

Global Financial Institute
Your entry to in-depth
knowledge in finance

Passion to Perform

Environmental, social, and governance
(ESG) data: Can it enhance returns and
reduce risks?





Dr. Andreas G. F. Hoepner

Lecturer in Banking and Finance at
the University of St Andrews

Email: ah445@st-andrews.ac.uk

Web Page:

→ [Click here](#)

Dr. Andreas G. F. Hoepner has been a Lecturer in Banking and Finance at the University of St Andrews since February 2009, and was named Deputy Director of the university's Centre for Responsible Banking and Finance in November 2011. Since September 2009, he has also served as the Academic Fellow to the United Nations' Principles for Responsible Investment. He received his PhD from the University of St Andrews in June 2010. His research has won several awards including a 2012 Academy of Management Best Paper Proceeding, a 2010 PRI Academic Research Award, and 2011 and 2012 PRI/FIR Research Grant Awards. Besides these academic honours, Dr. Hoepner has presented

professionally relevant insights from his research to many international financial institutions, such as Allianz Global Investors, China Industrial Bank, Deutsche Bank, Generation Investment, Hermes, MSCI, Nordea, Ontario Teachers' Pension Plan, Scottish Widows, and the Shanghai Pudong Development Bank.

Table of contents

Summary.....	04
<hr/>	
1. An introduction to ESG investment	05
1.1. Historical emergence of ESG criteria	05
1.2. Definition and structure of ESG investment	06
1.3. ESG investment - just quantified 'common sense'?	06
<hr/>	
2. Can ESG criteria enhance investment returns?.....	07
2.1. Opponents' views	07
2.2. Evidence of ESG Alpha?	08
<hr/>	
3. Can ESG criteria reduce risk.....	11
<hr/>	
4. Concluding remarks.....	13
<hr/>	
5. References	14

Introduction to Global Financial Institute

Global Financial Institute was launched in November 2011. It is a new-concept think tank that seeks to foster a unique category of thought leadership for professional and individual investors by effectively and tastefully combining the perspectives of two worlds: the world of investing and the world of academia. While primarily targeting an audience within the international fund investor community, Global Financial Institute's publications are nonetheless highly relevant to anyone who is interested in independent, educated, long-term views on the economic, political, financial, and social issues facing the world. To accomplish this mission, Global Financial Institute's publications combine the views of Deutsche Asset & Wealth Management's investment experts with those of leading academic institutions in Europe, the United States, and Asia. Many of these academic institutions are hundreds of years old, the perfect place to go to for long-term insight into the global

economy. Furthermore, in order to present a well-balanced perspective, the publications span a wide variety of academic fields from macroeconomics and finance to sociology. Deutsche Asset & Wealth Management invites you to check the Global Financial Institute website regularly for white papers, interviews, videos, podcasts, and more from Deutsche Asset & Wealth Management's Co-Chief Investment Officer of Asset Management Dr. Asoka Wöhrmann, CIO Office Chief Economist Johannes Müller, and distinguished professors from institutions like the University of Cambridge, the University of California Berkeley, the University of Zurich and many more, all made relevant and reader-friendly for investment professionals like you.

Environmental, social, and governance (ESG) data: Can it enhance returns and reduce risks?

Dr. Andreas G. F. Hoepner

Lecturer in Banking and Finance at the University of St Andrews

April 2013

Executive Summary

This white paper introduces the concept of ESG investing and highlights its opportunities to enhance returns and manage risks. ESG investing refers to a process of integrating environmental, social, and corporate governance (ESG) data into investment decision-making. This paper makes four key observations.

First, the field of ESG investment grew nearly tenfold over the last decade (Biehl et al., 2012), as financial markets have increasingly realised that integrating the environmental, social, and governance concerns of common people in investment decisions makes good business sense. A company simply performs better when its employees are more motivated. Similarly, in the last decade, societal concerns about topics such as climate change or pollution have led to many government policies relevant to business. It is also common sense that better corporate governance, which provides managers with fewer means of advancing themselves over their investors, tends to be beneficial to shareholders. Practically speaking, quantitative ESG datasets are increasingly accessible through online databases, making their use more convenient than ever before. Given these factors, the strong growth of ESG investing is no surprise.

Second, despite their availability and commercial relevance,

ESG datasets are not currently covered in many professional finance degrees, and hence insufficiently considered by the average analyst or investment manager. This characteristic makes them an attractive investment opportunity, if one follows Grossmann and Stiglitz' (1980) view that market (in)efficiency is a cyclical process in which those investors perform best who find profitable information sets which that are barely known to their competitors.

Third, empirical evidence confirms the view that ESG information sets provide attractive return enhancement opportunities. Portfolios of assets with high ESG ratings have been found to outperform their benchmarks in various contexts. This is especially true for recently popular ESG criteria such as corporate governance, eco-efficiency, and employee relations. This outperformance has in cases even been sufficient to absorb hypothetical transaction costs of up to 50 basis points per trade (i.e. Kempf and Osthoff, 2007, Edmans, 2011). Indeed, the most sustainable firms globally, as announced during the World Economic Forum, have outperformed in 2 out of 10 industries as defined by the Global Industry Classification Standard (GICS) in the years after their public announcements. This is true even though anybody could have traded on this free piece of information and earned an abnormal return, which is a clear indication that financial markets are currently

inefficient with respect to certain ESG criteria. (Hoepner et al., 2010)

Fourth, ESG datasets show strong risk management capabilities at the firm and at the portfolio level. Firms with better ESG ratings experience higher credit ratings and lower cost of debt. Portfolios with better ESG ratings display substantially less downside risk of more than 200 basis points even if they have a substantially lower number of constituents. (Hoepner et al., 2011)

Consequently, this white paper offers a strong outlook on the

field of ESG investment and recommends its deeper consideration by any institutional or private asset owner or financial services institution. It should be common sense to consider cultural shifts in society when making investment decisions. The fact that standard professional finance degree programs have not really taught their students how to evaluate this information makes ESG investment all the more appealing, as it substantially reduces the competition for ESG investors. Hence, this type of investment is a low-competition, longer-term strategy that can enhance investment returns and reduce risks by capitalising on common sense insights into the business relevance of specific ESG factors.

1. An introduction into ESG investment

To introduce the investment approach that integrates environmental, social, and corporate governance (ESG) criteria into its information processing and decision-making (so called ESG investment), we begin by discussing how ESG criteria found their way into the business context; continue by defining and structuring ESG investment; and conclude with a view from a common sense perspective.

Historical emergence of ESG criteria

Prior to World War II, environmental, social, and corporate governance criteria mattered little in the business environment. In the post-war period, however, a shortage of workers gave power to unions, which successfully placed employee rights on the business agenda. Movements in support of consumer rights and civil rights and in opposition to the Vietnam War further highlighted business relevant social issues in the 1960s and 1970s (Biehl et al., 2012). It was in the early 1970s that these social issues first moved from the business sphere into the investment sphere, as universities started discussing whether their endowment investment policies should consider the environmental or social views of their students (Malkiel, 1973, Malkiel and Quandt, 1971, Simon et al., 1972). Similarly, the Pax World Fund was launched in August 1971 with starting capital of \$150 million to allow

retail investors to consider explicitly, for the first time, social and environmental criteria in addition to financial criteria when making investment decisions (Pax World Funds, 2001).

In the late 1970s and 1980s, environmental concerns became prominent as a consequence of a series of scandals including Bhopal, Chernobyl, and Exxon Valdez. The 1980s also saw the foundation of organisations such as EIRIS in the U.K. and Kinder, Lydenberg & Domini (KLD) in the U.S., which systematically rated publicly listed corporations on their social and environmental responsibility. The data produced by these organisations was a prerequisite for the systematic integration of social and environmental criteria in active or passive investment processes. Consequently, the first socially responsible equity index, the Domini 400 Social Index, was launched in 1990 (Biehl et al., 2012, Sparkes, 2002, Sparkes and Cowton, 2004).

Corporate governance and the underlying differences between the interests of investors (principals) and managers (agents) received increasing attention in the 1990s and became a major issue in the wake of scandals such as those at Enron and Tyco, leading to the passage of the Sarbanes-Oxley Act in 2002. Today, many institutional investors routinely discuss corporate governance issues with boards and

management teams (Barber, 2007, Bebchuk and Weisbach, 2010, Biehl et al., 2012, Grandmont et al., 2004, Grant, 2005, La Porta et al., 2000, Letza et al., 2004, Nesbitt, 1994, Shleifer and Vishny, 1997). While the relevance of corporate governance is barely contested nowadays, some critics challenge the importance of social or environmental issues. However, the strongly increasing frequencies with which social and environmental issues have been discussed in the context of banking over the last decade suggest that at least some social and environmental issues – such as climate change, eco-efficiency, and employee relations – are quite important in the business and investment sphere (Hoepner and Wilson, 2012).

Definition and structure of ESG investment

Investing with a consideration for environmental, social, and corporate governance factors, so called ESG criteria, is often termed responsible investment (Beinisch et al., 2013, Hoepner and McMillan, 2009, Sparkes, 1995, Sparkes, 2002, Sullivan and Mackenzie, 2006). Responsible investment can be defined ‘as investment in capital assets based on screening and selection processes or ownership policies, which are not exclusively developed and practiced on the basis of financial information, but are also developed and practiced on the basis of environmental, social or governance (ESG) criteria that account for the investment’s current and future impacts on society and natural environment’ (Hoepner and McMillan, 2009: 18).

Typical E-criteria these days include climate change, pollution, environmental management, biodiversity, and water scarcity. S-criteria nowadays are employee relations, community involvement, human rights, minority participation, and the involvement of harmful products or services such as tobacco or weapons. Common G-criteria are related to policies and practices that managers can use to empower themselves and disempower investors. These include staggered boards with overlapping terms, limitations on amending bylaws or the corporate charter, supermajority requirements for the approval of a merger, rules related to golden or silver parachutes, poison pills, a secret ballot, elimination of cumulative voting, and director indemnification (Bebchuk et al., 2009, EIRiS, 2008, Gordon, 2007, Maier, 2007, Sparkes, 2002, Sullivan and Mackenzie, 2006).

Importantly, the integration of ESG information in investment processes can appear before or after the

investment decision. Before the investment decision, investment managers can include ESG datasets in their stock selection and portfolio management choices. After their investment decisions, managers can employ in-house or external ESG engagement services that discuss potential improvements in ESG aspects with invested companies (Becht et al., 2009, Clark and Hebb, 2004, Clark et al., 2008, Kiernan, 2006, Kiernan, 2009, Lake, 2006, Lim, 2006, Mackenzie and Sullivan, 2006, Sparkes, 2002).

If approximated by the signatories to the United Nations-backed Principles for Responsible Investment (PRI), the global market for ESG investments involves over a thousand organisations with combined assets under management of more than \$30 trillion. Organisations that signed the PRI include some of the world’s largest institutional asset owners, including the Swedish AP Funds, Danish ATP, Australian Super, BT Pension Scheme, California Public Employees’ Retirement Scheme, Finnish KEVA, Ontario Teachers’ Pension Plan, Dutch PGGM, and Taiyo Life. Similarly, many of the world’s largest asset managers signed the PRI, including Allianz Global Investors, AXA, BlackRock, the Asset Management of Deutsche Bank, HSBC, Nordea, PIMCO, State Street, and UBS. These asset managers, however, do not only offer their responsible investment services to large institutional investors, they are also offering them to tens of thousands of retail investors worldwide. Keeping in mind that the ESG investment market was only \$3 trillion in size at the millennium, this is a remarkable development that may be attributed to the willingness of public pension funds to collaborate and to the vision and entrepreneurial spirit of the PRI’s founding director (Eurosif, 2003, Hoepner and Wilson, 2012, PRI, 2012, SIF, 2001).

ESG investment – just quantified ‘common sense’?

Given this remarkable growth, the question arises as to why so many institutional and retail investors became interested in ESG investing over the last decade. Did all of these investors suddenly understand themselves as eco-pioneers or social campaigners? Some of them might have shifted their understanding, but it is much more likely that many if not all of them have realised the virtues of certain parts of ESG datasets. To appreciate this, it is worthwhile to ask the opposite question: Why would it not be logical from a common sense perspective to consider parts of ESG datasets?

If investment analysts are researching human capital intensive industries, would they not be interested in understanding employee motivation? If investment analysts are researching environmentally sensitive firms in the European Union, would they not be interested in understanding the costs and implications of European climate change legislation? Would any investor not be interested in understanding what means managers possess to avoid investor control? Most investors would answer these three questions with an answer such as 'Yes, of course. It is common sense that one would be interested.' However, they would often not associate these questions with ESG datasets and instead search for information on a firm-by-firm basis. In this sense, they would not see environmental,

social, and governance information as an organizational concept for which quantified information is readily available.

In 2012, *Forbes'* online edition published an article with the provocative but insightful title: 'Most Economics is Just Organised Common Sense'.¹ ESG datasets are essentially nothing but 'organised common sense.' In many investment contexts, it is common sense to consider environmental, social, or governance aspects for medium- to long-term investment decisions. However, the ESG information is often neither systematically organized nor quantified. This service is provided by several providers of easily accessible, organized datasets of quantified corporate ESG assessment.

2. Can ESG criteria enhance investment returns?

Opponents' views

Opponents of ESG investing like to point to the academic study of Hong and Kacperczyk (2009), which receives a lot of media coverage for its message that firms in the alcohol, tobacco, and gambling industry, so called 'sin stocks,' outperform market benchmarks in a sample ending 2006. This criticism of ESG investment requires two qualifications. First, it is relevant for a few early ESG investment strategies, which shun all stocks in the alcohol, tobacco, or gambling industry. It is irrelevant, however, for the many modern ESG investment strategies, which select stocks with good ESG characteristics in any industry. Second, Hong and Kacperczyk did not present any value-weighted sin stock portfolios in their publication, despite their market benchmarks being value-weighted. They exclusively analysed equal-weighted portfolios, which are biased through over-weighting small-cap stocks and underweighting large-cap stocks. As commonly known, small-cap stocks

outperform large-cap stocks over large sample periods such as the one of Hong and Kacperczyk. Hence, their finding in itself is not necessarily evidence of any superiority of sin stocks but could simply mean that small sin stocks outperform large sin stocks. Indeed, a study by Lobe and Walkshäusl (2011), which analyses similar sin stock portfolios equal- and value-weighted until 2007 finds that the value-weighted portfolios do not significantly outperform their benchmarks.

Opponents of active management – with or without ESG data – point to academic studies showing that the average mutual fund or hedge fund fails to significantly outperform the benchmark (Kosowski et al., 2007, Kosowski et al., 2006). When one considers, however, that most financial market trades involve a fund manager on each side of the deal, it becomes clear that fund management has similarities to a zero sum game relative to the market benchmark, in which the better outperforms the worse and the average performs very close to the benchmark.

¹ <http://www.forbes.com/sites/timworstall/2012/01/02/most-economics-is-just-organised-common-sense/>

In this sense, studies finding that the average ESG integrating investment fund does neither outperform nor underperform its conventional peers simply do not address the relevant question, as they ask, 'How well does the average ESG investment process perform?' Instead, the key question for the individual asset manager, institutional investor, or retail client is, 'Can ESG criteria enhance returns on investment processes if implemented sophisticatedly?'

In this sense, the fact that academic research repeatedly finds ESG investment performance on par with conventional peers does not mean that sophisticated ESG asset managers cannot outperform (Bauer et al., 2005, Bello, 2005, Hoepner and McMillan, 2009, Kreander et al., 2005, Renneboog et al., 2008, Schröder, 2007). Indeed, the only academic study to date which differentiates between sophisticated ESG asset managers and those asset managers without substantial ESG capabilities finds that the former significantly outperform their peers while the latter significantly underperform their conventional peers (Gil-Bazo et al., 2010). Hence, technical sophistication is crucial for ESG investment processes.

However, technical sophistication is crucial for investment processes more generally, independent of their consideration of ESG criteria, as only technical expertise allows investors to avoid Grossmann and Stiglitz's (1980) 'Paradox of Market Efficiency.' The paradox is that when sensible investment approaches are unpopular among investment managers, opportunities to identify market inefficiencies are likely to arise and result in increasing popularity. Once, however, an ever increasing number of active asset managers follow a certain investment approach (i.e., use the same information sets to analyse the same asset classes), their joint activity reduces the opportunities to find market inefficiencies based on this approach and only the most sophisticated managers will still be able to profit.

The Paradox of Market Efficiency also highlights the point that a commercially relevant information set is more interesting for asset managers if it is currently considered by less competitors. This argument lends further appeal to ESG datasets, which are commercially relevant in many contexts but currently not noticeably covered in many professional finance degrees (i.e., CFA or PRMIA) and hence insufficiently considered by the average analyst or investment manager. This reasoning in itself makes ESG investment attractive, if one shares the view that market efficiency is a cyclical process in which those investors perform best who find profitable information

sets that are barely known to their competitors.

Evidence of ESG Alpha

While ESG datasets are not systematically included in the CFA's and PRMIA's curricula, these datasets are often meaningful for the performance of firms, at least in specific industries. For instance, eco-efficiency measures are naturally not too relevant for financial services firms, but they provide a valuable win-win opportunity for industrial companies or real estate developers. In both cases, reducing energy consumption through eco-efficiency projects saves a substantial amount of money and increases reputation and perceived utility for clients. Hence, it is not surprising that substantial return enhancement opportunities have been found in both segments (Derwall et al., 2005, Eichholtz et al., 2010). Similarly, employee relations ratings are likely important to those industries for which human capital is one of the very top performance drivers (e.g., information technology). Hence, Edman's (2011) finding that America's Best Companies to Work For earned 2.1% per annum more than industry benchmarks over the period from 1984 to 2009 is not surprising.

Beyond these three studies, there is further systematic evidence of the return enhancement opportunities of ESG datasets. Gompers, Ishii, and Metrick (2003) find a substantial outperformance of more than 8% per annum for firms with the best corporate governance ratings against those with the worst corporate governance ratings. Subsequently, Bebchuk et al. (2009) identify 6 of the 24 corporate governance aspects analysed by Gompers et al. to perform very well. These six highly relevant corporate governance aspects are 'golden parachutes,' 'limits to shareholder bylaw amendments,' 'poison pills,' 'staggered boards,' 'supermajority requirements for mergers,' and 'charter amendments.' Using only these six provisions, the outperformance of the firms with the best corporate governance ratings against those with the worst increases to more than 12% p.a.

With regard to environmental and social criteria, the first sophisticated study was conducted by Kempf and Osthoff (2007) from the University of Cologne. They find that so called Best-In-Class (BIC) strategies, which invest in the firms with the best ESG ratings in each industry instead of shunning entire industries, tend to performance better than ESG investment strategies that exclude complete industries based on negative

screening. Furthermore, these BIC strategies perform even better if one invests in a certain percentage of the best ESG-rated firms and finances this investment by borrowing against the same percentage of worst ESG-rated firms. Using 10% as the threshold for the top and bottom firms, the BIC strategy yields an annual outperformance against the market benchmark of more than 3% based on the individual ESG criteria 'community,' 'diversity,' and 'employee relations.' A BIC strategy including six ESG criteria – 'community,' 'diversity,' 'employee relations,' 'environment,' 'human rights,' and 'product' – yields an annual outperformance of more than 4.5%, even if the BIC approach includes some negative screening. This outperformance is particularly remarkable as it is able to absorb transaction costs of up to 50 basis points per trade.

However, the very best ESG investment strategies identified by Kempf and Osthoff (2007) are those BIC strategies that use a 5% percentage threshold and hence invest in the 5% best ESG-rated firms in each industry while short selling the 5% worst ESG-rated. The strategies, displayed in Figure 1, generate annual outperformance of up to 6.22% for individual ESG criteria and 8.70% for a BIC strategy using six criteria. The findings of Kempf and Osthoff (2007) are particularly robust, as Statman and Glushkov (2009), two American academics, arrived at virtually equivalent results using a very similar sample and similar methods.

The drawback of much of the ESG investment literature to date is that it is more or less exclusively focused on U.S. stocks. The seven studies above represent no exception to this trend. Global evidence is needed, as well, and provided by Hoepner, Yu, and Ferguson (2010). We studied the financial performance of a hypothetical portfolio investing in the Global 100 Most Sustainable Corporations as announced during the World Economic Forum across all 10 Global Industry Classification Standard (GICS) sectors. We analysed the performance against market benchmarks in the year prior to the announcement and the year after the announcement. In the pre-announcement years, only investors purchasing the

underlying Innovest data would have known about the exceptional sustainability performance of these corporations, while in the latter year the whole world was informed.

As shown in Figure 2, we find 3 out of the 10 sector-based sustainability portfolios to significantly outperform their industry benchmark by more than 6% per annum in the year before the announcement, while two industry portfolios outperform in the post-announcement year by a similar margin. None of the remaining portfolios of the most sustainable corporations in an industry underperform at any conventional statistical significance level. The Consumer Discretionary portfolio outperform significantly prior to the announcement but not subsequently, as analysts seem to integrate the sustainability award into their expectations. This is intuitive, since consumers tend to appreciate a good reputation when buying products or services with their discretionary income. This is another example where successful ESG investment strategies appeal to common sense thinking.

In contrast to the Consumer Discretionary sector sustainability portfolio, the sustainability portfolios in Industrials and Health Care significantly outperform their industry benchmarks by more than 6% per annum both before and after the announcement. The outperformance in the year after the announcement in the Industrials sector is 6.48% and 10.8% in the Health Care sector. This is a remarkable result, as the whole world could have traded on the Global 100 sustainability award which was public knowledge after its announcement at the World Economic Forum. Hence, these results represent examples of the market's inefficiency in pricing even publicly available sustainability information. In the Industrials sectors, the result might be best explained by the known eco-efficiency premium, while the result in the health care sector might derive from the high level of trust that the best ESG-rated firms receive from stakeholders (Hoepner et al., 2010). ESG investors can profit from any of these opportunities if they develop a sufficiently sophisticated investment strategy.

Figure 1: Annual performance from 1991-2003 against market benchmarks of different ESG investment strategies in Kempf and Osthoff (2007) with colour-coded statistical significance levels² (Past performance is not an indicator of future performance.)

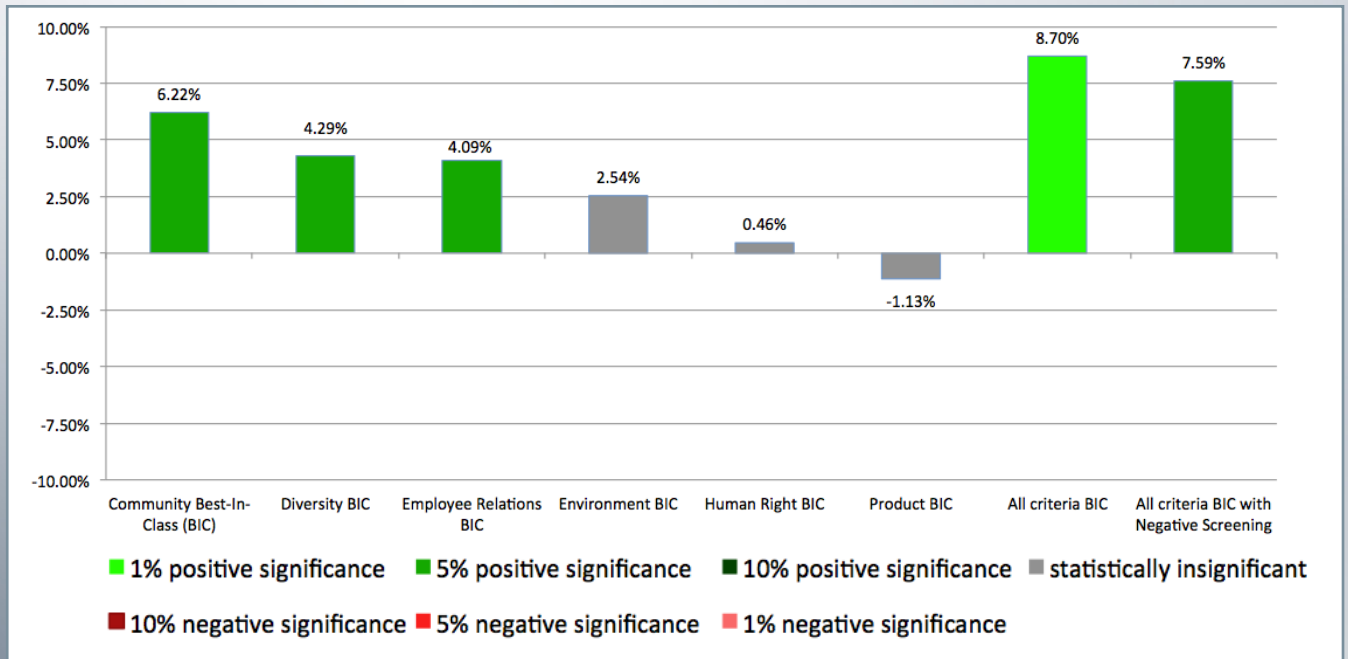
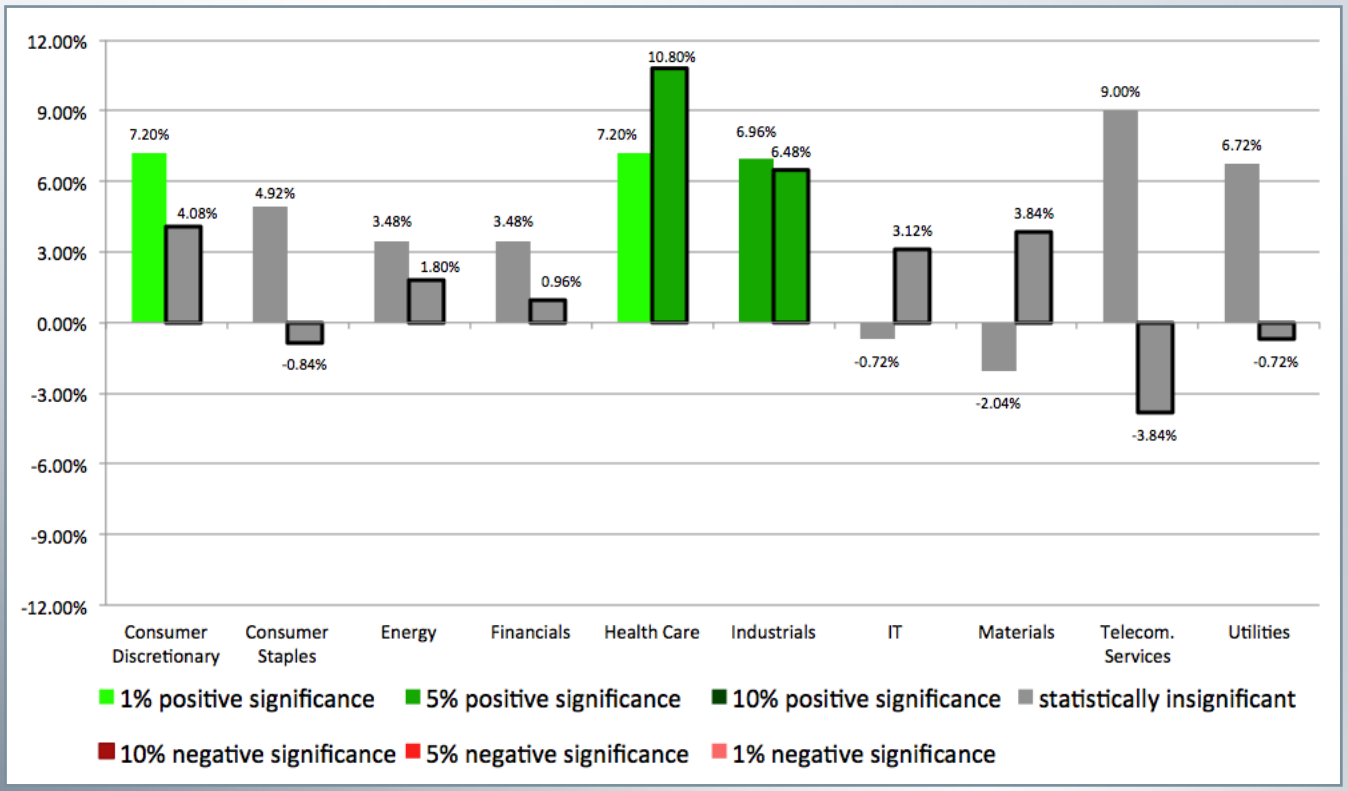


Figure 2: Annual performance from 2004-2008 against market benchmarks of the Global 100 most sustainable companies as announced by the World Economic Forum across the 10 GICS sectors before (left bar) and after (right bar) the announcement. (Past performance is not an indicator of future performance.)



[Source: Hoepner, Yu & Ferguson (2010); statistical significance levels are colour coded as indicated below]

² The investment strategies represent the return differential between the 5% best and the 5% worst stocks in the categories stated in the columns.

3. Can ESG criteria reduce risk?

Firms committed to managing their environmental, social, and corporate governance risks tend to perform better in ESG ratings, since these ESG assessments are searching among others for indications of an authentic commitment. Consequently, it is not surprising that firms with better ESG ratings have been found by many studies to carry a lower firm-specific risk (Bouslah et al., 2012, Boutin-Dufresne and Savaria, 2004, Lee and Faff, 2009, Oikonomou et al., 2012).

Since risks are the essential performance driver in the fixed-income space, researchers have investigated whether these ESG-induced risk reductions are also beneficial in relation to fixed-income products. Indeed, Bauer and Hann find that better environmental responsibility and employee relations ratings appear to lead to lower cost of debt and higher credit ratings (Bauer et al., 2009, Bauer and Hann, 2010). Oikonomou, Brooks, and Pavelin (2011) further extend this research stream and find that ESG criteria are more generally negatively associated with bond spreads. They also show that better ESG ratings are associated with better credit ratings and a lower probability of being rated with a speculative grade. Intuitively, they observe these relationships to be more pronounced for longer-term bonds than for their shorter-term peers.

Until recently, however, it was believed that these ESG risk advantages at the firm level would be diversified away at the portfolio level. Even more so, researchers such as Rudd (1981) believed that the integration of ESG criteria into investment processes had to be detrimental for portfolio diversification, as it would result in suboptimal cross asset correlations. While this belief was widely shared (e.g., Barnett and Salomon, 2006, Renneboog et al., 2008), empirical evidence supporting it was never found, as noted by Derwall (2007), who argued that the disadvantage might be too small in a large portfolio to be measurable.

Recent research has found, however that ESG criteria does not necessarily have a neutral effect on portfolio risk, but can actually enhance portfolio diversification (Hoepner, 2010). The reason lies in the statistical fact that portfolio diversification depends on the portfolio's covariance matrix, whereby the asset-specific variances diversify away. This covariance matrix includes all covariances between all pairs of assets in a portfolio. These covariances consist each of a correlation between the asset pair and the two asset-specific standard deviations.

These asset specific standard deviations do not diversify away like the asset-specific variances, since they are protected within the covariance terms. With each covariance consisting of two standard deviations and one correlation, one can hence say that portfolio risk is approximately determined to two thirds by standard deviations and to one third by covariances. As firms with good ESG ratings are associated with lower asset-specific (that is, firm-specific) variances, integrating ESG criteria in investment processes can enhance portfolio diversification.

To test this theoretical insight empirically, Hoepner, Rezec, and Siegl (2011) constructed hypothetical pension fund portfolios using EIRIS corporate environmental responsibility ratings (Hoepner et al., 2011). Our approach was very simple: We simply formed portfolios of FTSE All World Developed constituents with the same EIRIS Rating grade and updated these at the beginning of each year during our sample period from January 2005 to October 2010. We used four EIRIS rating criteria (i) environmental policy, (ii) environmental management, (iii) environmental impact, and (iv) environmental reporting, and (v) an overall average, whereby each criteria was graded on a five point scale (inadequate, weak, moderate, good, or exceptional). As EIRIS aims to cover the complete FTSE All World Developed universe and its ratings have five assessment steps, all portfolios include dozens and usually hundreds of stocks. Notably, though, the portfolio with the best rating tends to have the lowest number of stocks, as EIRIS does not award an excellent rating if it is not highly convinced of the environmental responsibility of a firm. Classic theory (e.g., Rudd, 1981) would hence predict that the best-rated portfolios experience a significantly higher risk due to a lower number of stocks, while my recent reasoning (Hoepner, 2010) would suggest that the disadvantage of the lower number of stocks might be compensated for or even outweighed by the advantage of ESG stocks, namely their lower firm specific risk.

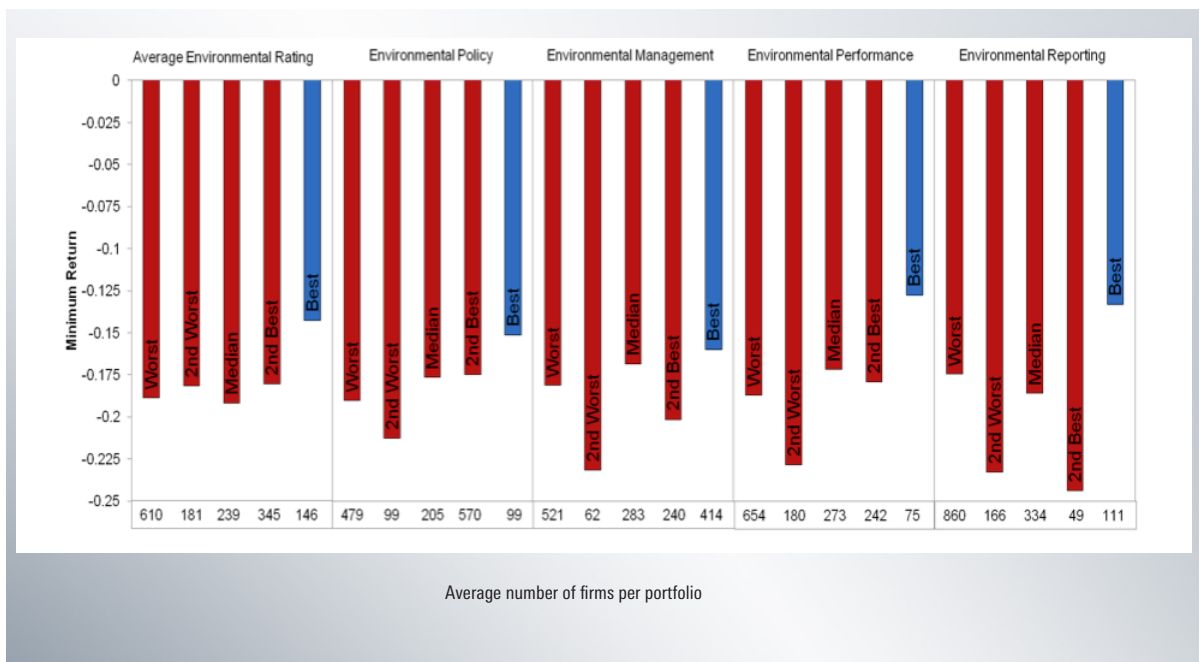
Indeed, the empirical results confirm my reasoning (Hoepner, 2010). The best-rated portfolio in our study (Hoepner et al., 2011) does not have a higher standard deviation than any of the other four portfolios for any ESG criteria except environmental policy. In case of environmental management, the best-rated portfolio even displays the lowest standard deviation of all five portfolios. Standard deviation entails both downward and upward movements, but it is even more interesting to consider the results with respect to downside

risk measures that only focus on predicting downward movements of share prices.

As a measure of downside risk, we chose the minimum return that our portfolios experienced during our 70-month sample period. In other words, we simply recorded the worst monthly return, a very simple measure. The results in Figure 3 show that ESG criteria have substantial risk reduction opportunities. For each

of the five EIRIS environmental responsibility criteria, the best-rated portfolio has by far the lowest worst-case risk despite it usually consisting of far fewer stocks than the alternative portfolios. This result is economically very meaningful (between 200 and 1,000 basis points) and is not driven by a lower systematic risk of the best-rated portfolios. Hence, sophisticated ESG investment strategies seem to have strong downside risk management potential.

Figure 3: Minimum (worst case) returns of portfolios with varying EIRIS environmental responsibility ratings.



Explanatory Notes: These bar graphs show the minimum return of annually updated investment portfolios including stocks with a specific EIRIS environmental responsibility rating. The horizontal axis displays the five corporate environmental ratings from EIRIS: Average Environmental Rating, Environmental Policy, Environmental Management, Environmental Performance, and Environmental Reporting. The Average Environmental Rating is calculated as the mean rating from the other four. For each environmental rating, five value-weighted portfolios with increasing environmental performance are calculated. The blue bars represent the portfolios with 'exceptional' environmental ratings, whereas the red bars represent portfolios rated lower than 'exceptional,' such as, 'good,' 'moderate,' 'weak,' and 'inadequate.' The number at the bottom of each bar represents the number of companies included in that portfolio (Source: Hoepner et al., 2011).

4. Concluding remarks

This white paper introduces the concept of ESG investing as a fresh breeze of quantified common sense in the investment world. It highlights the opportunities of ESG investment to enhance investment returns and reduce investment risks. Given the increasing relevance of ESG issues during recent history and the strong signatory base of the United Nations' Principles for Responsible Investment (PRI), entities that collectively hold assets worth more than \$30 trillion, the concept of ESG

investment has proved successful and hence, has the potential for significant impact. In this context, this white paper offers a compelling outlook on the field of ESG investment and recommends its deeper consideration by any institutional or private asset owner. Based on the presented evidence, there are clearly opportunities to generate value for those who consider ESG issues in their investment decision-making.

References

- BARBER, B.M. 2007. Monitoring the Monitor: Evaluating CalPERS' Activism. *Journal of Investing*, 16, 66-80.
- BARNETT, M. L. & SALOMON, R. M. 2006. Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal*, 27, 1101-1122.
- BAUER, R., DERWALL, J. & HANN, D. 2009. Employee Relations and Credit Risk. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1483112 [Accessed 2010, February, 28].
- BAUER, R. & HANN, D. 2010. Corporate Environmental Management and Credit Risk. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1660470 [Accessed 2010, November, 21].
- BAUER, R., KOEDIJK, K. G. & OTTEN, R. 2005. International Evidence on ethical mutual fund performance and investment style. *Journal of Banking & Finance*, 29, 1751-1767.
- BEBCHUK, L., COHEN, A. & FERRELL, A. 2009. What Matters in Corporate Governance? *Review of Financial Studies*, 22, 783-827.
- BEBCHUK, L. A. & WEISBACH, M. S. 2010. The State of Corporate Governance Research. *Review of Financial Studies*, 23, 936-961.
- BECHT, M., FRANKS, J., MAYER, C. & ROSSI, S. 2010. Returns to Shareholder Activism: Evidence from a Clinical Study of the Hermes UK Focus Fund. *Review of Financial Studies*, 23, 3093-3129.
- BEINISCH, N., HAWLEY, J. P., HEBB, T., HOEPNER, A. G. F. & WOOD, D. 2013. *Handbook of Responsible Investment*, Abingdon, Routledge.
- BELLO, Z. Y. 2005. Socially responsible investing and portfolio diversification. *Journal of Financial Research*, 28, 41-57.
- BIEHL, C. F., HOEPNER, A. G. F. & LIU, J. 2012. Social, Environmental and Trust issues in Business and Finance. In: BAKER, H. K. & NOFSINGER, J. (eds.) *Socially Responsible Finance and Investing*. Hoboken: Wiley.
- BOUSLAH, K., KRYZANOWSKI, L. & M'ZALI, B. 2012. Firm risk and social performance. Available: http://www.cbern.ca/UserFiles/Servers/Server_625664/Image/CBERN%20Events/PRI2012/Papers/Bouslah.pdf [Accessed 2012, October, 21].
- BOUTIN-DUFRESNE, F. & SAVARIA, P. 2004. Corporate Social Responsibility and Financial Risk. *Journal of Investing*, 13, 57-66.
- CLARK, G. L. & HEBB, T. 2004. Pension Fund Corporate Engagement. *The Fifth Stage of Capitalism. Relations Industrielles/Industrial Relations*, 59, 142-171.
- CLARK, G. L., SALO, J. & HEBB, T. 2008. Social and environmental shareholder activism in the public spotlight: US corporate annual meetings, campaign strategies, and environmental performance, 2001-2004. *Environment and Planning A*, 40, 1370-1390.
- DERWALL, J.M.M. 2007. The Economic Virtues of SRI and CSR. Available: <https://eepi.ubib.eur.nl/bitstream/1765/8986/1/ESP2007101F%26A9058921328DERWALL.pdf> [Accessed 2007, May, 7].
- DERWALL, J., GUENSTER, N., BAUER, R. & KOEDIJK, K. G. 2005. The Eco-Efficiency Premium Puzzle. *Financial Analysts Journal*, 61, 51-63.
- EDMANS, A. 2011. Does the Stock Market Fully Value Intangibles? Employee Satisfaction and Equity Prices. *Journal of Financial Economics*, 101, 621-640.
- EICHHOLTZ, P., KOK, N. & QUIGLEY, J. M. 2010. Doing Well by Doing Good? Green Office Buildings. *American Economic Review*, 100, 2494-2511.
- EIRIS. 2008. The EIRIS Green & Ethical Funds Directory. Available: <http://www.eiris.org/files/public%20information%20type%20publications/eirisethicalfundsdirectory.pdf> [Accessed 2008, January, 23].

References

- EUROSIF. 2003. Socially Responsible Investment among European Institutional Investors. 2003 Report. Available: http://www.eurosif.org/images/stories/pdf/eurosif_srreprt_2003_all.pdf [Accessed 2007, February, 7].
- GIL-BAZO, J., RUIZ-VERDÚ, P. & SANTOS, A. A. P. 2010. The Performance of Socially Responsible Mutual Funds: The Role of Fees and Management Companies. *Journal of Business Ethics* [Online], 94, 243-263. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1307043 [Accessed 2009, June, 1].
- GOMPERS, P., ISHII, J. L. & METRICK, A. 2003. Corporate Governance and Equity Prices. *Quarterly Journal of Economics*, 118, 107-156.
- GORDON, B. 2007. The state of responsible business: Global corporate response to environmental, social and governance (ESG) challenges. Available: <http://www.eiris.org/files/research%20publications/stateofrespbusinesssep07.pdf> [Accessed 2007, September, 19].
- GRANDMONT, R., GRANT, G. & SILVA, F. 2004. Beyond the numbers. Corporate Governance: Implications for Investors. Available: http://www.unepfi.org/fileadmin/documents/materiality1/cg_deutsche_bank_2004.pdf [Accessed 2006, December, 31].
- GRANT, G. 2005. Beyond the numbers. Materiality of Corporate Governance. Available: http://www.unepfi.org/fileadmin/documents/materiality2/governance_db_2005.pdf [Accessed 2006, December, 31].
- GROSSMANN, S. J. & STIGLITZ, J. E. 1980. On the impossibility of informational efficient markets. *American Economic Review*, 70, 393-408.
- HOEPNER, A. G. F. 2010. Portfolio Diversification and Environmental, Social or Governance Criteria: Must Responsible Investments Really Be Poorly Diversified? Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1599334 [Accessed 2010, May, 10].
- HOEPNER, A. G. F. & MCMILLAN, D. G. 2009. Research on 'Responsible Investment': An Influential Literature Analysis comprising a rating, characterisation, categorisation & investigation. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1454793 [Accessed 2009, September, 6].
- HOEPNER, A. G. F., REZEC, M. & SIEGL, S. 2011. Does pension funds' fiduciary duty prohibit the integration of any ESG criteria in investment processes? A realistic prudent investment test. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1930189 [Accessed 2011, November 25].
- HOEPNER, A. G. F. & WILSON, J. O. S. 2012. Social, Environmental, Ethical and Trust (SEET) Issues in Banking: An Overview In: BARTH, J. R., LIN, C. & WIHL-BORG, C. (eds.) *Research Handbook for International Banking and Governance*. Cheltenham: Edward Elgar Publishing.
- HOEPNER, A. G. F., YU, P.-S. & FERGUSON, J. 2010. Corporate Social Responsibility across Industries: When can who do well by doing good? Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1284703 [Accessed 2010, March, 16].
- HONG, H. & KACPERCZYK, M. 2009. The price of sin: The effects of social norms on markets. *Journal of Financial Economics*, 93, 15-36.
- KEMPF, A. & OSTHOFF, P. 2007. The Effect of Socially Responsible Investing on Portfolio Performance. *European Financial Management*, 13, 908-922.
- KIERNAN, M. J. 2006. Sustainable Investment Research: Innovest Strategic Value Advisors. In: R, S. & C, M. (eds.) *Responsible Investment*. Sheffield: Greenleaf.
- KIERNAN, M. J. 2009. Investing in a sustainable world: why GREEN is the new color of money on Wall Street, New York, AMACOM.
- KOSOWSKI, R., NAIK, N. Y. & TEO, M. 2007. Do hedge funds deliver alpha? A Bayesian and bootstrap analysis. *Journal of Financial Economics*, 84, 229-264.
- KOSOWSKI, R., TIMMERMANN, A., WERMERS, R. &

References

- WHITE, H. 2006. Can Mutual Fund "Stars" Really Pick Stocks: New Evidence From a Bootstrap Analysis. *Journal of Finance*, 61, 2551-2595.
- KREANDER, N., GRAY, R. H., POWER, D. M. & SINCLAIR, C. D. 2005. Evaluating the Performance of Ethical and Non-ethical Funds: A Matched Pair Analysis. *Journal of Business Finance & Accounting*, 32, 1465-1493.
- LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A. & VISHNY, R. W. 2000. Investor protection and corporate governance. *Journal of Financial Economics*, 58, 3-27.
- LAKE, R. 2006. Henderson Global Investors: engagement and activism. In: R, S. & C, M. (eds.) *Responsible Investment*. Sheffield: Greenleaf.
- LEE, D. D. & FAFF, R. W. 2009. Corporate Sustainability Performance and Idiosyncratic Risk: A Global Perspective. *The Financial Review*, 44, 213-237.
- LETZA, S., SUN, X. & KIRKBRIDE, J. 2004. Shareholding Versus Stakeholding: a critical review of corporate governance. *Corporate Governance: An International Review*, 12, 242-262.
- LIM, R. 2006. Morley Fund Management's approach to investment integration. In: R, S. & C, M. (eds.) *Responsible Investment*. Sheffield: Greenleaf.
- LOBE, S. & WALKSHÄUSL, C. 2011. Vice vs. Virtue Investing Around the World. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1089827 [Accessed 2009, May, 22].
- MACKENZIE, C. & SULLIVAN, R. 2006. Insight's approach to activism on corporate responsibility issues. In: R, S. & C, M. (eds.) *Responsible Investment*. Sheffield: Greenleaf.
- MAIER, S. 2007. Valuing ESG issues - a survey of investors. Available: <http://www.eiris.org/files/research%20publications/esginvestorsurveysurveyjan07.pdf> [Accessed 2007, May, 7].
- MALKIEL, B. G. 1973. The Ethical Investor: Universities and Corporate Social Responsibility. By JOHN G. SIMON, CHARLES W POWERS, and JON P GUNNEMANN. *Journal of Business*, 46, 637-639.
- MALKIEL, B. G. & QUANDT, R. E. 1971. Moral issues in investment policy. *Harvard Business Review*, 49, 37-47.
- NESBITT, S. L. 1994. Long-term Rewards From Shareholder Activism: A Study of the "CalPERS" Effect. *Journal of Applied Corporate Finance*, 6, 75-80.
- OIKONOMOU, I., BROOKS, C. & PAVELIN, S. 2011. The Effects of Corporate Social Performance on the Cost of Corporate Debt and Credit Ratings. Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1944164 [Accessed 2012, October, 21].
- OIKONOMOU, I., BROOKS, C. & PAVELIN, S. 2012. The Impact of Corporate Social Performance on Financial Risk and Utility: A Longitudinal Analysis. *Financial Management*, 41, 483-515.
- PAX WORLD FUNDS. 2001. Socially Responsible Mutual Funds in the United States: A look back ... and ahead. Available: <http://www.paxworld.com/DOC/PDF/MISC/paxwhitepaper.pdf> [Accessed 2007, March, 31]. **This link doesn't work.
- PRI. 2012. Signatories to the Principles for Responsible Investment. Available: <http://www.unpri.org/signatories/> [Accessed 2012, October, 20].
- RENNEBOOG, L., TER HORST, J. & ZHANG, C. 2008. Socially Responsible Investments: Institutional Aspects, Performance, and Investor Behaviour. *Journal of Banking & Finance*, 32, 1723-1742.
- RUDD, A. 1981. Social Responsibility and Portfolio Performance. *California Management Review*, 23, 55-61.
- SCHRÖDER, M. 2007. Is there a Difference? The Performance Characteristics of SRI Equity Indices. *Journal of Business Finance & Accounting*, 34, 331-348.
- SHLEIFER, A. & VISHNY, R. W. 1997. A Survey of

References

Corporate Governance. *Journal of Finance*, 52, 737-783.

SIF. 2001. 2001 Report on Socially Responsible Investing Trends in the United States. Available: <http://ussif.org/pdf/research/Trends/2001%20Trends%20Report.pdf> [Accessed 2007, April, 1].

SIMON, J. G., POWERS, C. W. & GUNNEMANN, J. P. 1972. *The Ethical Investor: Universities and Corporate Social Responsibility*. New Haven: Yale University Press.

SPARKES, R. 1995. *The Ethical Investor: How to make money work for society and the environment as well as for yourself*. London: HarperCollins.

SPARKES, R. 2002. *Socially Responsible Investment: A Global Revolution*. Chichester: John Wiley & Sons.

SPARKES, R. & COWTON, C. J. 2004. The maturing of socially responsible investment: A review of the developing link with the corporate social responsibility. *Journal of Business Ethics*, 52, 45-57.

STATMAN, M. & GLUSHKOV, D. 2009. The wages of social responsibility. *Financial Analysts Journal*, 65, 33-46.

SULLIVAN, R. & MACKENZIE, C. 2006. *Responsible Investment*. Sheffield: Greenleaf.

Deutsche Asset & Wealth Management represents the asset management and wealth management activities conducted by Deutsche Bank AG or any of its subsidiaries. Clients will be provided Deutsche Asset & Wealth Management products or services by one or more legal entities that will be identified to clients pursuant to the contracts, agreements, offering materials or other documentation relevant to such products or services.

This material was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. It is intended for informational purposes only and it is not intended that it be relied on to make any investment decision. It does not constitute investment advice or a recommendation or an offer or solicitation and is not the basis for any contract to purchase or sell any security or other instrument, or for Deutsche Bank AG and its affiliates to enter into or arrange any type of transaction as a consequence of any information contained herein. Neither Deutsche Bank AG nor any of its affiliates, gives any warranty as to the accuracy, reliability or completeness of information which is contained in this document. Except insofar as liability under any statute cannot be excluded, no member of the Deutsche Bank Group, the Issuer or any officer, employee or associate of them accepts any liability (whether arising in contract, in tort or negligence or otherwise) for any error or omission in this document or for any resulting loss or damage whether direct, indirect, consequential or otherwise suffered by the recipient of this document or any other person.

The opinions and views presented in this document are solely the views of the author and may differ from those of Deutsche Asset & Wealth Management and the other business units of Deutsche Bank. The views expressed in this document constitute the author's judgment at the time of issue and are subject to change. The value of shares/units and their derived income may fall as well as rise. Past performance or any prediction or forecast is not indicative of future results.

Any forecasts provided herein are based upon the author's opinion of the market at this date and are subject to change, dependent on future changes in the market. Any prediction, projection or forecast on the economy, stock market, bond market or the economic trends of the markets is not necessarily indicative of the future or likely performance. Investments are subject to risks, including possible loss of principal amount invested.

Publication and distribution of this document may be subject to restrictions in certain jurisdictions.

© Deutsche Bank · April 2013