

To integrate or to exclude

Approaches to **sustainable investing**

For some of life's questions, you're not alone,
together we can find an answer.

Publication details

This report has been prepared by UBS AG, UBS Switzerland AG and UBS Financial Services Inc. (hereafter together "UBS"). Please see important disclaimer and disclosures at the end of the document.

This report was published on 13 July 2015.

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No sensible decision
can be made any
longer without
taking into account
not only the world
as it is, but the
world as it will be.

Isaac Asimov (1920–1992), author



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Dear readers,

Welcome to the first edition of a quarterly publication from the UBS Chief Investment Office that will delve into aspects of sustainable investing.

While interest in the field is growing, we believe that confusion related to key concepts still poses a hurdle to broader adoption. Spotlighting the concepts is a useful first step. Hence our focus in this issue on integration and exclusion, the two main approaches to sustainable investing. While exclusion is still the most widespread approach, we believe integration is where the future of sustainable investing lies.

We present the rationale behind these approaches, describe common strategies and highlight important distinctions that investors should keep in mind before proceeding. We also seek to dispel a common myth that sustainable investing must lead to financial underperformance.

For a general introduction to this field, we refer you to the UBS sustainable investing primer "Adding value(s) to investing," published in March.

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Section 1

Motivations and the basics

Do not go where the path may lead, go instead where there is no path and leave a trail.

Ralph Waldo Emerson (1803–1882), essayist



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Investor interest in sustainability has grown considerably in the last decade. Humanity faces various global challenges, and investors are realizing that the corporate sector can and must participate in meeting them. In turn, expectations are changing throughout society as stakeholders of companies – consumers, employees, investors, regulators or civil society – have stepped up their demands in sustainability matters. So more and more, how companies deal with sustainability-related risks and opportunities influences whether they succeed in the marketplace. This makes sustainability relevant for all investors, whether they are focused on it or not.

As we highlighted in our CIO Year Ahead 2015, sustainable investing (SI) can be implemented in different ways. To some degree, the approach chosen will depend on the motivation driving investors to SI. We distinguish three common motives.

The first and most traditional motivation is an investor’s aspiration to align portfolio content with personal values.

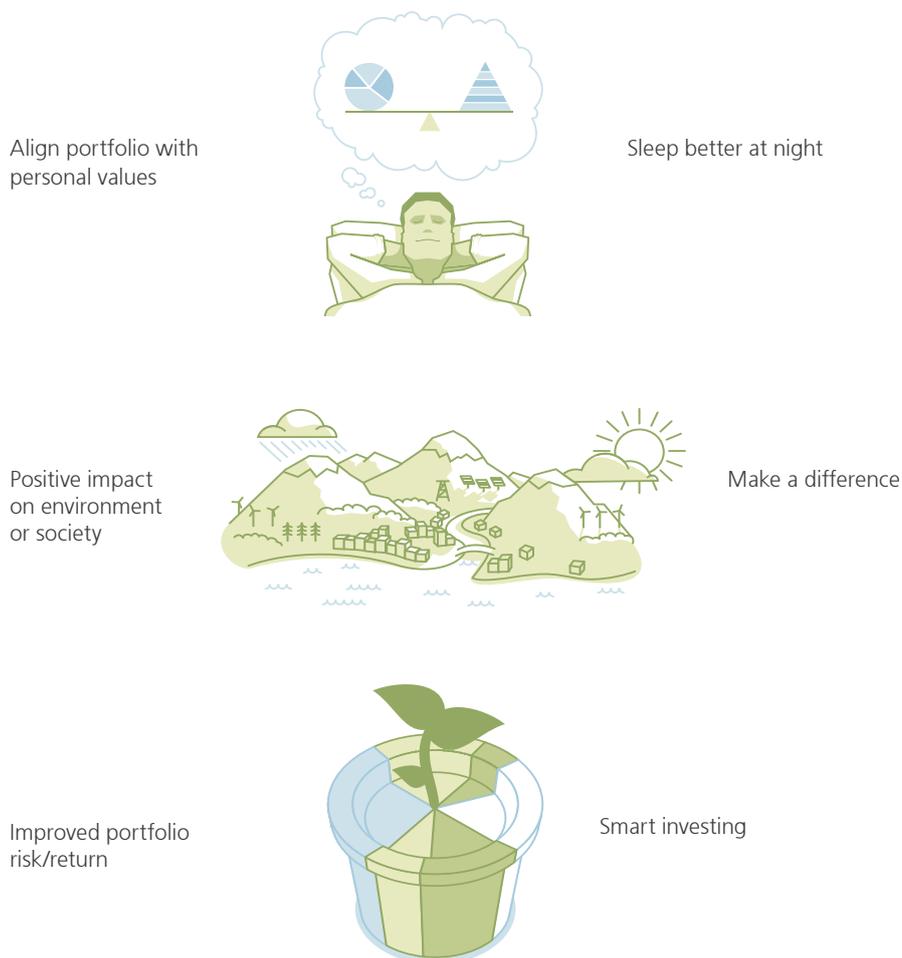
Investors wish to “sleep well at night” knowing that their portfolios are not financing activities that they find objectionable. For institutional investors such as charitable foundations, this motivation usually takes the form of mission alignment, i.e. investing in a manner compatible with the foundation’s broader charitable objectives.

The second motivation is the intention to achieve a positive social or environmental impact through investments. This extends the focus of the first motive beyond avoiding bad to actually “making a difference.”

The third is based on the belief that incorporating sustainability criteria into investment decisions achieves a fuller picture and better outcomes. In terms of portfolio theory, this suggests that risk / return characteristics can be improved. In other words, SI is viewed as a smart way to invest.

In actuality, investors may be driven by a blend of these motives, yielding various approaches to SI that emphasize

Fig. 1: Motivations for sustainable investing



Source: UBS

one motivation or another. We distinguish between three basic approaches to SI that can be combined based on investors' preferences.

We refer to the traditional and still most widespread approach to sustainable investing as **exclusion**. With an exclusionary approach, investors determine what activities they wish to avoid financing. Firms engaged in those activities are removed from portfolios. These choices are largely subjective, i.e. investor-specific. However, typical exclusions are alcohol, weapons, tobacco, gambling or adult entertainment.

Integration is a second broad group of approaches that has emerged and gathered steam during the last decade. It centers on systematically combining environmental, social and governance information with traditional financial considerations to guide investment decisions. Compared to the rather mechanical exclusion approach, integration is more holistic, pro-active and involves a higher level of expertise and data availability. It is becoming the state of the art in the SI industry.

The third and last approach is called **impact investing**. The objective is to have a positive and measurable impact on society or the environment in addition to achieving

a financial return. This can be done through a variety of structures, including private equity or through lending-based solutions such as microfinance.

This report focuses on the first two approaches, leaving impact investing to be treated in separate publications.

Sustainable investing and related terms

We refer to sustainable investing as the overarching concept that comprises three approaches: exclusion, integration and impact investing. However, it's important to note that a variety of related terms are used in the industry. Socially responsible investing (SRI) has been used since the 1960s. It is typically most closely associated with exclusionary approaches but is also frequently used more broadly to refer to the entire field. ESG, or environmental, social and governance investing, is also widely used, especially among institutional investors, as a broad concept. It is most closely aligned with the integration approaches.

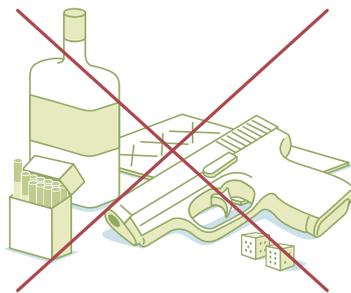
Fig. 2: Approaches to sustainable investing

Three basic pillars can be combined

Exclusion

Avoid controversial activities

USD 19.9trn



Integration

Use relevant sustainability information

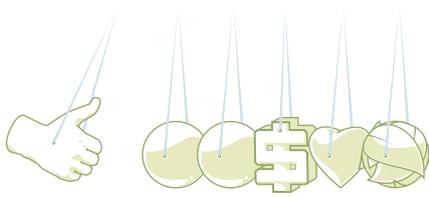
USD 13.8trn



Impact investing

Positive impact and financial return

USD 0.1trn



Source: UBS, 2014 figures from Global Sustainable Investment Alliance (GSIA).

Note: The categories are defined broadly and stricter definitions would result in smaller amounts. Exclusion combines GSIA categories "Negative/exclusionary screening" and "Norms-based screening"; Integration combines "Positive/best-in-class screening" and "Integration of ESG factors"; Impact investing corresponds to the GSIA category "Impact/community investing."

Section 2

Exclusionary approaches

The most common way people give up their power is by thinking they don't have any.

Alice Walker (born 1944), author



plainpicture/Maskot

Largely driven by the desire to align portfolio content with personal values, exclusionary approaches to SI have a long-standing tradition. Modern forms emerged in the 1960s, but the philosophy dates back to the 18th century.

With exclusion, also called negative screening, companies involved in certain activities are removed from an investor's portfolio. The areas excluded are ultimately a subjective decision often driven by personal values. Examples of typically excluded corporate activities ("controversial activities") are

- Tobacco
- Alcohol
- Weapons
- Gambling
- Adult entertainment

Other areas frequently excluded are animal testing, nuclear energy, genetically modified organisms, with the latter two often barred in Europe.

Exclusion as a process involves the following steps:

- Investors determine the activities to avoid.
- Investors determine applicable materiality thresholds or the said activities (e.g. at least 5% of revenues).
- Investment universe is screened, relying on a database.
- Companies breaching thresholds are removed from the investable universe and existing portfolios.
- Repeat with some frequency (e.g. quarterly or annually).

A key question to answer before applying negative screening to a portfolio is where to draw the line. This entails two aspects: materiality thresholds and the nature of business involvement.

The question of **materiality** is straightforward. Does an investor wish to eliminate issuers with any involvement at all in the excluded activities, or is there a tolerance for a small portion of revenues (e.g. no more than 5%) to arise from these areas? While the answer is personal, investors should keep in mind the tradeoff that exists between the strictness of the threshold and the financial impact of exclusions that may result.

The second point to consider is the **nature of involvement** in a given business activity. A key distinction is between manufacturing and distribution. Fig. 3 illustrates this distinction for typical excluded activities. If an investor wishes to exclude distribution, in addition to manufacturing, this could easily remove many retailers, hotel chains, cable companies, cruise lines or airlines from portfolios if combined with a low materiality threshold.

Exclusion for faith-based investors

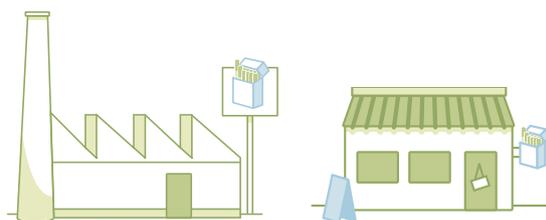
Faith-based investors frequently gravitate to negative screening and often incorporate additional exclusionary criteria. For example, Catholic investors usually bar contraception, abortion and embryonic stem cell research. In the US, for instance, the United States Conference of Catholic Bishops' Socially Responsible Investment Guidelines often serve as a resource. For Protestant investors, unified guidelines are not available, but typically apply some variation of "controversial activity" screening. For Jewish faith-based investors, there are no clear, generally accepted guidelines regarding exclusionary SI.

Solutions for Muslim investors incorporating Shari'ah-compliant negative screening have grown substantially in recent years. In addition to the standard "controversial activities" in particular alcohol, Islamic rules exclude pork and related products, as well as conventional financial services. In addition, companies are typically screened based on various financial ratios designed to capture indebtedness and interest burdens.

The key is to understand what particular exclusion criteria imply in practice and be comfortable with the result. In particular for investors who delegate the screening process to a third party, understanding the tradeoffs involved is critical to providing clear instructions and avoiding surprises later on.

One last consideration is whether to apply the negative screen early in the investment decision process or toward the end. Generally speaking, screening the relevant universe for undesirable activities before further analyzing securities is preferable to a back-loaded approach where the screening is more likely to skew the portfolio.

Fig. 3: Exclusion can yield unexpected results



Business activity to exclude	Production	Distribution
Tobacco	Tobacco manufacturers	Retailers, airlines, hotels
Alcohol	Alcohol manufacturers	Retailers, airlines, hotels, restaurants, cruise lines
Weapons	Weapons manufacturers Defense contractors	Retailers
Gambling	Casinos, hotels, cruise lines	
Adult entertainment	Specialized media	Media, cable and telecom companies, cruise lines, hotels

Source: UBS

Exclusion criteria are typically applied to stocks and bonds issued by corporations. Within the fixed income area, however, as far as sovereign issuers are concerned, different exclusion standards need to be applied. Sustainability-minded investors will often exclude countries based on criteria such as corruption, dictatorships, violation of arms proliferation treaties, nuclear energy, non-ratification of environmental conventions or death penalty convictions.

Other forms of negative screening

Two special forms of exclusion are worth mentioning specifically.

Norms-based screening is a form of exclusion practiced mainly in Europe. Investments are screened based on whether or not they conform with international standards and norms such as the UN Global Compact, the OECD guidelines for multinational enterprises or the ILO core conventions.

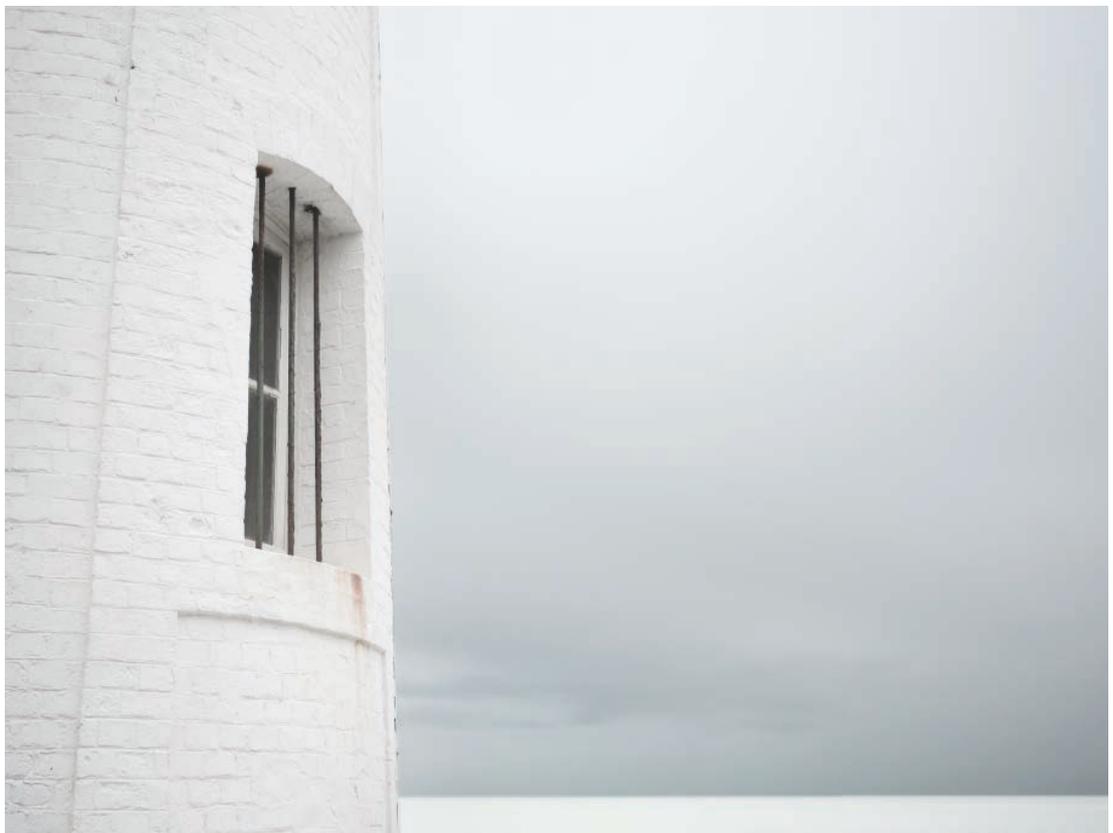
Fossil fuel divestment is a recent form of exclusion that emerged during 2014, led principally by institutional investors and initiated by NGOs to gather momentum ahead of the December 2015 World Climate Summit. The focus is on excluding companies with the largest reserves of coal, oil and gas based on their potential for carbon emissions. Some investors are focusing specifically on excluding coal; others are taking a broader perspective with oil and gas under scrutiny as well. Institutional investors ranging from Stanford University’s endowment, to the Rockefeller Brothers Fund, to most recently, Norway’s sovereign wealth fund, have adopted versions of this approach.

Section 3

Integrating sustainability

The most fatal illusion is the narrow point of view.

Brooks Atkinson (1894–1984), theater critic



plaimpicture/Yann Grancher

What's behind the growth in integration?

Integration approaches combine environmental, social and governance (ESG) information with traditional financial information to guide sustainable investment decisions. These approaches are more proactive than exclusion, less mechanical and involve a higher degree of expertise and a higher reliance on specialized information. They represent the state of the art in the SI industry and will become increasingly widespread, in our view.

Fig. 4: Considerations in sustainable investing

Examples of environmental, social and governance (ESG) factors



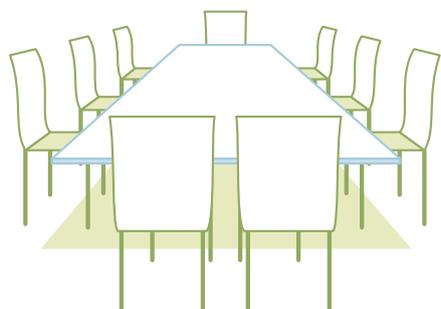
Environmental

- Environmental policy and management
- Energy footprint
- Water supply
- Sustainable transport
- Waste management
- Climate change strategy



Social

- Consumer rights
- Supply chain management
- Health and safety
- Product safety
- Labor relationships
- Community relations
- Stakeholder relations
- Human rights



Governance

- Board structure
- Board diversity
- Executive pay
- Shareowner rights
- Accounting / audit
- Business ethics
- Conflicts of interest

Source: UBS

While the rising societal and investor demands described in section 1 are certainly contributing to the increased adoption of integration-based approaches, there are two specific additional drivers.

First, investor signatories to the **UN Principles for Responsible Investment** (UN PRI) have grown in number. These Principles are a set of six voluntary, aspirational commitments to incorporate environmental, social, and governance (ESG) factors into an institution’s investment decision making and ownership practices. Members report on their own progress, thereby promoting more widespread adoption and implementation of the Principles. With nearly 1,400 signatories worldwide, half of whom joined in the last five years, many professional investors are now faced with the

challenge of living up to these commitments. By and large, they are developing integration-based strategies to SI.

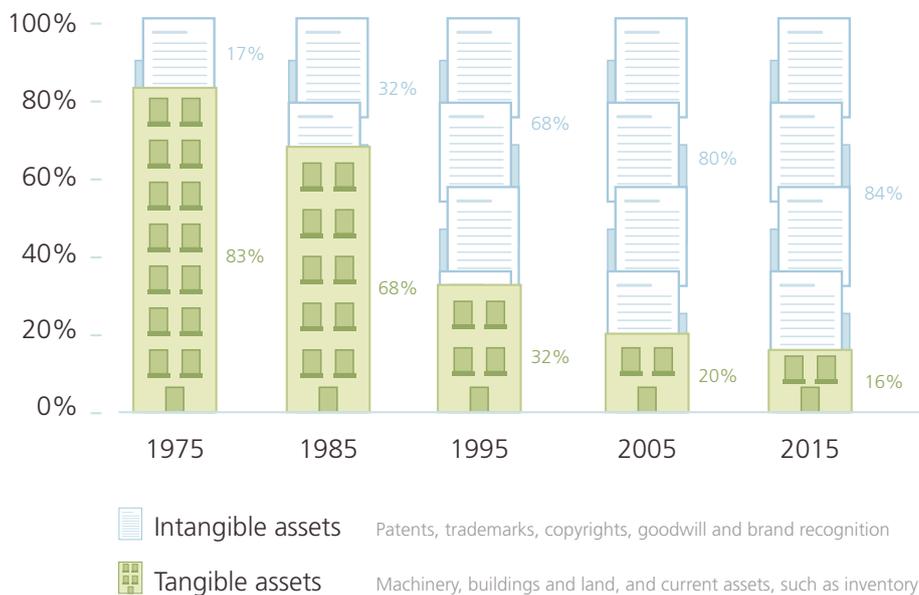
A second driver is the steadily **improving availability and quality of relevant data**. Companies are disclosing an increasing amount of sustainability data on a regular basis. Thanks to reporting and standardization initiatives such as the Sustainability Accounting Standards Board (SASB) or the Global Reporting Initiative (GRI), published data is also becoming more meaningful and comparable across issuers. Many NGOs are actively collecting data on a variety of issues, expanding the sustainability information available to investors. Finally, ESG research firms have grown and consolidated their resources and are providing well-developed, reliable commercial datasets for investment decisions.

Why may it be a good idea to incorporate sustainability information into stock or bond selection? When assessing the value of companies, it is striking to note that most value comes from intangible assets – such as intellectual property, goodwill, R&D, reputation, management talent – rather than tangible assets – such as plants, machinery and buildings. In fact, recent estimates place the fraction

of the S&P 500's value arising from intangible assets at 84%, up from less than 20% in the mid-1970s (see Fig. 5). As ESG issues are closely related to companies' intangible value, this suggests that understanding how companies are exposed to ESG risks and opportunities and how they manage them should be an increasingly important factor in determine corporate value.

Fig. 5: Intangible assets comprise the bulk of market value

Components of S&P market value in %



Source: Ocean Tomo (2015), UBS

Different ways to integrate

Broadly speaking, we distinguish between screening-based approaches to integration and so-called ESG integration.

Positive screening based on ESG ratings

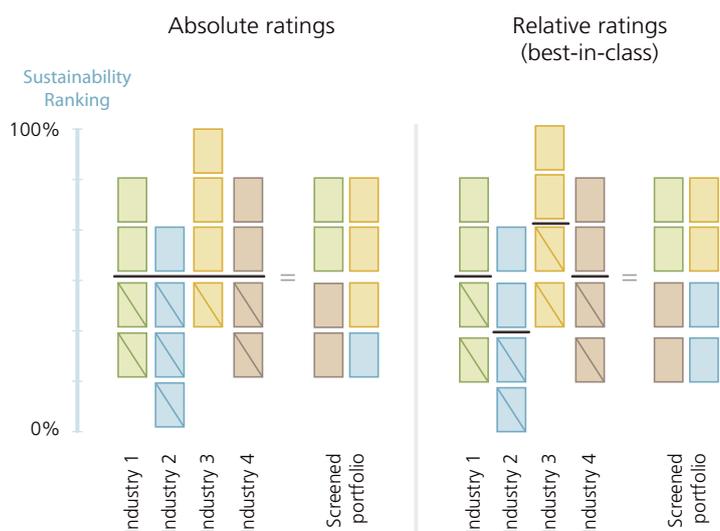
A more proactive form of screening than exclusionary approaches, integration-based screening typically requires considerably more information or expertise. It focuses on the better performing companies across a range of environmental, social and governance criteria, often based on an aggregate score or rating. The ratings are either developed in-house by investment managers or can be sourced from external ESG research providers that have developed their own methodologies and databases for commercial use. The main idea is to apply a standard security selection process, while focusing on the companies with higher ESG ratings.

A distinction can be made between two specific approaches: **positive screening based on absolute ratings** and **best-in-class screening** (see Fig. 6).

Though similar, the approaches result in portfolios with different industry compositions. The best-in-class approach ranks companies within each industry and targets the best rated ones, while maintaining an industry representation at the portfolio level broadly in-line with the original unscreened universe of securities. The purpose is to reward industry leaders, while avoiding large portfolio skews across industries and sectors. The result is that the best ESG performers in a poorly performing industry will be represented, while the worst performers in a highly rated industry will not.

In contrast, positive screening based on absolute ratings targets the best ESG performers across the entire scrutinized universe. This stance on sustainability may appear more intuitive and may appeal to investors seeking to apply a more unified standard across their portfolios. However, one should be mindful that this results in larger industry composition shifts.

Fig. 6: Absolute versus relative ratings



Source: UBS

ESG Integration

Unlike positive screening that relies on ESG ratings to select securities, ESG integration sets out to fully incorporate sustainability considerations into a standard security valuation framework.

As illustrated in Fig. 7, one can understand a company's value as the price that financial market participants will eventually be willing to pay for the firm's stream of expected future profits. ESG integration acknowledges and sets out to incorporate the fact that a number of ESG factors are likely to have a direct impact on future revenues and costs and thereby future profits.

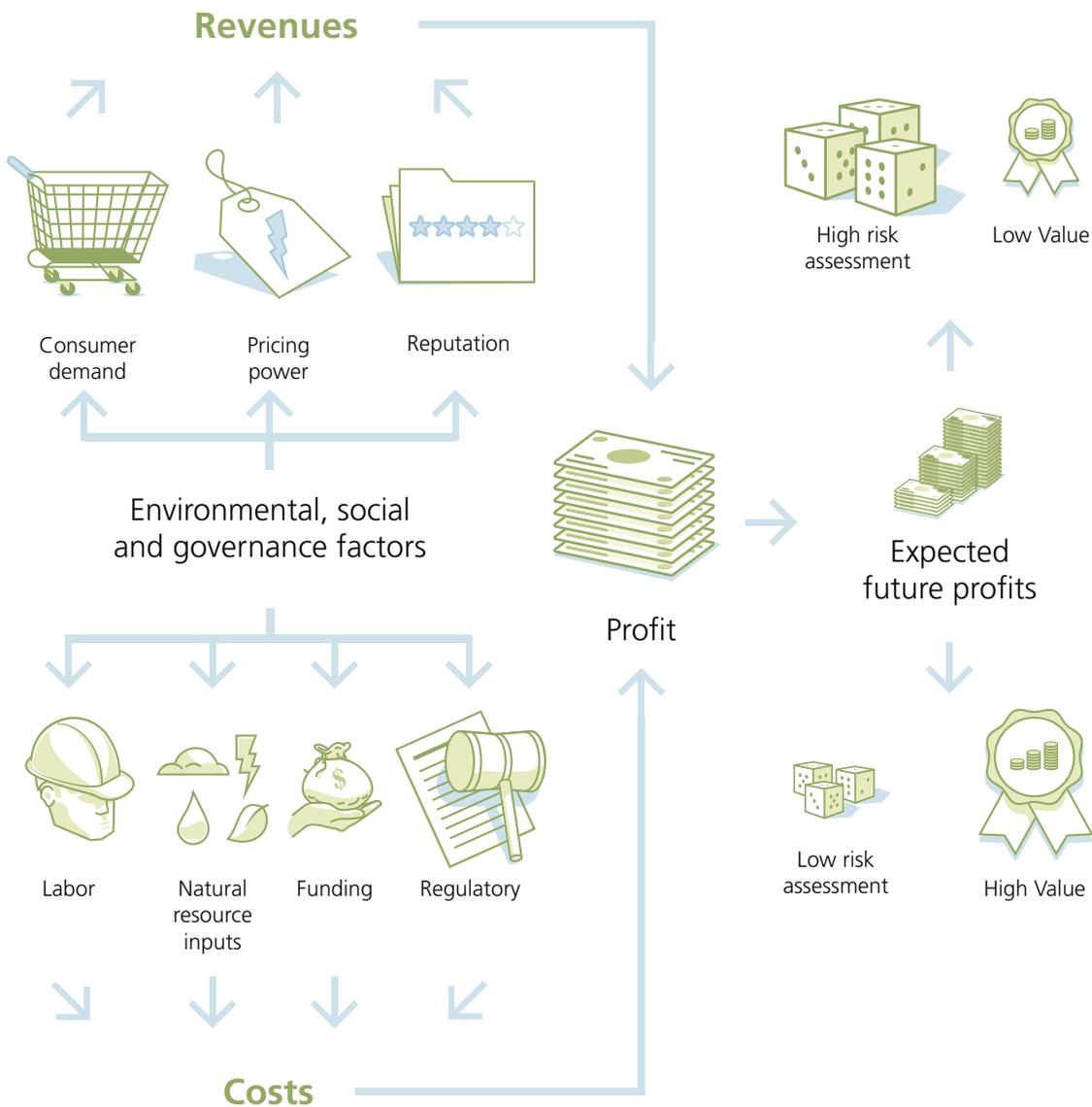
Costs are influenced by the price and availability of natural resources, labor market conditions and relations, legal liabilities or regulations the firm is subject to. Likewise,

revenues will be affected by the growth in demand for the company's products and services, as well as its pricing power dictated by the strength of its brand and reputation.

The final step is assigning a value to the expected stream of profits. This reflects the assumed path of interest rates but also the perception of risk and uncertainty regarding a firm's prospects. Higher risk and uncertainty regarding any of the drivers of revenue and cost (including ESG factors) are associated with lower company value.

While ESG factors are often implicitly incorporated in traditional financial analysis, a lack of ESG focus means this may not necessarily be done in a systematic way. ESG integration performs this task in a way that fully incorporates insights from sustainability analysis and seeks to avoid blind spots.

Fig. 7: Channels for ESG integration



Source: UBS

Materiality: The key to successful integration

While there is an increasing amount of sustainability information available, not all of it is relevant. Investors seek to identify those ESG indicators that have a material bearing on a company's value. These may be to a large degree company-specific or at least industry-specific. Distinguishing

between material and non-material sustainability information is key to running a successful sustainable investing strategy. Making that assessment requires a detailed knowledge of a company's industry, competitive context and specific circumstances (see Fig. 8).

Fig. 8: Determining what sustainability issues matter for a given sector



Financial impacts / risks

Issues that may have a financial impact or may pose a risk to the sector in the short-, medium- or long-term (e.g., product safety).



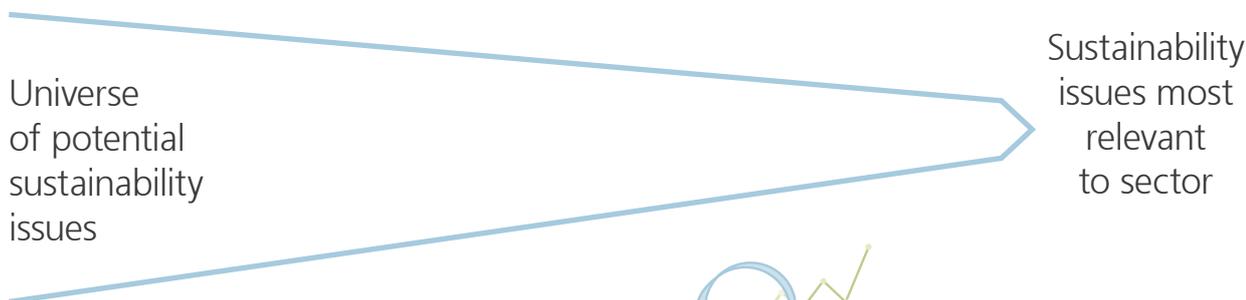
Industry norms / competitive issues

Sustainability issues that companies in the sector tend to report on and recognise as important drivers in their line of business (e.g., safety in the airline industry).



Opportunities for innovation

Areas where the potential exists to explore innovative solutions that benefit the environment, customers and other stakeholders, demonstrate sector leadership and create competitive advantage.



Legal / regulatory / policy drivers

Sectoral issues that are being shaped by emerging or evolving government policy and regulation (e.g. carbon emissions regulation).



Stakeholder concerns / social trends

Issues that are of high importance to stakeholders, including communities, non-governmental organizations and the general public, and / or reflect social and consumer trends (e.g. consumer push against genetically modified ingredients).

Source: Lydenberg et al. (2010), UBS

Section 4

Further considerations

Look at situations from all angles, and you will become more open.

Dalai Lama (born 1935), spiritual leader



plainpicture/Yann Cultura

Stocks versus bonds

With stocks and bonds accounting for the bulk of investment portfolios, it is useful to examine how SI is implemented in both asset classes (see Fig. 9).

Sustainable investing has been practiced within equities for a longer time than fixed income. SI is therefore better established in equities, and relevant data is more easily available. More recent developments are helping to alleviate this imbalance.

A second distinction is that stocks are issued by corporations only, while bonds can be issued by a range of entities from corporations to sovereigns (both at the national and subnational level), as well as multilateral organizations. A well-diversified bond portfolio will typically include allocations to various segments of issuers. When applying an SI framework, this complicates the analysis.

For exclusionary approaches, the procedure for sovereign and quasi-sovereign bonds is similar to stocks and corporate bonds but, as discussed in section 2, exclusion criteria will be different (e.g. corruption, dictatorships, arms proliferation etc.). For integration approaches, where the credit

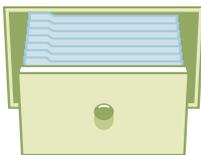
risk of sovereign issuers is paramount, the emphasis is often placed on ESG factors that capture downside risk.

Finally, while with equities it is clear that funding finances the issuer and potentially all its activities, with bonds financing may be earmarked to specific projects or backed by particular assets. For fixed income investors, therefore, the line between exclusion and integration, on one side, and the desire to invest with a targeted positive impact, on the other, is sometimes blurred.

This is increasingly visible in the growing market for green bonds, which are issued and earmarked by multilateral institutions such as the World Bank, or by corporations to finance environmentally friendly projects. This raises the question of whether an investor is interested in purchasing the green bond to finance the issuer or to finance the project. Screening and ESG integration aspects are more likely relevant at the issuer than the project level. Such questions are less relevant when investing in stocks, where there is no project earmarking.

Despite some of the challenges involved in fixed income, SI is growing within the asset class and the infrastructure to facilitate this trend is evolving in lockstep.

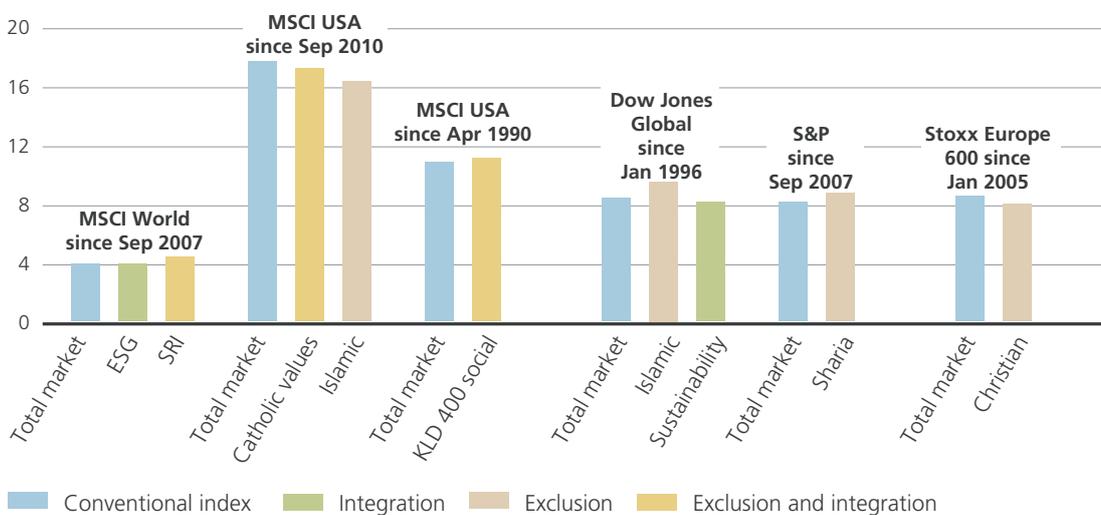
Fig. 9: Differences in sustainable investing between stocks and bonds

	Equities	Fixed income
 <p>Data availability</p>	Well established	Less developed but improving
 <p>Dimensions of analysis</p>	Focus on corporations	Focus on corporations and sovereigns
 <p>Investing with impact</p>	Possible but not straightforward	Possible, e.g. green bonds

Source: UBS

Fig. 10: Exclusion and integration typically have insignificant impact on performance

Annualized return for selected stock indexes, in %



Note: The choice of dates is based on the availability of the SI indexes. All figures as of 31 May 2015

Source: Bloomberg, UBS

Alternative investments

The alternative investment (AI) area has only recently begun developing sustainable investing solutions in part as a result of UN PRI commitments. The ease of implementing the two main approaches discussed in this report depends on what segment of AI one considers, i.e. hedge funds or private markets.

Exclusion may be applicable to private markets solutions on a project-by-project basis. However, it is likely to be challenging for hedge funds, since the screening process may limit the manager's flexibility, ability to operate and generate outperformance.

ESG integration appears to be the more promising avenue. To the extent that ESG considerations can, to varying degrees, be incorporated into a manager's investment process, sustainability can become the basis of a value proposition. For instance, a focus on alternative energy or clean technology may become the value driver for some managers. Moreover, private equity funds already seek to improve returns by implementing strong corporate governance in the companies in which they invest. Lastly, some fundamentally driven hedge fund managers who analyze material sustainability information may derive greater insight into company prospects.

Nonetheless, various challenges remain. The transparency requirements involved with positioning AI solutions as sustainable may be a deterrent in an area where private

information is traditionally valued. Moreover, available strategies may be restricted due to controversies surrounding their impact (e.g. the impact on jobs of leverage buy-outs, or the ethical questions associated with technologies such as GMOs or stem cells).

Effects on portfolio diversification and performance

The belief that choosing an SI strategy will cost them in terms of financial performance remains a concern for many investors. The thinking behind this belief is that applying a screening procedure limits the investable universe and risks sacrificing some profitable opportunities. Or that the screening process leads to less diversified portfolios that exhibit less favorable risk-return characteristics than unconstrained portfolios.

Empirical evidence from research conducted during the last three decades has failed to document any consistent difference in performance between SI and conventional strategies. Fig. 10 illustrates this point with various stock indexes from several providers that incorporate exclusion, integration or both. While for a given time period and a given index provider, slight differences can be observed, these are not consistent in one direction or the other. This holds for exclusion and integration-based indexes, as well as those that combine both approaches.

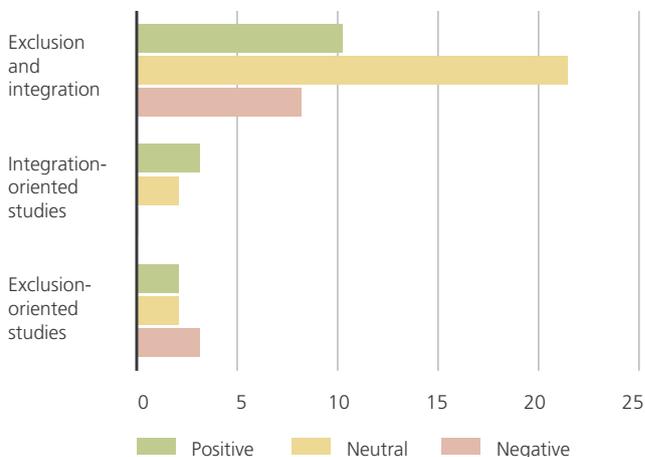
Academic research has analyzed this question for decades. We surveyed over 50 articles written since 2000 and consolidated the findings in Fig. 11. Some of these studies analyze indexes, as we did above, while others investigate the performance of SI investment managers, comparing them to conventional peers. On balance, academic evidence does not show any systematic performance bias against SI. In fact, we found a slightly larger number of studies with results favoring SI.

We conclude that on balance, across markets and through full market cycles, evidence suggests that SI performs no better and no worse than conventional approaches.

So why does the evidence not support the common belief about SI underperformance? As in Fig. 12, we can separate three different channels through which SI screening may affect portfolio diversification. First, screening (both exclusionary and positive screening) reduces the number of securities, which has a negative effect on portfolio diversification. Second, by excluding some industries, screening can increase the average correlation (i.e. the tendency to move in sync) of the remaining securities. This too has an adverse effect on portfolio diversification. However, a third effect comes into play that can potentially offset the first two. A variety of studies have shown that stocks of companies with higher ESG performance exhibit a lower level of stock-specific risk (see references in bibliography). This

Fig. 11: Academic studies show no systematic underperformance of SI strategies

Number of surveyed studies with positive, negative or neutral conclusion regarding SI performance versus conventional strategies

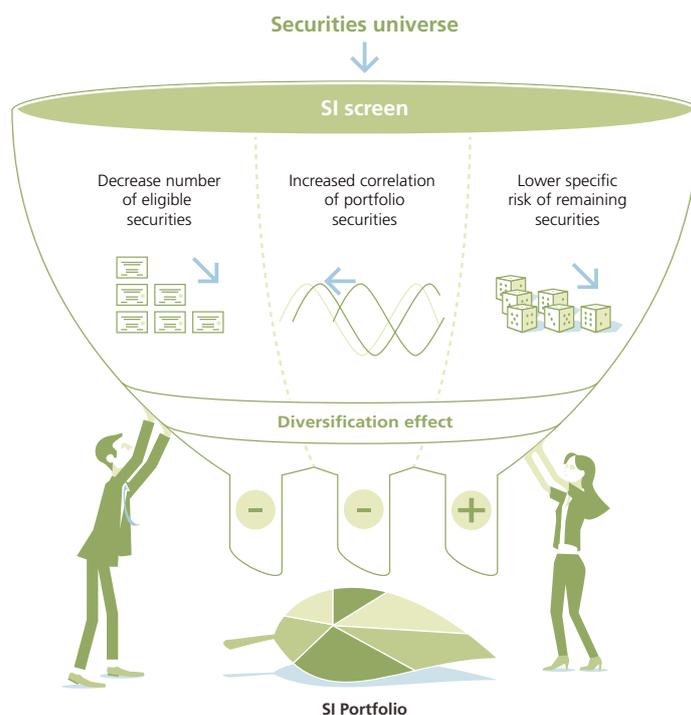


Source: UBS

finding indicates a positive contribution from SI screening to portfolio diversification.

These opposing effects on diversification suggest that the relationship between SI strategies and financial performance should not be expected to systematically point in one direction.

Fig. 12: Mixed effects of SI screening on portfolio diversification



Source: Hoepner (2010), UBS

Outlook

All the forces in the world are not so powerful as an idea whose time has come.

Victor Hugo (1802–1885), author



iStock

There is a solid case to be made for sustainable investing. At the very least, acknowledging that performance concerns are not borne out by the evidence suggests that investors motivated by a desire to align their portfolios with personal values or to achieve a positive impact should find it easy to embrace sustainable investing today.

Available strategies have become increasingly well developed and the set of investment solutions has matured considerably. What is left is to understand the main

distinctions between available options and to discuss in greater detail with financial services providers. We hope this report has been helpful in providing a basis in this respect.

The following issues in this quarterly series will continue on this path, placing the spotlight on a variety of different topics and investment themes relevant for sustainable investing.

Glossary

ESG: Environmental, social and governance

GRI: Global Reporting Initiative

ILO: International Labour Organization

NGO: Non-governmental organization

OECD: Organisation for Economic Co-operation and Development

SASB: Sustainability Accounting Standards Board

SI: Sustainable investing. Overarching concept that comprises three approaches: exclusion, integration and impact investing.

SRI: Socially responsible investing

UN PRI: United Nations Principles for Responsible Investment

Bibliography

Bauer, R., J. Derwall and D. Hann. (2009) "Employee Relations and Credit Risk." Working Paper, European Centre for Corporate Engagement, Maastricht University.

Boutin-Dufresne, F. and P. Savaria. (2004) "Corporate Social Responsibility and Financial Risk." *Journal of Investing*, 13 (1): 57–66.

Hoepner, A. (2010), "Portfolio diversification and environmental, social or governance criteria: Must responsible investments really be poorly diversified?" Working Paper, University of Reading – ICMA Centre.

Lee, D. D. and R. W. Faff. (2009) "Corporate Sustainability Performance and Idiosyncratic Risk: A Global Perspective." *The Financial Review*, 44 (2): 213–237.

Lydenberg, S., J. Rogers and D. Wood (2010), "From Transparency to Performance", Initiative for Responsible Investment, June 2010.

Ocean Tomo (2015), "2015 Annual Study of Intangible Asset Market Value"

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Version 05/2015.

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