UBS Research Focus

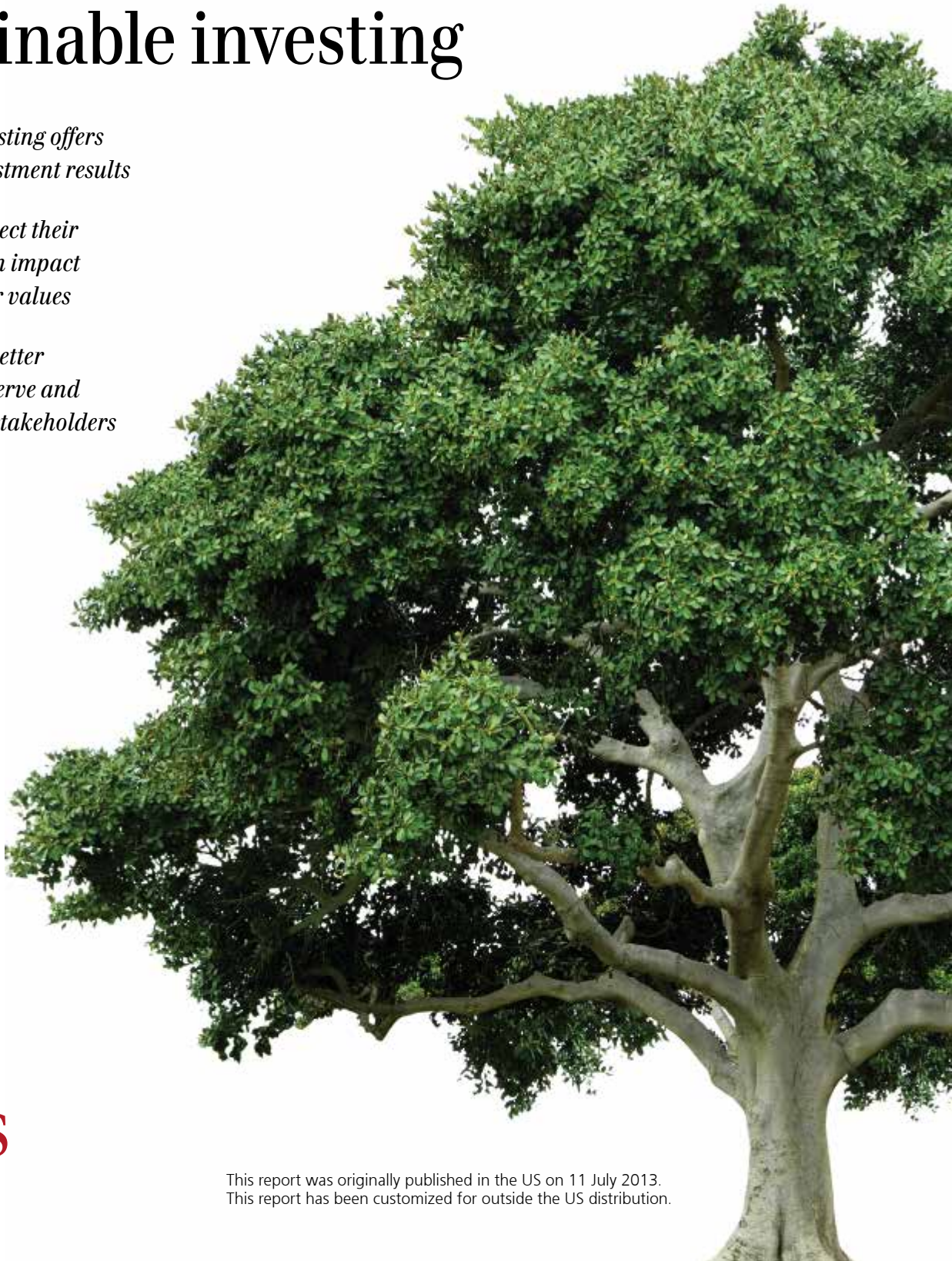
CIO Wealth Management
July 2013

Sustainable investing

Sustainable investing offers competitive investment results

Investors can direct their assets to make an impact and express their values

Companies are better equipped to preserve and create value for stakeholders



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This report was originally published in the US on 11 July 2013.
This report has been customized for outside the US distribution.

UBS Research Focus

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11 July 2013

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Pictures
getty images

Printer
Fotorotar AG, Egg, Switzerland

Translation
CLS Communication, Basel, Switzerland
24translate, St.Gallen, Switzerland

Languages
Published in English, German, Italian, French, Spanish, Portuguese & Russian

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*We would like to thank Sita L. Chavali, an employee of Cognizant Group, for her assistance in preparing this research report. Cognizant staff provide research support services to UBS.

SAP-Nr. 82092E-1301

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Sustainable investing

Editorial

Alexander S. Friedman

Kurt E. Reiman

Dear readers,

Since the turn of the millennium, we have witnessed imploding asset bubbles in technology and housing, a long list of governance lapses and accounting scandals, and the greatest financial crisis of our time. In response, there appears to be an emerging baseline consensus among investors that the unsustainable economic and industry trends of recent years cannot be allowed to continue. Put simply, the social fallout is too great.

And so, one of the megatrends building across the financial landscape is focused on how investors can express their values in their financial decisions and have a positive impact on the world around them. The end goals are clear – improve risk-adjusted performance, make a positive social impact with capital allocation and incorporate one's values – and to pursue these goals and drive their portfolios accordingly, investors are now evaluating a broader array of information and tools.

This report is about incorporating sustainability considerations into investment decisions – information that has traditionally been viewed as external to the investment process but is increasingly seen as central. We argue that synthesizing material environmental, social and governance factors together with other traditional fundamental data in the investment analysis and decision-making process has the potential to yield better performance outcomes and enables investors to express their values and make an impact through their investments.

Today's economic circumstances demand such a shift. The global economy faces threats from climate change, water scarcity, the depletion of other important natural resources, and other human-induced factors, which, if not managed well, will accelerate as the world's population grows and more people are lifted out of poverty. The 2008-09 global financial crisis exposed the excesses of unsustainable credit-fueled growth and governance lapses and also created numerous social needs in its aftermath, which governments have thus far failed to address.

Meanwhile, a growing number of corporations are not only leading the way in adjusting to these new economic, environmental and social realities, but are also working in conjunction with nongovernmental organizations and other stakeholders to help improve the situation. These organizations see sustainability as a source of competitive advantage. In this, they act out of rational economic self-interest, but with a win-win result for both their shareholders and the greater public.

From an investment standpoint, the timing of this shift is serendipitous. Companies have an unprecedented volume of data at their fingertips to help manage risk as well as to help preserve and grow

[continued]

shareholder value – just as efforts to standardize and integrate the reporting of sustainability factors are gaining momentum. Not only are companies thinking more strategically about a wider array of risks to their businesses, but also investors are better equipped to incorporate this information into their investment views.

But this is easier said than done. Sustainable investing is still unfamiliar to many investors, even though the financial services industry provides a broader than ever range of investment solutions and services to its clients. The business community may be taking a more holistic approach to managing risk and building value, but there is still a long path ahead before investors have full transparency on corporate sustainability efforts. And even when sustainability investments are applied to a portfolio, they are often treated as a separate sleeve rather than considered in the context of the entire spectrum of assets.

We invited practitioners and research professionals from across UBS – Wealth Management, the Investment Bank and Global Asset Management – to share their insights on this evolving subject of how to invest with a sustainability mindset. We also interviewed outside experts who have developed specialized insights for measuring the value proposition of investing in sustainable companies and the reason for incorporating sustainability metrics to preserve and create value.

Our goal with this edition of *UBS Research Focus* is to evaluate the evolution of sustainable investing, anticipate future developments and demonstrate why we believe a well-considered sustainability approach will add value to your portfolio.

Your invested assets are already having an impact on the recipients' cost of capital. The question that now needs to be asked should be: "Is your money being invested in a way that reflects your values and serves your long-term financial interests and fully considers the welfare of future generations?"

Alexander S. Friedman
Global Chief Investment Officer
Wealth Management

Kurt E. Reiman
Head, Thematic Research
Wealth Management

"SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS."

Brundtland Commission, Our Common Future

SECTION 1

What is sustainable investing?

Julie Hudson, Maryam Khan, Kurt E. Reiman, Alexander Stiehler

Humble beginnings

Today's sustainable investing strategies are rooted in early ethical investing approaches, which date back several hundred years to times when Islamic, Jewish and Christian religions made economic and investment decisions based on their faith (see Fig. 1). The first ethically oriented investment fund – the Pioneer Fund – actually dates back to 1928 during the Prohibition Era, when churches encouraged investors to avoid investments in alcohol, firearms, tobacco and other "sin" stocks.

The civil rights and environmental movements in the 1960s and 1970s ushered in the modern era of socially responsible investing (SRI) as events of the time prompted many investors to completely reevaluate their investment decisions. SRI emerged as an extension of ethical investing, and its focus continued to rest on avoiding companies involved in activities that proved offensive to certain investors, such as tobacco, alcohol, gambling, pornography, animal testing, genetically modified organisms and military exposure.

Divestment from South Africa during the 1980s was credited as being one of the key forces that ended the apartheid regime. Meanwhile, the Three Mile Island partial nuclear meltdown in the US, the Chernobyl nuclear fallout in Ukraine, the Union Carbide explosion in Bhopal, India, and the Exxon Valdez oil spill off the coast of Alaska focused attention on environmental issues. Activist investing also emerged around this time, as major investors sought to not only influence the cost of capital of controversial companies but also the decisions made by the board of directors.

Sustainability comes of age

The concept of sustainability, however, first emerged on the world stage more than a quarter century ago. It happened in 1987 when the

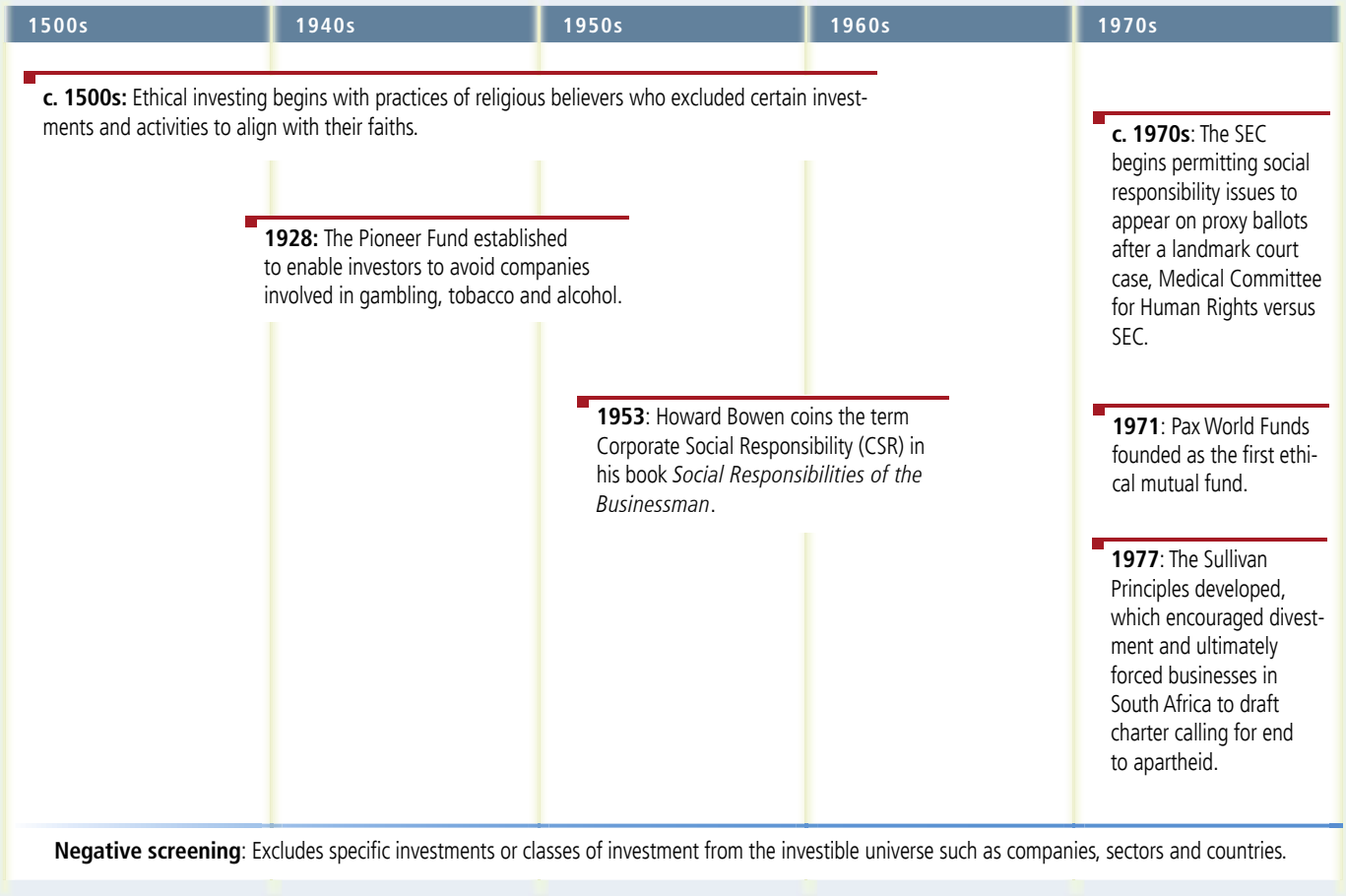
United Nations' Brundtland Commission published its groundbreaking report entitled *Our Common Future,* which stated that "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1]

But for much of the decade that followed, the planet's carrying capacity and the world's social frictions were less of a priority to investors, given the steady decline in poverty rates, low and falling commodity prices, above-trend rates of economic growth in developing countries and a generally muted business cycle.

However, perceptions began to change in the early years of the new millennium because:

- High-profile company failures and the US subprime mortgage meltdown put the spotlight on questionable corporate governance practices
- Rising global consumption of commodities alongside economic development in highly populated emerging market economies began to place upward pressure on the prices of most natural resources
- Income inequality grew more widespread in developed and developing countries alike
- Evidence of environmental degradation, such as climate change, water scarcity, air pollution and strip mining grew more widespread.

Fig. 1: Evolution of sustainable investing



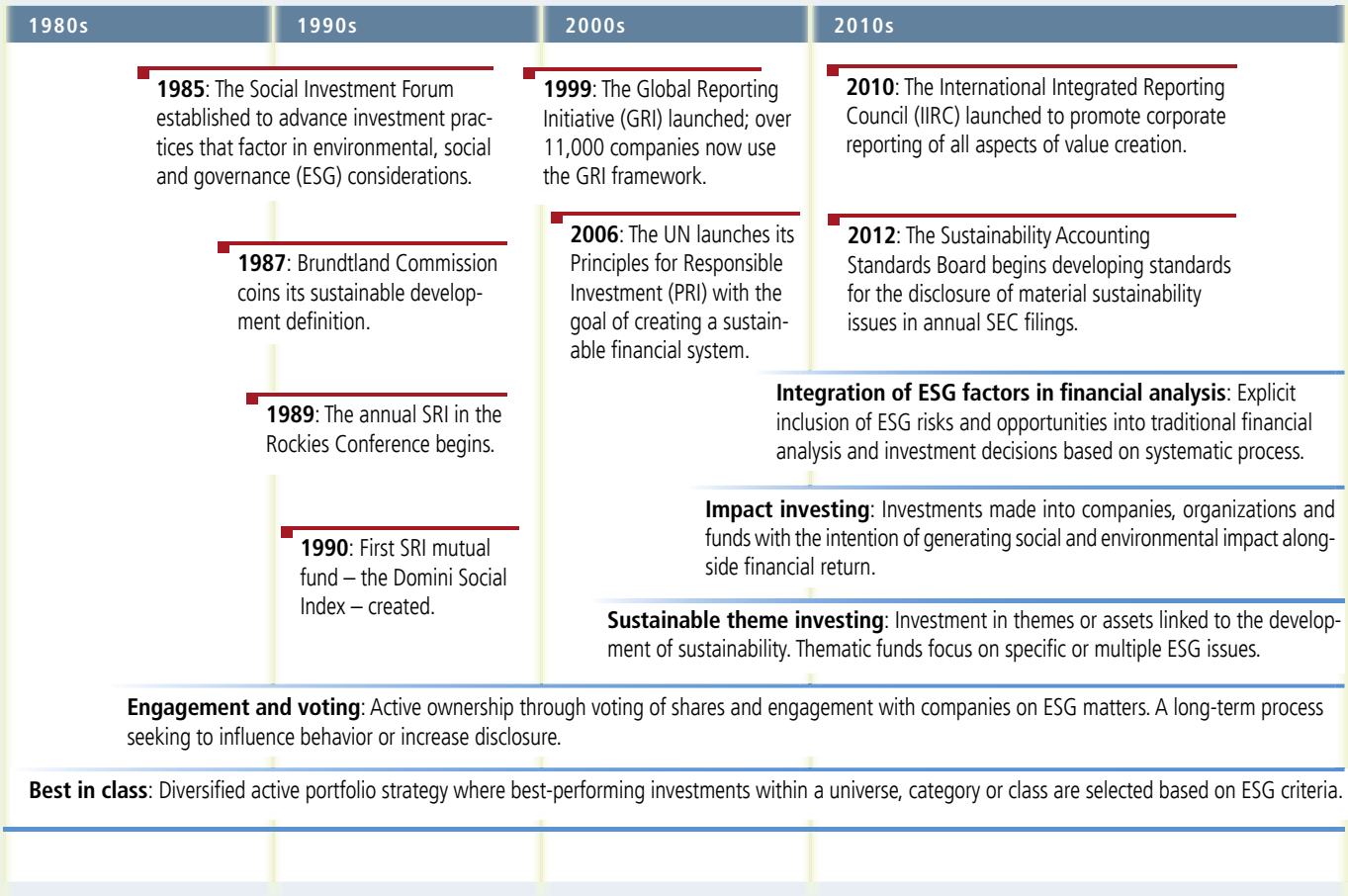
Source: UBS, as of 5 June 2013

Responding to pleas for companies to play a greater role in solving these problems, the United Nations launched its Principles for Responsible Investment (PRI) in 2006 to provide voluntary guidelines for financial institutions and investors to integrate and address environmental, social and governance (ESG) factors in their investment decision-making process (see Fig. 2).

Consequently, sustainable investing has evolved from its early focus on restricting investments and divestiture to one that also incorporates sustainability considerations as a positive input when evaluating the underlying value, risk and return potential of companies. At UBS, we have developed our own definition of "sustainable investing."

Building on traditional investment approaches, sustainable investing incorporates environmental, social, governance and other fundamental sustainability factors into the investment decision-making process to both preserve and create value for investors. This rounded approach to investing seeks to generate competitive risk-adjusted returns. It also provides a framework that enables investors to have their values reflected in their financial portfolio and have a positive impact on society through their investments.

Sustainable investing, properly implemented, goes beyond the mere integration of ESG issues within the investment process. One could argue



that it could simply be called "investment," for it denotes the taking into account of all relevant inputs to the investment decision-making process. Nevertheless, ESG integration is still a much-needed discipline for the simple reason that economics and financial analysis, and indeed corporate strategy and reporting, as currently implemented, tend to work on the basis of models in which environmental and social costs, benefits, assets and liabilities are "externalized."

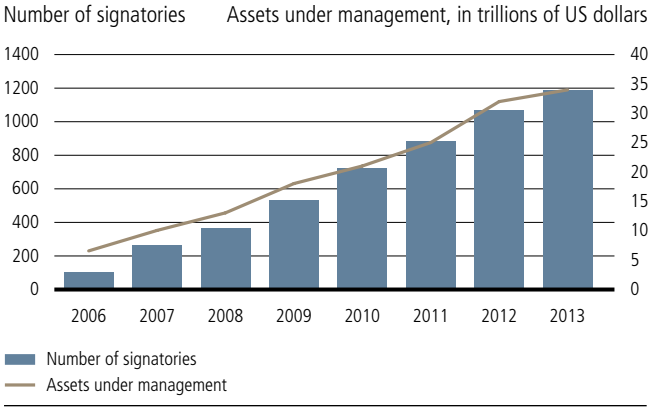
This can make ESG integration a challenge, and investors need tools to help them deal with the difficult job of seeing the forest for the trees in the increasingly available ESG-related data. Fortunately, common reporting and accounting standards are emerging, as we discuss in Section 3. Consequently the landscape of sustainability-relevant data is in the process of being rationalized and put on the same quality plane as traditional financial data.

Sustainability goes mainstream

Sustainable investing strategies have seen positive inflows over the past several years, outpacing the overall growth of assets under management in Europe and North America – the regions where sustainability has had its greatest uptake (see Fig. 3).[2] In its 2012 review, the Global Sustainable Investment Alliance estimated the size of the sustainable investing markets at $13.6 trillion globally, which represents more than 20% of assets under management in the regions surveyed.[3] The sustainable investing strategies with the most invested assets are exclusion strategies (for example, "negative screening") and those that integrate ESG criteria. Impact investing, a relative newcomer in the sustainability arena, has fewer assets than other strategies but also has strong potential for future growth.

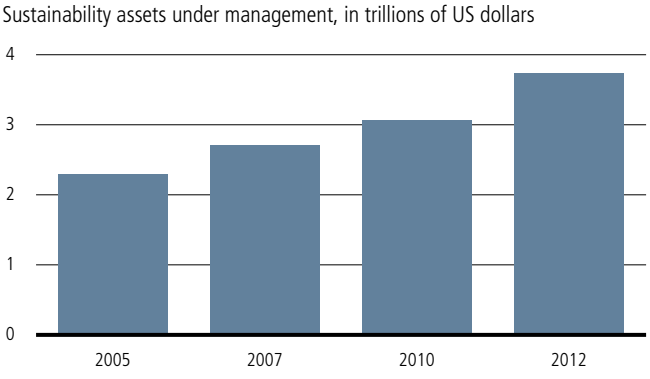
We expect assets under management in sustainable investing strategies will continue to grow in the coming years thanks to intensifying awareness among investors about environmental, social and governance concerns. We also believe greater information and transparency on ESG considerations will enable investors to better manage risk and assess how companies are preserving and creating value, as we discuss in Section 3. In Section 4, we consider the questions investors need to ask when constructing a sustainable portfolio. But first, in Section 2, we will take a look at the ways sustainable investing can deliver improved risk-adjusted performance.

Fig. 2: Membership has grown since PRI's inception in 2006



Source: PRI Association, UBS, as of 30 June 2013

Fig. 3: Steady growth in sustainability assets in the US



Source: US SIF Foundation, UBS, as of 30 June 2013

"CEASE BEING INTIMIDATED BY THE ARGUMENT THAT A RIGHT ACTION IS IMPOSSIBLE BECAUSE IT DOES NOT YIELD MAXIMUM PROFITS, OR THAT A WRONG ACTION IS TO BE CONDONED BECAUSE IT PAYS."

Aldo Leopold, A Sand County Almanac

SECTION 2

What are the benefits of sustainable investing?

Julie Hudson, Maryam Khan, Kurt E. Reiman, Alexander Stiehler, Eva Zlotnicka

Seeing the bigger picture

The 2008-09 global financial crisis and economic downturn may have shifted investor attention to longer-term trends and themes and away from short-termism. We believe investors now place a greater premium on reducing volatility in their portfolio given the wide swings in equity markets since the turn of the millennium.

There are several possible approaches to a strategy of risk reduction. One is to reduce risk assets in a portfolio. The shift to asset liability management (and away from riskier assets such as equities) currently visible in the defined benefit pension fund market is a good example. An alternative approach is to search for ways to account for a broader spectrum of risks relevant to invested assets. The integration of environmental, social and governance (ESG) issues within the investment decision-making process does exactly that (see Fig. 1).

We see the rationale for a sustainability focus in investment portfolios as clear, in the sense that it helps address these two significant concerns about volatility and risk. However, many investors continue to question the performance results, assuming that a focus on sustainability implies some sort of trade-off. Although certain sustainability-oriented funds may have generated mixed performance results in the past, this is no different than with any active investment approach. Moreover, there is evidence to indicate that companies with higher sustainability scores can and do generate better financial performance.

And as we wrote in Section 1, performance may be only one consideration when investing through a sustainability lens; impact investing

Fig. 1: Examples of environmental, social and governance factors

Source: PRI Association, UBS, as of 30 June 2013

and values-based investing strategies may be equally or even more important than performance to some investors. We take a look at these potential benefits, too.

Sustainability funds manage to keep pace

One of the main concerns people have with sustainable investing funds is in the area of performance. The general perception is that investors cannot achieve outperformance with this investment approach and might even have to sacrifice returns.

This belief may flow from the enormous amount of academic research that has been published about the financial performance of sustainable investing funds over the past several years.[1] The literature concludes that sustainable investing strategies perform about in line with mainstream benchmarks.[2] Finance theory holds that actively managed portfolios should diverge from the benchmark in proportion to the risk taken – the so-called "tracking error." On average, active funds are expected to underperform by the investment costs. The unexciting conclusion that it makes little difference is therefore noteworthy, since it suggests that ESG or socially responsible investing (SRI) funds are not consistently suffering the "return sacrifice" so often heard in discussions of sustainable investing.

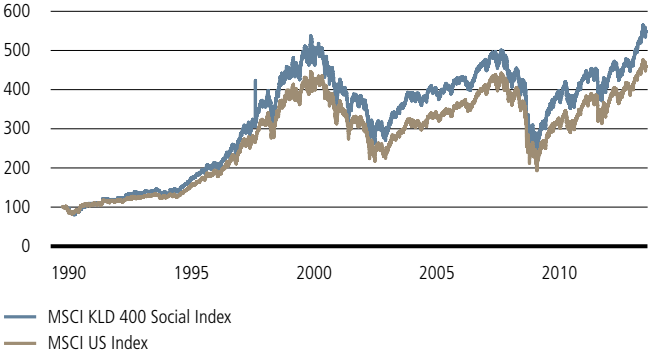
Some portfolios specializing in sustainable investing take their cue from long-term trends. Thus, shorter-run financial performance assessments of, say, three to five years may be inappropriate. Some of the opportunities and risks these funds take into account can be uncertain in terms of scope and timing. We note that this is not just a problem for sustainability funds – it can happen to other investment styles, too. Those with long memories will remember the "small-cap effect" (the belief that small companies outperform large ones) which disappeared as soon as it had been proven to exist in academic research; or, more recently, the inescapable underperformance of value funds during the tech bubble followed by their dramatic reversal in early 2000.

In addition to funds, investors can also assess the track record of broad sustainability indexes as a proxy for the relative performance of sustainable investing strategies. For example, the MSCI KLD 400 Social Index is a well-known index that includes 400 US companies with strong ESG ratings and also screens out companies with certain potentially objectionable business activities. Since its inception in the early 1990s, the index has delivered competitive results when compared to the broader US equity market but not substantial outperformance (see Fig. 2).

Sustainable investing is not always about risk reduction, indeed some approaches are higher risk, requiring a more sophisticated fund holder. These include thematic portfolios, which are less well-diversified than broader portfolios because they focus on companies relevant to,

Fig. 2: Sustainable investing offers competitive results

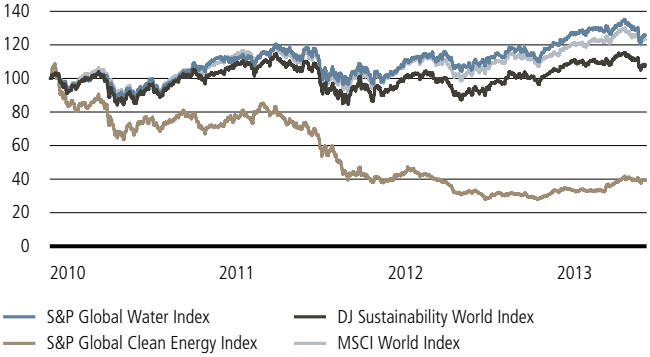
MSCI KLD 400 Social Index versus MSCI US Index (June 1990 = 100)



Source: Bloomberg, FactSet, UBS, as of 3 July 2013

Fig. 3: Thematic funds offer different risk/return profile

Selected "sustainability" and broad equity market indexes (January 2010 = 100)



Source: Bloomberg, UBS, as of 3 July 2013

for example, water scarcity mitigation or climate change. To many, such portfolios seem much more promising than "exclusion" portfolios. But even a thematic approach has its limitations. Consider the concept of alternative energy. Conceptually speaking, alternative energy is connected to the idea of sustainability, but if delivered through listed solar and wind companies, it immediately takes on sector risk characteristics that have little to do with sustainability. For example, a solar company is, in effect, a hybrid of silicon (part semiconductor) and assembly (part industrial) indicating that this sector will be fiercely competitive, potentially cyclical and volatile in the short run in share price terms.

Many alternative energy companies were relative startups in 2010, making it unlikely that investors would see a return of cash in the form of dividends. The investor in any sector having this sort of risk profile – competitive, cyclical, volatile, cash hungry – needs a strong risk appetite and a flexible time horizon. As Fig. 3 illustrates, investors in the S&P Global Clean Energy Index "sacrificed" returns, not because they were invested in sustainability but because of the risks specifically associated with the limited universe of companies available to provide exposure to the theme.

The S&P Global Water Index, which is also associated with sustainability, appears to be less volatile and has behaved quite differently. We stress that this says nothing about future returns. The key point illustrated here is that investors should not view the risks and opportunities associated with each sustainable investing theme in isolation, but should consider them as part and parcel of everything relevant to the fundamentals.

Better company performance

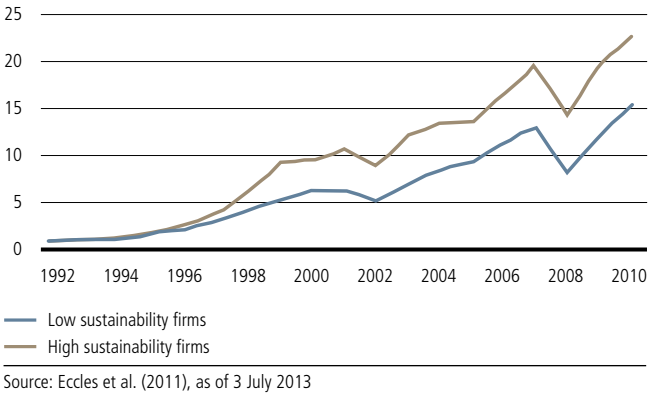
While funds and indexes may generate mixed results compared to traditional equity benchmarks, there is evidence to show that sustainable companies generate outperformance. Academic research is virtually unanimous in showing that sustainability efforts – either through a focus on ESG considerations or a broader corporate social responsibility commitment – lower a firm's cost of capital and improve access to financing.[3] If sustainability considerations can lower a firm's cost of capital, there is reason to believe that companies can also produce better financial results. And again, the vast majority of academic studies conclude that ESG integration strategies also lead to better financial performance.[4]

A landmark 2011 Harvard Business School study analyzed the benefits to investors when companies pursue sustainability compared to those that follow a traditional approach.[5] There is a very clear survivorship bias in the study, since the 180 companies the authors selected were ones that were in business for the entire survey period from the early 1990s to 2010. Having said this, the companies that incorporated the needs of various stakeholders and took a broader view of ESG risks outperformed the companies that did not by a wide margin, and they also experienced lower volatility (see Fig. 4).

Several studies issued in the past few years tell a similar story about the potential benefits of applying a sustainability framework to the company selection process. MSCI, using its own ESG methodology, evaluated different sustainability strategies – negative screening, a tilt to higher ESG scores and ESG ratings migration – to see if any achieved outperformance versus the broader market over a period spanning 2007 to 2012.[6] Although the window is too short to be definitive, each strategy boosted performance and resulted in better average portfolio ESG scores – all while keeping the portfolio characteristics similar to the respective benchmark. European researchers also studied whether a best-in-class screen would yield benefits to investors.[7] The authors selected 85 companies from among the

Fig. 4 : Sustainability culture yields outperformance

Evolution of $1 invested in stock market in value-weighted portfolios



Source: Eccles et al. (2011), as of 3 July 2013

S&P 500 that had taken steps to integrate social and environmental issues into their business strategy from 2006 through 2010 and found that these companies generated better performance and also withstood the financial crisis better than the broader S&P 500 index.

Value creation and preservation

In our view, a sustainability focus can yield better company performance through two main channels: more robust risk management and concentrated attention on long-term value creation. Today, market participants focus much more on a company's intangible assets – R&D, reputation, management of externalities – for insight into long-term performance, with an estimated 80% of market value today driven by these factors (see Fig. 5).[8] Therefore, understanding corporate attitudes about ESG issues can inform investors not only about a firm's "true" valuation and potential for long-term success but also about exposure to significant business and operational risks.

The concept of the "triple bottom line" is becoming more mainstream – the idea that a successful business is one that delivers economic, social and environmental benefits.[9] It rests on the premise that businesses do not operate in a vacuum, that they are embedded within larger environmental and social systems, and that their success directly depends on preserving and adding to the foundation on which they operate.

A stitch in time saves nine

In the past, many companies had an unstructured approach to managing downside risk, treating the cost of a range of potential negative outcomes as externalities. These costs were silently borne by society and the environment without much analysis into how damaging – and expensive – they actually were. Such attitudes were prevalent in extractive industries where managing resources inefficiently or ignoring unsafe working conditions proved harmful to society and the environment at large, as well as business. But this mindset also applied to a wide range of industries. Since so much shareholder value today is intangible, quantifying downside risk can be tricky. However, capabilities exist – both internally within firms and externally – to calculate and attach a monetary value to these risks.

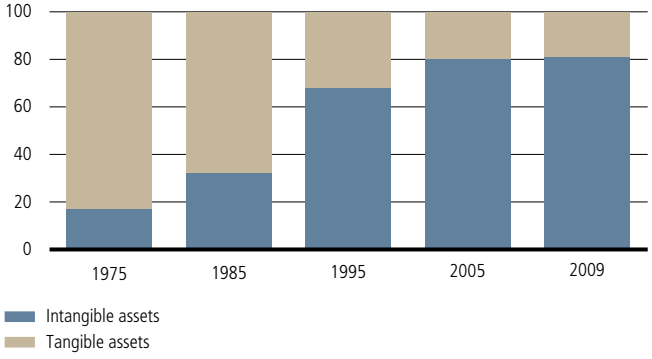
After the volatility caused by years of short-term profit-maximizing strategies, investors have begun to demand greater awareness from corporations about a broader spectrum of risks. Simultaneously, companies have realized that these externalities are expensive for them as well, and can irreparably erode intangible value drivers like brands, credibility and trust. Allegations of child labor in an Indonesian factory, an oil spill in the Gulf of Mexico and media attention on job offshoring can cripple companies and destroy shareholder value; stock prices can take years to recover.

Thus, outside pressure coupled with evolving attitudes within corporations has meant externalities are now being "internalized." Company managements are beginning to understand that external shocks that damage reputation have severe knock-on effects on brand equity and the subsequent ability to position and price products and services in a premium segment. Damage to brand equity in an era of extremely rapid communications and social networking can cascade to financial damage very rapidly. In other words, a "stitch in time" approach actually saves companies money over the long run.

For investors, being on the lookout for firms with better risk management techniques could also yield more stable returns in a portfolio. Firms that focus on delivering value to stakeholders – not maximizing profitability at the expense of everything else – are likely to be less susceptible to volatile ups and downs.

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

Components of S&P 500 market value, in %



Source: Ocean Tomo (2010), UBS, as of 3 July 2013

Beyond charity to value creation
Creating value through sustainable business initiatives takes this concept one step further. In a deleveraging society where governments have had to cut corners on social programs, private companies can actually step in to fill social needs while increasing profitability. Sustainable value creation adds to the concept of corporate social responsibility and corporate philanthropy and presents social and environmental needs as unique business opportunities (see Fig. 6).[10] Innovation is critical to achieving this value creation; not only must management look for opportunities in previously unchartered territory, but they must reevaluate strategies and develop new products and services while simultaneously fulfilling business aims.

According to a *Harvard Business Review* article by Robert Eccles and George Serafeim, achieving financial performance with the twin aim of ESG integration actually depends on a firm's ability to identify the ESG issues most relevant to enhancing shareholder value and consistently generate innovative products, processes and business models in line with its sustainability priorities.[11] This means that despite efforts to standardize ESG practices, there will be nuances specific to the core businesses and platforms that firms must continually evaluate and leverage. We believe changes in company reporting and accounting standards, as discussed in Section 3, can help steer these efforts. Future investment returns will be driven by the innovative, forward-looking and flexible firms that are able to disruptively innovate to address societal challenges.[12]

From performance to making an impact
For some investors, the main objective may be the medium- to long-term social impact of companies in a portfolio, with the expectation that, in well-run companies, financial performance will follow from skillful execution. It may, at the extreme, be impossible to prove in someone's lifetime that their investment approach was best in class. On the other hand, major "black swan" events, such as the credit crunch, have served as a demonstration of the importance of taking apparently nonfinancial issues (such as sustainable lending practices) into account in investment choices. As recent events have shown, the long run has an interesting habit of turning into the short run with astonishing speed.

Impact investing, although still a niche market, offers investors a hands-on approach to solving social and environmental problems while generating a nominal financial return (see Fig. 7). Unlike other sustainable investing approaches where progress on social and environmental issues may be a beneficial side effect, making a measurable beneficial impact is an intentional part of impact investing strategies. The Rockefeller Philanthropy Advisors, early pioneers of impact investing, describes it as "investments made into companies, organizations, and funds with the intention to generate measurable social and environmental impact alongside a financial return."[13]

For years, governments have invested in development projects through a range of vehicles, including private equity, debt and structured investments. At a time when developed country governments have more limited resources, private investors are looking to fill the void with the aim of injecting capital into businesses and funds they think will leverage "the positive power of enterprise."[14]

Microfinance is the most popular vehicle, offering financial services to startup enterprises and low-income family businesses. The aim is to improve living standards by providing financial

Fig. 6: Creating corporate value from sustainability

Corporate Social Responsibility	Creating Shared Value
Value: doing good	**Value**: economic and societal benefits relative to cost
Citizenship, philanthropy, sustainability	Joint company and community value creation
Discretionary or in response to external pressure	Integral to competing
Separate from profit maximization	Integral to profit maximization
Agenda is determined by external reporting and personal preferences	Agenda is company specific and internally generated
Impact limited by corporate footprint and CSR budget	Realigns the entire company budget
Example: Fair trade purchasing	**Example**: Transforming procurement to increase quality and yield

Source: M. Porter, M. Kramer (2011), UBS, as of 3 July 2013

resources and insurance to people with limited access to lending. Impact investing also supports small- and medium-sized enterprises in less developed countries to create jobs and access to basic needs, such as food, shelter and energy. In this way, impact investors generate a positive social impact by facilitating sustainable economic development at the local level.[15]

Examples of impact investing range from large-scale community lending platforms like Grameen Bank to citywide housing funds to online micro-lending social enterprises like Kiva, where an investment of as little as $25 can help support small-scale business in the developing world. Along with investing in new businesses, impact investing is available as a fixed income vehicle through initiatives like World Bank green bonds and social impact bonds (SIBs). First introduced in the UK in 2009 to support prisoner rehabilitation, SIBs aim to connect funding for social projects with private investors who will earn a return if certain goals are met. Although "pay for success" programs like this are still in their infancy, Australia and some US municipalities have introduced similar incentive programs to lower the recidivism rate.

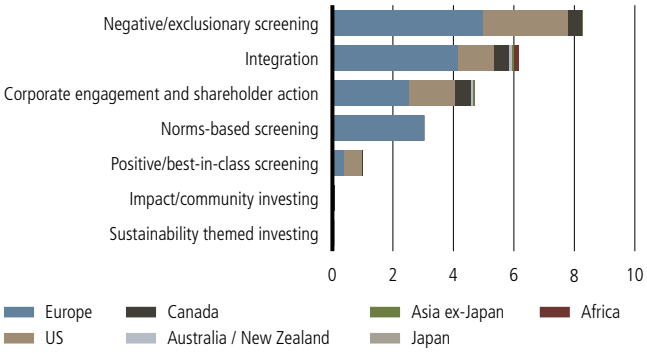
In the broadest sense, investors make an impact with the capital they deploy whether intentional or not. Taking sustainability considerations into account already begins the process of redirecting capital to reward certain companies and penalize others. However, complete divestment of companies has its trade-offs for investors seeking to make an impact. Investors who liquidate positions in objectionable companies are no longer able to vote their proxy to more directly influence boards of directors and company management. Therefore, given the many different approaches and philosophies available in the impact investing arena, investors should carefully define the approach that best suits their objectives, mission and values.

The values in sustainability

One final point on the benefits of sustainability: "In the long run we are all dead." This well-known dictum is a good description of traditional economics and may be read to suggest that sustainability is a matter of sacrificing return to future generations. However, it ignores issues such as intergenerational equity, which suggest that we should leave the environment (the planet) as we would like to find it. In short, it ignores values, and the fact is that values matter to investors from many perspectives – whether that means thinking in terms of the big picture and social justice or of their immediate situation; the desire to look after the interests of grandchildren; or family business founders looking to leave a sustainable legacy for the next generation.

Fig. 7: Negative screening still dominates sustainability

Sustainability assets under management, in trillions of US dollars



Note: If an investor reports using two strategies for certain assets, the assets are counted twice (once in each strategy).
Source: Global Sustainable Investment Alliance (GSIA), UBS, as of 30 June 2013

"A MATTER IS MATERIAL IF THERE IS A SUBSTANTIAL LIKELIHOOD THAT A REASONABLE PERSON...RELYING UPON THE REPORT WOULD HAVE BEEN CHANGED OR INFLUENCED BY THE INCLUSION OR CORRECTION OF THE ITEM.... FINANCIAL MANAGEMENT AND THE AUDITOR MUST CONSIDER BOTH 'QUANTITATIVE' AND 'QUALITATIVE' FACTORS IN ASSESSING AN ITEM'S MATERIALITY."

Securities and Exchange Commission

SECTION 3

How can sustainability be evaluated?

Bruno Bertocci, Julie Hudson, Maryam Khan, Kurt E. Reiman, Eva Zlotnicka

The next evolution in reporting

In addition to greater awareness of and attention to environmental, social and governance (ESG) factors, the steady growth in sustainable investing strategies is also the result of more widely available information and greater transparency on these issues. Never have companies reported or analysts tracked as much data and information as they do today. Yet as we said earlier, traditional company reports are incomplete in that they do not account for the myriad of intangibles that constitute a company's valuation. Investors can try to close the information gap by seeking relevant facts about ESG issues and directing their assets in a way that makes an impact and reflects their values.

Company reporting is constantly evolving. US companies were forced to standardize reporting following the Great Crash of 1929 and the Great Depression. The Securities Exchange Act of 1934, which created the SEC, called for companies to periodically report their financial statements, as well as immediately announce any material changes that could affect the stock price – all with the aim of helping to protect investors and provide greater transparency around the health of publicly listed companies. Information that most investors take for granted today was actually quite novel in the 1930s and 1940s. We expect sustainability accounting standards and integrated reporting to form the next phase in this evolution.

Sustainability data are steadily becoming more comprehensive, despite the many different ways to account for it (see box on page 16). The Sustainability Accounting Standards Board (SASB) provides standards for use by publicly listed corporations in the US in disclosing material sustainability issues for the benefit of investors and the public. Another nongovernmental organization (NGO), the International Integrated Reporting Council (IIRC) is undertaking an important initiative, a reporting framework rooted in the general accounting principle that company reports should provide a "true and fair" account of company activity.

Discovering a company's intrinsic value

Information forms the basis of all investment decisions. Benjamin Graham and David Dodd's 1934 guide to valuing securities entitled *Security Analysis* provides investors with a logical, fact-based framework for making investment decisions driven by fundamental information.[1] The book was at least partly a reaction to the market collapse of the 1930s and the subsequent discovery that many stocks had been priced based on emotional considerations, rumors or other forces that were not tied to business fundamentals. At the heart of this approach was "intrinsic value," an estimated value based on financial statements and other available information that could be compared to market prices.

It is important to note that the determination of intrinsic value, according to Graham and Dodd, not only required statistical data from financial statements, but also "… qualitative factors … (such as) … the nature of the business; the relative position of the company in the industry; physical, geographical and operating characteristics; the character of the management; [and] the [longer-term outlook] for the unit, industry and business in general."[2] Clearly, Graham and Dodd meant that financial projections or measures of valuation would be influenced by these factors and that the investor would place a premium or

discount on the business based on the relative merits of these factors.

Uncovering the material information
In modern, knowledge-based businesses with fewer physical and more intangible assets, fundamental sustainability factors are especially helpful. Today's financial statements shed less light on the business model that created them than those of an industrial manufacturing business in 1934 when financial reporting was first mandated.

We believe ESG factors are no different from the many other pieces of information considered in investment analysis and regarded as "financial." One way to identify these factors is simply to list the possible issues or values one might care about and identify data points that give information about those issues. There are numerous data and index providers who handle the enumeration and collection of such data by sifting through public reports and by issuing surveys for companies to complete.

Another approach, and one we apply through our research products and investment decisions at UBS, is to begin by framing the competitive and strategic forces that have a material effect on an industry's future dynamics and equip investors and analysts with the know-how to evaluate a company's exposure to and handling of those forces. If competitive conditions are fully described, by definition relevant ESG drivers will be present in the analysis. The key in the latter approach is to be sector- and context-specific in order to address the all-important materiality question facing investors.

At UBS, the "Global ESG Analyser" – a report that compiles this evaluation from across UBS Investment Bank equity research – can be a valuable addition for investors that want an all-around perspective on sectors and companies that takes sustainability into account. It is differentiated from traditional ESG indices[3] because UBS analysts identify and frame the risks and substantive issues affecting companies in their coverage universe.

Accounting for sustainability

Around the world, accounting regimes fall into two categories: principles-based and rules-based. Principles-based accounting (such as International Financial Reporting Standards) is a conceptual framework of objectives, whereas rules-based accounting (such as US Generally Accepted Accounting Principles) has a strict set of detailed rules. The two are gradually converging to accommodate globalization, but both are valid and valuable for measuring, reporting and evaluating sustainability.

In the US, sustainability accounting is currently more rules-based, which does not lend itself to nuanced decision making as readily as the principles-based standards that are more common outside the US. As accounting standards for sustainability information are developed and standardized, however, we believe that the data will increasingly move toward a more principles-based methodology and will be integrated into corporate financial statements.

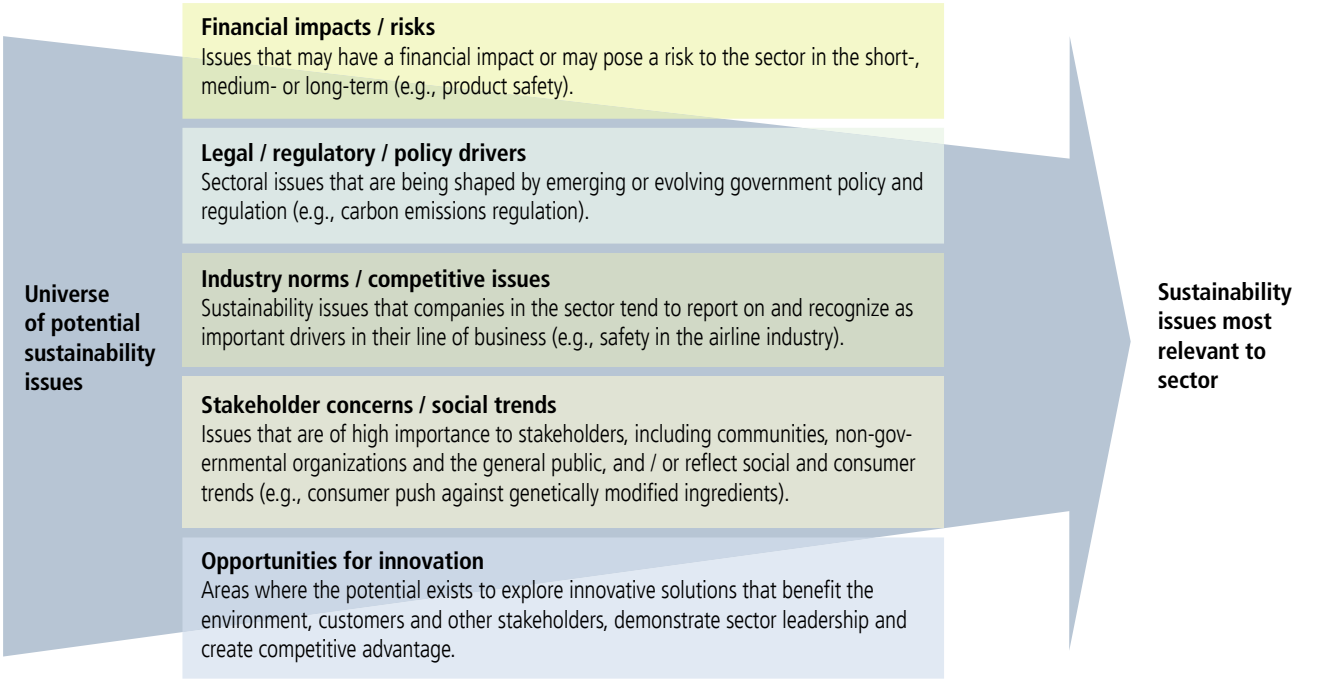
At UBS, our mostly principles-driven approach to ESG analysis recognizes the challenges inherent in measuring, reporting and evaluating sustainability – an indicator or metric may say something about a company's exposure to an issue, but does not necessarily indicate whether any given company will respond successfully to it in the context of competitive industry conditions. As this suggests, there is room for both approaches, and, at times, they may be complementary.

Information is material if it affects company valuation through future earnings prospects, assets and liabilities, and risks, as well as the long-run competitive landscape and strategic drivers of an industry (see Fig. 1). If ESG factors can affect the items that need to be assessed in order to reach an estimation of intrinsic value, then the data are material. By overlooking or excluding ESG factors, investors could create an incomplete or possibly erroneous assessment of intrinsic value. Errors in this assessment can lead to mistakes, such as overlooking a valuable asset or excluding an asset impairment or potential "tail" risk.

Material sustainability data lend rigor to the analysis of companies. For example, a company can generate a high return on equity (ROE) in many ways, including constraining capital investment, levering the balance sheet or generating high margins. While the reported ROE might be the same in all three cases, there are profound implications for future outcomes. Underinvestment can lead to product obsolescence; excessive debt can cause a credit problem. On the other hand, desirable products sell at a premium to the competition and generate high margins.

Fundamental sustainability metrics can help reveal these differences and allow investors to make better, more informed investment decisions. The fuel efficiency of an auto manufacturer's fleet, the defect rate, JD Power crash test scores, labor accident statistics and other data all help describe the difference between one automotive business model and another because they ultimately help explain brand equity, market positioning, pricing and customer demand. In the extractive industries, we would see safety as absolutely core to the business, not just an ESG issue. In view of this, we would expect fully transparent reporting to include numbers such as "near misses," which are recognized as having predictive power.

Fig. 1: Identifying when a sustainability issue is material to a sector



Source: "From Transparency to Performance," Initiative for Responsible Investment, S. Lydenberg, J. Rogers, D. Wood, June 2010

Quality communication

Investors are clearly well-served by using the broadest material data they can obtain, but sustainability reporting will only improve investment outcomes if it is done the right way.

In essence, high-quality company reports enable insightful connections among key pieces of information in the context of the investment decision-making process. Such reports give a clear view of the relevant elements of the firm's strategy and progress, not forgetting risks and challenges, and how the company is dealing with them. Good disclosure allows long-term "unquantifiable" risks or opportunities to be taken into account, and also makes it clear how relevant material ESG issues link to the core strategy. However, most companies treat financial reporting separately from their corporate sustainability and responsibility reports. The latest push is to integrate financial and sustainability information within the context of the overall business strategy – an effort known as "integrated reporting" (see Fig. 2).

Integrated reporting is much more than an effort to staple together a company's financial statement, and its sustainability report into a "one-size-fits-all" report. The ways companies are looking at their own core strategies and at the interplay of sustainability issues material or potentially material to the core business are as important as how companies communicate this information to investors. We also stress that integrated reporting is not equivalent to sustainability; a good-quality integrated report would bring together all the information that is core to the company strategy, including sustainability issues.

Thus, the current integrated reporting discussion envisages a multi-stakeholder report in which the company strategy is the focal point, and technology allows the users to find the information relevant to them, with a full understanding of how it relates to the business. This suggests that while the specific information needed by individual stakeholders may vary, the result is essentially still the same image of the company no matter the angle of approach. Integrated reporting is still in its infancy and until it becomes more mainstream, investors are going to have to rely on their own know-how and the resources available to make their own decisions.

From shareholder to stakeholder

As we mentioned in Sections 1 and 2 of this report, traditional capital market models that primarily focus on the shareholder are being questioned in the aftermath of the 2008-09 global financial crisis. The search for a more robust

Fig. 2: Integrated reporting fuses financial, strategic and sustainability factors

Source: Q-Series®: What is "Integrated Reporting"?, UBS Investment Research, J. Hudson, H. Jeaneau, E. Zlotnicka, 20 June 2012

investment approach has enhanced the value and importance of ESG integration and has drawn attention to a broader array of stakeholders rather than just shareholders. The integrated investment model rests on integrated analysis which in turn relies on an integrated reporting model, only possible if it is underpinned by the fully integrated business model in which good governance delivers the right balance among stakeholders – short- to medium- and long-term investors, sustainability specialists, regulators, nongovernmental organizations, customers, suppliers, and the community and its environment. For stakeholder models to do their job in delivering a sustainable approach to investment (from all perspectives), ESG integration in economics, investment decision making and investment analysis, corporate strategy and reporting is required.

Interview with Dinah A. Koehler, ScD

Dinah Koehler, ScD conducts research on sustainability at Deloitte Research – the research division of the Deloitte US firm. She holds a Doctor of Science in Environmental Science and Risk Management from Harvard's School of Public Health and has worked in the public and private sectors and academia.

Why might a focus on sustainability be so important to investors?
The challenge of sustainability is that it is primarily a matter of environmental and social externalities, which are typically not fully priced in the goods and services that are bought and sold. Consequently, something that has inherent value is treated as if it were free in our market economy, such as a healthy and productive ecosystem or stable climate. That said, over the past 40 years, scientists have been getting better at evaluating the impact of industrial activity on human health and the environment – ranging from industrial accidents to unsafe labor policies – and it is possible to provide a dollar estimate of the impact. As it increases, so does the risk that society will no longer accept the rising cost to human health and well-being.

For investors, the challenge is anticipating when society is no longer willing to bear the costs. There can be protests, boycotts, public shaming or media reports, which individually or combined can put a company in the hot seat when a social or environmental issue arises anywhere in its value chain. The longer a company ignores the issue, the greater the potential for financial and reputational damage. For investors, this is downside risk and drives down stock price.[1] Estimating when something might go wrong and how big the impact might be on a company will become increasingly important.

Can you measure the value of these environmental and social externalities?
You have to be creative and willing to think outside the box. Much of the knowledge will not come from traditional business analytics or what is taught in the standard business school curriculum. This is an interdisciplinary challenge and people are needed from a variety of backgrounds to evaluate environmental and social assets more holistically. Currently, too much of this work is done in silos. There are CFOs who use their models and have a certain understanding of risk. Then there are chief sustainability officers trying to demonstrate the company is doing "less bad," or the human resource managers who are trying to cultivate a productive and innovative culture. Integrated reporting, as envisioned by the International Integrated Reporting Council, is designed to help remove the walls among these groups and have them apply integrated thinking.

But is this all just downside?
For those companies who look at environmental and social risks as an opportunity to improve business processes, strengthen the social license to operate, and gain a competitive advantage, we should be able to see a financial impact. To date, there have been few attempts at quantifying the upside of proactive management of environmental and social issues.

Can you give us an example of value creation?
Scholars at Wharton analyzed the financial impact of stakeholder relations in the gold mining industry and found evidence of value creation.[2] Mines with better stakeholder relations achieved higher financial valuation, because it reduced the risk of costly delays and other disruptions at the mine. For riskier mines, it is a different story: reduced likelihood of extracting the gold on schedule, higher discount rate, lower valuation and riskier investment. The scholars concluded that the quality of stakeholder engagement explains the difference between a high value company and a low value company, all else being equal. It's a significant value-add – estimated at twice the value of the gold in the ground. We may see similar effects in water extraction, extractive industries in general

and with those companies who have long-lived assets whose successful deployment depends on a strong license to operate and grow.

What can investors gain from greater transparency?
Reporting on environmental and social issues is an evolving area, voluntary and not standardized. The result is a general lack of consistency in what companies share with their investors about what they monitor, and why. As already mentioned, the full cost of social and environmental externalities is not priced in the marketplace, although the risks and costs to society and companies are ever-present. It's important to consider the risks and whether management has established a track record of managing them effectively. If they don't effectively manage the risk, the likelihood that something goes wrong can increase.

This is akin to insurance: The investment pays off when something bad happens and the company does not have to pay the full cost. Indeed, "the best return on an insurance policy is no return at all."[3] Because environmental and social issues tend to pose a downside risk for companies, managing the risk really means reducing the loss.

It's very hard for companies to hide information on their environmental and social impact in today's social media world. As the public becomes more aware of the impact and traditional and social media broadcast the information, opinions are formed. This dynamic strengthens the business case for investors to pay closer attention to environmental and social issues as they evolve. No matter how big or small the impact on near-term cash flows, a company's reputation and brand can be at risk, along with future cash flows.

What could integrated reporting tell investors about companies?
Integrated reporting is a process that is guided by integrated thinking. An integrated report, which is only one output of the process, could help a company better communicate to its investors about the company's ability to create value in the short, medium and long term. The idea is to make clear what a company is doing in terms of value creation across six capitals: financial, manufactured, intellectual, human, social and relationship, and natural.[4] Value would be assessed by investors based on information in the integrated report about the various "capitals" that the company uses and affects. By making more explicit how these various capitals are linked, an integrated report has the potential to increase investors' understanding of a company's value-creation potential.

How does a company prepare an integrated report?
It is challenging for most managers to think more broadly, across multiple financial and non-financial dimensions and in terms of systems. The integrated report should aim to inform how an organization's strategy, governance, performance and prospects lead to the creation of value over the short, medium and long term. This will require an efficient and comprehensive process of evaluating what is important to a company in various time frames and across the capitals. The real challenge may be navigating the inter-dependencies and uncertainties. Humans in general are not very good at making complex decisions under uncertainty. The good news is that techniques have been developed in "decision sciences" – a multidisciplinary treatment of the relevant issues in making a decision – to address these kinds of problems and they need to be deployed more effectively in the corporate context.[5]

In five years, can we look back and say that the way a company reported was so antiquated?
Perhaps, although the debate on what companies ought to disclose will likely continue. Investors play a role here by asking those tough questions about how corporate leadership is preparing for the future. Generally speaking, stakeholders will continue to become increasingly aware of and concerned with the impact on environmental and human well-being associated with how we produce and consume goods, and may become less willing to pay the price.

"WE OUGHT TO GAIN ALL WE CAN GAIN...BUT THIS IT IS CERTAIN WE OUGHT NOT TO DO; WE OUGHT NOT TO GAIN MONEY AT THE EXPENSE OF LIFE, NOR...AT THE EXPENSE OF OUR HEALTH."

John Wesley, The Use of Money

SECTION 4

Considerations in building sustainable portfolios

Agathe Bolli, Maryam Khan, Kurt E. Reiman

Looking beyond stocks

For many years, sustainable investing was primarily geared toward investments in stocks – perhaps because equities are lower in the capital structure (and therefore potentially more susceptible to losses if environmental, social and governance, or ESG, risks emerge), or because stock investors are technically owners of companies (and therefore accountable for its business practices). As a result, sustainable investing strategies were typically directed toward only a slice of the overall portfolio or just treated as a satellite divorced from the core.

A more comprehensive approach to sustainable investing would evaluate ESG risks within each asset class, not just stocks, to ensure consistency across the entire portfolio. Why evaluate metals and mining equities according to human rights considerations only to have offending companies from this same sector appear within the fixed income allocation, not to mention exposure to physical commodities, such as gold, where human rights issues are a serious concern for many investors?

Getting the pieces to fit together

With relevant ESG information becoming increasingly available across different assets, today's sustainable investing mandates are better equipped to deliver comprehensive solutions across entire portfolios. That said, applying sustainability factors to asset classes beyond the equity market is still fertile ground and open to considerable evolution in coming years. Moreover, portfolio construction is a deeply personal endeavor and investors will have different incentives for incorporating sustainability factors into their decision-making process, as well as the share of various assets in the overall portfolio.

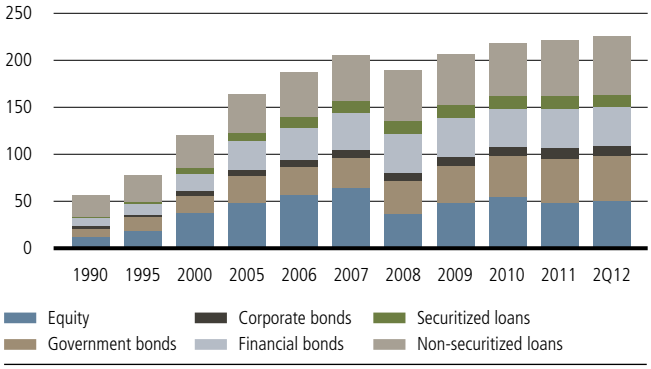
Fixed income

Despite being overlooked for years, sustainability considerations are just as important in the world of fixed income as they are for equities, perhaps even more so given the size of the global bond market compared to other financial assets (see Fig. 1). While there is less research about the link between sustainability factors and the performance of fixed income investments than there is for stocks, the message is similar: Protect downside without sacrificing performance.

That said, the link may also be harder to prove. Bonds are less volatile than stocks and more of the total return comes from income payments than price fluctuations. Moreover, while ESG risks can pose a substantial threat to a company's earnings outlook and valuation, these same risks are unlikely to materially compromise a company's ability to make interest payments on its debt. But while performance

Fig. 1: Bond market overshadows equities

Global stock of debt and equity outstanding, in trillions of US dollars



Note: Data are as of the end of the period and held constant at 2011 exchange rates.
Source: McKinsey Global Institute Financial Assets Database, UBS, as of 30 June 2013

considerations may not necessarily warrant a sustainability focus in fixed income, there are viable approaches that investors can employ to either express their values through their bond portfolio or make an impact.

Unlike equities, fixed income markets involve investments in both sovereign and corporate bonds. Perhaps unsurprisingly, sustainability considerations differ markedly between governments and companies. For companies, the same sustainability criteria that are relevant for a company's stock are true for its debt. Investors seeking to express their values and make an impact can apply positive and negative screening approaches to corporate bonds just as they do for equities. In addition, the United Nations' Principles for Responsible Investment is working to achieve greater transparency and guidance on how to evaluate corporate bonds according to ESG risks and to promote greater company disclosure.

Meanwhile, how one judges the sustainability of governments and their debt securities is less clear. There are some straightforward examples of exclusion criteria that could help screen out certain governments, such as: military conflict; human rights track records; access to healthcare, clean water, education and other basic needs; the trajectory of a nation's debt-to-GDP ratio; income inequality; and the health of the environment. MSCI ESG Sovereign Ratings service offers comprehensive coverage of ESG risks in 90 countries, providing fixed income investors with additional information to evaluate the sustainability profile of government bonds in their portfolios. This information could be particularly useful to investors in emerging market sovereign bonds where governance is a critical factor in estimating expected returns (see box below).

Commodities

Sustainability-minded investors have a lot to consider when investing in commodities, and yet the social and environmental risks associated with this asset class are often poorly understood (see Fig. 2). Production of physical commodities is associated with environmental degradation, resulting from mining, drilling, land clearing, water use and generally higher levels of pollution. Another notable concern in mineral production and distribution is the violation of human rights in conflict areas, such as the Democratic Republic of the Congo. Additionally, investors in commodity derivatives, as distinct from physical commodities, have been accused of raising the price volatility of basic necessities, such as food and energy.

Efforts to promote sustainable practices in commodities production and investing have broadened in recent years, but compliance with ESG criteria is by no means uniform or widespread. Natural resources extraction will always have

Sustainable competitiveness

The World Economic Forum introduced a sustainable competitiveness index in 2012 that blends a wide range of environmental and social factors into their standard international competitiveness rankings.[1] Unsurprisingly, weaker social and environmental scores tend to go hand in hand with lower competitiveness rankings and vice versa, effectively widening the competitiveness gap between countries. In other words, nations are not penalized in terms of competitiveness for pursuing sustainable economic growth. Investors in emerging market sovereign bonds who wish to express their values, make an impact or simply make a better investment can leverage information like this to screen out countries with sustainability scores that worsen their competitiveness ranking. Meanwhile, performance-oriented investors may also look to countries with sustainability attributes that boost their overall competitiveness standing as a way of minimizing risk.

environmental consequences no matter how much effort goes into cleaning up business practices and raising awareness. With respect to human rights, the World Gold Council introduced the Conflict-Free Gold Standard to encourage better sourcing and greater transparency throughout the gold supply chain.[2] The Organisation for Economic Co-operation and Development (OECD) published a study that seeks to ensure that companies operating in conflict zones and high-risk areas avoid human rights violations and encourage sustainable economic development.[3]

How investors react to these realities within the commodities market will vary from one individual to the next. If commodities investing conflicts with an individual's values because of perceived links to social concerns, environmental degradation or human rights violations, they may wish to not invest in the asset class altogether. Alternatively, investors may opt to direct capital to companies that are enabling substitution away from high-risk commodities (switching from thermal coal to natural gas), improving harvesting technology (artisanal gold, sustainable palm oil, farming and forestry) or reducing demand for natural resources altogether (increased recyclable content, energy efficiency upgrades, reduced water use).

Nontraditional assets

Nontraditional assets, which include hedge funds, private equity and private real estate, offer certain opportunities for investors to direct their investments in a specific direction to impact sustainability objectives. A thematic sustainability focus could take the form of a renewable energy private equity fund, energy efficient commercial real estate, or a sustainability-minded hedge fund, for example.

These assets are not without their drawbacks: research linking the hedge fund and private equity industries to higher rates of income inequality, as well as disputes over the tax treatment of carried interest in the US, may irk some sustainability-minded investors. A limited product shelf and high minimum investment amounts also restrict the degree to which investors can build sustainability into their portfolio through nontraditional assets. However, what may be a small product offering today has the potential to grow as sustainable investing becomes more mainstream.

Considerations to keep in mind when thinking about how nontraditional investments can play a role in a sustainable portfolio include:

Fig. 2: Sustainability considerations in commodities

Type of investment	ESG issues to consider
Real productive assets such as forests or agricultural land	Direct exposure to issues such as environmental sustainability, labor and human rights, existing land and resource rights
Debt or equity investments in companies that own commodity producing assets or related businesses in the commodity value chain	Direct exposure to ESG issues such as tailings waste produced by mines, labor standards in the supply chain, water scarcity, pollution levels
Physical commodities	Indirect exposure to the potential impacts of investment in physical commodities. Additionally, significant ESG issues can be associated with the production of physical commodities, including externalized costs
Commodity derivatives which can be traded on exchanges or over-the-counter	Certain investments in commodity derivatives have been accused of impacting price volatility and greater stability of financial markets

Source: PRI Association, as of 30 June 2013

Private real estate. Sustainable real estate development will likely become the norm over time, as new technologies and innovation are adopted. Interestingly, the newest buildings and the oldest buildings are the ones that tend to rate better on sustainability criteria. In the future, we may see a discount for "non-sustainable" buildings, as opposed to a rent premium for "sustainable" buildings. Mitigating policy risk is very real. Tighter regulations and greater disclosure of building sustainability levels will likely continue.[4]

Private equity. Private equity managers have been criticized for their sometimes brutal pursuit of efficiency gains at the expense of job losses and community decay. However, keep in mind that private equity firms have also focused on boosting financial performance through eco-efficiency goals, such as reduced consumption of scarce natural resources like water and energy, and less waste.

Private equity typically has a long-term focus, with capital committed for roughly 10-15 years. This becomes useful when investing in early-stage technologies that can yield material environmental benefits and become viable new businesses, which then yields positive social benefits. This means that private equity is particularly well suited to pursue specialized investment opportunities, ranging from renewable energies to new protein sources to underfunded business opportunities in disadvantaged communities. Impact investing, an up-and-coming investment strategy with roots in traditional private equity, pursues both positive social and financial returns (see more detailed discussion in Section 2).

Hedge funds. Very few sustainability-oriented hedge funds have emerged, despite being well-suited to take ESG factors into account. After all, "better risk-adjusted returns" is the value proposition of both hedge funds and sustainable investing. Growth in hedge fund strategies that incorporate ESG factors into their investment process could become more commonplace if managers become more convinced of the benefits of taking sustainability considerations into account.

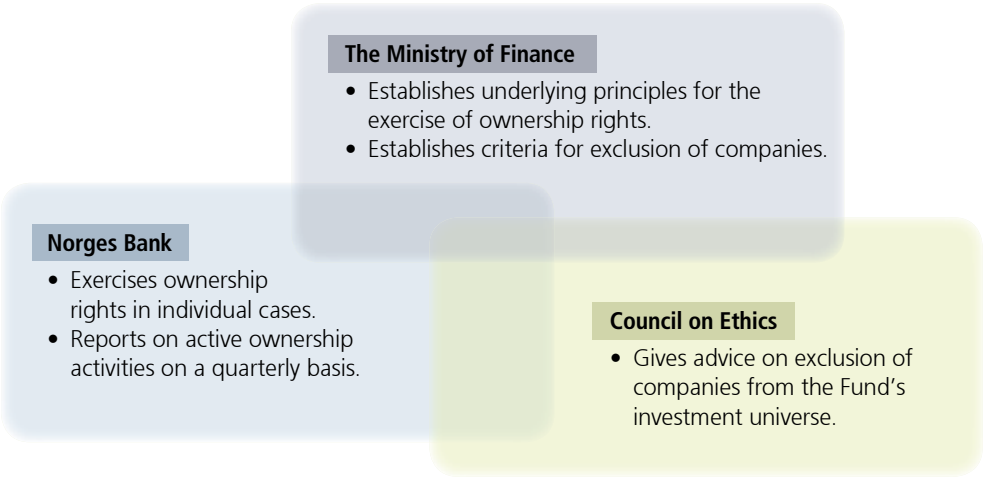
A personalized approach

Each client's motivation for pursuing sustainable investing strategies – performance, values, impact or some combination of these – will determine whether and how they should make changes to their asset allocation. For example, performance-oriented investors may seek a higher allocation to private equity to take advantage of specific ESG opportunities not available in public markets. Values-based investors may not want to invest in commodities and hedge funds. Even institutional investors, because of benchmark and fiduciary constraints, will take a different approach from individuals who may wish to implement more extreme positions to reflect their sustainability preferences (see box on page 26). Ultimately, the decision to alter an asset allocation based on sustainable investing strategies is not about generating better portfolio efficiency; it's about generating better risk-adjusted returns in all asset classes while also reflecting investors' values and making an impact.

Sustainability the Norwegian way

The Norwegian government operates two sovereign wealth funds to invest proceeds from its petroleum wealth. Norway's Government Pension Fund Global is one of the largest public investment funds in the world and invests internationally with two distinct aims: to preserve petroleum wealth and ensure stability in the Norwegian economy. Given its size and considerable position in a number of multinational companies, the fund has sought ways to incorporate ethical considerations into its investment strategy over the years. The sustainable focus of the fund was institutionalized in 2004 and is currently implemented by the Norwegian Ministry of Finance and Norges Bank Investment Management (NBIM) – administrative arms overseen by the Norwegian Parliament. The Ministry of Finance establishes the responsible investment guidelines and, together with the Council on Ethics, determines which companies should be excluded. Meanwhile NBIM exercises the fund's ownership rights through sponsoring and supporting shareholder resolutions, proxy voting and corporate engagement (see Fig. 3). An evaluation of the fund's responsible investment guidelines in 2009 concluded that more emphasis should be given to influencing positive change in companies,[5] presumably through active ownership and greater engagement with boards of directors.

Fig. 3: Division of roles to achieve a sustainability focus



Source: Government of Norway Ministry of Finance, as of 30 June 2013

"WE DO NOT INHERIT THE EARTH FROM OUR ANCESTORS; WE BORROW IT FROM OUR CHILDREN."
Native American proverb

SECTION 5

Sustainability investment themes

Julie Hudson, Kurt E. Reiman, Alexander Stiehler, Eva Zlotnicka

A thematic approach
In addition to weaving sustainability considerations throughout a portfolio, investors may also wish to build exposure to specific investment themes that aim to address a range of environmental, social and governance concerns. By directing assets to identifiable themes, investors can pursue potential growth opportunities, express their values in their financial portfolio and make an impact on the world around them. While there are many trends that could conceivably fall under a sustainable investing umbrella, we focus on some of the more readily investible and compelling long-term themes, such as:

- Food availability and access to nutrition
- Obesity and related medical conditions
- Renewable energy and energy efficiency
- Water management

Growing economies and populations are increasing global demand for life's basics: food, medicine, energy and water. We are confronted daily, both in the news and at the pump, with high energy prices. In many parts of the world, higher prices for basic foodstuffs are threatening social stability. Poor diets and lifestyle choices are lowering life expectancies and forcing a resource-constrained healthcare industry to find solutions. And the lack of clean water has enormous health (and cost) implications globally, today and tomorrow. In this section, we consider the question of impending food, healthcare, energy and water scarcities, and we take a look at some of the innovative ideas to redress these deficits.

Food supply
Making nutrition available

Population and income growth in emerging market countries points to an increasingly stretched human food system. Steadily higher demand and constrained supply inevitably lead to collisions. Releasing more land for crops by changing land use is no longer a viable strategy from an environmental perspective. Historically, new technology has made it possible to stave off a global nutritional crisis of Malthusian proportions. (Economist Thomas Malthus found that population, which tends to increase faster than its means of subsistence, will—if left unchecked—have disastrous results.) However, human beings now dominate the ecosystem, and economies continue to operate on the basis of a cost-externalizing growth model in which resource constraints tend to be neglected until

Fig. 1: Agriculture prices declined despite population growth
Inflation-adjusted agriculture commodity price index (2005 = 100)

Note: Series deflated using US consumer price index.
Source: Bureau of Labor Statistics, World Bank, UBS, as of 30 June 2013

they bite. Without another technological revolution, cheap agricultural commodities may soon become a thing of the past (see Fig. 1).

The consequences of any collision between demand and supply in food are never equally distributed. Malnutrition results from inequality (a social issue), and it also undermines economies (an economic and financial issue in the bigger picture). Food is a socioeconomic hybrid and therefore cannot be left to markets to sort out demand-supply collisions. However, impact investing may be particularly well suited for the necessary mix of social and financial insights to facilitate a sustainable investment approach in food and nutrition.

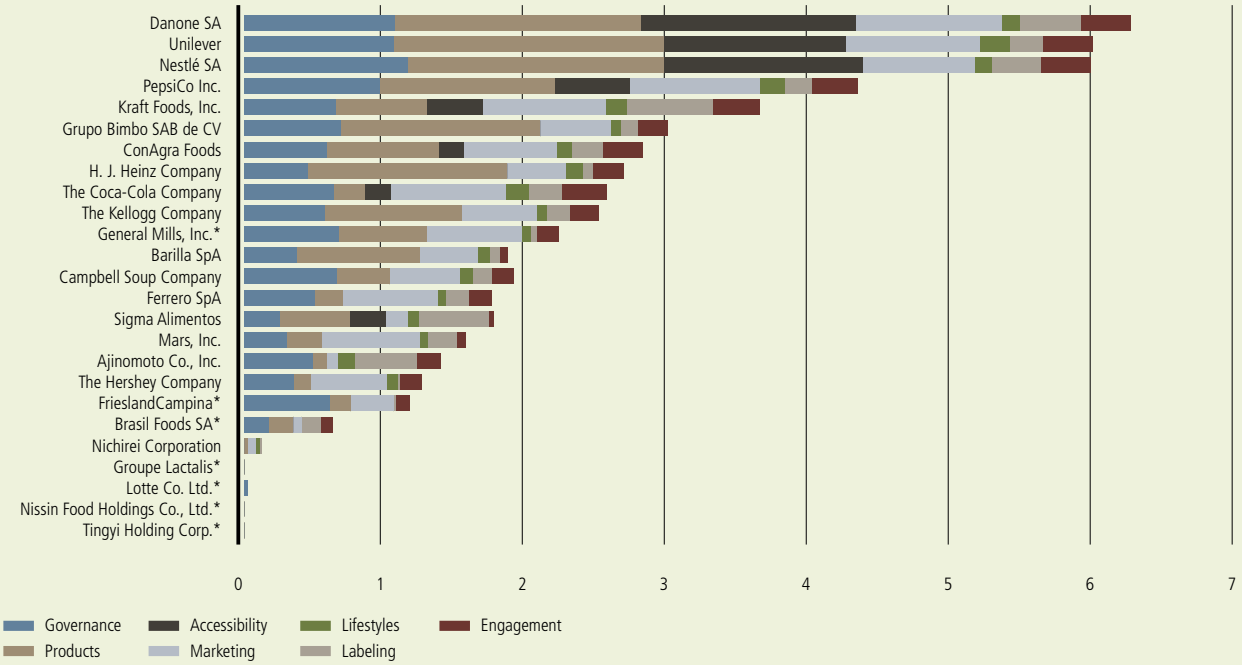
Moreover, the low-hanging fruit in food is waste,[1] also not always readily handled through markets. A study by the Swedish Institute for Food and Biotechnology for the Food and Agriculture Organization of the United Nations (FAO) in 2011 found that roughly one-third of food produced for human consumption is lost or wasted globally.[2] Raw materials, such as water and agrochemicals, are used

Access to Nutrition Index

The Access to Nutrition Index (ATNI), launched in 2013, highlights the strategic and reputational importance of nutrition for food and beverage companies (see Fig. 2).[3] The ATNI helps point the way toward better transparency and traceability in food sectors, and toward greater accountability in agriculture, commodities, processing, retailing and waste.

Fig. 2: 2013 Access to Nutrition Index

Overall global ranking (maximum score = 10)



* Company did not provide information to ATNI's research partner during the research phase.
Source: Access to Nutrition Index, UBS, as of 30 June 2013

wastefully. Meat-heavy diets are wasteful of water, energy and land. A shocking proportion of food is thrown away uneaten because of an inadequate storage and transport infrastructure, which is often a problem in developing countries and because of the "pile it high, sell it cheap" marketing practices in some developed countries. Eating habits are also wasteful through the overconsumption of unnecessary calories (see Obesity theme this page).

Solutions to the collision between food demand and supply can thus include a curbing of demand, by curbing waste. Supply-side solutions could include systems-based ideas, such as the creation of a worldwide network of "bread baskets" alongside global trade of agricultural commodities. Also, fostering regional, self-maintained agricultural systems can leverage provisioning advantages as well as cushion shocks. Further solutions likely exist in utilizing biotechnology and other technologies underpinned by strong research and development, and even in changing wholesale and retailing practices to empower consumers to make sustainable food choices.

To invest in improved access to food and nutrition, we advise actively managed, well-diversified investment vehicles that offer global exposure to increased productivity along the entire food supply chain, from field to fork. In our view, the following business areas are relevant:

- Agricultural land (soil quality, land use, land stewardship, fertilizers, seeds and crop protection)
- Irrigation and aquaculture
- Animal health
- Commodities (proper functioning of markets)
- Food processing (nutritional content, labeling, food safety, supply chain)
- Food distribution and retailing (nutritional mix, supply chain)
- Food waste (which prevents food getting to where it is needed)

Health

Managing an obesity epidemic

The trend of eating more energy-dense food combined with increasingly sedate lifestyles has pushed obesity rates higher at a steady rate throughout the world (see Fig. 3). Obesity has spread across both developed and developing nations and affects both the young and the elderly. In the US where the obesity epidemic is already highly advanced, over 35% of American adults and approximately 17% of children and adolescents aged 2–19 years are obese.[4] If the overweight population is added, these numbers approach 70% for adults and 34% for children.

Healthcare companies are on the frontlines of the obesity epidemic trying to address unmet medical needs. With no cure or fix in sight for the foreseeable future, the number of patients will likely continue to rise. And longer life expectancies and younger onset pretty much ensures extended medical treatment of chronic diseases.

Weight problems and obesity are associated with many comorbidities, some of which are serious or chronic, such as diabetes. Diabetes is characterized by a malfunction within the glucose (sugar) regulatory pathway, as marked by an abnormally high level of glucose in the bloodstream. This malfunction occurs when the pancreas produces insufficient amounts of insulin (type 1), a hormone that regulates blood sugar; or alternatively, when the body cannot effectively use the insulin it produces (type 2).

Diabetes is a chronic, potentially life-threatening disease for which there is no cure. It leads to long-term complications and can even be fatal. In 2012, 4.8 million people died from diabetes; it was the fourth or fifth leading cause of death in most developed countries and has reached epidemic proportions in many emerging market countries.

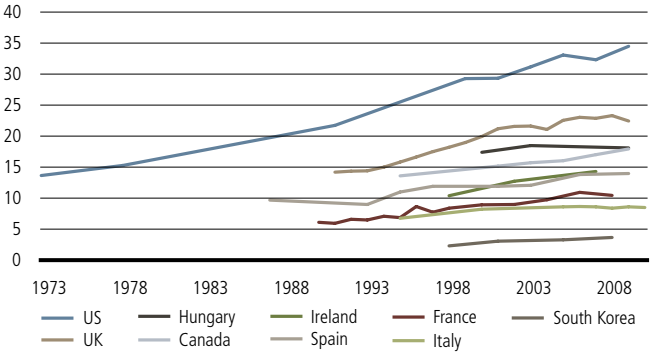
According to the International Diabetes Federation (IDF), in 2012 the number of diabetics climbed to 371 million from 366 million the year before. In addition, the IDF estimates that 187 million people are still undiagnosed worldwide. As a comorbidity of the rapidly growing

obesity epidemic, diabetes surprises no one by its prevalence or rate of increase. The IDF's projections for 2030 currently stand at 552 million diabetics (see Fig. 4).[5]

As such, antidiabetics remain a fast-growing market for drug makers and an interesting investment opportunity. The IMS Institute for Healthcare Informatics expects global sales of antidiabetics to reach $48-$53 billion by 2016 (up from $39.2 billion in 2011), posting the second-highest level of spending on medicines after oncology.[6]

Fig. 3: Steadily inflated waistlines

Obesity rates among adults, selected countries, in %



Source: Organisation for Economic Co-operation and Development, UBS, as of 30 June 2013

Energy
The quest for renewables and efficiency

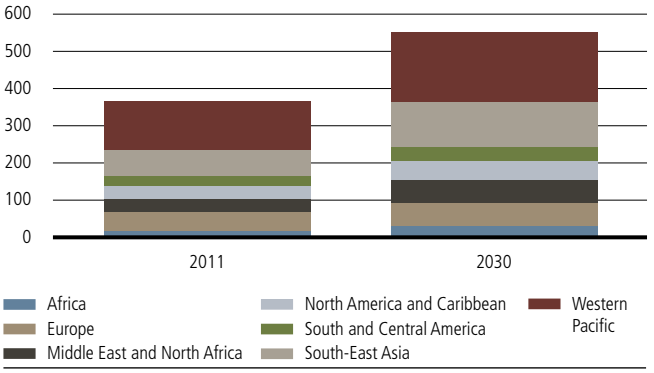
Efforts to generate a sustainable and abundant source of energy have shaped the whole of human history. This includes the more modern quest for renewables, such as wind, solar, hydro, biomass, wave and geothermal energy to replace carbon-intensive fossil fuels, such as oil, natural gas and coal, as well as nuclear, which is plagued by security and disposal issues. In addition to harnessing renewable energy sources in a way that is both cost-effective and scalable, there is also considerable room to boost efficiencies in the way energy is produced and processed, converted into usable electricity and ultimately consumed.

Wind energy

Wind is the leading form of renewable energy in terms of capacity, with more than 200,000 turbines installed worldwide spinning off roughly 300 gigawatts of power. The reason for wind energy's success despite its volatile production profile is its scalability: large wind parks operate on a similar capacity to fossil fuel power stations and are therefore an attractive source of energy for utilities. While the costs of producing wind energy at the best onshore and offshore locations, such as in Scotland, compare favorably to fossil fuels, the broader market still depends on subsidies. Low natural gas prices in the US have created something of a drag on wind energy in the US in the form of weaker demand, declining sales

Fig. 4: One in ten people will have diabetes in 2030

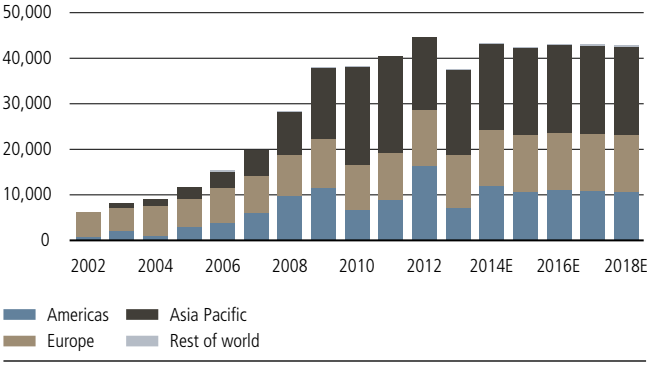
Regional estimates for diabetes in 20-79 year olds, in millions of people



Source: International Diabetes Federation, UBS, as of 30 June 2013

Fig. 5: Asia installing the most new wind capacity

New global wind turbine installations, in megawatts per year



Source: UBS estimates, as of 30 June 2013

and margin pressure. The dominant market is China, with new installations of roughly 17–18 gigawatts per year during the past few years (see Fig. 5).

Solar energy

The solar photovoltaic (conversion of solar power to electricity) industry is going through a period of consolidation after years of rapid volume growth and price declines. Chinese production is highly automated and products can easily be shipped worldwide at low cost. Meanwhile, after several quarterly losses, many European and US solar companies have filed for bankruptcy (see Fig. 6).

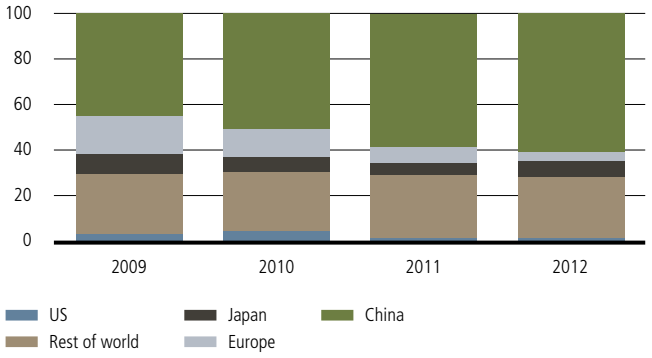
Not only is supply shifting away from Europe, demand is too. After several years of European dominance, there has been a sharp drop-off in European demand on weaker investment yields (e.g., feed-in tariffs to encourage renewable energy use were cut). Markets like Germany and Italy are suffering volume shrinkage. The next key growth markets are China, Japan and the US.

We still believe that renewable energies will see sustainable growth because the varying technologies all have one thing in common: They can be produced in a relatively environmentally friendly way in an "industrial process" and do not come from exploiting a resource built up over centuries. Theoretically, sunlight can produce sufficient power to cover the energy needs of the human race several times over (see Fig. 7).

The list of variables for corporate success is long, though, and the investment risk remains high. The company landscape may look radically different a few years from now, and the solar champion of 2030 might not even exist yet. At the same time, established builders of power plants are positioning themselves and squeezing out small firms. The prospects are favorable, but even so, investors face high risks and an uncertain outcome. We see only a few good investment opportunities in renewables just now, but the industry will definitely grow at a rapid rate.

Fig. 6: Asian companies dominate the solar cell market

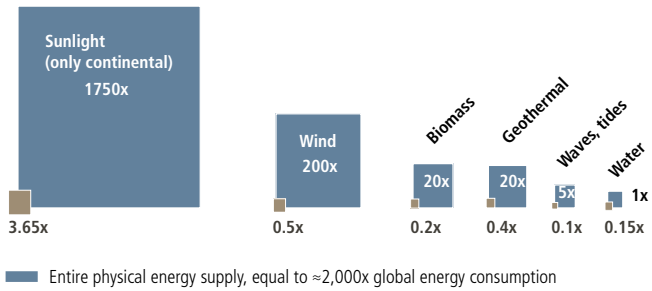
Solar cell production share (includes thin film), in %



Source: UBS, as of 30 June 2013

Fig. 7: Renewable energy can provide five times current global energy consumption

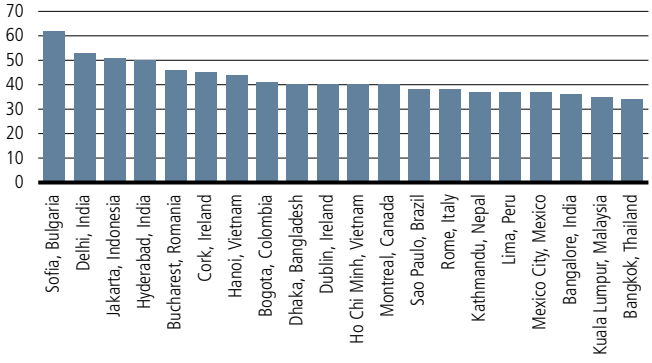
Global energy consumption (roughly 500 exajoules per year = 1x)



Source: Deutsches Luft- und Raumfahrtzentrum (DLR), UBS, as of 30 June 2013

Fig. 8: Aging infrastructure worsens water scarcity

Urban network water loss rates for selected cities, in %



Source: Smart Water Networks Forum, UBS, as of 30 June 2013

Energy efficiency
Energy efficiency improvements yield both energy savings and reduced carbon dioxide emissions. In recent years, higher crude oil prices have boosted the appeal of efficiency investments in transportation. However, stricter regulation with a view to protecting the environment and securing the supply of energy is an even more powerful driver, boosting efficiencies in buildings, autos and power generation.

Energy efficiency addresses a whole range of issues, such as the sought-after reduction in the use of fossil energy sources and the lack of storage technologies for renewable energies. Saving energy directly at the source lowers costs, conserves resources and cuts back on emissions. The growing pace of urbanization in developing countries in particular is creating an increased demand for energy efficient buildings and equipment. In 2010, half of the world's population lived in cities and accounted for a disproportionate 75% of energy consumption and 80% of greenhouse gas emissions.

Water
A thirst for investment

Clean water supply is constrained by both the lack of infrastructure in emerging markets and aging water infrastructure in developed regions (see Fig. 8). Climate change, urbanization and industrial activities in emerging markets are also creating a negative impact on water supply.

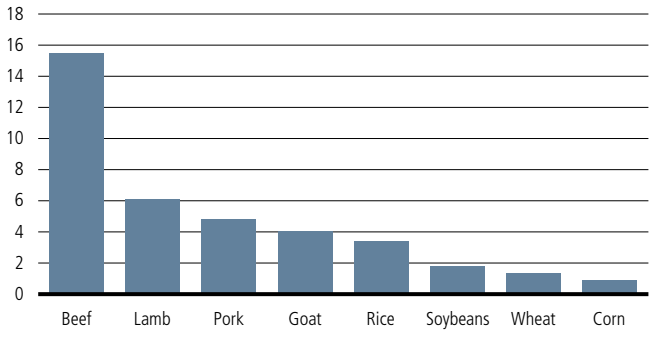
Water can be considered its own industry, but access to water has impacts across many sectors, such as commodities, food and beverages, semiconductors and mining. Water risk can potentially affect business operations in any of the following ways: plant shutdowns due to lack of water supply; higher agricultural or basic material input costs if the supply chain is disrupted; costs incurred for non-compliance with regulatory standards for water discharge; and ultimately, loss of license to operate in a particular region if a company is perceived to be misusing or appropriating limited shared water supplies.

As such, water scarcity can significantly disturb global resources and trade and thus economic growth; in extreme cases, it can give rise to social conflicts. Furthermore, increased public awareness and strict regulations regarding water quality are driving demand for more advanced technologies. We believe two primary investible themes arise out of the intersections of energy and water and of food and water.

Energy-water nexus
We see energy and water as fundamentally linked: energy is required to source, treat and distribute water, while water is required in order to make use of energy. Energy production accounts for 39% of all water withdrawals in the US and 31% in the European Union. Similarly, water supply systems require significant energy input – some 4% of power generation in the US is used to process and distribute fresh and waste water.[7]

The recent US shale gas boom has led to an increase in the use of hydraulic fracturing ("fracking") methods, and thus shale water management has spurred growth across the water industry value chain, particularly among treatment providers. Transportation of wastewater and the availability of freshwater or groundwater used in fracking also pose challenges that need to be addressed. As a result, the markets for technologies and services providing alternative solutions for the energy industry (such as quality analysis equipment, water treatment equipment and chemicals, water storage solutions) have grown sharply.

Fig. 9: Water quantities used in food production
Volume of water needed to produce 1 kilogram of food, in thousand liters



Source: Unesco, UBS, as of 30 June 2013

Food-water nexus
Agriculture is the largest user of water, accounting for 70% of withdrawals and more than 90% of consumptive use globally, and water needs for agriculture continue to grow faster than the world's population, according to the Food and Agriculture Organization. One important factor limiting water availability is the growing global appetite for meat, as incomes and cities expand in emerging market countries (see Fig. 9). In the face of resource competition and high input costs, companies proactively working with their agricultural suppliers, promoting more efficient farming methods and managing local watersheds will be better able to secure access to high-quality raw materials.

Solutions to limit water demand for food production exist both downstream (food waste reduction) and upstream (water productivity). Most irrigated crops still use flood irrigation which operates at low levels of efficiency, and so we believe there is a large untapped market for those companies providing more efficient irrigation systems, such as high-pressure sprinkler, low-pressure sprinkler, micro and drip irrigation – each having its own optimal application setting.

Mind over matter
We believe that companies offering efficiency gains in supplying the basic necessities of food, healthcare, energy and water present a strong basis for investing. The beauty of enhanced efficiency is that using fewer resources is both more sustainable and less expensive. The technology to improve efficiency across a wide number of activities is already available today, and the information barriers blocking adoption are coming down. The incentives to change – in the form of higher prices and government policies – are growing, and the political will to achieve additional gains is also increasing. Under these circumstances, we believe that "mind" will triumph over "matter," and that investments in human ingenuity to efficiently employ scarce resources make sound financial sense.

Conclusion

Once a niche segment, sustainable investing has entered the mainstream, offering investors competitive investment results, the ability to make a beneficial impact on the world in which they live and an avenue for expressing their values through their investments. Companies are steadily integrating the environmental, social and governance considerations that are most relevant to their industry into their overall business strategy and financial reporting activities. This approach not only helps companies preserve and create shareholder value, it also provides investors with better information on which to base an investment decision.

Better information has facilitated another important evolution in the field of sustainable investing: the ability to weave environmental, social and governance considerations throughout an investment portfolio. Whereas most early forms of sustainable investing simply excluded companies involved in certain objectionable business activities, today's approach evaluates sustainability criteria across a wide range of assets – stocks, bonds, commodities and nontraditional assets – and selects the investments that align best with an investor's values, goals and financial objectives. As a consequence of taking sustainability criteria into account, investors are making an impact by redirecting capital to reward certain companies while penalizing others.

Sustainable investing lends itself to specific investment approaches and themes. We highlighted impact investing as an innovative approach investors can employ to bridge their philanthropic mission to their portfolio, earning them a social return on their investment and ideally a financial return, too. We also identified four themes that we think represent long-term investment opportunities, ranging from food to health and from energy to water. Keep in mind, however, that the opportunities and risks associated with each sustainable investing theme should not be viewed in isolation but, rather, considered as part of a broader fundamental assessment.

Ultimately, we believe sustainable investing is a theme that will endure even as it continues to evolve, and, importantly, will provide your portfolio with more endurance over the long term than traditional investment approaches.

Glossary

Brief definitions of terms used in this report

Activist investing: an investment strategy where investors, acting singly or as a group, buy shares of a company to gain enough control to influence or even radically change its operations.

Best in class: a sustainable investing approach that uses environmental, social and governance criteria, as well as financial performance, to select the best companies within an industry or sector for inclusion in a portfolio (see also Positive screening).

Corporate Social Responsibility (CSR): company-directed efforts to assess the impact of business activities on the wider systems in which they operate, as well as initiatives to support and invest in society, the community, the environment and other valued stakeholders. CSR includes both self-initiated responsibility and philanthropy activities, as well as compliance with external standards and regulations.

Divestment: the practice of reducing or selling investments in a company or country, which does not meet specific ESG or financial performance criteria, to pressure a company to change operations or, in extreme cases, to force them out of business.

Engagement: a constructive dialogue between company management and key stakeholders; also consistent with a framework within which the shareholder acts like an owner, closely monitoring the company.

ESG: an acronym for "environmental, social and governance" which is the broad term used for sustainable investing factors considered alongside traditional financial criteria in security selection and portfolio management.

Ethical investing: a style of investing that incorporates an investor's ethical principles or widely accepted social norms to determine security selection.

Exclusionary screens: standards that exclude companies or stocks that conflict with an investor's values. Applying exclusionary screens often entails full avoidance of specific industries or companies on the basis of qualitative criteria, which most often exclude products, such as pornography, alcohol, gambling, weapons and tobacco (see also Negative screening).

Externality: the cost or benefit of an economic activity to uninvolved third parties, such as society at large.

Governance: the structure of control and regulatory objectives within an organization that specifies the distribution of rights and responsibilities of various stakeholders and defines rules and procedures to guide decision making in corporate affairs.

Integrated reporting (IR): a style of reporting, currently in development, which broadens the scope of traditional financial accounting, and entails reporting any information, including sustainability issues, considered important to company strategy and investors.

Impact investing: targeted investments aimed at solving social and environmental problems, such as community investing, sometimes with the secondary aim of recovering the financial investment at face value or with a financial return.

Intrinsic value: the actual or "real" value of a company or an asset separate from the market value, which includes both tangible and intangible values.

Materiality: a term taken from financial accounting practices, which refers to the universe of qualitative and quantitative information that can influence investor decisions, and correctly captures the true value of a company.

Microfinance: the provision of financial services, such as loans and insurance, for low-income individuals or populations that do not typically have access to traditional banking services.

Glossary

Negative screening: one of the earliest methodologies under "socially responsible investing," which involves excluding companies that do not meet personal or societal ethical standards.

Nongovernmental organization: a nonprofit, voluntary civic society group, usually unaffiliated with the government, organized on a grassroots, national or international level.

Pay for Success: a performance-based payment model between the government and public service providers, where government financing depends on outcomes (unlike traditional "grant-based" nonprofit activities where payment is made upfront). Instead, impact is measured on various metrics, and the government pays providers after they demonstrate results (see also Social Impact Bonds).

Positive screening: a strategy to identity businesses or products and services that have forward-looking, responsible business practices and offer ethical investing opportunities.

Principles-based accounting: a conceptual accounting guideline where a broad set of objectives is used as a blueprint for "good" reporting. Examples may be provided as guidance but, otherwise, a more subjective, case-by-case analysis is often utilized.

Rules-based accounting: a "one-size-fits-all" approach to preparing financial statements using comprehensive rules and offering little leeway for subjective judgments. Such reporting has the aim of increasing accuracy, reducing ambiguity and promoting standardization in sustainability reporting.

Social Impact Bond (SIB): a term for a new style of "bonds," initiated in the UK and now gaining traction under different names globally, that bring together governments, nonprofits and private investors to support social programs. Investors contribute capital upfront and if programs achieve their objectives – such as reducing recidivism – investors are repaid. If they fail, investors lose money and taxpayers are unaffected.

Social return: the impact of actions or operations on social, economic and environmental factors, the value of which is not wholly accounted for by regular cost-benefit analysis.

Socially Responsible Investing (SRI): a generic term used to describe a style of investing driven by the value system of investors that reflects their social and ethical considerations, along with the factors traditionally considered in investing strategies, such as risk appetite. SRI entails taking ESG factors into account in the construction of portfolios or securities selection more generally.

Stakeholder: those individuals or groups impacted by a firm's business and operations, such as investors, the community, employees, suppliers, governments and academic institutions.

Sustainability: literally means "to endure," and refers to the conditions under which corporations and society can coexist. It requires fulfilling today's social, environmental and economic needs while also meeting the needs of future generations and ensuring the longevity of the planet's ecosystem.

Values-based investing (VBI): an investment philosophy that incorporates investors' personal values or social and environmental considerations into financial decision making and performance goals.

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Endnotes

and policy-makers — an organization's social license to operate. *Natural capital*: Renewable and nonrenewable environmental resources and processes that provide goods or services that support the prosperity of an organization, e.g. air, water, land, minerals and forests, biodiversity and eco-system health. Adapted from, "Consultation Draft of the International <IR> Framework," International Integrated Reporting Council (IIRC), Web, 7 July 2013. http://www.theiirc.org/wp-content/uploads/Consultation-Draft/Consultation-Draft-of-the-InternationalIRFramework.pdf

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Version 1/2013.

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100 seconds on investing in emerging markets, by Jorge Mariscal, Regional Chief Investment Officer Emerging Markets, UBS Wealth Management.

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