

RCM Sustainability White Paper

Sustainability: opportunity or opportunity cost? **Applying ESG factors to a portfolio does not negatively impact performance and may enhance it**

Abstract

The perception that corporate efforts to become more sustainable reduce the value of companies and of investors' portfolios is entrenched, but is based on largely unfounded assumptions and only thin academic evidence. It is imperative to challenge this perception empirically because it is holding back the evolution of the nascent sustainability sector and of the wider corporate sector. This paper sets out to test the impact of environmental, social and governance (ESG) issues on portfolio performance over the period 2006 to 2010. The evidence indicates that investors' portfolios are not negatively impacted by the introduction of ESG criteria into the stock selection process. But the results go further than that, and show there is a probability of outperformance over the longer term. Investors could have added 1.6 per cent a year over just less than five years to their investment returns by allocating to portfolios that invest in companies with above-average ESG ratings. Returns from portfolios of European companies represented the largest and most consistent spread between best-in-class and worst-in-class companies, reflecting greater integration of ESG factors in Europe than in the US. There is no certainty that such behaviour will persist in the future, but the five-year period covered in this paper was eventful enough to encompass a growing market, a crash and subsequent rebound. The availability and analysis of company-specific ESG data will undoubtedly continue to progress going forward. In the interim, the available evidence may persuade companies, portfolio managers and investors of the value of ESG principles and practice.

July 2011

Contents

Page

Analysis of the impact of
ESG factors on investment
performance

2

Academic evidence supports
ESG value enhancement

7

Next generation sustainability
- the RCM approach

11

Conclusion

12

Further reading

13

Analysis of the impact of ESG factors on investment performance

Introduction – the sustainability conundrum

Modern investors are increasingly seeking to avoid blow-ups in their portfolios, eschew investments with questionable governance standards, and use material ESG data as a filter for capturing investment opportunities and managing related risks. Whereas sustainability used to be seen as a peripheral issue for many investors, it is becoming a component of the overall investment approach and has increasingly moved into the consciousness of both institutional and retail investors. The Principles for Responsible Investment (PRI) initiative, backed by the United Nations, has added weight and credibility to the process. A growing number of private agencies service the demand, analysing companies and rating them according to their ESG practices, and how well they implement them.

The number of analysts and funds that now exist gives investors greater potential than ever to manage their investments incorporating ESG factors. However, up until now, there has been a dearth of evidence about the impact of applying such factors to portfolios, leading to widespread concern that the application of them would restrict the available investment universe and therefore negatively impact performance. In other words, investors fear an opportunity cost to ESG investing and can be sceptical about funds that incorporate ESG criteria in their stock selection. A small number of studies over the last 40 years have purported to provide evidence that ESG strategies raise the costs of doing business while conferring no tangible benefits¹.

This paper – produced by RCM's Sustainability Research and Systematic Equity teams - aims to address those concerns and to prove one way or the other whether and to what degree investor wealth is impacted by applying ESG filters to portfolios. To do so, RCM sourced global data from what it deemed as one of the most consistent and comprehensive providers of corporate ESG information and then refined the data using in-house ESG resources so a meaningful and quantifiable result could be obtained.

We think, through this paper, we provide a strong indication of whether sustainability research actually adds value.

Methodology: applying ESG factors to the global investment universe

1. The data used for the study was selected because it offers the most robust information across the widest geographic reach. The base data was mainly derived from MSCI ESG Research in the period December 2005 to September 2010. MSCI ESG Research data was chosen because it best matches the philosophy of RCM's in-house Sustainability Research team, which focuses on identifying and evaluating material ESG factors on a sector-by-sector basis to determine those companies operating best-in-class. This approach differs from the one widely used in the industry globally, which is to filter stocks and exclude ones that have negative ESG factors. MSCI ESG Research has a global reach covering around 2,000 companies balancing the ESG risk and opportunities in its analysis. It has leveraged its expertise with the acquisition of RiskMetrics (which acquired Innovest) and KLD, which are amongst leaders in the sustainability research sector.
2. RCM took the ratings of MSCI ESG Research and converted them into a simple A-E scoring system - the system RCM already uses for its internal sustainability ratings. An 'A' rating indicates a company that is operating best-in-class on ESG metrics, and an 'E' rating is designated for companies which ignore material ESG issues or execute poorly on their strategy in this area. The ratings are based on material issues within four pillars: the environment, stakeholder capital, human capital and corporate governance.

In the view of the RCM Sustainability Research team, the resulting data was both clean and comprehensive. It is not perfect, however. Sustainability is a relatively recent concept and time series over several economic cycles are not yet available. The data made

¹ Friedman, 1970; Aupperle et al, 1985; McWilliams and Siegel, 1997; Jensen 2002.

available for the study offers the most robust information across the widest geographic reach in line with the philosophy to be tested. This paper straddles a considerable range of economic and market activity over the nearly five-year period of the research and the companies and stock valuations were exposed to a range of extremes in that time. In 2005 - 2007, the value of most assets – including shares, real estate, bonds and commodities – were underpinned by relative stability and strong fundamentals. This reversed dramatically during the credit crisis that emerged in the summer of 2007 and even more so during the financial crisis of late 2008 and early 2009. From the first half of 2009 to mid-2011, stocks then enjoyed a powerful rally, benefiting from greater liquidity, the easing of credit conditions and a sharp improvement in sentiment and earnings.

So the range of external factors brought to bear on stocks during these economic phases is probably sufficient to have exposed stocks to a range of economic environments (some of which were extraordinary) representative of different stages in the business cycle.

Methodology: portfolio construction

1. The stocks in the analysis are all members of the MSCI World, MSCI Europe and MSCI US indices.
2. A series of portfolios were constructed with different quality stocks in each. This enabled a comparison both between geographical areas and of baskets of different quality companies from an ESG point of view. The portfolios were as follows:

	Composition	Global	Europe	USA
		Number of Holdings		
Component Portfolios	A-rated	156	95	31
	B-rated	398	178	113
	C-rated	305	91	119
	D-rated	443	82	211
	E-rated	107	17	61
Best-in-Class Portfolio	A&B rated	554	273	144
Worst-in-Class Portfolio	D&E rated + unrated stocks	550	99	272

3. The portfolios were rebalanced at the end of each month. The aim was to test the sensitivity of total return to sustainable strategies depending on the commitment of each company to material ESG factors.
4. Every stock in the portfolios was weighted equally, regardless of the size of the company. The benchmark used was the MSCI EWI², which weights all of the stocks in the index equally, so the performance between the portfolios was readily comparable³. Using this methodology the portfolios were controlled for sector and size effects so performance was not skewed in any way, such as by highly-active sectors or size weightings.

² MSCI World Equal Weighted Index.

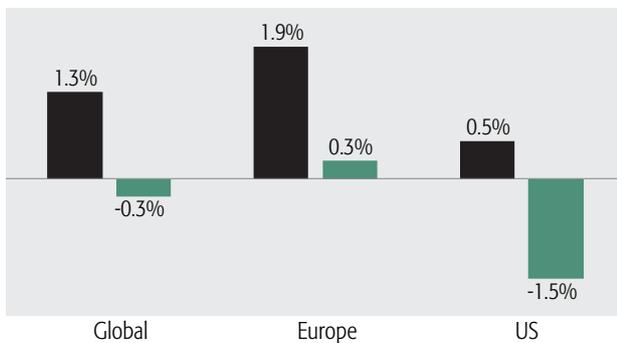
³ Academic studies tend to either equal weight all stocks or weight them according to their market cap. Both these approaches can be appropriate if the same treatment is used for both the portfolios and the benchmark.

The findings:

Best-in-Class Portfolio

The Best-in-Class portfolios outperformed the benchmark in all regions with the Global portfolio outperforming by 1.6%. Europe showed outperformance of 1.6% and the US Best-in-Class portfolio outperformed by 2%.

Best-in-Class Portfolio



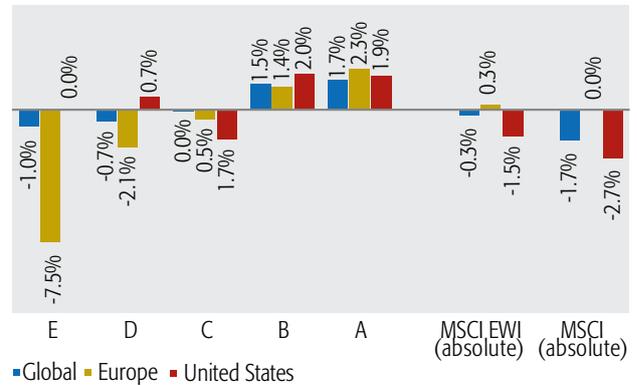
■ Portfolio ■ Benchmark

Source: RCM, December 2005 to September 2010.

Component Portfolios

Outperformance is visible in the well rated Component portfolios and underperformance in several of the poorly rated Component portfolios. The A rated Global portfolio showed outperformance of 1.7% during the period and the E rated Global portfolio underperformed by 1.0% during the period.

Component Portfolios Relative Performance

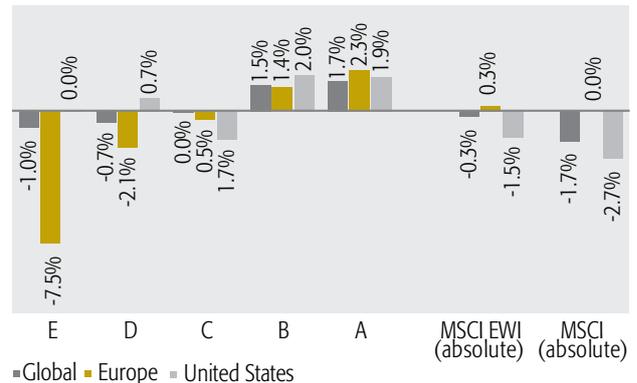


■ Global ■ Europe ■ United States

Source: RCM, December 2005 to September 2010.

The performance of the European Component portfolios establishes a clear trend of progressive outperformance from low sustainability rating to high sustainability rating.

Component Portfolios Relative Performance

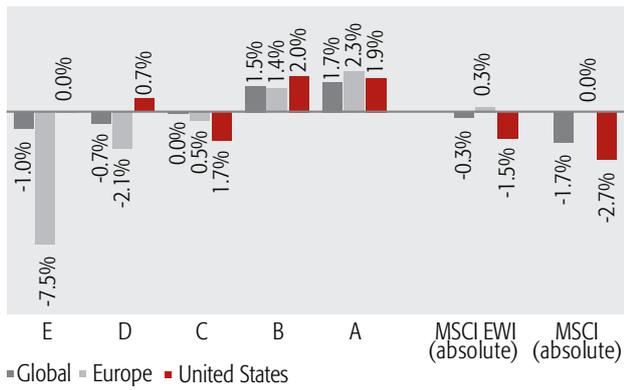


■ Global ■ Europe ■ United States

Source: RCM, December 2005 to September 2010.

While the A and B rated US Component portfolios outperformed in the period tested, the C, D and E rated portfolios provide a less clear indication.

Component Portfolios Relative Performance

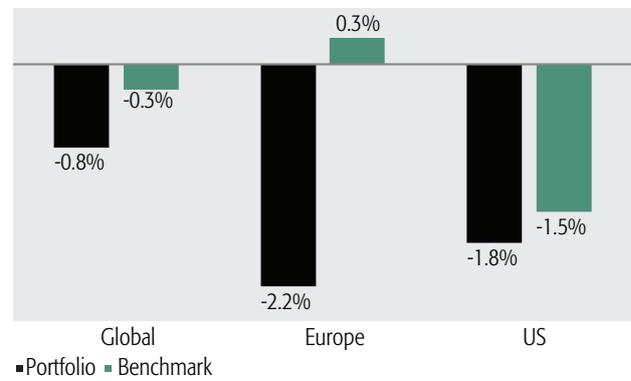


Source: RCM, December 2005 to September 2010.

Worst-in-Class Portfolio

The Global Worst-in-Class portfolio underperformed the benchmark by 0.5%. The European Worst-in-Class portfolio showed underperformance of 2.5% during the period and the US Worst-in-Class portfolio underperformed the benchmark by just 0.3%.

Worst-in-Class Portfolio



Source: RCM, December 2005 to September 2010.

The findings (Continued):

Sustainability does not detract from performance

The results from the study were compelling. The Best-in-Class portfolios outperformed the benchmark during the test period and the Worst-in-Class portfolios underperformed during the period. It should be highlighted that a significant portion of the outperformance of the Best-in-Class portfolio was experienced in 2006, while the time period from 2007 – 2009 showed flat relative performance. The results of the test provide indication that using a best-in-class investment strategy does not detract from portfolio performance and may lead to some outperformance.



Source: RCM, December 2005 to September 2010.

Regional Variations

While outperformance is observable across all of the Best-in-Class portfolios, the analysis also highlighted that there were material geographical differences in the level of outperformance as well as underperformance of the Worst-in-Class portfolios. The European and US Best-in-Class portfolios outperformed by 1.6% and 2.0% respectively, results that provide a clear picture. The US Component portfolios yield a more opaque picture with the D rated portfolio outperforming the benchmark by 0.7% and the C rated portfolio underperforming the index by 1.7%. The scope of this paper does not extend to exploring the underlying reasons for higher returns in one portfolio versus another. Nevertheless, it is reasonable to assume a number of contributing factors to the geographical dispersion:

- In Europe, the concept of ESG has a longer history and is therefore more embedded in the minds of investors and companies, with investors willing to reward companies that demonstrate best-in-class ESG performance. The European corporate landscape is arguably more transparent, with companies in most jurisdictions compelled to produce sustainability reports allowing greater scrutiny of ESG factors by both investors and regulators.
- In the US, investors are less convinced and/or less knowledgeable about the impact of material ESG factors. Many companies view implementation of and compliance with ESG principles as an opportunity cost rather than as a business opportunity. Shareholders have been known to challenge companies for over-committing to ESG issues at the expense of initiatives that have been traditionally linked to growth and value creation.

Academic evidence supports ESG value enhancement

The results of this analysis are powerful. But while this is the first paper to focus specifically on performance and returns to investors from investing in sustainable stocks, it does not stand entirely alone. A number of academic studies add weight to the idea that companies that incorporate ESG into their business DNA enhance their value:

- Investors could, for instance, have made significant abnormal profits by investing in the highest ESG-rated companies in the healthcare and industrial sectors between 2005 and 2009⁴.
- Companies with better employee relations are found to outperform their peers in terms of returns to shareholders⁵. They also have lower cost of debt and higher credit ratings⁶.
- Companies with high ESG scores have less company-specific risk⁷.
- Companies that prioritise ESG issues have a wider and more loyal investor base because they attract investment from the growing number of investment funds that focus on companies with good ESG performance⁸.

Below is a summary of four important pieces of academic research. They variously describe: how embedding ESG issues into corporate strategy creates value; the diversification benefits of incorporating ESG factors into a portfolio; how a focus on ESG drives innovation and strengthens a brand; the attraction of investment analysts to companies that embrace ESG issues.

HBR Strategy and Society: the link between competitive advantage and corporate social responsibility.

Michael E Porter and Mark R Kramer, Harvard Business Review, 2006

Creating a corporate social agenda can achieve social and economic benefits simultaneously. Developing and implementing strategic corporate-wide Corporate Social Responsibility ('CSR') initiatives represent the next stage from the current unambitious CSR objectives of mitigating harm and helping the community by advancing social conditions.

The reason they are a step forward is that they add quantifiable value to companies as well as doing good in the wider world. Volvo, for instance, has chosen to make safety central to its strategy, while Toyota developed hybrid technology and gained first-mover advantage in the market for cleaner cars. Both have experienced enhancement to their competitive positioning as a result. Toyota's Prius, the hybrid electric/petrol vehicle, emits as little as 10 per cent of the harmful pollutants of conventional cars while consuming less than half the fuel. It has given Toyota such a substantial lead that Ford and other major car companies have been forced to license the technology. The commitment to develop the technology has created a unique relationship between Toyota and its customers and has not only improved brand loyalty but is now close to establishing the technology as a world standard.

⁴ Hoepner, Yu and Ferguson.

⁵ Edmans, 2009.

⁶ Bauer et al, 2009.

⁷ Bauer, Derwall and Hann, 2009; Boutin Dufresne and Savaria 2004; Lee and Faff 2009.

⁸ Bollen, 2007.

Equally, Urbi, a Mexican construction company, has prospered by building housing for disadvantaged people using novel financing vehicles such as flexible mortgages serviced through payroll deductions. Credit Agricole, France's largest bank, has differentiated itself from competitors by offering specialised financial products related to the environment, such as financing for energy-saving home improvements, and for audits to certify farms as organic.

Shared-value schemes are also proliferating, helping to increase the brand awareness of the company and loyalty to its products. For example, in the face of a massive shortage of skilled programmers, Microsoft invested heavily in local community colleges, using its own experienced employees to help formulate new courses that perpetuate core Microsoft skills and create a pool of potential employees that already know the company, its products and its working practices. Similarly, Marriott has produced a wave of entry-level workers for its hotels every year by training chronically unemployed people.

Organisations that make the right choices about which projects to support and support them proactively rather than treating them as charitable endeavours can add significant value to their own franchises.

Portfolio diversification and environmental, social or governance criteria: must responsible investments really be poorly diversified?

Andreas Hoepner, University of St Andrews, 2010

This paper challenges an earlier thesis (1981, Rudd) that claimed integration of ESG criteria into the investment process has a negative impact on portfolio diversification. Hoepner's theory connects the three drivers of portfolio diversification – i) the number of stocks; ii) the correlation of the stocks iii) the average specific risk of the stocks – to recent evidence that a firm's ESG rating has a strongly negative relationship with its specific risk. While the inclusion of ESG criteria into investment processes worsens portfolio diversification via the first and second drivers, it improves portfolio diversification through a reduction of the specific stock risk. This is consistent with the available evidence which does not prove a diversification penalty due to ESG investment. While negative ESG screening does result in a diversification penalty for active mutual funds, purely positive or best-in-class screening leads active funds to experience a diversification bonus.

Why sustainability is now the key driver of innovation.

**Ram Nidumolu, CK Prahalad and MR Rangaswami,
Harvard Business Review, 2009**

Sustainability is not the burden on the bottom line that many executives believe it to be. In fact, becoming environmentally-friendly can lower the cost of doing business and increase revenues. For that reason, sustainability should be the touchstone for all innovation in the workplace. In the future, only companies that make sustainability a goal will manage to increase their competitive advantage. That may entail rethinking the business model as well as products, processes and technologies.

The authors studied 30 large corporations over a long time period and concluded it is beneficial to comply fully and at the earliest opportunity with even the most stringent regulations even though – at first sight - this appears to be a costly course of action. For example, in the early 1990s, Hewlett-Packard realised that governments would eventually ban lead solders in electronic products because of their toxicity, and so set about creating alternative solders made from a combination of tin, silver and

copper. It was able to take advantage of new rules that were introduced years later banning lead in electronic products, and take first-mover advantage. Establishing this manufacturing method as the norm in all their factories around the world allowed H-P to source the required materials globally, saving time and cost. By contrast GM, Chrysler and Ford failed to embrace the California Air Resource's Fuel Board's emissions standards when they were proposed in 2002 and have now fallen far behind in clean fuel technology.

IBM's decision to allow a quarter of its 320,000 employees to work from home was conceived principally for environmental reasons, but has managed to save the company \$700m in real estate costs. Job satisfaction has also increased leading to a doubling of productivity.

Cisco stopped recycling the equipment returned to it from customers and instead started using working parts for a number of its internal operations. Re-use of returned equipment rose from 5 per cent in 2004 to 45 per cent in 2008 and recycling costs fell by 40 per cent. In addition, the standalone business that was created to manage returned equipment became a profit centre that contributed \$100m to Cisco's bottom line in 2008.

The impact of corporate social responsibility on investment recommendations.

Ioannis Ioannou, London Business School, 2010

Ioannou examined a large number (more than 4,000) of publicly traded US firms over a 16-year period (1993-2008) and analysed the impact of their ESG strategies on analysts' stock recommendations. The premise was that ESG factors affect a firm's long-term financial performance by creating or destroying value for a broad range of stakeholders, so sellside analysts should in theory be more aware of the issues than many other market participants.

The study found that socially responsible firms in the early years of the time series received less favourable recommendations because the concept was considered a fad, or worse as value-destroying. But this reversed strongly in the later years of the study as the issue fully entered

the investing consciousness and analysts evinced approval of strong corporate ESG strategies.

High-visibility companies with evolved ESG policies were rated higher by analysts, and similarly high-visibility businesses with poor ESG ratings and records were disproportionately penalised. It also found that analysts that were considered to be of higher ability ascribed a higher value to CSR strategies. Higher ability refers to greater experience, or having broader ESG awareness, or having greater resources at their disposal, possibly as a function of working for a larger firm than average.

The study is important in that it reveals the influence of ESG factors on the sellside. Many large fund managers – the custodians of substantial amounts of pension funds, charitable and endowment money - are closely linked to the sellside in terms of both equity research and execution of strategy. It also shows that the best and most trusted analysts are highly aware of the importance of ESG factors.

Next generation sustainability – the RCM approach

Sustainability has become an investment strategy in its own right in the last decade or so. A large number of funds that focus exclusively on environmental and governance issues have attracted significant investor interest and funding.

While some of these funds have enjoyed success in terms of growing assets under management and performance, RCM believes stock selection should include broader issues than simply sustainability criteria. At the same time, it believes that sustainability should be incorporated into the work and consciousness of all its investment professionals.

RCM has built up a dedicated sustainable investment team that embeds the ESG concept across the firm, supplying sustainability analysis on a best-in-class basis to all portfolio managers. That's to say, it finds the companies most likely to add value through sustainable activities rather than simply screening out the least-compliant companies.

Research and selection is carried out in a targeted way rather than applying all sustainability factors to all companies. A set of material ESG factors may be relevant to one sector but not another. For example, the level of exposure to carbon taxation and climate regulation as well as the management of water resources would be critical environmental factors for a mining company, but not material to consumer goods companies where the management of global and complex supply chains are more important. The Sustainability Research team members – based in Europe, the US and Asia – have sectoral responsibilities and are

tasked with evaluating only the ESG factors relevant to a sector and the companies within it.

RCM has created a sustainability methodology by devising a rating system that is separate from its financial stock vote. Whereas some houses include a sustainability component in their overall stock analysis, RCM separates the two. This is because if the sustainability rating is wrapped up in the overall stock rating, it may cease to have importance because financial criteria could swamp it.

RCM's three research outputs are:

1. A stock vote – based on fundamentals and financials and generated by the RCM financial analyst
2. Sustainability rating – based on ESG criteria and generated by the Sustainability Research Team.
3. Quality Rating, which ranks a company's competitive position, corporate governance and sustainability, and is generated by the financial analyst with input from the Sustainability Research Team.

Portfolio managers have complete freedom in stock selection, but to ensure that the portfolio will perform over time, they are likely to select stocks that have higher sustainability and quality ratings, in addition to a good financial vote.

Conclusion

- The results of this study demonstrate that during the time period tested, investing in companies that operate best-in-class ESG strategies did not detract from returns. Even in extreme market conditions, performance was not negatively impacted. Not only that, but outperformance was seen across the range of global sectors and geographies.
- The findings add to the growing body of research that demonstrates that the introduction of ESG values into corporate strategy can lead to increased efficiency and innovation, and a consequent boost to revenues and profits.
- Returns from portfolios of European companies represented the largest and most consistent spread between best-in-class and worst-in-class companies, reflecting greater integration of ESG factors in Europe than in the US. This could be due to greater understanding and integration of ESG information among investors in Europe.
- A portfolio of best-in-class sustainability stocks does not experience greater volatility of returns than the market as a whole, indicating that the construction of a portfolio of companies performing well on ESG metrics would not lead to increased volatility.
- Finally, as ESG data becomes more widely reported, available and interpreted, investors can apply this information to the investment process with confidence. As market participants incorporate this information, we would expect the impact on returns to increase going forward.

Further reading

SAM White Paper, Alpha from Sustainability. SAM Research/ Robeco Quantitative Strategies (2011).

Responsible Investing Reloaded - Sustainability Criteria Matter, Hörter, S. (2011). Part of the Allianz Global Investors publication series, Portfolio Practice: Academy (April 2011). Available from www.risklab.de

ESG Risk Factors in a Portfolio Context - Integrated Modelling of Environmental, Social and Governance Risk Factors, An Innovative Study for Institutional Investors, Hörter, S. Mader, W./Menzinger, B. (2010). Available from www.risklab.de

Integrating ESG into the Investment Process - From Aspiration to Effective Implementation. Remy Briand, Roger Urwin and Chin Ping Chia. MSCI ESG Research (August 2011).

Acknowledgements

The analysis presented in this paper was carried out by Dr Michael Heldmann of RCM's Systematic Equity Team and Jeremy Kent, a Research Associate in the RCM Sustainability team.

Before joining the Systematic Equity Team in 2007 Dr Heldmann worked for the international laboratory CERN, Geneva as a researcher in the field of particle physics. He obtained the equivalent of a master and a Ph.D. "summa cum laude" in Physics from the University of Mainz and Freiburg.

RCM Systematic Equity was established in 1996 and is considered one of the most prominent quantitative asset management teams in Europe. It is responsible for assets under management of EUR 9 billion in over 100 mandates (as at end March 2011).

Sustainability at RCM

RCM's information advantage

Sustainability investing is broader than an ethically or socially responsible investment strategy. Material environmental, social and governance factors are considered alongside financial factors, identifying risks and opportunities that have not been fully priced in by the markets thus supporting enhanced stock selection and providing RCM with an information advantage.

Best in class

Long-term, bottom-up investment approach that identifies attractively valued, quality companies offering a 'best in class' response to the most material environmental, social and governance risks and opportunities.

Fully integrated ESG sustainability research

Dedicated, experienced sustainability research specialists provide informed analysis into the ESG rating process, leveraging off the strengths of RCM's dual research platform:

- Fundamental research platform of over 65 in-house analysts
- Propriety fieldwork and market research entity, Grassroots®

Over a decade's experience

RCM has been running Sustainability mandates since 1999

About RCM

RCM is a global asset management company providing active investment strategies. The firm operates from six offices—San Francisco, London, Frankfurt, Hong Kong, Tokyo and Sydney—with assets under management of over Eur108 billion worldwide (as at end March 2011). At RCM we believe that by generating and exploiting an information advantage, we will be able to deliver superior and consistent investment results for the benefit of our clients—a philosophy we call RCM informed. RCM is a company of Allianz Global Investors, a pre-eminent global asset management group committed to helping clients achieve sustainable success. As a company of Allianz Global Investors, RCM offers a distinctive investment philosophy and culture, while benefiting from the scale and substantial resources of our parent; including business support, industry best-practices and financial investment.

Past performance is no guarantee of future results. Investments in securities markets are subject to certain risks. Securities will fluctuate in value and may be worth more or less than the original cost when sold.

This document contains the current opinions of RCM and its employees and such opinions are subject to change without notice. Statements concerning financial market trends are based on current market conditions, which will fluctuate. Forecasts are inherently limited and should not be relied upon as an indicator of future results. This document has been distributed for informational purposes only, does not constitute investment advice and is not a recommendation or offer of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable, but RCM cannot guarantee that the information is accurate, current or complete.

No part of this material may be reproduced in any form, or referred to in any other publication, without the express written permission of RCM.

RCM is a global investment advisory organization, consisting of separate affiliated firms, which operates under the brand name RCM. The affiliated firms include RCM Capital Management LLC, an investment adviser registered with the US Securities and Exchange Commission; RCM (UK) Ltd., which is authorized and regulated by the Financial Services Authority

in the UK; RCM Asia Pacific Ltd., licensed by the Hong Kong Securities and Futures Commission; RCM Capital Management Pty Limited, licensed by the Australian Securities and Investments Commission; and RCM Japan Co., Ltd., registered in Japan as a Financial Instruments Dealer. This presentation constitutes advertising as defined in section 31(2) of the German Securities Trading Act.

Model/Back-Tested Performance

The information presented herein represents back-tested performance of model portfolios of securities constructed entirely from constituents of the MSCI World, MSCI Europe and MSCI indices. (See Methodology: portfolio construction.)

The model portfolios and their simulated returns are furnished for illustrative purposes only. The model portfolios are not intended to represent a strategy that RCM offers to its clients, and RCM is not offering to manage and has never managed client assets with a strategy based on the methodology used in producing these simulated returns. The simulated returns are not intended as investment advice, and this is not a solicitation to buy or sell the securities contained in the model portfolios. Past performance is not indicative of future returns. Back-tested performance is hypothetical (it does not reflect trading in actual accounts) and is provided for informational purposes to indicate historical performance had the models been employed over the relevant period.

Back-tested portfolio returns are achieved with the benefit of hindsight by applying a model retroactively. Model portfolio returns have other inherent limitations. Actual returns may be impacted by market and economic factors which may in turn impact an investor's actual results. In addition, clients may impose investment restrictions on their accounts. Accordingly, simulated model portfolio returns are not necessarily indicative of the returns that an actual client account would have achieved.



MSCI ESG Research: Notice and Disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") may not be used to create derivative works or to verify or correct other data or information.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NO EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS IS MADE WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS,

NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION ARE EXPRESSLY DISCLAIMED.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall Institutional Shareholder Services, Inc. ("ISS"), nor any of its affiliates have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.