Associates:		
U-BEST 4th Securitization Specialty Co., Ltd. (*1)	₩ -	64,000
K-Five 6th Securitization Specialty Co., Ltd. (*1)	-	40,000
K-Five 7th Securitization Specialty Co., Ltd. (*1)	50,000	50,000
K-Five 8th Securitization Specialty Co., Ltd. (*1)	40,000	-
U-BEST 5th Securitization Specialty Co., Ltd. (*1)	95,000	-
Sinoker SF 1st Co., Ltd. (*1)	43,200	-
KDB Mirae Seongjang ABCP 1st Inc. (*1)	16,248	52,100
KDBC IP Investment Fund 2 (*2)	-	3,000
KDBC Food Industry Investment Fund 1 (*2)	-	1,280
	₩ 244,448	210,380

(*1) The Group made a commitment on loans for consolidated structured entities. According to the commitment, the Group guarantees loan to a subsidiary when the subsidiary has insufficient working capital.
(*2) KDB Capital Corporation made a loss compensation commitment for some funds as their general partner.

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(2) Nature and scope of interests in unconsolidated structured entities

Details of unconsolidated structured entities as of December 31, 2019 and 2018 are as follows:

Type	Characteristics and objective	Financing method
Investment funds and investment trusts (*1)	Investment and distribution	Equity investment and fund operations, etc.
Real estate finance (*2)	Real estate development and infrastructure investment, etc.	Equity investment and credit reinforcement, etc.
Asset-backed securitization	Securitization of underlying assets	Issuance of ABL and ABCP, etc.
Shipping and acquisition finance	Providing funds for acquisition of corporate or ships	Equity investment and fund operations, etc.

(*1) PEF, investment association, beneficiary certificate, etc.
(*2) SPC, PF, SOC, etc.

(3) Nature of related risks

The carrying amount of and maximum exposure to loss from interests in unconsolidated structured entities as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Investment funds and investment trusts	Real estate finance	Asset-backed securitization	Shipping and acquisition finance	Others	Total
Assets:						
Securities	₩ 6,784,053	262,647	91,474	37,367	375	7,175,916
Loans	996,090	6,852,510	1,036,029	1,847,606	3,461,317	14,193,552
Derivatives	47,411	2,468	409	-	2,653	52,941
Others	7,562	12,284	1,488	6,838	17,456	45,628
	7,835,116	7,129,909	1,129,400	1,891,811	3,481,801	21,468,037
Liabilities:						
Provisions	11	756	154	164	569	1,654
Financial guarantees	-	-	448	-	168	616
Derivatives	47,591	-	-	36	-	47,627
Others	7,314	5,609	504	68	7,234	20,729
	54,916	6,365	1,106	268	7,971	70,626
Granting of credit and other commitments	959,359	2,619,945	953,149	82,650	1,071,336	5,686,439
Maximum exposure to loss (*)	₩ 8,794,475	9,749,854	2,082,549	1,974,461	4,553,137	27,154,476

	December 31, 2018					
	Investment funds and investment trusts	Real estate finance	Asset-backed securitization	Shipping and acquisition finance	Others	Total
Assets:						
Securities	₩ 7,012,791	366,585	30,983	5,000	-	7,415,359
Loans	756,468	6,544,250	1,037,851	2,276,171	2,934,997	13,549,737
Derivatives	-	7,405	268	8,282	408	16,363
Others	4,551	14,889	2,531	5,184	10,607	37,762
	7,773,810	6,933,129	1,071,633	2,294,637	2,946,012	21,019,221
Liabilities:						
Provisions	-	94	40	6	562	702
Financial guarantees	-	-	52,051	-	692	52,743
Derivatives	-	-	-	169	1,956	2,125
Others	923	5	-	-	-	928
	923	99	52,091	175	3,210	56,498
Granting of credit and other commitments	359,082	489,761	1,274,354	2,532	552,049	2,677,778
Maximum exposure to loss (*)	₩ 8,132,892	7,422,890	2,345,987	2,297,169	3,498,061	23,696,999

(*) Maximum exposure to loss is calculated by summarizing related assets (after adjusting impairment loss on securities, allowance for loan losses, etc.), granting of credit and other commitments.

(4) Significant non-controlling interests

Details of significant non-controlling interests and summary of financial information as of December 31, 2019 and 2018 are as follows:

- Non-controlling interests:

	December 31, 2019			
	Non-controlling interests ownership (%)	Profit (loss) on non-controlling interests	Non-controlling interests	Dividend to non-controlling interests
Daewoo Engineering & Construction Co., Ltd.	48.66	₩ 47,432	1,429,326	-
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	44.28	(20,582)	2,963,450	-

	December 31, 2018			
	Non-controlling interests ownership (%)	Profit (loss) on non-controlling interests	Non-controlling interests	Dividend to non-controlling interests
Daewoo Engineering & Construction Co., Ltd.	48.66	₩ 35,705	1,370,640	-
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	44.28	127,325	3,000,260	-

- Summary of financial information:

	December 31, 2019							
	Assets	Liabilities	Operating revenue	Profit (loss) for the year	Total comprehensive income	Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities
Daewoo Engineering & Construction Co., Ltd.	₩ 9,697,697	7,209,448	8,651,852	208,615	176,773	(309,746)	254,195	107,630
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	11,276,079	7,521,182	8,358,745	(46,485)	(85,325)	2,542,127	(484,549)	(395,101)

	December 31, 2018							
	Assets	Liabilities	Operating revenue	Profit for the year	Total comprehensive income	Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities
Daewoo Engineering & Construction Co., Ltd.	₩ 8,733,846	6,416,124	10,605,494	298,686	271,952	176,191	(152,822)	167,473
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	11,918,522	8,078,300	9,644,384	344,722	332,469	725,141	(13,221)	(565,892)

47. Statements of Cash Flows

(1) Cash and cash equivalents in the consolidated statements of cash flows as of December 31, 2019 and 2018 are as follows:

	December 31, 2019	December 31, 2018
Continuing operations:		
Cash and due from banks:		
Cash and foreign currencies	₩ 306,152	559,610
Due from banks in Korean won	3,162,598	4,663,447
Due from banks in foreign currencies / off-shores	4,292,494	3,506,971
	7,761,244	8,730,028
Less: Restricted due from banks, others	(3,004,978)	(3,897,497)
Add: Financial instruments reaching maturity within three months from date of acquisition		
Government and public bonds	-	218,981
Call loans	1,423,090	3,081,090
Inter-bank loans	604,110	908,806
	2,027,200	4,208,877
Cash and cash equivalents	₩ 6,783,466	9,041,408

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(2) Significant transactions not involving cash flows for the years ended December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Decrease in loans due to write-offs	₩	185,496	238,338
Increase in securities measured at FVOCI due to debt-to-equity swap and others		42,398	56,221
Increase in investments in subsidiaries and associates due to debt-to-equity swap, etc.		134,264	-
Decrease in accumulated other comprehensive income due to securities valuation		1,034	129,956
Reclassification of investments in associates to securities measured at FVTPL		4,100	1,700
Reclassification of investments in associates to securities measured at FVOCI		-	2,050
Transfer from investment property to property and equipment		83,889	7,905
Transfer from property and equipment to investment property		-	7,524
Reclassification to assets held for sale		4,392,071	75,169
Increase of non-controlling interests due to debt-to-equity swap of the Group's subsidiary		-	9,803
Initial adoption of K-IFRS 1116		366,327	-
Recognition of right-of-use assets and lease liabilities		263,814	-
Reclassification of leasehold improvements and advance rent fee to right-of-use assets		10,631	-

48. Transfers of Financial Instruments

Details of financial assets and liabilities related to repurchase agreements and loaned securities sold and loaned debt securities that do not qualify for derecognition as of December 31, 2019 and 2018 are as follows:

Characteristics of transactions		December 31, 2019		December 31, 2018	
		Carrying amounts for transferred assets	Carrying amounts for related liabilities	Carrying amounts for transferred assets	Carrying amounts for related liabilities
Repurchase agreements	₩	3,273,273	2,070,284	4,702,089	2,207,434
Loaned securities		40,059	-	60,409	-
	₩	3,313,332	2,070,284	4,762,498	2,207,434

49. Fair Value of Financial Assets and Liabilities

The Group classifies and discloses fair value of the financial instruments into the following three-level hierarchy:

- Level 1: Financial instruments measured at quoted prices from active markets are classified as level 1.
- Level 2: Financial instruments measured using valuation techniques where all significant inputs are observable market data are classified as level 2.
- Level 3: Financial instruments measured using valuation techniques where one or more significant inputs are not based on observable market data are classified as level 3.

(1) Fair value hierarchy of financial instruments measured at fair value

(i) The fair value hierarchy of financial instruments measured at fair value as of December 31, 2019 and 2018 are as follows:

		December 31, 2019			
		Level 1	Level 2	Level 3	Total
Financial assets:					
Securities measured at FVTPL	₩	1,550,532	3,905,713	7,835,600	13,291,845
Securities measured at FVOCI		4,507,079	16,492,769	10,992,817	31,992,665
Loans measured at FVTPL		-	-	605,077	605,077
Derivative financial assets		47	5,386,667	19,290	5,406,004
	₩	6,057,658	25,785,149	19,452,784	51,295,591
Financial liabilities:					
Financial liabilities designated at FVTPL	₩	-	2,465,541	-	2,465,541
Derivative financial liabilities		342	4,179,682	4,580	4,184,604
	₩	342	6,645,223	4,580	6,650,145

		December 31, 2018			
		Level 1	Level 2	Level 3	Total
Financial assets:					
Securities measured at FVTPL	₩	739,563	4,956,048	7,795,104	13,490,715
Securities measured at FVOCI		4,497,585	15,448,497	10,331,304	30,277,386
Loans measured at FVTPL		-	-	779,520	779,520
Derivative financial assets		275	3,782,740	142,490	3,925,505
	₩	5,237,423	24,187,285	19,048,418	48,473,126
Financial liabilities:					
Financial liabilities designated at FVTPL	₩	-	2,164,538	-	2,164,538
Derivative financial liabilities		364	3,225,498	3,242	3,229,104
	₩	364	5,390,036	3,242	5,393,642

(ii) Changes in the fair value of level 3 financial instruments for the years ended December 31, 2019 and 2018 are as follows:

		2019						
		January 1, 2019	Profit or loss	Other comprehensive loss	Acquisition/ Issue	Sale/ Settlement	Others	December 31, 2019
Financial assets:								
Securities measured at FVTPL	₩	7,795,104	54,641	-	1,332,635	(1,312,054)	(34,726)	7,835,600
Securities measured at FVOCI		10,331,304	-	(296,245)	1,030,685	(283,798)	210,871	10,992,817
Loans measured at FVTPL		779,520	42,921	-	33,500	(250,864)	-	605,077
Derivatives financial assets		142,490	3,716	-	-	(128,062)	1,146	19,290
	₩	19,048,418	101,278	(296,245)	2,396,820	(1,974,778)	177,291	19,452,784
Financial liabilities:								
Derivatives financial liabilities	₩	3,242	1,319	-	-	-	19	4,580

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		2018					
	January 1, 2018	Profit or loss	Other comprehensive loss	Acquisition/ Issue	Sale/ Settlement	Others	December 31, 2018
Financial assets:							
Securities measured at FVTPL	₩ 6,679,027	(118,675)	-	1,938,969	(695,171)	(9,046)	7,795,104
Securities measured at FVOCI	9,997,243	(15,837)	(188,679)	669,576	(107,368)	(23,631)	10,331,304
Loans measured at FVTPL	1,132,689	-	-	-	(353,169)	-	779,520
Derivatives financial assets	4,489	139,258	-	-	-	(1,257)	142,490
	₩ 17,813,448	4,746	(188,679)	2,608,545	(1,155,708)	(33,934)	19,048,418
Financial liabilities:							
Derivatives financial liabilities	₩ 8,602	(2,286)	-	-	(3,975)	901	3,242

(iii) Changes in deferred day one profit or loss for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Beginning balance	₩ 5,149	5,538
Amortization	(386)	(389)
Ending balance	₩ 4,763	5,149

(iv) Details of valuation technique and inputs used in the fair value measurement categorized within level 2 of the fair value hierarchy of financial instruments measured at fair value as of December 31, 2019 and 2018 are as follows:

	Valuation technique	Input
Securities measured at FVTPL:		
Equity securities	Net asset value approach	Underlying asset price
Debt securities	Discounted cash flow method	Discount rate
Securities measured at FVOCI:		
Equity securities	Net asset value approach	Underlying asset price
Debt securities	Discounted cash flow method	Discount rate
Derivatives financial assets:		
Interest rate swaps	Discounted cash flow method, Black-Scholes model, Modified Black model, Formula model	Discount rate, exchange rate, volatility, commodity index, etc.
Currency forwards and swaps		
Currency options		
Commodities options		
Financial liabilities measured at FVTPL:		
Debentures	Discounted cash flow method	Discount rate

(v) Details of valuation technique and quantitative information about unobservable inputs used in the fair value measurement categorized within level 3 of the fair value hierarchy of financial instruments measured at fair value as of December 31, 2019 and 2018 are as follows:

	December 31, 2019		
	Valuation technique	Unobservable input	Range (%)
Securities measured at FVTPL:			
Equity securities	Discounted cash flow method, Relative value approach, Net asset value approach	Discount rate	3.91 ~ 9.69
		Rate of increase in liquidation value	-
		Rate of increase in property disposal price	-
		Volatility	16.02 ~ 34.72
Securities measured at FVOCI:			
Equity securities	Discounted cash flow method, Relative value approach, Net asset value approach	Discount rate	3.04 ~ 16.59
		Growth rate	-
		Rate of increase in liquidation value	-
		Rate of increase in property disposal price	-
		Volatility	14.51 ~ 26.98
Loans measured at FVTPL			
Convertible bonds, etc.	Binomial model	Volatility	12.70 ~ 36.32
Derivatives financial assets:			
Interest rate swaps	Discounted cash flow method	Volatility	20.41 ~ 34.21
		Correlation coefficient	0.89 ~ 0.97
Interest rate options	Modified Black model	Volatility	20.41 ~ 34.21
Stock index options	Black-Scholes model	Volatility	12.77 ~ 21.80
Equity options	Discounted cash flow method and others	Volatility	14.51 ~ 21.85

	December 31, 2018		
	Valuation technique	Unobservable input	Range (%)
Securities measured at FVTPL:			
Equity securities	Discounted cash flow method, Relative value approach, Net asset value approach	Discount rate	4.03 ~ 18.22
		Rate of increase in liquidation value	-
		Rate of increase in property disposal price	-
		Volatility	20.54 ~ 40.70
Securities measured at FVOCI:			
Equity securities	Discounted cash flow method, Relative value approach, Net asset value approach	Discount rate	3.87 ~ 18.36
		Growth rate	-
		Rate of increase in liquidation value	-
		Rate of increase in property disposal price	-
		Volatility	21.51 ~ 38.07
Loans measured at FVTPL			
Convertible bonds, etc.	Binomial model	Volatility	17.79 ~ 48.97
Derivatives financial assets:			
Interest rate swaps	Discounted cash flow method	Volatility	17.80 ~ 24.20
		Correlation coefficient	0.81 ~ 0.92
Interest rate options	Modified Black model	Volatility	17.80 ~ 24.20
Stock index options	Black-Scholes model	Volatility	14.70 ~ 26.50
Equity options	Discounted cash flow method and others	Volatility	24.11 ~ 25.29
Equity forward	Discounted cash flow method and others	Volatility	21.93

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(2) Fair value hierarchy of financial instruments disclosed by fair value

(i) The Group's policies for measuring fair value of financial instruments at amortized costs are as follows:

- Cash and due from banks: Fair value of cash is considered equivalent to the carrying amount. In the case of due from banks on demand, which do not have a set maturity and can be realized instantly, the carrying amount is a close estimate of the fair value and is assumed so. In the case of other ordinary due from banks, the cash flow discount method is used to estimate the fair value.
- Securities measured at amortized cost: The fair value of securities measured at amortized cost is computed by widely-accepted appraisal agencies upon request.
- Loans measured at amortized cost: The fair value of loans measured at amortized cost is the expected future cash flows, reflecting premature redemption ratio, discounted by the market interest rate, adjusted by a spread sheet considering the probability of default. Exceptions to this method include loans with credit line facilities, loans with a maturity of three months or less left and impaired loans, which the Group assumes the carrying amount as the fair value.
- Deposits: The fair value of deposits is computed using the discounted cash flow method. However, for deposits, whose cash flows cannot be estimated reasonably, the Bank assumes the carrying amount as the fair value.
- Borrowings: The fair value of industrial financial debentures is computed using the discounted cash flow method by the Bank's Fair Value Evaluation System. However, for borrowings including call money whose contractual maturity is three months or less, the Bank assumes the carrying amount as the fair value.
- Debentures: The fair value of industrial financial debentures is computed using the discounted cash flow method by the Bank's Fair Value Evaluation System.
- Other financial assets and liabilities: The fair value of other financial assets and liabilities is computed using the discounted cash flow method. However, in cases cash flow cannot be estimated reasonably, the Group assumes the carrying amount as the fair value.

(ii) The fair value hierarchy of financial instruments disclosed by fair value as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Cash and due from banks (*)	₩ 4,756,267	3,004,977	-	7,761,244
Securities measured at amortized cost	1,578,384	4,119,725	-	5,698,109
Loans measured at amortized cost (*)	-	1,423,090	152,612,495	154,035,585
Other financial assets (*)	-	4,043,080	5,513,371	9,556,451
	₩ 6,334,651	12,590,872	158,125,866	177,051,389
Financial liabilities:				
Deposits (*)	₩ -	3,032,841	33,288,029	36,320,870
Borrowings (*)	-	2,099,688	22,496,142	24,595,830
Debentures	-	127,049,336	-	127,049,336
Other financial liabilities (*)	-	2,783,979	7,924,048	10,708,027
	₩ -	134,965,844	63,708,219	198,674,063

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Cash and due from banks (*)	₩ 4,832,531	3,897,497	-	8,730,028
Securities measured at amortized cost	1,689,794	3,923,929	-	5,613,723
Loans measured at amortized cost (*)	-	3,081,090	144,058,470	147,139,560
Other financial assets (*)	-	3,547,775	11,857,429	15,405,204
	₩ 6,522,325	14,450,291	155,915,899	176,888,515
Financial liabilities:				
Deposits (*)	₩ -	2,292,812	30,805,252	33,098,064
Borrowings (*)	-	726,764	25,811,702	26,538,466
Debentures	-	124,026,179	-	124,026,179
Other financial liabilities (*)	-	2,119,990	7,082,094	9,202,084
	₩ -	129,165,745	63,699,048	192,864,793

(*) For financial instruments categorized as level 2, the carrying amount is considered as a reasonable approximation of the fair value and is thus, disclosed by fair value.

(iii) Details of valuation technique and inputs used in the fair value measurement categorized within level 2 and level 3 of the fair value hierarchy of financial instruments measured at amortized cost as of December 31, 2019 and 2018 are as follows:

	Valuation technique	Input
Level 2		
Financial assets:		
Securities measured at amortized cost	Discounted cash flow method	Discount rate
Financial liabilities:		
Debentures	Discounted cash flow method	Discount rate
Level 3		
Financial assets:		
Loans measured at amortized cost	Discounted cash flow method	Credit spread, Other spread, Prepayment rate
Other financial assets	Discounted cash flow method	Other spread
Financial liabilities:		
Deposits	Discounted cash flow method	Other spread, Prepayment rate
Borrowings	Discounted cash flow method	Other spread
Other financial liabilities	Discounted cash flow method	Other spread

50. Categories of Financial Assets and Liabilities

Categories of financial assets and liabilities as of December 31, 2019 and 2018 are as follows:

	December 31, 2019							
	Cash and cash equivalents	Financial instruments measured at FVTPL	Financial instruments designated at FVTPL	Financial instruments measured at FVOCI	Financial instruments designated at FVOCI	Financial instruments measured at amortized cost	Hedging purpose derivative instruments	Total
Financial assets:								
Cash and due from banks	₩ 4,756,266	-	-	-	-	3,004,978	-	7,761,244
Securities measured at FVTPL	-	13,291,845	-	-	-	-	-	13,291,845
Securities measured at FVOCI	-	-	-	20,734,082	11,258,583	-	-	31,992,665
Securities measured at amortized cost	-	-	-	-	-	5,551,600	-	5,551,600
Loans measured at FVTPL	-	605,077	-	-	-	-	-	605,077
Loans measured at amortized cost	2,027,200	-	-	-	-	147,294,651	-	149,321,851
Derivative financial assets	-	4,464,219	-	-	-	-	941,785	5,406,004
Other financial assets	-	-	-	-	-	9,639,501	-	9,639,501
	₩ 6,783,466	18,361,141	-	20,734,082	11,258,583	165,490,730	941,785	223,569,787
Financial liabilities:								
Financial liabilities measured at FVTPL	₩ -	-	2,465,541	-	-	-	-	2,465,541
Deposits	-	-	-	-	-	36,315,343	-	36,315,343
Borrowings	-	-	-	-	-	24,968,407	-	24,968,407
Debentures	-	-	-	-	-	125,206,809	-	125,206,809
Derivative financial liabilities	-	3,972,735	-	-	-	-	211,869	4,184,604
Other financial liabilities	-	-	-	-	-	10,612,043	-	10,612,043
	₩ -	3,972,735	2,465,541	-	-	197,102,602	211,869	203,752,747

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	December 31, 2018							
	Cash and cash equivalents	Financial instruments measured at FVTPL	Financial instruments designated at FVTPL	Financial instruments measured at FVOCI	Financial instruments designated at FVOCI	Financial instruments measured at amortized cost	Hedging purpose derivative instruments	Total
Financial assets:								
Cash and due from banks	₩ 4,832,531	-	-	-	-	3,897,497	-	8,730,028
Securities measured at FVTPL	218,981	13,271,734	-	-	-	-	-	13,490,715
Securities measured at FVOCI	-	-	-	19,600,166	10,677,220	-	-	30,277,386
Securities measured at amortized cost	-	-	-	-	-	5,691,616	-	5,691,616
Loans measured at FVTPL	-	779,520	-	-	-	-	-	779,520
Loans measured at amortized cost	3,989,896	-	-	-	-	138,166,598	-	142,156,494
Derivative financial assets	-	3,167,990	-	-	-	-	757,515	3,925,505
Other financial assets	-	-	-	-	-	15,490,171	-	15,490,171
	₩ 9,041,408	17,219,244	-	19,600,166	10,677,220	163,245,882	757,515	220,541,435
Financial liabilities:								
Financial liabilities measured at FVTPL	₩ -	-	2,164,538	-	-	-	-	2,164,538
Deposits	-	-	-	-	-	33,949,175	-	33,949,175
Borrowings	-	-	-	-	-	26,379,539	-	26,379,539
Debentures	-	-	-	-	-	123,175,447	-	123,175,447
Derivative financial liabilities	-	2,778,160	-	-	-	-	450,944	3,229,104
Other financial liabilities	-	-	-	-	-	8,965,058	-	8,965,058
	₩ -	2,778,160	2,164,538	-	-	192,469,219	450,944	197,862,861

51. Offsetting of Financial Assets and Liabilities

Details of financial instruments subject to offsetting, enforceable master netting agreements or similar agreements as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Gross amounts of recognized financial asset	Gross amounts of recognized financial liabilities set off in the statement of financial position	Net amounts of financial assets presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amounts
				Financial instruments	Cash collateral received	
Derivative financial assets (*)	₩ 5,406,004	-	5,406,004	3,590,373	232,372	1,583,259
Unsettled spot exchange receivables (*)	2,420,953	-	2,420,953	2,417,633	-	3,320
Unsettled domestic exchange receivables	2,970,326	1,348,198	1,622,128	-	-	1,622,128
Security pledged as collateral for repurchase agreements	3,273,273	-	3,273,273	2,070,284	-	1,202,989
Reverse repurchase agreements	969,769	-	969,769	969,769	-	-
Loaned securities	40,059	-	40,059	40,059	-	-
Receivables from securities transaction	19,520	-	19,520	19,520	-	-
Reinsurance receivables	30,861	-	30,861	30,406	-	455
	₩ 15,130,765	1,348,198	13,782,567	9,138,044	232,372	4,412,151

	December 31, 2019					
	Gross amounts of recognized financial liabilities	Gross amounts of recognized financial assets set off in the statement of financial position	Net amounts of financial liabilities presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amounts
				Financial instruments	Cash collateral pledged	
Derivative financial liabilities (*)	₩ 4,184,604	-	4,184,604	3,168,904	48,392	967,308
Unsettled spot exchange payables (*)	2,420,433	-	2,420,433	2,417,633	-	2,800
Unsettled domestic exchange payables	1,711,744	1,348,198	363,546	-	-	363,546
Repurchase agreements	2,070,284	-	2,070,284	2,070,284	-	-
Payables from securities transaction	31,023	-	31,023	31,023	-	-
Reinsurance payables	31,408	-	31,408	30,406	-	1,002
	₩ 10,449,496	1,348,198	9,101,298	7,718,250	48,392	1,334,656

	December 31, 2018					
	Gross amounts of recognized financial asset	Gross amounts of recognized financial liabilities set off in the statement of financial position	Net amounts of financial assets presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amounts
				Financial instruments	Cash collateral received	
Derivative financial assets (*)	₩ 3,925,505	-	3,925,505	2,581,531	38,581	1,305,393
Unsettled spot exchange receivables (*)	1,806,540	-	1,806,540	1,806,156	-	384
Unsettled domestic exchange receivables	2,911,679	1,170,443	1,741,236	-	-	1,741,236
Security pledged as collateral for repurchase agreements	4,702,089	-	4,702,089	2,207,434	-	2,494,655
Reverse repurchase agreements	1,357,596	-	1,357,596	1,357,596	-	-
Loaned securities	60,409	-	60,409	60,409	-	-
Receivables from securities transaction	37	-	37	37	-	-
Reinsurance receivables	30,962	-	30,962	30,374	-	588
	₩ 14,794,817	1,170,443	13,624,374	8,043,537	38,581	5,542,256

	December 31, 2018					
	Gross amounts of recognized financial liabilities	Gross amounts of recognized financial assets set off in the statement of financial position	Net amounts of financial liabilities presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amounts
				Financial instruments	Cash collateral pledged	
Derivative financial liabilities (*)	₩ 3,229,104	-	3,229,104	2,511,809	7,849	709,446
Unsettled spot exchange payables (*)	1,807,079	-	1,807,079	1,806,156	-	923
Unsettled domestic exchange payables	1,483,354	1,170,443	312,911	-	-	312,911
Repurchase agreements	2,207,434	-	2,207,434	2,207,434	-	-
Payables from securities transaction	1,054	-	1,054	1,054	-	-
Reinsurance payables	31,053	-	31,053	30,374	-	679
	₩ 8,759,078	1,170,443	7,588,635	6,556,827	7,849	1,023,959

(*) For the derivatives covered by the ISDA derivative contracts, all contracts are settled and the net amount of derivative contracts is measured and paid based on the liquidation value if the counterparty files for bankruptcy or has any credit issues.

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52. Operating Segments

(1) The Group has seven reportable segments, as described below, which are the Group's strategic business units. They are managed separately because each business requires different technology and marketing strategies. The following summary describes general information about each of the Group's reportable segments:

Segments		General information
Bank industry	Corporate finance	Provides trading services and loans to corporate customers
	Investment finance	Provides consulting services to corporate such as capital finance, restructuring, etc.
	Asset management	Provides asset management services to individual and corporate customers
	Others	Any other segment not mentioned above
Insurance		Subsidiaries that conduct insurance business (KDB Life Insurance Co., Ltd.)
Overseas		Subsidiaries located in foreign countries
Other subsidiaries		Subsidiaries except for overseas subsidiaries and subsidiaries conducting insurance business

2) Operating income (loss) from external customers and among operating segments for the years ended December 31, 2019 and 2018 are as follows:

	2019								
	Bank industry				Insurance	Overseas	Other subsidiaries	Adjustment	Total(*)
	Corporate finance	Investment finance	Asset management	Others					
Operating income (loss) from external customers	₩ 866,698	373,982	28,028	(552,917)	(360,943)	53,710	517,413	-	925,971
Operating income (loss) from intersegment transactions	166,211	(283,956)	-	570,590	(17,768)	7,637	67,713	(510,427)	-
	₩ 1,032,909	90,026	28,028	17,673	(378,711)	61,347	585,126	(510,427)	925,971

(*) Profit from discontinued operations is not included.

	2018								
	Bank industry				Insurance	Overseas	Other subsidiaries	Adjustment	Total
	Corporate finance	Investment finance	Asset management	Others					
Operating income (loss) from external customers	₩ 1,002,624	(387,553)	42,633	619,944	28,737	29,449	930,247	-	2,266,081
Operating income (loss) from intersegment transactions	36,046	309,935	-	(112,569)	81,719	33,881	84,160	(433,172)	-
	₩ 1,038,670	(77,618)	42,633	507,375	110,456	63,330	1,014,407	(433,172)	2,266,081

(3) Details of segment results for the Group's reportable segments for the years ended December 31, 2019 and 2018 are as follows:

	2019								
	Bank industry				Insurance	Overseas	Other subsidiaries	Adjustment	Total(*3)
	Corporate finance	Investment finance	Asset management	Others					
Net interest income (expense)	₩ 1,496,342	(518,643)	6,407	78,217	487,445	81,065	270,002	(30,297)	1,870,538
Non-interest income (expense)									
Income (expense) related to securities (*1)	10,629	244,021	-	7,195	110,350	8,318	173,859	30,903	585,275
Other non-interest income (expense)	329,547	451,904	33,832	(55,758)	(512,774)	3,978	817,396	(797,455)	270,670
	340,176	695,925	33,832	(48,563)	(402,424)	12,296	991,255	(766,552)	855,945
Provision for loan losses and others (*2)	(188,465)	20,239	-	101	(461,049)	11,431	58,824	287,626	(271,293)
General and administrative expenses	(615,144)	(107,495)	(12,211)	(12,082)	(2,683)	(43,445)	(734,955)	(1,204)	(1,529,219)
Operating income (loss)	₩ 1,032,909	90,026	28,028	17,673	(378,711)	61,347	585,126	(510,427)	925,971

	2018								
	Bank industry				Insurance	Overseas	Other subsidiaries	Adjustment	Total
	Corporate finance	Investment finance	Asset management	Others					
Net interest income (expense)	₩ 1,515,000	(669,023)	20,715	516,095	464,022	73,701	160,513	136	2,081,159
Non-interest income (expense)									
Income (expense) related to securities (*1)	85,091	(106,628)	-	27,692	(3,345)	2,851	64,291	(36,795)	33,157
Other non-interest income (expense)	202,058	1,144,553	32,358	(26,583)	(461,140)	(17,243)	1,434,856	(664,055)	1,644,804
	287,149	1,037,925	32,358	1,109	(464,485)	(14,392)	1,499,147	(700,850)	1,677,961
Provision for loan losses and others (*2)	(205,849)	(348,368)	-	(365)	120,166	46,572	336,830	267,541	216,527
General and administrative expenses	(557,630)	(98,152)	(10,440)	(9,464)	(9,247)	(42,551)	(982,083)	1	(1,709,566)
Operating income (loss)	₩ 1,038,670	(77,618)	42,633	507,375	110,456	63,330	1,014,407	(433,172)	2,266,081

(*1) Income related to securities is composed of net gain (loss) on securities measured at FVTPL, securities measured at FVOCI and securities measured at amortized cost.

(*2) Provision for loan losses and others comprises provision for loan losses, provision for derivative credit risks, gains (losses) on sales of loans, and increase (reversal) of provision.

(*3) Profit from discontinued operations is not included.

(4) Geographical revenue information for the years ended December 31, 2019 and 2018 and the geographical non-current asset information as of December 31, 2019 and 2018 are as follows:

	Revenues (*1)		Non-current assets (*2)	
	2019	2018	December 31, 2019	December 31, 2018
Domestic	₩ 37,205,827	44,441,959	31,229,110	35,192,841
Overseas	1,236,015	1,177,596	58,358	18,384
	₩ 38,441,842	45,619,555	31,287,468	35,211,225

(*1) Revenues consist of interest income, fees and commission income, dividend income, income related to securities, foreign currency transaction gain, gain on derivative, other operating income and provision for loan losses.

(*2) Non-current assets consist of investments in associates, property and equipment, investment properties and intangible assets.

53. Risk Management

(1) Introduction

(i) Objectives and principles

The Group's risk management aims to maintain financial soundness and effectively manage various risks pertinent to the nature of the Group's business. The Group has set up and fulfilled policies to manage risks timely and effectively. Pursuant to the policies, the Group's risks shall be

- managed comprehensively and independently,
- recognized timely, evaluated exactly and managed effectively,
- maintained to the extent that the risks balance with profit,
- diversified appropriately to avoid concentration on specific segments,
- managed to prevent excessive exposure by the setting up and managing of tolerance limits and guidelines.

(ii) Risk management strategy and process

The Group's risk management business is separated into two different stages; the 'metrification stage,' in which risks are estimated and monitored, and the 'integration stage,' in which information gained during the risk management process is integrated and used in management strategies. Risk management is recognized as a key component of the Group's management, and seeks to change from its previously adaptive and limited role to more leading and comprehensive role.

Furthermore, the Group focuses on consistent communication among different departments in order to establish a progressive consensus on risk management.

(iii) Risk management governance

Risk Management Committee

The Group's Risk Management Committee (the "Committee") is composed of the President of the committee (an outside director), and five other commissioners including the CEO of the Bank. The Committee functions to establish policies of risk management, evaluate the capital adequacy of the Group, discuss material issues relating to risk management, and present preliminary decisions on such matters.

The CEO of the Bank and the head of Risk Management Segment

The CEO of the Bank, according to the policies of risk management, performs his or her role to manage and direct risk management in order to sustain efficiency and internal control. The head of the Risk Management Segment is responsible for supervising the overall administration of the Group's risk management business and providing risk-related information to members of the board of directors and the Group's management.

Risk Management Policy Committee and Risk Management Practice Committee

The Group's Risk Management Policy Committee is composed of the leaders of all business segments, and exercises its role to decide important matters relating to the Group's portfolio including allocating internal capital limits by segment and setting exposure limits by industry within the scope that Risk Management Committee regulated.

The Group's Risk Management Practice Committee is composed of the planning department's leaders of main business segments. The Risk Management Practice Committee decides the guidelines of review and approval on retail loan and exercises its role to preliminarily review matters for main decision of the Risk Management Committee.

(iv) Performance of risk management committee

The Risk Management Committee performs comprehensive reviews of all the affairs related to risk management and deliberates the decisions of the board of directors. For the year ended December 31, 2019, the key activities of the Risk Management Committee are as follows:

- Major decision
  · Risk management plan for 2019
  · Setting and managing exposure limits by country for 2019
  · Contingency funding plan for 2019
  · Change in measurement method of internal capital for credit risk
- Major reporting
  · Management plan of credit portfolio for 2019
  · Management plan of exposure by industry for supporting shipbuilding companies through refund guarantee
  · Allocation of internal capital limits for 2019
  · Verification of BIS ratio as of December 31, 2018
  · Resolution of Credit Committee on a quarterly basis
  · The result of the verification on suitability of Credit Rating System, PD and internal purpose risk components

(v) Improvement of risk management system

For the continuous improvement of risk management, financial soundness and capital adequacy, the Group performs the following:

- Continuous improvement of Basel
  · Improvements in the internal capital adequacy assessment system, in line with the guidelines set by the Financial Supervisory Service (FSS) in 2008, to manage capital adequacy more effectively
  · Improvements in the credit assessment system on Low Default Portfolio (LDP)
  · Elaboration of risk measuring criteria including credit risk parameters and measurement logics
  · Establishment of system for timely calculation of LCR and NSFR
  · Redevelopment and application of Corporate Credit Rating System (approved by Financial Supervisory Service on October 26, 2017)
  · Establishment of the application system for Interest Rate Risk In The Banking Book by the Basel Committee in September 2018
- Expansion of risk management infrastructure to the global IB level
  · Establishment of the RAPM system in order to reflect risks to the Bank's business and support decision-making upon management, and application of performance assessment at the branch level since 2010
  · Enforcement of risk management related to irregular compound derivatives and validation of the derivative pricing model developed by the Bank's Front Office
  · Establishment of IFRS 9 accounting system to calculate a loan loss allowances under IFRS 9 in March 2017 and, since then, parallel run of IFRS 9 accounting system with the current IAS 39 accounting system for mandatory implementation of IFRS 9 in January 2018

(vi) Risk management reporting and measuring system

The Group endeavours consistently to objectively and rationally measure and manage all significant risks considering the characteristics of operational areas, assets and risks. In relation to reporting and measurement, the Group has developed application systems as follows:

Application system	Approach	Completion date	Major function
Corporate Credit Rating System	Logit Model	Oct. 2017	Rebuilding the Corporate Credit Rating System
Credit Risk Measurement System	Credit Metrics	Nov. 2007	Summarize exposures, manage exposure limits and calculate Credit VaR
		Dec. 2013	
Market Risk Management System	Risk Watch	Jun. 2002	Summarize position, manage exposure limits and calculate Market VaR
		Feb. 2019	
	RS Model	Sep. 2012	Calculate regulatory capital by Standardized Approach
	Murex M/O	Apr. 2013	Supplement of RiskWatch to calculate VaR
Interest/Liquidity Risk Management System	In-house	May. 2019	Calculation of interest risk, liquidity risk, etc.
Operational Risk Management System	Standardized Approach	May. 2006	Manage process and calculate CSA, KRI and OP VaR, etc.
	AMA	May. 2009	
BIS Capital Ratio Calculation System	Fermat	Sep. 2006	Calculate equity and credit risk-weighted assets
	RaY	Dec. 2013	
Loan Loss Allowance Calculation System	IFRS	Jan. 2011	Incurred loss model
	IFRS 9	Mar. 2017	Expected loss model

(vii) Response to Basel

The Korean financial authorities have implemented Basel II since January 2008, and adopted the Standardized Approach and the Foundation Internal Ratings-Based Approach.

In conformity with the implementation roadmap of Basel II, the Group obtained the approval to use the Foundation Internal Ratings-Based Approach on credit risk from the FSS in July 2008 and has applied the approach since late June 2008. The Group applies the Standardized Approach on market risks and operational risks.

The Group completed the Basel III standard risk management system in preparation of the adoption of the Basel III regulations announced on December 1, 2013. Starting from 2013 year-end, the BIS capital adequacy ratio has been measured in accordance to the Basel III regulations.

Responding to the requirement of the financial authorities, the Group recognizes interest rate risk, liquidity risk, credit bias risk and reputational risk as well as Pillar I risks (credit risk, market risk and operational risk). Since 2015, the Group has responded to Pillar II regulations including additional capital requirements based on comprehensive assessment on bank risk management level. Since the end of 2015, the Group has applied the uniform standards for the public announcement of financial business for Basel compliance.

The Group completed revised standards such as capital requirements for banks' investments in funds in 2017, capital requirements for securitization in 2018, and the Standardised Approach for measuring counterparty credit risk (SA-CCR) in 2019.

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To comply with the amended regulation relating to risk-weighted assets under Basel III, which will be effective on January 2022, the Group has a plan to obtain the approval of its management, receive the consultation and establish the relevant systems at the beginning of 2020.

(viii) Internal capital adequacy assessment process

Internal capital adequacy assessment process is defined as the process that the Group aggregates significant risks, calculates its internal capital, compares the internal capital with the available capital and assesses its internal capital adequacy.

- Internal capital adequacy assessment

For the purpose of the internal capital adequacy assessment, the Group calculates its aggregated internal capital by evaluating all significant risks and available capital considering the quality and components of capital, and then assesses the internal capital adequacy by comparing the aggregated internal capital with the available capital. In addition, the Group conducts periodic stress tests more than once every six months to assess potential weakness in crisis situations and uses its results to assess the internal capital adequacy. The Group assumes the macroeconomic situation as four stages of 'normal-aggravation-pessimistic-serious' and is preparing countermeasures such as checking the adequacy of capital by each stage.

- Goal setting of internal capital management

The Group sets up and manages an internal capital limit on an annual basis, through the approval of the Risk Management Committee, in order to maintain internal capital adequacy by managing internal capital (integrated risks) within the extent of available capital.
The prior year's internal capital, analysis of domestic and foreign environment changes in the current year, and the direction and size of operations are all reflected in the goal setting of internal capital management to calculate the integrated internal capital scale. Moreover, Bank for International Settlements("BIS") capital adequacy ratio and risk appetite are taken into consideration in the goal setting of internal capital management

- Allocation of internal capital

The Group's entire internal capital is allocated to each segment and department, according to the extent of possible risk faced and size of operations, after the Risk Management Committee's deliberation and the board of directors' approval. The allocated internal capital is monitored regularly and managed using various management methods. The results of monitoring and managing the allocated internal capital are reported to the Risk Management Committee. In case of any material changes in the Group's business plan or risk operation strategy, the Group adjusts the allocations elastically.

- Composition of internal capital

Internal capital comprises all the significant risks of the Group and is composed of quantifiable and non-quantifiable risks. Quantifiable risks are composed of credit risk, market risk, interest rate risk, operational risk and credit concentration risk, foreign currency settlement risk, and are risks measured quantitatively by applying reasonable methodology using objective data. Non-quantifiable risks are composed of strategy risk, reputation risk, residual risk on asset securitization and furthermore. Non-quantifiable risks are those risks that cannot be measured quantitatively because of lack of data or the absence of appropriate measuring methodologies.

(2) Credit Risk

(i) Concept

Credit risk can be defined as potential loss resulting from the refusal to perform obligations or default of counterparties. More generally, it is used to refer to the possibility of loss from engaged bonds that cannot be redeemed properly or from substitute payments.

(ii) Approach to credit risk management

Summary of credit risk management

The Group regards credit risk as the most significant risk area in its business operations, and accordingly, closely monitors its credit risk exposure. The Group manages both credit risks at portfolio level and at individual credit level. At portfolio level, the Group reduces credit concentration and restructures the portfolio in such a way to maximize profitability considering the risk level. To avoid credit concentration on a particular sector, the Group manages credit limits by client, group, and industry. The Group also resets exposure management directives for each industry by conducting an industry credit evaluation twice a year.

At the individual credit level, the relationship manager (RM), the credit officer (CO) and the Credit Review Committee manage each borrower's credit risk.

Post management and insolvent borrower management

The Group monitors the borrower's credit rating from the date of the loan to the date of the final collection of debt consistently, and inspects the borrower's status regularly and frequently in order to prevent the generation of new bad debts and to stabilize the number of debt recoveries.

In addition, an early warning system is operated to spot borrowers that are highly likely to be insolvent. The early warning system provides financial information, financial transaction information, public information and market information of the borrower, and such information is used by the RM and the CO to monitor and manage changes in the borrower's credit rating.

Under the early warning system, a borrower that is highly likely to be insolvent is classified as an early warning borrower or a precautionary borrower The Group sets up a specific and applicable stabilization plan for such a borrower considering the borrower's characteristics. Furthermore, sub-standard borrowers are classified as insolvent borrowers, and are managed intensively by the Group, which takes legal proceedings, disposals or corporate turnaround measures if necessary.

Classification of asset soundness and provision of allowance for loss

Classification of asset soundness is fulfilled by the analysis and assessment of credit risk. The classification is used in order to provision an appropriate allowance, prevent further occurrences of insolvent assets and promote the normalization of existing insolvent assets to enhance the stabilization of asset operations.

Based on the Financial Supervisory Regulations of the Republic of Korea, the Group has established standards and guidelines on the classification of asset soundness, according to the Forward-Looking Criteria (FLC), which reflects not only the borrower's past records of repayment but also their future debt repayment capability.

In conformity with these standards, the Group classifies the soundness of its assets as "normal", "precautionary", "substandard", "doubtful", or "estimated loss" and differentiates the coverage ratio by the level of classification.

Details of loans by credit rating as of December 31, 2019 and 2018 are as follows:

< Corporate >

	December 31, 2019				
				Lifetime expected credit losses	
	Carrying amounts		12-month expected credit loss	Non credit-impaired loans	Credit-impaired loans
AAA ~ BBB1	₩	116,273,386	114,241,910	2,020,614	10,862
BBB2 ~ CCC		30,610,456	20,580,529	9,873,112	156,815
Below CC		2,382,816	130,032	85,797	2,166,987
	₩	149,266,658	134,952,471	11,979,523	2,334,664

	December 31, 2018				
				Lifetime expected credit losses	
	Carrying amounts		12-month expected credit loss	Non credit-impaired loans	Credit-impaired loans
AAA ~ BBB1	₩	108,686,323	106,581,514	2,087,024	17,785
BBB2 ~ CCC		29,903,840	20,194,996	9,558,249	150,595
Below CC		3,656,335	89	1,340,420	2,315,826
	₩	142,246,498	126,776,599	12,985,693	2,484,206

< Non-corporate >

	December 31, 2019				
				Lifetime expected credit losses	
	Carrying amounts		12-month expected credit loss	Non credit-impaired loans	Credit-impaired loans
Grade 1 ~ Grade 6	₩	1,485,098	1,463,450	20,965	683
Grade 7 ~ Grade 8		1,022,349	1,013,168	8,237	944
Grade 9 ~ Grade 10		33,903	676	3,958	29,269
	₩	2,541,350	2,477,294	33,160	30,896

	December 31, 2018				
				Lifetime expected credit losses	
	Carrying amounts		12-month expected credit loss	Non credit-impaired loans	Credit-impaired loans
Grade 1 ~ Grade 6	₩	1,673,476	1,609,425	62,783	1,268
Grade 7~ Grade 8		1,053,090	1,035,778	16,603	709
Grade 9 ~ Grade 10		7,136	202	2,161	4,773
	₩	2,733,702	2,645,405	81,547	6,750

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Details of payment guarantees (including financial guarantees) and unused commitments by credit rating as of December 31, 2019 and 2018 are as follows:

< Corporate >

		December 31, 2019			
				Lifetime expected credit losses	
		Exposures	12-month expected credit loss	Non credit-impaired exposures	Credit-impaired exposures
Unused commitments:					
AAA ~ BBB1	₩	27,158,564	26,946,768	211,796	-
BBB2 ~ CCC		2,972,691	1,964,241	1,008,450	-
Below CC		1,805	820	-	985
	₩	30,133,060	28,911,829	1,220,246	985
Payment guarantees (including financial guarantees):					
AAA ~ BBB1		6,987,237	6,951,232	36,005	-
BBB2 ~ CCC		2,085,654	1,481,657	597,857	6,140
Below CC		290,903	-	-	290,903
	₩	9,363,794	8,432,889	633,862	297,043

		December 31, 2018			
				Lifetime expected credit losses	
		Exposures	12-month expected credit loss	Non credit-impaired exposures	Credit-impaired exposures
Unused commitments:					
AAA ~ BBB1	₩	24,683,364	24,481,108	202,256	-
BBB2 ~ CCC		3,285,773	1,301,270	1,984,503	-
Below CC		199,900	88,527	110,388	985
	₩	28,169,037	25,870,905	2,297,147	985
Payment guarantees (including financial guarantees):					
AAA ~ BBB1		5,950,586	5,915,072	35,436	78
BBB2 ~ CCC		2,110,565	1,747,200	363,365	-
Below CC		1,054,569	344,111	213,861	496,597
	₩	9,115,720	8,006,383	612,662	496,675

< Non-corporate >

		December 31, 2019			
				Lifetime expected credit losses	
		Exposures	12-month expected credit loss	Non credit-impaired exposures	Credit-impaired exposures
Unused commitments:					
Grade 1 ~ Grade 6	₩	83,487	83,154	333	-
Grade 7 ~ Grade 8		11	-	11	-
Grade 9 ~ Grade 10		26	26	-	-
	₩	83,524	83,180	344	-

		December 31, 2018			
				Lifetime expected credit losses	
		Exposures	12-month expected credit loss	Non credit-impaired exposures	Credit-impaired exposures
Unused commitments:					
Grade 1 ~ Grade 6	₩	113,913	111,678	2,235	-
Grade 7 ~ Grade 8		31	-	31	-
Grade 9 ~ Grade 10		3	3	-	-
	₩	113,947	111,681	2,266	-

(iii) Measurement methodology of credit risk

Pursuant to Basel II, the Group selects the measurement methodology of credit risk considering the complexity of measurement, measurement factors, estimating methods and others. Measurement approaches are divided into Standardized Approach and Internal Ratings-Based Approach.

Standardized Approach (SA)

In the case of the Standardized Approach, the risk weights are applied according to the credit rating assessed by External Credit Assessment Institution (ECAI). Risk weights in each credit rating are as follows:

Credit rating	Corporate	Country	Bank
AAA ~ AA-	20.00%	0.00%	20.00%
A+ ~ A-	50.00%	20.00%	50.00%
BBB+ ~ BBB-	100.00%	50.00%	100.00%
BB+ ~ BB-	100.00%	100.00%	100.00%
B+ ~ B-	150.00%	100.00%	100.00%
Below B-	150.00%	150.00%	150.00%
Unrated	100.00%	100.00%	100.00%

The OECD, S&P, Moody's and Fitch are designated as foreign ECAI and Korea Investors Service Co., Ltd., NICE Investors Services Co., Ltd. and the Korea Ratings Co., Ltd. are designated as domestic ECAI.

The Group applies the credit rating based on the corresponding loan and same borrower's unsecured senior loans. In the case the borrower's risk weight is higher than the unrated exposure's risk weight (100%), the higher weight is applied. In the case the borrower has more than one rating, the higher weight of the two lowest weights (Second Best Criteria) is applied.

Internal Ratings-Based Approach (IRB)

To use the Internal Ratings-Based Approach, a bank must be approved by the FSS and should also meet the requirement pre-set by the FSS.

In relation to Basel II that has been adopted domestically as of January 2008, the Group gained approval from the FSS to use the Foundation Internal Ratings-Based Approach in July 2008. The Group has calculated credit risk-weighted assets using the approach since late June 2008.

Measurement method of credit risk-weighted asset

The Group calculates credit risk-weighted assets of corporate exposures and asset securitization exposures using the Foundation Internal Ratings-Based Approach as of December 31, 2019.

The Standard Approach is applied to special finance, non-residents, non-banking financial institutions currently, and will be replaced by the Internal Ratings-Based Approach in the future.

The Standardized Approach is applied to country exposures, public institution exposures and bank exposures permanently and applied to overseas subsidiary and the Bank's branch pursuant to prior consultation with the FSS.

<Approved measurement method>

Measurement method		Exposure
Standardized Approach	Permanent SA	- Countries, public institutions and banks
	SA	- Overseas subsidiaries and branches, other assets, retail, residential property, commercial real estate, overdue loans (limited in loans for households)
Foundation Internal Ratings-Based Approach		- Corporate, small and medium enterprises, asset securitization and equity
Application of IRB by phase		- Special lending, non-residence, non-bank financial institutions

The mitigated effect of credit risks reflects the related policies which consider eligible collateral and guarantees. The Group calculates the credit risk-weighted assets using the capital adequacy ratio.

Upon the calculation of credit risk-weighted assets for derivatives, the Group takes into consideration the set-off effects of transactions under legally enforceable rights to set-off to calculate exposures.

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Credit rating model

The results of credit rating are presented as grades through an assessment of the debt repayment capacity that the principal and interest of debt securities or loans are redeemed while complying with contractual redemption schedule.

Using the Group's internal credit rating model, the Group classifies debtors' credit rating into 14 grades (AAA~D). To distinguish the difference between credits in the same grade, the Group uses 20 stages as auxiliaries to 14 grades.

The Group's regular credit rating process is carried out once a year and in the case of the change of debtor's credit condition, the credit rating is frequently adjusted as necessary to retain the adequacy of credit rating.

The results of credit rating are applied to various areas such as discrimination of loan processes, loan limit, loan interest rate, post loan management standard process, credit risk measurement, and allowance for loan losses assessment.

Credit rating process control structure

According to the Principle of Checks and Balances, the Group has established the credit rating process control structure by which the credit rating system operates appropriately.

- Independent assessment of credit rating: The Bank's business segment (RM) and credit rating assessment segment (Credit Rating Officer) are independently operated.
- Independent control of credit rating system: The control of credit rating system including the development of credit rating model is independently implemented by the Bank's Risk Management Department.
- Independent verification of credit rating system: Credit rating system is independently verified by Risk Validation Team of the Financial Planning Department.
- Internal audit of credit rating process: Credit rating process is audited by the Bank's internal audit department.
- Role of the Board of Directors and the Bank's management: Major issues relating to credit rating process are approved by the Board of Directors and are regularly monitored by the Bank's top management.

The Group reviews debt serviceability based on a credit analysis when handling loans. Depending on the results, credit loan preservation is adjusted as necessary using such methods as interest rate preservation due to credit risk.

The Group evaluates the value of the collateral, performing ability and legal validity of the guarantee at the initial acquisition. The Group re-evaluates the provided collateral and guarantees regularly for them to be reasonably preserved.

For guarantees, the Group demands a corresponding written guarantee according to loan handling standards and the guarantor's credit rating is independently calculated when in conformance with the credit rating endowment method.

The quantification of the extent to which collateral and other credit enhancements mitigate credit risk of impaired financial assets as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Securities measured at FVTPL	₩	1,342	2,310
Securities measured at FVOCI		71,336	70,845
Loans measured at amortized cost		2,345,021	2,156,459
Other assets		157,256	175,075

(iv) Credit exposure

Geographical information of credit exposure as of December 31, 2019 and 2018 are as follows:

	December 31, 2019									
	Korea	Hong Kong	Ireland	Uzbekistan	Brazil	Hungary	UK	US	Others	Total
Due from banks (excluding due from BOK)	₩ 4,150,279	18,308	201	35,262	2	136,115	10,873	550,546	628,395	5,529,981
Securities measured at FVTPL:										
Bonds (excluding government bonds)	2,541	-	-	-	-	-	-	-	-	2,541
Securities measured at FVOCI:										
Bonds (excluding government bonds)	9,982,804	50,472	18,062	-	-	109,444	901,412	675,968	2,042,441	13,780,603
Securities measured at amortized cost:										
Bonds (excluding government bonds)	2,648,355	-	-	-	3,843	-	-	-	-	2,652,198
Loans	136,966,208	710,579	-	89,388	9,069	281,932	1,227,215	1,030,789	10,363,234	150,678,414
Derivative financial assets	932,084	-	-	-	-	1,101	169	23	8,088	941,465
Other financial assets	9,174,261	3,295	323	1,581	2,651	-	82,537	19,492	130,212	9,414,352
	163,856,532	782,654	18,586	126,231	15,565	528,592	2,222,206	2,276,818	13,172,370	182,999,554
Guarantees	9,198,984	-	-	30,487	-	9,900	-	88,031	36,392	9,363,794
Commitments	27,769,873	49,874	-	8,086	-	44,696	282,705	244,913	1,816,437	30,216,584
	36,968,857	49,874	-	38,573	-	54,596	282,705	332,944	1,852,829	39,580,378
	₩ 200,825,389	832,528	18,586	164,804	15,565	583,188	2,504,911	2,609,762	15,025,199	222,579,932

	December 31, 2018									
	Korea	Hong Kong	Ireland	Uzbekistan	Brazil	Hungary	UK	US	Others	Total
Due from banks (excluding due from BOK)	₩ 3,203,211	5,857	43	10,390	86	57,516	64,253	374,891	677,334	4,393,581
Securities measured at FVTPL:										
Bonds (excluding government bonds)	30,000	-	-	-	-	-	-	-	-	30,000
Securities measured at FVOCI:										
Bonds (excluding government bonds)	11,233,011	58,289	16,585	-	-	124,606	797,230	654,888	863,091	13,747,700
Securities measured at amortized cost:										
Bonds (excluding government bonds)	2,643,586	-	-	-	3,695	-	-	-	-	2,647,281
Loans	132,246,986	22,341	6,358	71,891	57,436	198,211	1,018,257	842,797	6,061,253	140,525,530
Derivative financial assets	718,383	-	-	-	-	-	5,405	646	3,296	727,730
Other financial assets	8,800,005	227	346	1,374	486	5,906	69,225	22,048	127,924	9,027,541
	158,875,182	86,714	23,332	83,655	61,703	386,239	1,954,370	1,895,270	7,732,898	171,099,363
Guarantees	8,959,277	-	-	20,265	6,469	15,999	-	81,371	24,869	9,108,250
Commitments	29,260,804	-	-	7,811	-	32,099	268,393	105,588	709,443	30,384,138
	38,220,081	-	-	28,076	6,469	48,098	268,393	186,959	734,312	39,492,388
	₩ 197,095,263	86,714	23,332	111,731	68,172	434,337	2,222,763	2,082,229	8,467,210	210,591,751

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Industry information of credit exposure as of December 31, 2019 and 2018 are as follows:

	December 31, 2019			
	Manufacturing	Service	Others	Total
Due from banks (excluding due from BOK)	₩ 20,848	3,843,743	1,665,390	5,529,981
Securities measured at FVTPL:				
Bonds (excluding government bonds)	2,541	-	-	2,541
Securities measured at FVOCI:				
Bonds (excluding government bonds)	2,591,484	8,291,847	2,897,272	13,780,603
Securities measured at amortized cost:				
Bonds (excluding government bonds)	-	2,526,535	125,663	2,652,198
Loans	64,713,135	70,728,195	15,237,084	150,678,414
Derivative financial assets	-	941,284	181	941,465
Other financial assets	187,804	1,273,805	7,952,743	9,414,352
	67,515,812	87,605,409	27,878,333	182,999,554
Guarantees	6,634,919	2,179,821	549,054	9,363,794
Commitments	23,666,920	5,637,153	912,511	30,216,584
	30,301,839	7,816,974	1,461,565	39,580,378
	₩ 97,817,651	95,422,383	29,339,898	222,579,932

	December 31, 2018			
	Manufacturing	Service	Others	Total
Due from banks (excluding due from BOK)	₩ 22,994	924,653	3,445,934	4,393,581
Securities measured at FVTPL:				
Bonds (excluding government bonds)	30,000	-	-	30,000
Securities measured at FVOCI:				
Bonds (excluding government bonds)	2,495,596	8,485,826	2,766,278	13,747,700
Securities measured at amortized cost:				
Bonds (excluding government bonds)	14,020	2,495,707	137,554	2,647,281
Loans	61,220,273	65,641,879	13,663,378	140,525,530
Derivative financial assets	-	723,519	4,211	727,730
Other financial assets	158,070	208,064	8,661,407	9,027,541
	63,940,953	78,479,648	28,678,762	171,099,363
Guarantees	5,935,165	1,738,323	1,434,762	9,108,250
Commitments	300,837	4,870,278	25,213,023	30,384,138
	6,236,002	6,608,601	26,647,785	39,492,388
	₩ 70,176,955	85,088,249	55,326,547	210,591,751

Credit exposures of debt securities by credit rating as of December 31, 2019 and 2018 are as follows:

< Corporate >

	December 31, 2019			
	Carrying amounts	12-month expected credit loss	Lifetime expected credit losses	
			Non credit-impaired debt securities	Credit-impaired debt securities
AAA	₩ 14,134,518	14,134,518	-	-
AA	6,325,356	6,325,356	-	-
A1	3,793,236	3,793,236	-	-
A2	1,313,589	1,313,589	-	-
BBB1	268,227	236,217	32,010	-
BBB2	14,508	14,508	-	-
BB2	318,465	318,465	-	-
C	257	257	-	-
D	116,599	116,599	-	-
	₩ 26,284,755	26,252,745	32,010	-

	December 31, 2018			
	Carrying amounts	12-month expected credit loss	Lifetime expected credit losses	
			Non credit-impaired debt securities	Credit-impaired debt securities
AAA	₩ 16,329,277	16,329,277	-	-
AA	4,369,974	4,369,974	-	-
A1	2,567,717	2,567,717	-	-
A2	1,266,929	1,266,929	-	-
BBB1	497,331	436,676	60,655	-
BBB2	11,731	11,667	64	-
BB2	5,682	5,682	-	-
C	260	260	-	-
	₩ 25,048,901	24,988,182	60,719	-

< Non-corporate >

	December 31, 2019			
	Carrying amounts	12-month expected credit loss	Lifetime expected credit losses	
			Non credit-impaired debt securities	Credit-impaired debt securities
Grade 1 ~ Grade 6	₩ 3,492	3,492	-	-
Grade 7 ~ Grade 8	-	-	-	-
Grade 9 ~ Grade 10	-	-	-	-
	₩ 3,492	3,492	-	-

	December 31, 2018			
	Carrying amounts	12-month expected credit loss	Lifetime expected credit losses	
			Non credit-impaired debt securities	Credit-impaired debt securities
Grade 1 ~ Grade 6	₩ 245,709	245,689	-	20
Grade 7 ~ Grade 8	-	-	-	-
Grade 9 ~ Grade 10	-	-	-	-
	₩ 245,709	245,689	-	20

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(3) Capital management activities

(i) Capital adequacy

The FSS approved the Group's use of the Foundation Internal Ratings-Based Approach in July 2008. The Group has been using the same approach when calculating credit risk-weighted assets since the end of June 2008. The equity capital ratio and equity capital according to the standards of the Bank for International Settlements are calculated for the purpose of such disclosure. The equity capital ratio and equity capital are calculated on a consolidated basis. In conformity with the Banking Act, which is based on the implementation of Basel III on December 2013, the regulatory capital is divided into the following two categories.

Tier 1 capital (Common Equity Tier 1 + Additional Tier 1 capital)

- Common Equity Tier 1

Regulatory capital that represents the most subordinated claim in liquidation of the Group, takes the first and proportionately greatest share of any losses as they occur, and which principal is never repaid outside of liquidation meets the criteria for classification as common equity, including capital stock, capital surplus, retained earnings, qualifying non-controlling interests in subsidiaries, and accumulated other comprehensive income as common equity Tier 1.

- Additional Tier 1 capital

Capital stock and capital surplus related to issuance of capital securities that are subordinated, have non-cumulative and conditional dividends or interests, and have no maturity or step-up conditions.

Tier 2 capital (Supplementary Tier 2 capital)

Regulatory capital that fulfils supplementary capital adequacy requirements, and includes subordinated debt with maturities over 5 years and allowance for loan losses in conformity with external regulatory standards and internal standards.

The BIS capital adequacy ratio and capital in accordance to Basel III standards as of December 31, 2019 and 2018 are as follows:

BIS capital adequacy ratio

		December 31, 2019	December 31, 2018
Equity capital based on BIS (A):			
Tier 1 capital:			
Common Equity Tier 1	₩	30,215,602	29,522,899
Additional Tier 1 capital		-	-
		30,215,602	29,522,899
Tier 2 capital		4,785,803	4,909,582
		35,001,405	34,432,481
Risk-weighted assets (B):			
Credit risk-weighted assets		242,573,920	226,000,042
Market risk-weighted assets		1,933,641	2,005,094
Operational risk-weighted assets		4,574,554	4,621,678
		249,082,115	232,626,814
BIS capital adequacy ratio (A/B):		14.05%	14.80%
Tier 1 capital ratio:		12.13%	12.69%
Common Equity Tier 1 ratio		12.13%	12.69%
Additional Tier 1 capital ratio		-	-
Tier 2 capital ratio		1.92%	2.11%

Equity capital based on BIS

		December 31, 2019	December 31, 2018
Tier 1 capital (A=C+D):			
Common Equity Tier 1 (C)			
Capital stock	₩	18,663,099	18,108,099
Capital surplus		979,359	1,496,704
Retained earnings		10,642,865	9,796,197
Non-controlling interests		-	-
Accumulated other comprehensive income		310,138	335,744
Common stock deductibles		(379,859)	(213,845)
		30,215,602	29,522,899
Additional Tier 1 capital (D)			
Non-controlling interests		-	-
		30,215,602	29,522,899
Tier 2 capital (B):			
Allowance for doubtful accounts, etc.		951,624	977,343
Qualified capital securities		3,060,000	2,900,000
Non-qualified capital securities		774,179	1,032,239
Non-controlling interests		-	-
		4,785,803	4,909,582
Equity capital (A+B)	₩	35,001,405	34,432,481

(4) Market risk

(i) Concept

Market risk is defined as the possibility of potential loss on a trading position resulting from fluctuations in interest rates, foreign exchange rates and the price of stocks and derivatives. Trading position is exposed to risks, such as interest rate, stock price, and foreign exchange rate, etc. Non-trading position is mostly exposed to interest rates. Accordingly, the Group classifies market risks into those exposed from trading position or those exposed from non-trading position.

(ii) Market risks of trading positions

Management method on market risks arising from trading positions

Trading position includes securities, foreign exchange position, and derivatives which are traded for short-term profits.

Market risk is managed using VaR limit and loss limit. VaR limit is calculated in the view of entire Group and the calculated VaR limit is distributed into each department and each type (stock price, interest rate, foreign exchange rate and option). The trading department regulates and operates terms of stop loss and investment limits.

Using the Standardized Approach and internal model of VaR, the Group's VaR is measured daily and the measured VaR is used for risk monitoring and limit management. In the estimation of VaR, the historical simulation and two other supplemental procedures are used: variance-covariance matrix and Monte Carlo simulation. Through the stress test and back test, the estimation of VaR is validated daily.

In estimating market risk, the Standardized Approach and the internal model are used. The Standardized Approach is used in order to calculate the required capital from market risk and the internal model is used in order to manage risks internally.

Since July 2007, the Group has measured one-day VaR through the historical simulation method using the time series data of past 250 days under a 99% confidence level. The calculated VaR is monitored on a daily basis.

The Group sets total limit of market risk based on annual business plan, risk appetite and others and monitors VaR limit of each department on a daily basis.

Korea Development Bank and Subsidiaries

Notes to the Consolidated Financial Statements

(In millions of won)

December 31, 2019 and 2018

Market risk required equity

The Group's market risk required equity as of December 31, 2019 and 2018 are as follows:

		December 31, 2019	December 31, 2018
Interest rate	₩	76,814	70,509
Stock price		848	511
Foreign exchange rate		15,287	27,588
Option		61,742	61,800
	₩	154,691	160,408

(iii) Market risks of non-trading positions

Management method on market risks arising from non-trading positions

The most critical market risk that arises in non-trading position is the interest rate risk. Interest rate risk is defined as the likely loss resulting from the unfavorable fluctuation of interest rate in the Group's financial condition and is measured by interest rate VaR and interest rate EaR.

Interest rate VaR is the maximum amount of decrease in net asset value resulting from the unfavorable fluctuation of interest rate. Interest rate EaR is the maximum amount of decrease in net interest income resulting from the unfavorable fluctuation of interest rate for a year.

The Group's interest rate VaR and interest rate EaR are measured through the simulation of conclusive interest rate scenario and are monthly reported to the Risk Management Committee. The Management's target of interest rate VaR and interest rate EaR are approved at the beginning of the year. To disclose the Group's interest risk, interest rate VaR and interest rate EaR are disclosed calculating change in economic value of equity ("△EVE") and in net interest income ("△NII") based on the application of IRRBB ("Interest Rate Risk in Banking Book") method.

△EVE and △NII of the Group's non-trading positions as of December 31, 2019 are as follows:

		December 31, 2019
△EVE	₩	998,877
△NII		89,253

The Group's interest rate VaR and EaR of non-trading positions as of December 31, 2018 are as follows:

December 31, 2018			
Interest rate shock		Interest rate VaR	Interest rate EaR
2.00%	₩	787,105	31,654

(iv) Foreign currency risk

Outstanding balances by currency with significant exposure as of December 31, 2019 and 2018 are as follows:

	December 31, 2019						
		USD	EUR	JPY	GBP	Others	Total
Financial assets:							
Cash and due from banks	₩	4,070,531	50,587	28,043	15,280	397,055	4,561,496
Securities measured at FVTPL		1,098,028	32,508	391	-	62,946	1,193,873
Securities measured at FVOCI		5,740,121	557,245	200,191	-	565,855	7,063,412
Securities measured at amortized cost		1,203,104	229,645	-	-	1,318	1,434,067
Loans		36,629,441	2,057,006	1,128,441	500,821	1,430,342	41,746,051
Derivative financial assets		856,929	73,773	558	26,090	23,519	980,869
Other financial assets		1,910,483	66,998	28,173	21	25,258	2,030,933
		51,508,637	3,067,762	1,385,797	542,212	2,506,293	59,010,701
Financial liabilities:							
Financial liabilities designated at FVTPL		237,384	-	-	-	-	237,384
Deposits		8,250,125	268,334	288,531	734	409,528	9,217,252
Borrowings		14,664,968	527,671	745,691	155,984	112,638	16,206,952
Debentures		19,664,075	1,955,443	499,505	737,037	4,973,347	27,829,407
Derivative financial liabilities		589,970	14,870	3,296	1,436	16,077	625,649
Other financial liabilities		1,906,780	16,446	34,320	2,767	92,588	2,052,901
		45,313,302	2,782,764	1,571,343	897,958	5,604,178	56,169,545
Net financial position	₩	6,195,335	284,998	(185,546)	(355,746)	(3,097,885)	2,841,156

	December 31, 2018						
		USD	EUR	JPY	GBP	Others	Total
Financial assets:							
Cash and due from banks	₩	3,494,906	38,071	44,348	9,491	429,058	4,015,874
Securities measured at FVTPL		1,161,345	26,074	45	-	64,626	1,252,090
Securities measured at FVOCI		5,610,921	373,045	167,882	-	522,324	6,674,172
Securities measured at amortized cost		1,215,418	200,395	-	-	3,704	1,419,517
Loans		33,808,437	1,596,623	1,035,489	305,458	839,528	37,585,535
Derivative financial assets		753,872	37,778	3,214	7,175	16,011	818,050
Other financial assets		6,151,557	34,980	44,918	59,631	102,455	6,393,541
		52,196,456	2,306,966	1,295,896	381,755	1,977,706	58,158,779
Financial liabilities:							
Financial liabilities designated at FVTPL		259,286	-	-	-	-	259,286
Deposits		7,838,633	187,058	334,374	769	447,230	8,808,064
Borrowings		15,828,143	328,060	855,914	16,202	154,028	17,182,347
Debentures		16,594,128	1,448,094	650,818	369,533	4,977,695	24,040,268
Derivative financial liabilities		882,719	11,167	1,653	2,706	5,949	904,194
Other financial liabilities		2,641,501	93,732	17,071	13,867	199,853	2,966,024
		44,044,410	2,068,111	1,859,830	403,077	5,784,755	54,160,183
Net financial position	₩	8,152,046	238,855	(563,934)	(21,322)	(3,807,049)	3,998,596

Korea Development Bank and Subsidiaries

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(In millions of won) December 31, 2019 and 2018

(5) Liquidity risk management

(i) Concept

Liquidity risk is defined as the possibility of potential loss due to a temporary shortage in funds caused by a maturity mismatch or an unexpected capital outlay. Liquidity risk soars when funding rates rise, assets are sold below a normal price, or a good investment opportunity is missed.

(ii) Approach to liquidity risk management

The Group manages its liquidity risks as follows:

Allowable limit for liquidity risk

- The allowable limit for liquidity risk sets LCR, NSFR and Mid- to long-term foreign currency fund management ratio
- The management standards with regards to the allowable limit for liquidity risk should be set using separate and stringent set ratios in accordance with the FSS guidelines.

<Measurement Methodology>

- LCR: (High quality liquid assets / Total net cash outflows over the next 30 calendar days) X 100
- NSFR: Available Stable Funding / Required Stable Funding X 100
- Mid- to long-term foreign currency fund management ratio: Foreign currency funding being repaid after 1 year / Foreign currency lending being collected after 1 year X 100

Early warning indicator

In order to identify prematurely and cope with worsening liquidity risk trends, the Group has set up 17 indexes such as the "Foreign Exchange Stabilization Bond CDS Premium," and measures the trend monthly, weekly and daily as a means for establishing the allowable liquidity risk limit complementary measures.

Stress-Test analysis and contingency plan

- The Group evaluates the effects on the liquidity risk and identifies the inherent flaws. In the case where an unpredictable and significant liquidity crisis occurs, the Group executes risk situation analysis quarterly based on crisis specific to the Group, market risk and complex emergency, and reports to the Risk Management Committee for the purpose of the Group's solvency securitization.
- The Group established detailed contingency plan to manage the liquidity risks at every risk situations.

(iii) Analysis on remaining contractual maturity of financial instruments

Remaining contractual maturity analysis for non-derivative financial instruments as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Financial assets:						
Cash and due from banks	₩ 6,023,177	1,008,691	807,090	812,151	41,158	8,692,267
Securities measured at FVTPL	2,194,420	673,057	658,664	3,618,924	9,656,076	16,801,141
Securities measured at FVOCI	593,590	838,062	4,350,887	8,287,797	18,318,386	32,388,722
Securities measured at amortized cost	40,624	461,583	1,064,150	784,056	3,199,028	5,549,441
Loans	9,474,614	13,444,328	49,681,259	58,684,415	19,207,699	150,492,315
Other financial assets	5,258,432	100,173	4,730,263	2,268,417	700,722	13,058,007
	₩ 23,584,857	16,525,894	61,292,313	74,455,760	51,123,069	226,981,893
Financial liabilities:						
Financial liabilities designated at FVTPL	₩ 70,513	318,570	617,318	935,081	287,145	2,228,627
Deposits	16,725,504	5,390,010	10,884,301	3,547,856	569,834	37,117,505
Borrowings	2,886,072	5,719,382	9,898,736	3,660,040	1,299,006	23,463,236
Debentures	4,098,854	9,769,472	35,714,030	66,793,225	8,830,710	125,206,291
Other financial liabilities	4,964,457	2,151,781	3,535,609	2,481,269	762,357	13,895,473
	₩ 28,745,400	23,349,215	60,649,994	77,417,471	11,749,052	201,911,132

	December 31, 2018					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Financial assets:						
Cash and due from banks	₩ 6,715,941	1,075,464	615,085	637,790	37,310	9,081,590
Securities measured at FVTPL	12,676,621	30,619	144,942	710,526	3,074,615	16,637,323
Securities measured at FVOCI	381,493	1,541,504	3,693,057	8,730,489	17,689,808	32,036,351
Securities measured at amortized cost	21,244	17,501	831,608	1,601,516	3,261,228	5,733,097
Loans	12,101,184	14,081,152	50,340,642	59,585,142	19,257,581	155,365,701
Other financial assets	4,671,178	99,438	4,119,185	2,910,635	663,156	12,463,592
	₩ 36,567,661	16,845,678	59,744,519	74,176,098	43,983,698	231,317,654
Financial liabilities:						
Financial liabilities designated at FVTPL	₩ 74,835	388,921	736,432	695,138	638,192	2,533,518
Deposits	15,324,056	4,084,567	10,725,367	3,891,960	574,917	34,600,867
Borrowings	3,195,872	5,708,510	10,015,060	4,502,165	1,398,608	24,820,215
Debentures	6,167,890	10,607,805	42,152,411	59,738,109	11,801,338	130,467,553
Other financial liabilities	3,455,036	2,023,166	3,196,401	2,241,613	335,538	11,251,754
	₩ 28,217,689	22,812,969	66,825,671	71,068,985	14,748,593	203,673,907

Remaining contractual maturity analysis for derivative financial instruments as of December 31, 2019 and 2018 are as follows:

Net settlement of derivative financial instruments

	December 31, 2019					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Trading purpose derivatives:						
Currency	₩ 538	927	577	-	-	2,042
Interest rate	(5,667)	9,571	(67,109)	52,896	145,892	135,583
Stock	49	-	-	-	-	49
Hedging purpose derivatives:						
Interest rate	16,579	26,520	256,124	1,147,552	1,530,040	2,976,815
	₩ 11,499	37,018	189,592	1,200,448	1,675,932	3,114,489

	December 31, 2018					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Trading purpose derivatives:						
Currency	₩ 19	267	768	-	-	1,054
Interest rate	13,519	27,707	(67,904)	285,976	235,630	494,928
Stock	14	-	-	-	-	14
Hedging purpose derivatives:						
Interest rate	11,764	(4,700)	209,299	1,259,508	2,288,782	3,764,653
	₩ 25,316	23,274	142,163	1,545,484	2,524,412	4,260,649

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(In millions of won)

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Gross settlement of derivative instruments

	December 31, 2019					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Trading purpose derivatives:						
Currency						
Inflow	₩ 48,000,052	54,730,571	91,057,300	66,587,194	6,892,476	267,267,593
Outflow	48,124,220	54,735,040	91,106,646	66,367,317	6,944,884	267,278,107
Interest						
Inflow	-	-	3,920	11,760	-	15,680
Outflow	-	-	3,920	11,760	-	15,680
Hedging purpose derivatives:						
Currency						
Inflow	₩ 206,556	240,544	3,914,654	16,101,557	1,359,497	21,822,808
Outflow	216,715	242,605	4,718,333	16,375,497	1,376,509	22,929,659
Total inflow	₩ 48,206,608	54,971,115	94,975,874	82,700,511	8,251,973	289,106,081
Total outflow	₩ 48,340,935	54,977,645	95,828,899	82,754,574	8,321,393	290,223,446

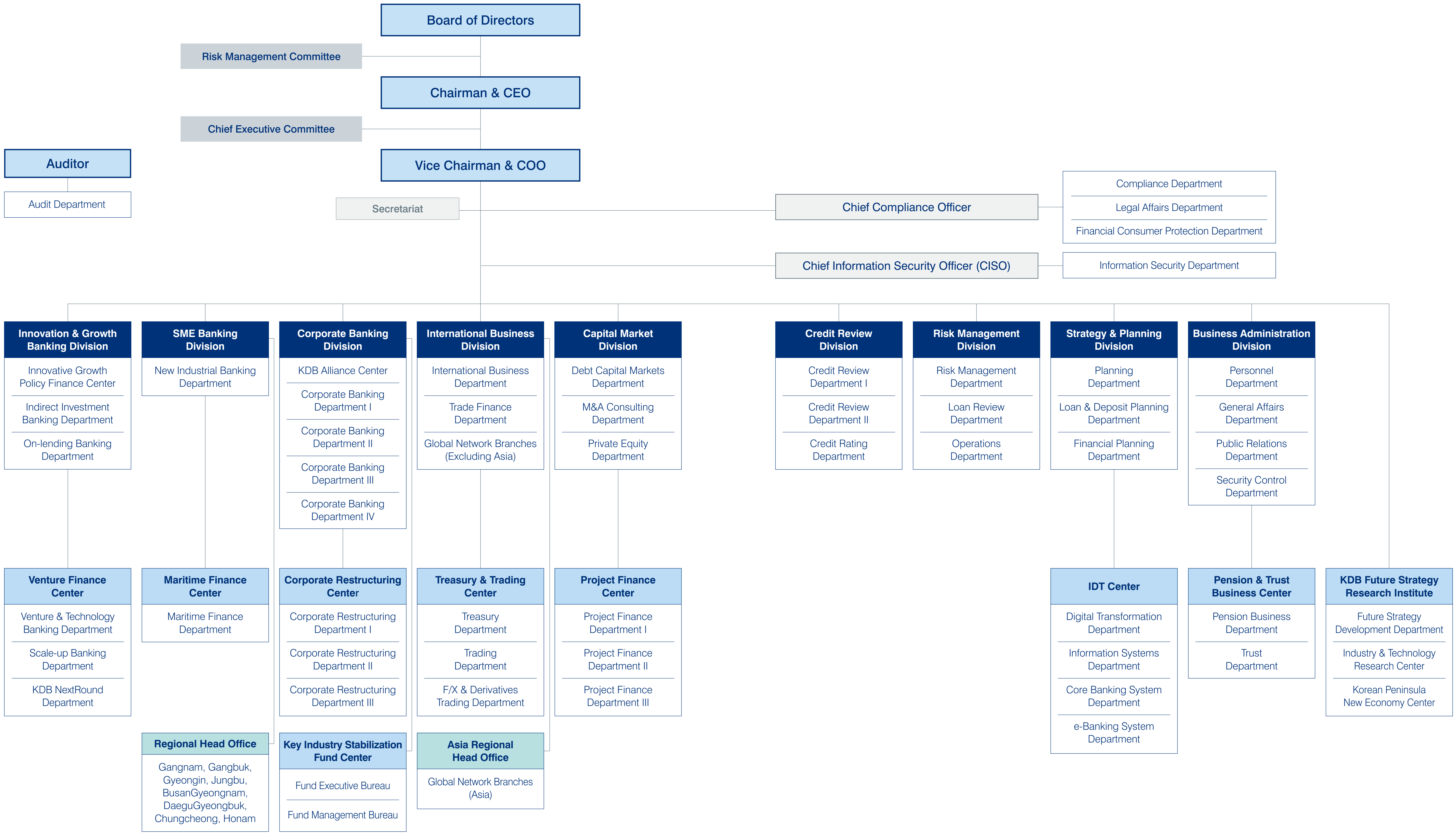
	December 31, 2018					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Trading purpose derivatives:						
Currency						
Inflow	₩ 44,391,921	33,891,350	58,815,290	57,202,816	5,725,749	200,027,126
Outflow	44,408,875	33,833,123	58,659,690	57,186,864	5,792,977	199,881,529
Hedging purpose derivatives:						
Currency						
Inflow	₩ 46,574	252,017	6,113,586	15,160,421	1,352,371	22,924,969
Outflow	57,180	263,943	6,133,158	15,110,967	1,352,215	22,917,463
Total inflow	₩ 44,438,495	34,143,367	64,928,876	72,363,237	7,078,120	222,952,095
Total outflow	₩ 44,466,055	34,097,066	64,792,848	72,297,831	7,145,192	222,798,992

Remaining contractual maturity analysis for guarantees and commitments as of December 31, 2019 and 2018 are as follows:

	December 31, 2019					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Guarantees	₩ 1,022,604	972,189	2,093,146	3,506,244	1,769,611	9,363,794
Commitments	99,762	98,347	1,078,500	2,680,167	26,259,808	30,216,584
	₩ 1,122,366	1,070,536	3,171,646	6,186,411	28,029,419	39,580,378

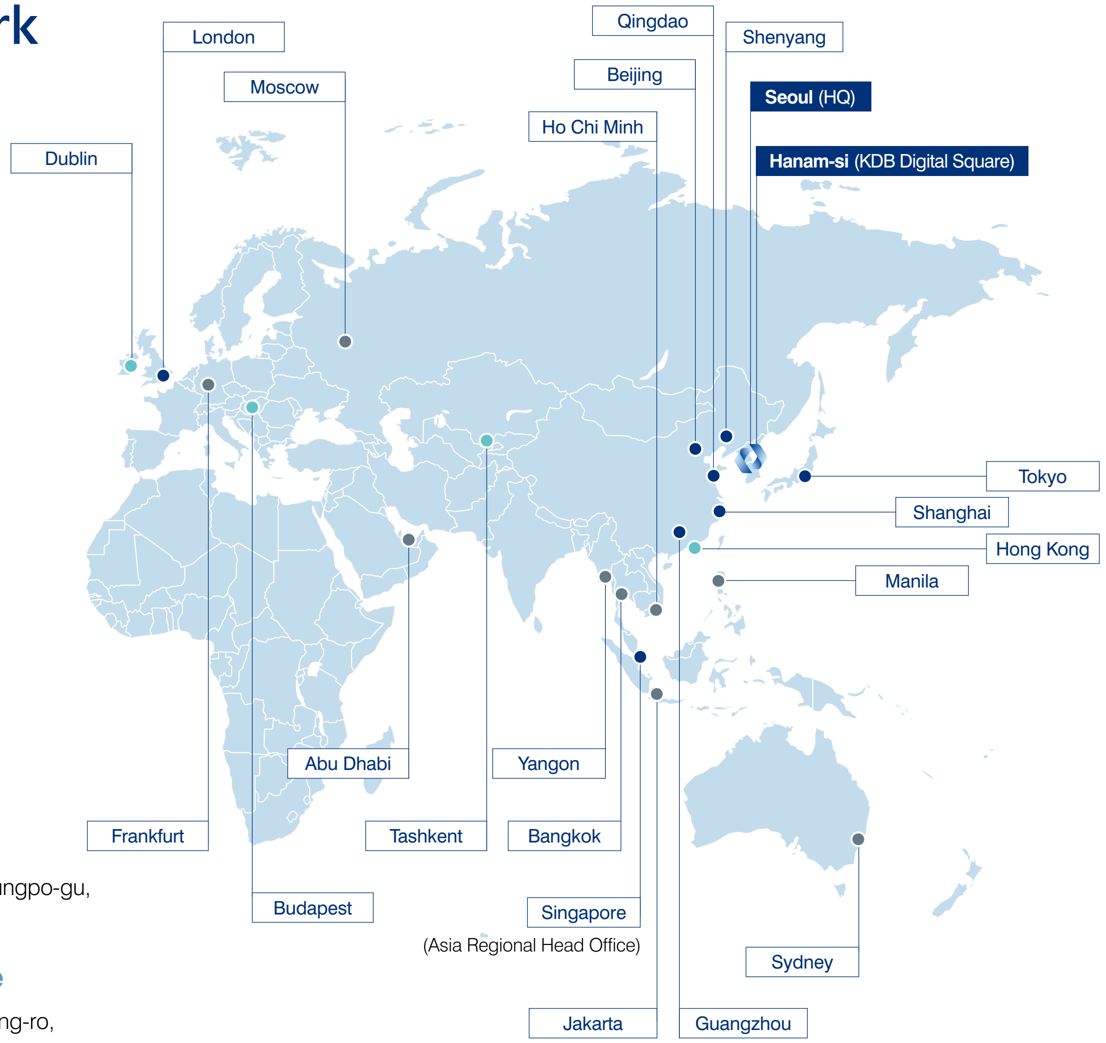
	December 31, 2018					
	Within 1 month	1~3 months	3~12 months	1~5 years	Over 5 years	Total
Guarantees	₩ 1,008,589	1,120,164	3,387,235	2,523,334	1,068,928	9,108,250
Commitments	115,917	190,689	533,197	2,396,257	27,148,078	30,384,138
	₩ 1,124,506	1,310,853	3,920,432	4,919,591	28,217,006	39,492,388

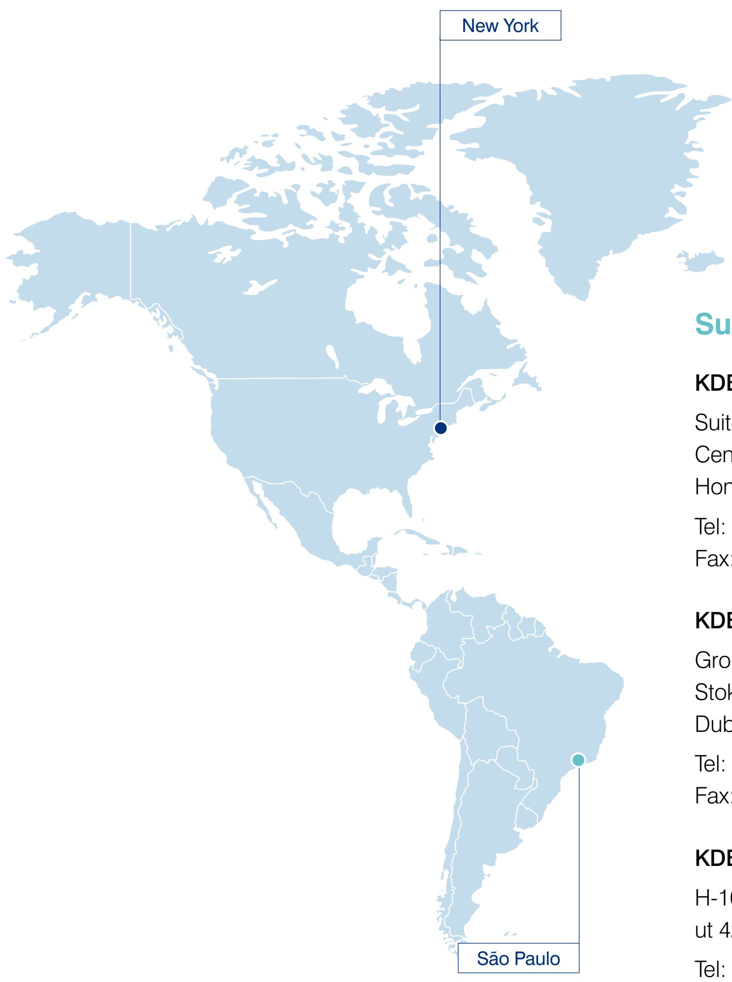
Organization



* Domestic Network

Global Network





- Headquarters
- Branch
- Subsidiary
- Representative Office

Headquarters

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