
Fund Management in the 21st Century: The role of sovereign wealth funds in contributing to a low carbon future.

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With a special focus on the Norwegian Government Pension Fund Global - the world's second largest sovereign wealth fund.

“Our understanding of the risks of climate change has advanced strongly, and in particular, we now understand the urgency and scale of action required. Delay or weak action means greater risks and higher costs. Both reducing emissions and adjusting to climate change involve investment and risk. There is a central role for financial institutions to play in the efforts to combat and adjust to climate change.”

--Lord Nicholas Stern

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About Innovest Strategic Value Advisors

Innovest Strategic Value Advisors was founded in 1995 with the mission of integrating sustainability and finance by identifying non-traditional sources of risk and value potential for investors. Our analysis is designed to assist our clients in constructing and managing portfolios that out-perform the market. We do this by tracking company performance and strategic positioning on over 120 factors that are not captured or explained by the traditional, accounting-driven securities analysis.

Due to the potential financial implications of climate change and the cross-sector nature of this risk, it founded a specialised carbon finance practice in order to obtain a detailed understanding of the financial, and other, implications of climate change. To learn more about Innovest please see the contact information listed below, or visit us online at www.innovestgroup.com.

About WWF

WWF is one of the largest and most experienced independent conservation organisations, with almost 5 million members and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- * conserving the world's biodiversity
- * ensuring that the use of renewable natural resources is sustainable
- * promoting the reduction of pollution and wasteful consumption.

To learn more about WWF's work and find your local office, visit us online at www.panda.org.

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Acronyms

AGM	Annual general meeting
ATM	Access to Medicine
CDP	Carbon Disclosure Project
CSR	Corporate social responsibility
EAI	Enhanced Analytics Initiative
EAPF	Environment Agency's Active Pension Fund
EBITDA	Earnings before interest, taxes, depreciation and amortization
EITI	Extractive Industries Transparency Initiative
ESG	Environmental, social and governance
ETF	Exchange traded fund
ETS	European Trading Scheme
EU	European Union
Eurosif	European Social Investment Forum
GDP	Gross domestic product
GHG	Greenhouse gas
GRI	Global Reporting Initiative
IIGCC	Institutional Investors Group on Climate Change
ILO	International Labour Organisation
INCR	Investor Network on Climate Risk
IPCC	Intergovernmental Panel on Climate Change
LCA	Life cycle analysis
MDGs	Millennium Development Goals
NGPFG	Norway Government Pension Fund Global
NOK	Norwegian Kroner
NZS	New Zealand Superannuation
PRI	Principles for Responsible Investment
ROI	Return on investment

SRI	Socially responsible investment
SWF	Sovereign wealth fund
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
US	United States
USS	Universities Superannuation Scheme
WWF	World Wide Fund for Nature

Summary

The need for a low carbon economy

Consensus is growing that climate change is one of the greatest threats to mankind in the 21st century. Most reports from government agencies and international bodies recommend reducing greenhouse gas emissions by 80-90% by 2050 in order to avoid large scale detrimental climate change for human beings and the world economy. The need for a low carbon future economy is pressing, and sovereign wealth funds can play an important role in fostering the development of a low carbon economy.

The financial sector has a role to play

The financial sector has an important role to play in the global economy in terms of where they channel their funds. By investing in particular companies or projects, the financial sector sends signals to the broader market on the future value of those companies and indirectly influences what the future economy will look like. This makes it important for the financial sector to consider the longer-term implications of their investment decisions today in order to contribute to a sustainable and prosperous global economy in the future.

Institutional asset managers today control an estimated 86% of investment in the world¹. As the driving force behind the global market place, large institutional investors such as sovereign wealth funds must be aware of how climate change may affect investment value. It will be important for them to be able to identify which companies are the leaders in a low carbon future and also to encourage companies to move in the right direction.

Sovereign Wealth Funds – an increasingly important player

Due to the very significant amounts of wealth they have accumulated through oil and foreign exchange reserves, SWFs are important actors in the financial sector and the global economy. A sovereign wealth fund is a large pool of capital controlled and owned by government and invested in foreign assets for long-term purposes². Though SWFs control only a small percentage of global financial assets, they are large as an investor class. Moreover, SWFs are growing at a greater pace than other categories of investors and will therefore have increasing influence on the global economy.

According to the latest estimates by the International Monetary Fund (IMF), the value of SWFs at US\$2.97 trillion³, more than doubling in size from 2001-2007. The IMF estimates this to increase to US\$ 12 trillion by 2012 and the share of total assets under management to grow from 6% to 10%.

Because SWFs and public pension funds invest across the whole economy, successful management relies closely on the performance of the economy as a whole. Therefore, since climate change threatens the development of the whole

¹ Ambachtsheer 2006

² Maslakovic 2008

³ Allen and Caruana 2008

economy as well as individual companies, it is in the direct interest of such investors to seek to avoid or reduce a threat such as climate change⁴. SWFs can also bring significant benefits to global capital markets because they have long-term investment risk and performance horizons.

Approaching the climate challenge as a socially responsible investor

Investors at the forefront of tackling climate change are using socially responsible investing strategies to make investment decisions and allocate assets. Socially responsible investing (SRI) consists of activities that combine investors' financial objectives with their concerns about environmental, social and governance (ESG) issues⁵. An investor can employ a combination of three main strategies in SRI:

- » Negative screening to exclude undesirable companies or sectors
- » Positive screening to select companies with better ESG performance
- » Shareholder advocacy and engagement to improve company behaviour

The SRI strategies can be implemented in a variety of different ways and asset managers have developed several products to incorporate ESG issues into their investments. These include SRI indices and tracker funds, exchange traded funds, thematic investment funds and private equity funds. The European Social Investment Forum (Eurosif) recommends an investor utilize a combination of the strategies above to not only reap the benefits of SRI, but also to ensure that its assets are protected in an efficient manner.

While negative screening and stakeholder engagement are important forms of responsible investment, they have limitations. Negative screening does not really contribute to changing unsustainable mainstream business practices, and engagement can only target few of the very large number of companies a SWF or public pension fund invests in. Therefore, positive screening is increasingly employed by social investors as a systematic and accountable approach to cover a large number of companies. The most popular form is 'best-in-class' screening where stocks are selected within each sector of a given index, potentially lowering risk by balancing their portfolio across all sectors.

SRI contributes to sustainability and potentially increases returns

In recent years, SRI has moved from the fringes of the investment world to a core investment strategy for many investors. Global initiatives, such as the United Nations (UN) Global Compact and the UN Principles for Responsible Investing (UNPRI), in particular are shaping how investors are developing investment policies.

A growing number of academic studies now demonstrate that SRI funds perform competitively with non-SRI funds over time. In 2007, Innovest reviewed the most relevant studies published from 1996 to 2006 that explore linkages between ESG factors and financial performance, and found that 90% of the relationships studied

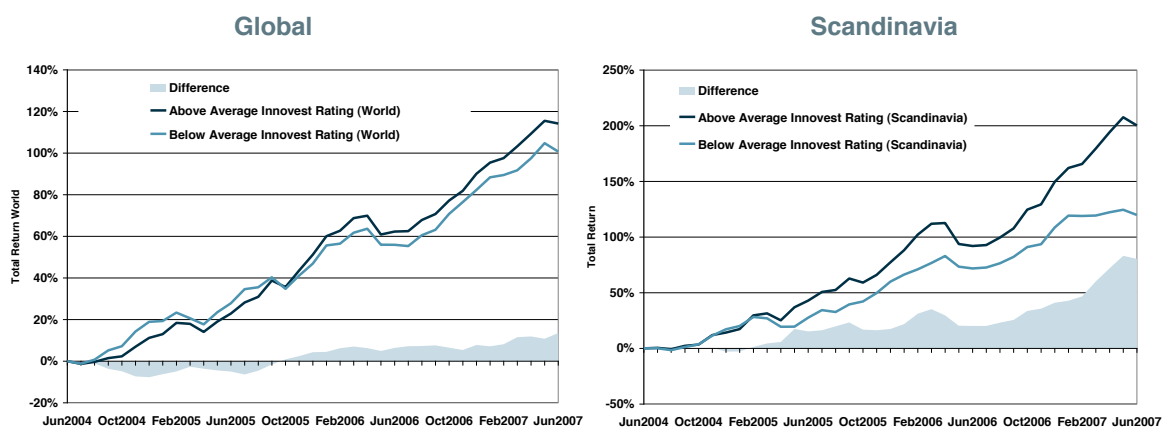
⁴ Mansley and Dlugolecki 2001

⁵ Eurosif definition

showed a positive correlation between application of such factors and financial performance.

Companies with superior management of ESG issues are fast gaining an edge over their competitors – an edge that translates into out-performance in the long haul. This is demonstrated by Innovest’s Carbon Beta™ platform which examines several different dimensions of a company’s management of carbon issues in order to identify out-performing companies. As shown in the figure below, Carbon Beta™ leaders out-perform laggards globally in the period 2004-2007 and even more so in Scandinavia which may be considered a pioneer region on carbon regulation.

FIGURE 1 Carbon Beta™ Performers vs. Laggards Globally (left) and in Scandinavia (right)



Source: Innovest

The rapid growth of SRI also indicates that socially responsible investing yields competitive returns. Between 1995 and 2007, total dollars under professional management in SRI grew from US\$639 billion to US\$2.71 trillion in the US and up to €1.6 trillion in Europe⁶, outpacing the overall market. SRI investment is becoming part of the mainstream and yielding competitive returns.

Current best practices in SRI

Several public pension funds are leading the SRI field and incorporating current best practices into their investments, which reflect the full range of innovative ways in which ESG factors are being used in investment decisions. These include award-winning funds that have delivered out-performance against their benchmark. Funds such as ABP, CalPERS, the UK Environment Agency and the UK University Superannuation Scheme have moved beyond negative screening in stock selection and some have even set up thematic environmental funds. Also mainstream financial institutions such as HSBC and Deutsche Bank have launched different forms of ‘climate change funds’.

⁶ Social Investment Forum and Celerant

As an example of a SRI leader, the Dutch public pension fund ABP has announced that it will incorporate ESG factors in all of its investments in its \$311 billion portfolio using two key approaches: bottom-up best-in-class stock selection and top-down theme driven investments. ABP also regularly engages with companies to encourage better disclosure and better management of risks related to environmental and social governance, and will withdraw investment from companies that persistently fail to improve their practices. ABP, together with a number of partners, is investing over US\$1.8 billion in funds with environmentally focused themes. They have invested US\$500 million each into a sustainable energy fund and a clean technology fund, US\$363 million in a climate change private equity fund and US\$60 million in a sustainable timberland projects fund.

FIGURE 2 SRI Practices of selected SWFs and Public Pension Funds

	Size (bn US\$)	Launch Date	Source of Capital	Negative Screening	Positive Screening	Engage Activity	Environ-Related Invest	Reporting on SRI activities
<i>ABP (Netherlands)</i>	<i>311</i>	<i>1922</i>	<i>Contributions</i>	Yes	Yes	Yes	Yes	Yes
<i>CalPERS</i>	<i>230</i>	<i>1932</i>	<i>Contributions</i>	Yes	Yes	Yes	Yes	Yes
<i>UK Environment Agency Pension Fund</i>	<i>2</i>	<i>1993</i>	<i>Contributions</i>	Yes	Yes	Yes	Yes	Yes
<i>UK Universities Superannuation Scheme</i>	<i>60</i>	<i>1975</i>	<i>Contributions</i>	No	Yes	Yes	No	Yes
New Zealand Superannuation Fund	13.8	2003	Non-Comm	Yes	No	Yes	No	Yes
Norwegian Global Pension Fund	396	1990	Oil	Yes	No	Yes	No	Yes
Chinese Investment Corporation	200	2007	Non-Comm	Yes	No	No	Yes	No
Kuwait Investment Authority	264	1953	Oil	Yes	No	No	No	No
GIC (Singapore)	330	1981	Non-Comm	No	No	No	No	No
Stabilization Fund of the Russian Federation	32	2007	Oil	No	No	No	No	No
Abu Dhabi Investment Authority	875	1976	Oil	No	No	N/A	No	No

Funds in bold and italics are public pension funds; The numbers are compiled from various sources by Innovest. Source: "Fund Management in the 21st Century", Innovest and WWF (2008).

As shown in the table above, SWFs are still lagging significantly behind the most progressive public pension funds in applying the most recent SRI practices.

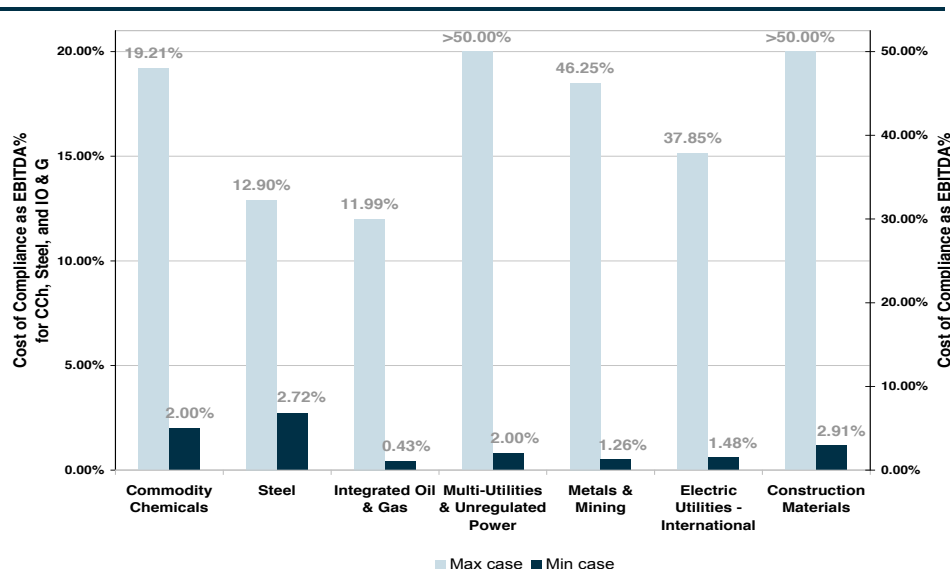
However, there seems to be a growing interest in SRI among SWFs. For example, the China Investment Corporation recently announced that it will invest in environment-friendly technologies and screen its portfolio for arms and gambling⁷.

21st Century Investment Opportunity: Supporting low carbon solutions

While SRI is growing at a rapid pace, it still only represents less than 5% of the total global asset management industry⁸. In order to affect bigger change and exert greater influence over companies, more investors need to use SRI practices and in a greater proportion of their portfolios. The low carbon future will provide many opportunities for investors, especially for those that address climate risks and incorporate sustainability issues in their decisions.

As shown in Figure 3 below, climate risk exposure varies widely, between and even within industry sectors. The light bar represents the company with the highest compliance costs in the sector, while the dark blue bar is the company with the lowest costs. For example, the compliance costs in the construction materials sector range from more than 50% of EBITDA⁹ to less than 3% of EBITDA. That is difference of at least 47% in carbon risk exposure that is not yet fully priced into current asset values on the mainstream markets. Knowing such information can help investors to determine which companies will be better positioned to meet climate challenges in the future.

FIGURE 3 Cost of CO2 Regulatory Compliance as percentage of EBITDA in Select Industries



Source: Carbon Beta Ratings from Innovest.

⁷ Chen 2008

⁸ Estimated from RI 2008 and Butte et al 2007

⁹ EBITDA is Earnings Before Interest, Taxes, Depreciation and Amortization; This is a common indicator used to compare the financial performance of different companies

Innovest estimates that far less than 0.1% of the Carbon Disclosure Project signatories' US\$57 trillion+ in assets is currently guided by any investment strategy that explicitly and systematically takes such climate risks into account. Thus, significant upside opportunities exist for investors willing to branch out and be first-movers in addressing the climate risk and opportunity challenge. Opportunities can be exploited by SWFs by using SRI techniques the following ways¹⁰: investing in companies with superior management of climate-driven risks *and* opportunities, engaging strategically with companies on climate change issues, and investing in clean tech and renewable energy.

Utilise SRI strategies to invest in and engage with companies based on climate issues

SWFs can incorporate climate risk considerations directly and systematically into their actual stock selection and portfolio construction processes. It is at this level that investors can send the strongest message to companies, produce significantly changed company behaviour, and, most importantly, improve their long-term, risk-adjusted returns. At the same time, engagement encourages change and gives companies a chance internally to address the risks they face before any investment decisions are made.

By doing so, SWFs will improve risk identification and management in its portfolio as well as contribute to increased returns from upside opportunities. Increasing evidence shows that superior performance in managing climate risk and opportunities is a useful proxy for superior, more strategic corporate management, and therefore for superior financial performance and shareholder value-creation.

Invest in clean technology and renewable energy

Investing in the clean technology and renewable energy sectors can not only help to address climate change issues, it can provide investors with above-average returns. The FTSE Environmental Technology (ET) 50 Index comprises the 50 largest pure play environmental technology companies, by full market capitalization, globally. As the table below shows, the FTSE ET50 has out-performed the Global All Cap Index consecutive for the past 5 years, delivering 32% return/year versus only 20%.

FIGURE 4 Performance of FTSE ET 50 Index compared with benchmark

% return	3M	6M	12M	3YR	5YR	5YR-%pa
FTSE ET50 Index	15.8	28.5	72.3	161.7	295.9	31.7
FTSE Global All Cap Index	-1.7	1.5	12.3	54.0	145.6	19.7

Source: FTSE Group and Thomson Datastream, data as of 31 December 2007.

Investment capital flowing into sustainable energy is increasing rapidly, jumping from US\$33 billion in 2004 to US\$148 billion in 2007¹¹. Despite this huge growth, the volumes are modest in comparison with the scale of the climate change

¹⁰ This study focuses on options based on equities since this is the most significant asset class for most SWFs and public pension funds. There are many other asset classes such as fixed income and commodities that present attractive investment opportunities, but discussion of these are beyond the scope of this research.

¹¹ UNEP 2008

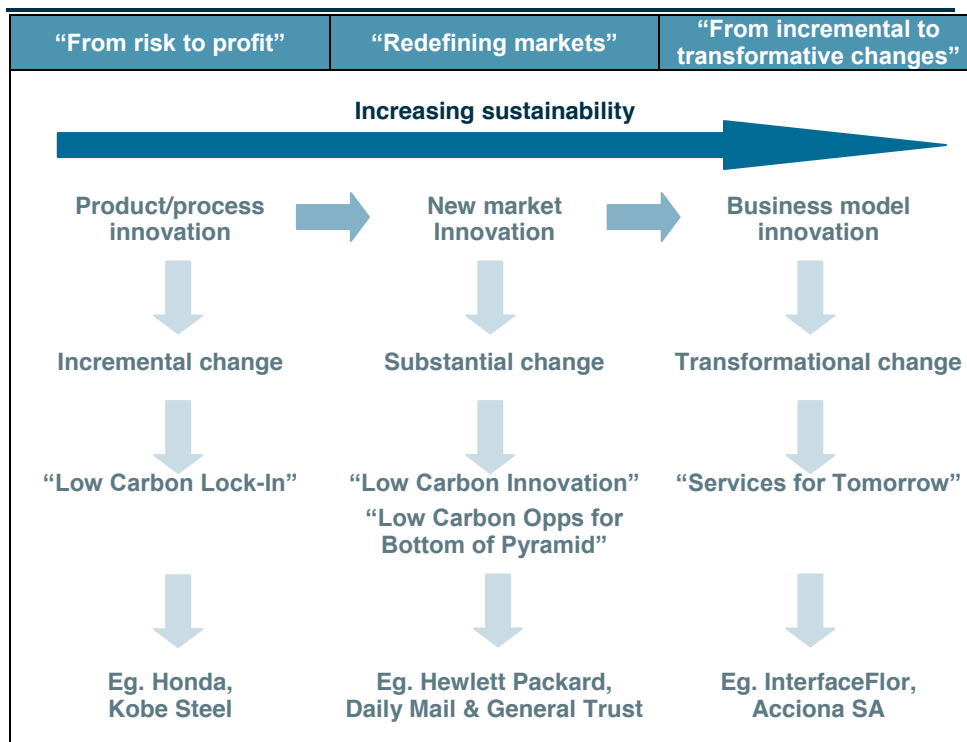
problem and future energy investment needs. The International Energy Agency estimates that US\$17 trillion of investment will be required in the energy sector until 2030¹². The UNEP Global Trends in Sustainable Energy Investment 2008 report states that investment in the sustainable energy sectors must continue to grow strongly if targets for GHG reductions, renewable energy and efficiency increases are to be met. It is therefore urgent that SWFs direct more capital in these sectors - and capture the upside opportunities.

Next steps for investors in transition to low carbon economy

SRI is still a young field with a huge potential for development of more sophisticated approaches, products and indices for the environmentally-conscious investor. While mainstream investors have in excess of 50,000 indices in which to invest, SRI investors have only around 100¹³.

Several leading fund management companies have started to develop innovative new solutions that not only promote greenhouse gas emissions reductions but also provide new business opportunities. Even so, the severity of the climate change challenge requires even more action from the investment community in the near future. This is where SWFs can step in and take a leadership role to move the investment community in the right direction. Figure 5 below provides a summary of how SWFs can take the next step to ensure a low carbon future by encouraging innovation in sustainability.

FIGURE 5 New investment paradigm in low carbon future



Source: “Fund Management in the 21st Century”, Innovest and WWF (2008).

¹² UNEPFI 2007
¹³ Van Schnydel 2002

With much larger pools of capital, SWFs have the ability to encourage companies to reconsider their carbon dependency and re-evaluate their existing business models in order to accelerate the transition to a low carbon economy. Some examples of potential innovative investment approaches are:

- » 'Low Carbon Lock-In Index', evaluating companies' contributions to long-term solutions essential for a low-carbon future;
- » 'Low Carbon New Markets Innovation Index', evaluating the innovation potential of companies to meet the needs of new markets in a low carbon economy.
- » 'Low Carbon Opportunities for the Bottom of the Pyramid', identifying companies with potential to provide low carbon solutions for the lower income market segments in developing countries;
- » 'Services for Tomorrow Index', identifying companies providing services which help customers transition to a low carbon society and therefore most likely to be winners in a resource-constrained economy.

By developing and applying such analysis and shifting even a small portion of their large pool of funds to any such indices as outlined above, SWFs would send signals to the rest of the capital markets that these are good investments and thereby contribute to transformative change towards a low carbon economy.

The Norwegian Government Pension Fund – Global

Norway's Government Pension Fund Global ('NGPFG'), formerly known as the Government Petroleum Fund, is the second largest SWF in the world. Established in 1990, the purpose of NGPFG is to support government savings to finance the pension expenditure of the National Insurance Scheme and long-term considerations in the application of government petroleum revenues.

At the end of March 2008, the market value of NGPFG was US\$381 billion (NOK 1,946 billion), and its assets are forecasted to grow to US\$854 billion (NOK 4,351 billion) by the year 2015, making it one of the largest SWFs in the world¹⁴. The Norwegian Government has high ambitions for the management of NGPFG. Its stated objective is to be the best managed fund in the world. This implies adopting best practice within international asset management in terms of financial, ethical and governance issues.

The Ministry of Finance has formulated a long-term investment strategy that has an objective of a high return for moderate risk, with the intention to safeguard the basis for future welfare, including pensions. NGPFG is entirely invested in foreign securities. The benchmark index for equities comprises almost 7,000 companies across 27 countries, while the benchmark index for bonds comprises more than 9,800 bonds across the currencies of 21 countries. On average, NGPFG investment in any single company amounts to less than 1% of available, but can now invest up to 10% in a company.

¹⁴ Norges Bank; Exchange rate used as of 31 March 2008, 1 NOK = 0.19620 USD

NGPFG currently follows ethical guidelines laid down by the Ministry of Finance in 2004. The ethical guidelines for NGPFG are premised on the fund having two fundamental ethical obligations: a) to ensure the owners of the fund (i.e. current and future generations of Norwegians) achieve favourable long-term returns and b) to avoid investments that entail an unacceptable risk that the fund contributes to certain specified gross or serious ethical violations including human rights violations and severe environmental damage. The ethical guidelines are currently under revision.

Norway's SWF lags significantly behind SRI-leaders

In comparison to other SWFs, NGPFG has demonstrated a high degree of transparency in all aspects of its operation, including its role as an investor with non-strategic holdings, its explicit aim to maximise financial returns and the clear lines of responsibility between political authorities and the management of the fund. NGPFG is therefore frequently cited as a model for other SWFs.

To achieve its goals, NGPFG currently utilises two SRI techniques to promote its ethical guidelines: a) shareholder advocacy and engagement and b) negative screening. NGPFG has engaged with 60 companies concerning social issues and 20 firms for climate change related issues. In 2007 it voted on more than 38,000 proposals at more than 4,200 companies. Twenty-eight companies have been excluded from the investment universe, the majority for contribution to production of inhumane weapons.

NGPFG's SRI performance must also be assessed in light of the policy goals of the Norwegian Government on climate change. Norway's current Prime Minister Stoltenberg has announced that Norway will take the lead in international climate change efforts, reduce greenhouse gas emissions by 30% by 2020 and make Norway 'carbon neutral' by 2050.

NGPFG – and all the other SWFs - lag significantly behind other large institutional investors such as public pension funds in terms of exercising SRI best practices (see Figure 2 above). While the NGPFG does highlight climate change as one of the areas it considers in its ethical guidelines, the extent to which it is integrating climate change considerations into its investment strategies and decision-making appears limited, not yet systematic and at a very early stage of development.

Overall, NGPFG's strategy for approaching climate change rates poorly when compared to other institutional investors and does not reflect the ambitious goals of the Norwegian government. It has demonstrated a limited use of SRI techniques that are reliant on negative screening and restricted engagement, which is counter to recent trends in both the mainstream and the SRI markets. Despite being a SWF based on petroleum revenues and consequently a part of the climate change problem, NGPFG has not set up a thematic fund for investments in environmental technologies that can mitigate the climate challenges as part of its SRI practice. Furthermore, NGPFG's investment strategy has failed to avoid many of the climate risks faced by investors or to capture any of the upside opportunities that a low carbon future presents.

Recommendations for Norway's Government Pension Fund Global

To meet the climate challenge and help secure long-term investments, NGPFG can consider pursuing two options. The first is to simply adopt the best practices in SRI techniques through the following:

- » Engaging strategically with companies on climate change issues through collaboration with other institutional investor networks
- » Incorporate positive selection through best-in-class strategy that considers climate risk exposure and captures upside opportunities
- » Set aside funds to invest specifically in environmental technologies addressing climate change

The second option is more ambitious and can be implemented in parallel with the first option. It will entail NGPFG to take a leadership role in its field in promoting a transition towards a low carbon future.

- » NGPFG should consider driving and facilitating coordination among SWFs and public pension funds in raising and consistently promoting ESG issues through strategic investments in financial markets, for instance under a UN umbrella.
- » NGPFG should consider investing in consistent engagement with research firms, scientific milieus and other stakeholders who can analyse, compare and publish the ESG practices of SWFs and public pension funds thereby helping diffusion and assisting in further development of best practices.
- » NGPFG should consider actively pursuing further development of positive screening, with indicators identifying transformative innovation and development that contribute to a low carbon future.
- » The Norwegian Government should consider holding an annual international conference on "Sustainable Funds Management in the 21st Century" in Oslo, providing a forum for sharing of best practices and mainstreaming SRI in SWFs and public pension funds.
- » The Norwegian Government should consider investing in public and private education, research and development in order to make Oslo a global "knowledge hub" for responsible financial management.
- » The Norwegian Government should consider establishing a separate climate venture capital fund over the state budget, providing risk capital to new companies focussing on providing low carbon solutions in order to stimulate the radical innovation needed to tackle current sustainable development challenges and reach Millennium Development Goals. This would create a variety of SRI-oriented fund managers in Oslo constituting a dynamic milieu with potential for further development of SRI instruments and practices.

Making NGPFG truly "the best managed fund in the world" and Oslo "the SRI capital of the world", would not only help secure Norwegian investments in a long-term perspective, but also put Norway at the forefront of innovation in the future economy. It would also make the NGPFG the most important tool for realising the Norwegian Government's ambitious goals of promoting global sustainable development and tackling climate change.

Introduction

According to the Fourth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC), human activities such as industrial processes, power plants, transportation, agricultural production—the development of a global market place for goods and services—have increased the greenhouse gas (GHG) component of the planet's atmosphere to the point of causing climate change.

In order to avoid large scale detrimental climate change for human beings and the world economy, most government agencies and international bodies recommend reducing GHG emissions by 80-90% by 2050. The need for a low carbon economy in the future is no longer a debate.

As the driving force behind the global market place, large institutional investors need to be aware of how climate change may affect investment value. Many of these institutional asset managers are dominant players in global capital markets and have significant potential to shape the character of economic growth. A category of asset managers that has gained much attention in the past couple of years is sovereign wealth funds (SWFs). Due to the very significant amounts of wealth they have accumulated through oil and foreign exchange reserves, SWFs are increasingly important actors in the global economy.

One sovereign wealth fund that has received positive attention is Norway's Government Pension Fund Global (NGPFG), which has been praised for its openness as well as its establishment of ethical investment guidelines.

However, as noted in a previous WWF study¹⁵, *"In the 21st Century it is not enough that ethical guidelines, which the Norwegian pension fund has pioneered, helps avoiding or improving the worst of companies in terms of environmental and social standards. The real ethical challenge [-] is to instigate systemic change that can make welfare also in developing countries possible within the limits of the one planet we share and spare billions of people in the third world from the most devastating of the global warming scenarios of the IPCC."*

In early 2008, the Norwegian government initiated a process of evaluation of the ethical guidelines for NGPFG that will culminate in a proposal for revised guidelines to be submitted to the Norwegian Parliament in spring 2009.

Thus, 2008 provides a window of opportunity to engage in and foster the development of the next generation investment guidelines for NGPFG, making investors part of securing a profitable transition towards long-term global prosperity in a low carbon economy.

WWF has commissioned Innovest Strategic Value Advisors, Inc. (Innovest) to explore the role SWFs can play in addressing climate change and promoting low carbon development, and to what extent such engagement can be combined with sound financial management. This report presents those findings and recommends

¹⁵ Reinvang and Peters 2008

ways in which SWFs, and in particular NGPFG, can participate in tackling climate change to ensure a low carbon future.

1 A global society in transition

The global business context is changing and sustainability issues are becoming more important for both companies and for investors.

On the one hand, globalization has increased the reach and influence of business; on the other, globalization has also made business more vulnerable to events happening far outside their traditional sphere of influence. Privatizations and deregulation have also meant that private companies have taken over activities that used to be public, and we expect these companies to act in the public interest to a far greater extent than previously.

According to the Fourth Assessment Report from the IPCC, there is a 95% probability that “...*human activities have exerted a substantial net warming influence on climate since 1750*”. There is a growing consensus that in order to mitigate the affects of climate change, we must reduce global GHG emissions significantly in the next thirty years. Most reports from government agencies and international bodies recommend reducing GHG emissions by 80-90% by 2050 in order to avoid large scale detrimental climate change for human beings and the world economy. Businesses, investors and governments alike must work together to achieve those targets.

This chapter describes the role of the financial sector and sovereign wealth funds in the new global economy, and highlights trends that are influencing investors to become more socially and environmentally responsible to meet the demand of a low carbon future.

1.1 THE ROLE OF THE FINANCIAL SECTOR IN THE GLOBAL ECONOMY

The financial sector is an integral part of the global economy as it directs resources to new ideas and affects the speed and direction of economic growth. Climate change, increasing populations, increasing demands for energy and new regulations will have a profound impact on how the financial sector does business, and those institutions that address the risks and opportunities raised by these trends sooner rather than later will be winners in a sustainable future.

Accumulating ever greater amounts of capital, the financial sector has an important role to play in the global economy in terms of where they channel their funds. By investing in particular companies or projects, the financial sector sends signals to the broader market on the future value of those companies and indirectly influences what the future economy will look like. This makes it important for the financial sector to consider the longer-term implications of their investment decisions today in order to contribute to a more sustainable global economy in the future.

As institutions get larger and extend services beyond national borders, the influence of the financial sector on the dynamics of the global economy also increases.

Institutional asset managers such as pension funds now control an estimated 86% of investment in the world¹⁶. With a larger pool of potential investors and investments at the global level, the financial sector can direct capital to the projects where the best returns are made no matter where they are in the world, thereby creating more efficiency and opportunity in all economies. In addition, the spreading of risk globally can hedge exposure to specific shocks nationally and contribute to financial stability. However, this global interdependence can also have detrimental effects on global economy, as exemplified by the sub-prime crisis which spread risks from the US housing market to the rest of the world.

1.2 SOVEREIGN WEALTH FUNDS

Within the changing global financial landscape, sovereign wealth funds (SWFs) are gaining more attention. Surging oil prices and increasing current account surpluses have allowed SWFs to grow rapidly in the past few years, and some have been involved in very high profile transactions by taking large positions in nationally strategic companies. Since many of these funds lack transparency and originate outside of traditional Western financial markets, there are growing concerns as to their objectives and underlying political motives. However, SWFs vary in terms of where they get their money and why they were created, which in turn influences their investment decisions. This section provides a brief overview of sovereign wealth funds.

Although there is no universally agreed-upon definition, a sovereign wealth fund can generally be defined as a large pool of capital controlled and owned by government and invested in foreign assets for long-term purposes¹⁷. SWFs accumulate capital from two main sources: 1) commodities - created through commodity exports such as oil, gas or minerals that are either taxed or owned by the government; or 2) non commodities - usually created through transfers of assets from official foreign exchange reserves.

SWFs are created by government for a variety of reasons which influence their investment strategy and appetite for risk. They can be grouped into the following categories¹⁸:

- » **Stabilization funds** – These funds are usually intended to provide budgetary support, particularly to insulate countries against volatility in commodity prices. Their investments tend to be highly liquid and conservatively invested since they could be called on over a cycle of a few years. The Russian Oil Stabilization Fund is an example.
- » **Intergenerational savings funds** – These funds have longer-term wealth creation and policy objectives that enable them to take larger risks than the stabilization funds. The funds tend to have aims for social and/or economical

TEN LARGEST SWFS

(in billions of USD)

UAE Abu Dhabi Investment Authority	\$875.0
Norway Government Pension Fund – Global	\$396.5
Saudi Arabia SAMA Foreign Holdings	\$365.2
Government of Singapore Investment Corporation	\$330.0
China SAFE Investment Company**	\$311.6
Kuwait Investment Authority	\$264.4
China Investment Corporation	\$200.0
China Hong Kong Monetary Authority Investment Portfolio	\$173.0
Russia National Welfare Fund*	\$162.5
Singapore Temasek Holdings	\$159.0

Source: SWF Institute, As of 30 June 2008; <http://www.swfinstitute.org/funds.php>

*This includes the oil stabilization fund of Russia.

**This number is a best guess estimation.

¹⁶ Ambachtsheer 2006

¹⁷ Maslakovic 2008

¹⁸ Adapted from Allen and Caruana 2008

development. The Norway Government Pension Fund Global and Kuwait Investment Authority are examples.

- » **Reserve investment corporations** – The assets of these funds are often still counted as reserve assets, and are established to increase the return on reserves. Thus, they seek higher returns and subsequently have the highest risk tolerance of the three categories. They are typically active in purchasing ownership stakes in various entities and are more strategic in nature. In many cases, their investments support the country's industrial policy. Examples include the China Investment Corporation and Singapore's Temasek.

SWFs can bring significant benefits to global capital markets because they tend to have long-term investment horizons, and in most cases, tend to rely on low leverage in their investments. These features make them a stabilizing long-term influence on global liquidity. For example, SWF capital is playing an important role in stabilizing the US banking sector during the sub-prime crisis by providing much needed liquidity to some of the largest financial institutions.

Despite this, critics of SWFs argue that they do not make their motives clear and that many governments are using them as political tools to gain power in particular industries. As a result, a protectionist backlash has occurred in many countries against SWF investments that seek dominant positions or outright ownership of strategically important businesses, especially by funds belonging to a government deemed potentially hostile.

In response to the global concerns, the OECD plans to publish recommendations for SWFs. The code of conduct is voluntary, and is based on existing OECD guidelines for corporate governance that will be adjusted to take into consideration different factors that involve SWFs, including enterprises that are linked to national security. Separately, both European and US governments have also backed the IMF in drafting a voluntary code of conduct for SWFs.

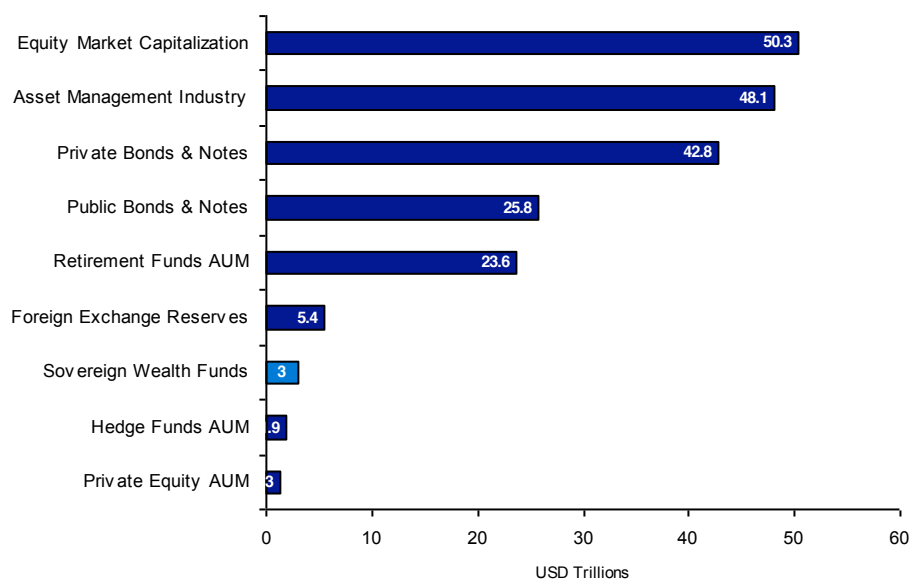
As SWFs are increasingly under the microscope, there will be mounting pressure for them to adhere to global financial standards and principles. Given that they represent both large institutional investors and national governments, SWFs have a particularly important role to play in contributing to a sustainable global economy. Through their investments, they can become significant shareholders and potentially wield considerable influence over company behaviour. SWFs are likely to become more important participants in global financial markets as their size continues to grow.

Market size and growth trends of SWFs

SWFs are not new, especially in countries rich in natural resources but their growing prominence is a recent phenomenon. Approximately half of the top forty SWFs have been established since 2000 while most of the largest SWFs have been around for at least a decade, some since the 1950s. Total assets under management of SWFs more than doubled between 2001 and 2007 underpinned by growth in foreign exchange reserves due to rising trade surpluses of some countries.

According to latest estimates by the International Monetary Fund (IMF), SWFs are valued at a total of US\$2.97 trillion with almost three-quarters of that commodity-based¹⁹. SWFs account for approximately 6% of world's stock market capitalization²⁰. Though SWFs control only a small percentage of global financial assets, they are large as an investor class. Their assets amount to more than half of global foreign exchange reserves and 13% of global pension fund assets. Figure 6 illustrates the comparative sizes of different asset classes.

FIGURE 6 Global financial assets by investor class



Source: Butt et al 2007; Based on 2006 figures

On an individual basis, as can be seen in Figure 7 below, the largest SWFs have reached a scale that is comparable to that of the largest global asset managers and the biggest private equity and hedge funds. In addition, SWFs are increasing at a greater pace than other categories of investors. They are now poised to become even larger players over the coming years, as the capital inflows stemming from commodities and trade surpluses continue. The IMF estimates that they should reach US\$12 trillion by 2012 and the SWF share of total assets under management could grow from 6% today to 10% in five years²¹.

SWFs and Public Pension Funds

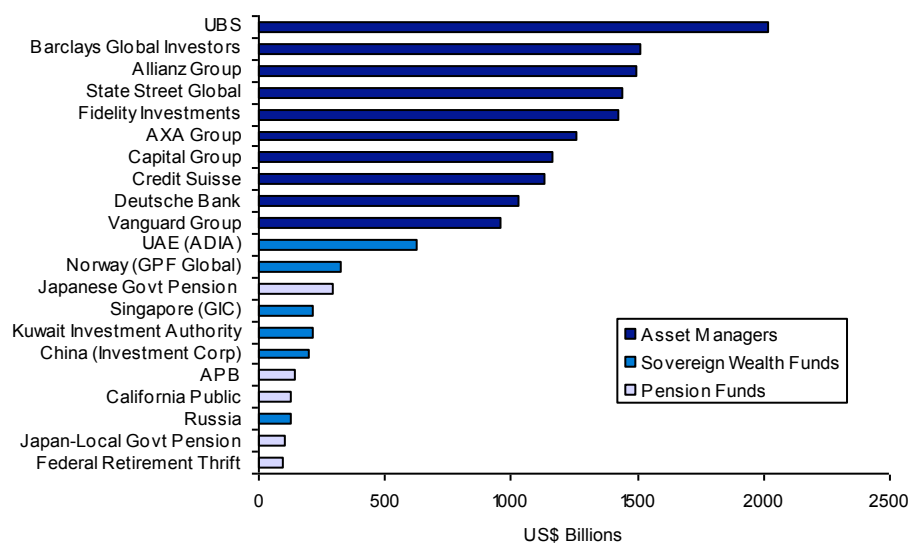
SWFs, especially the intergenerational savings kind, have many similarities with public pension funds. Pension funds are pools of assets where contributions are deposited with a view to funding retirement and other benefits promised to plan members at later date.

¹⁹ Allen and Caruana 2008

²⁰ Butt et al 2007

²¹ Butt et al 2007

FIGURE 7 Assets under management of selected institutional investors



Source: Lyons 2007; Figures for asset managers refer to end 2005

Public pension funds are setup by governments with the objective to meet the potential financial liabilities relating to their citizens' social security system or government employees' retirement system. They are important as investors in the financial sector, especially the larger institutions. In 2006, the total public pension funds market was valued at approximately US\$2.2 trillion²². These funds are expected to witness rapid growth over the next years as policymakers attempt to better protect social security systems from the effects of population ageing.

Like SWFs, public pension funds can be very large in terms of assets under management and are autonomous and accountable only to governments or public sector institutions. Both SWFs and public pension funds tend to have longer term investment horizons and moderate to low risk tolerance levels. Similar to trends seen in SWFs, public pension funds are also increasingly investing abroad and moving into alternative assets (e.g. property, private equity and hedge funds). Hence the financial stability concerns raised over SWFs are also applicable to public pension funds. Indeed there are several SWFs such as the Norwegian Government Pension Fund Global, the New Zealand Superannuation Fund and the Alberta Heritage Trust Fund which have financing pensions as one of their primary objectives.

However, there are still a number of differences between SWFs and public pension funds. In many countries public pension funds face strong pressures to invest their resources domestically and conservatively, particularly those managed within the social security system. In terms of sources of funding, public pension funds are mainly limited to social security contributions or direct fiscal transfers from the government. Public pension funds thus tend to have more restrictions in their

²² OECD 2007

investments and require more transparency due to concerns related to fiduciary responsibility and social ownership by the public.

Profile of Norway's Government Pension Fund Global

Norway's Government Pension Fund Global ('NGPFG'), formerly known as the Government Petroleum Fund, is the second largest sovereign wealth fund in the world. Established in 1990, the purpose of NGPFG is to support government savings to finance the pension expenditure of the National Insurance Scheme and long-term considerations in the application of government petroleum revenues. A primary goal of the fund is to ensure that future generations will benefit from the value of the petroleum wealth being extracted.

The fund is large relative to the size of the Norwegian economy, and the return on NGPFG will make considerable contributions to the funding of state expenditure in coming years. At the end of March 2008, the market value of NGPFG was US\$381 billion (NOK 1,946 billion), and its assets are forecasted to grow to US\$854 billion (NOK 4,351 billion) by the year 2015, making it one of the largest SWFs in the world²³. Focus on the management of NGPFG has increased in line with the growth in its size.

The Norwegian Government has high ambitions for the management of NGPFG. Its stated objective is to be the best managed fund in the world. This implies adopting best practice within international asset management in terms of financial, ethical and governance issues. Consequently, NGPFG is frequently cited as a model for other sovereign wealth funds because of its high degree of openness, its strategy of holding non-strategic ownership stakes and its clear lines of responsibility between political authorities and operational management.

The Ministry of Finance is responsible for NGPFG and determines the general investment strategy, its ethical and corporate governance principles, and follows up on its operational management. The task of carrying out the operational management of NGPFG has been delegated to the Norwegian central bank, Norges Bank. NGPFG's performance and risk exposure are reported quarterly and its holdings are detailed annually. NGPFG managers also meet regularly with Parliament and reporters.

The Ministry of Finance has formulated a long-term investment strategy that has an objective of a high return for moderate risk, with the intention to safeguard the basis for future welfare, including pensions. NGPFG is entirely invested in foreign securities and is reflected in a benchmark portfolio comprising broad equity and bond indices. The benchmark index for equities comprises almost 7,000 companies across 27 countries, while the benchmark index for bonds comprises more than 9,800 bonds across the currencies of 21 countries. On average, NGPFG investment in any single company amounts to less than 1% of available shares due to historical limits on holdings of voting shares in companies.

²³ Norges Bank; Exchange rate used as of 31 March 2008, 1 NOK = 0.19620 USD

However, there has been a gradual development in the investment strategy of NGPFG. The strategic allocation to equities was raised from 40% to 60% in summer 2007. As a result, in its most recent quarterly report Norges Bank announced that NGPFG owns more than 1% of all European stocks²⁴. In summer 2008, the Norwegian Parliament also approved an increase of the holding limit on individual companies from 5% to 10% in June 2008, which will allow NGPFG to be more strategic in its investments. In addition, it approved plans to allocate up to 5% of NGPFG capital to be invested in real estate as well as equity investments to be expanded to include all emerging markets.

The tools used in the integration of ethical concerns are adapted to this strategy. The Norwegian government also attaches considerable weight to the ownership interests in the companies in which NGPFG invests, being exercised with a view to promoting good and responsible conduct, showing respect for human rights and the environment.

Because of its objective to finance pension expenditure (and its name), NGPFG is often categorised as a public pension fund. However, the executive director of Norges Bank, Yngve Slyngstad, explains that technically NGPFG is not a pension fund. NGPFG has some of the same characteristics as a public pension fund such as a longer term investment horizon and government control, but it is a SWF so it does not have the same liabilities as public pension funds. Unlike a public pension fund, NGPFG was set up to meet future deficits of the social security system. Thus, it has some more flexibility as to where and how it invests capital.

1.3 THE URGENT NEED TO INVEST IN A LOW CARBON FUTURE

As the world becomes more interconnected and interdependent, the financial sector must pay attention to environmental, social and ethical issues that may have impacts on their long-term performance. Below we present some of the key “mega-trends” that have implications for sustainable investing in the financial sector and that institutional investors will need to be aware of in formulating their investment strategies in the 21st century.

Global mega-trends affecting the investment decision-making process

Depletion of natural resources

Today humankind is using resources in a way that is not sustainable. They are consuming more natural resources than the planet can replace. This over-consumption is leading directly to climate change and species extinctions. We are losing some of the world’s richest forests; we are degrading soil and sources of

²⁴ As a percentage of FTSE benchmark index market capitalization at June 2008; See Norges Bank 2008b

fresh water faster than ever before. We are living on ecological credit, drawing down the stock of natural capital while our overall consumption exceeds the planet's ecological limits. As with an increasing bank overdraft, this cannot go on for ever.

Rising energy needs

Parallel to this trend, global energy use is increasing rapidly, with energy demand expected to increase by more than 50% by 2030 if current trends continue²⁵. By 2020 China is estimated to be the world's second largest consumer of energy, India the sixth and the Asia-Pacific region is predicted to consume more than one-third of the world's energy²⁶. Consequently, governments are encouraging innovative solutions for energy-efficient projects and alternative renewable sources of energy.

Increasing prices of fossil fuels

Oil prices have increased dramatically in the past year, reaching over US\$140/barrel at its peak. This has subsequently caused increases in other goods that consumers use on a daily basis – from food to energy to transportation. Furthermore, many analysts predict global oil production will peak in the near future. Forecasts for future oil prices remain high, and both businesses and consumers alike are feeling the weight of rising costs in a slowing economy. As a result, more than ever they are being forced to re-examine their routine activities and consider ways to change their energy-dependent lifestyles and business models.

Population growth and demographic changes

The world's population is set to increase to nine billion by 2050 and global consumption levels are already five times what they were just 50 years ago. As a result, the demand for investment in solutions that can improve quality of life without consuming excessive natural resources will increase over time. In addition, in most of the Western world the population is aging as baby boomers enter retirement and medical advances over the last few decades have greatly prolonged our life span. This is forcing the pensions industry to support a greater number of pensioners for longer periods, and putting pressure on pension funds to review their investment strategies to ensure sufficient resources are available for future generations.

Global warming

There is a growing consensus around the world that global warming is a real and imminent threat that needs to be addressed immediately in order to avoid a climate catastrophe. This view is shared by almost all significant world leaders and businesses. Translated into concrete action this would require Western countries who are the biggest emitters to set the example and reduce their CO₂ emissions by 80- 90% before 2050. As Sir Nicholas Stern's Review of the Economics of Climate Change states, *"ignoring climate change will eventually damage economic growth....Tackling climate change is the pro-growth strategy for the longer term,*

²⁵ IEA 2006

²⁶ Manning 2004

and it can be done in a way that does not cap the aspirations for growth of rich or poor countries. The earlier effective action is taken, the less costly it will be.”

Global policy action and tightening of regulation

As more attention is being brought to environmental, social and governance issues, global and regional policies are being developed that will affect companies in all parts of the world. Mandatory caps on European GHG emissions, coupled with voluntary programmes, have spurred significant R&D and project finance investments in low-carbon technologies and related products, services, and markets. The Kyoto Protocol came into effect in 2005 and involves 170 countries in efforts to reduce GHG emissions. The European Trading Scheme (ETS) is entering into a new phase in 2008 and introduces a number of changes including centralised allocation of permits by a European Union (EU) authority, a greater share of auctioning permits rather than allocating freely, and inclusion of additional GHGs in the scheme. Several regional and state level regulations in the US are also aimed at setting targets for reducing GHG emissions.

What does this mean for investors?

According to the Stern Review, if the world continues with a business-as-usual model and does not implement changes to address these trends, average global temperatures will rise by 2 - 3°C within the next fifty years. This will raise sea levels, increase flooding and decrease crop yields – creating vulnerabilities for communities as well as businesses. If no action is taken, climate change will reduce welfare by an amount equivalent to a reduction in consumption per capita of between 5% and 20%.

The Stern Review estimates that reversing this trend and reducing CO₂ emissions by 25% by 2050 will cost approximately 1% of GDP annually. The longer we wait to address the climate change issue, the more expensive it becomes and the more likely that it will be impossible to reverse the damages. All of these trends point to an imperative for a low carbon future that requires immediate action and concerted efforts from investors, businesses, governments and consumers alike.

As the public and business community become increasingly aware of these global-mega trends, they have impacts on consumer preferences as well as how companies do business. Corporations around the world have experienced a growing interest from many stakeholders regarding the environmental effects of their operations in recent years. It is changing the business landscape rapidly and those companies that can mitigate the risks associated with these trends and adapt their business models accordingly will come out as leaders.

For investors, it will be important for them to be able to identify which companies are the leaders in a low carbon future and also to encourage companies to move in the right direction. Investors can also play an important role in accelerating the transition to low carbon economy by directing capital to energy efficient projects. Studies by the International Energy Agency show that, by 2050, energy efficiency has the potential to be the biggest single source of emissions savings in the energy

sector²⁷. This would have both environmental and economic benefits: energy-efficiency measures cut waste and often save money.

Role of SWFs and public pension funds in a low carbon future

Together both SWFs and public pension funds are a significant force in the global financial market, with approximately US\$6 trillion assets under management and this figure is estimated to grow rapidly in the next decade.

There is considerable untapped potential for SWFs and public pension funds to exercise their power with companies. These institutional investors sometimes hold upwards of 1–3% of a company's stock, making them a significant shareholder with a powerful degree of influence²⁸. In other words, they can encourage companies to make changes in their business activities that will contribute to a low carbon economy. This could include recommending better disclosure on carbon emissions, adopting climate risk strategies and pursuing climate-friendly business lines and products.

Collective action of these investors could bring about even greater change on climate issues. Individually, investors' degree of influence is limited to their own stake in a company; when they combine their ownership stakes, they represent a greater force that cannot be ignored. Furthermore, they can share resources to research innovative ways to approach future climate challenges and to approach a greater amount of companies. Thus, SWFs and public pension funds together have an opportunity to facilitate a rapid transition to a low carbon economy. These actions are explored in more detail in the next two chapters.

Drivers for change within the financial sector

The rapid expansion of major emerging economies, most significantly China and India, is leading to a shift in the global balance of economic activity and creating a new demand for financial services. As new actors enter the market and technological innovations advance, firms will be increasingly concerned with competitiveness and efficiency. Consequently, firms will look to the financial services sector to provide and channel investment across the global economy in order to keep them ahead of the game.

In addition, a company's "sustainability" characteristics are becoming increasingly critical to its competitiveness, profitability, and share price performance. Companies are subsequently developing corporate social responsibility policies to address the impact of their businesses on the environment and the broader community.

Financial institutions are therefore incorporating environmental, social and governance (ESG) factors more and more into their investment decisions by channelling capital to those companies that perform better on sustainability issues through socially responsible investing. ***Socially responsible investing (SRI)***

²⁷ Stern 2006

²⁸ Brown 2007

consists of activities that combine investors' financial objectives with their concerns about environmental, social and governance issues²⁹. Investors are beginning to realise that analysis of ESG issues can provide additional insights about companies' strategic management capabilities, organizational agility, and therefore their financial performance potential. SRI techniques and strategies are discussed in more detail in the next chapter.

In recent years, SRI has moved from the fringes of the investment world to a core investment strategy for many investors. Furthermore, many global initiatives have been launched in the past decade that have influenced major financial institutions to become more socially responsible in their investment strategies and processes. The United Nations (UN) Global Compact and the UN Principles for Responsible Investing in particular are shaping how investors are developing investment policies. See the Appendix for more details on these and other initiatives.

In 2004, the UN Global Compact published a report for the financial industry aiming to enhance clarity concerning the respective roles of different market actors, including companies, regulators, stock exchanges, investors, asset managers, brokers, analysts, accountants, financial advisers and consultants. It includes recommendations for supporting improved mutual understanding, collaboration and constructive dialogue on ESG issues. Figure 8 below identifies the key recommendations of each actor in the financial industry.

FIGURE 8 Role of different financial actors in sustainable societies



Source: UN Global Compact, 2004, 'Who Cares Wins'

²⁹ Eurosif definition

The UN Global Compact urges investors are urged to explicitly request and reward research that includes ESG aspects and to reward well-managed companies. Asset managers are asked to integrate research on such aspects in investment decisions and to encourage brokers and companies to provide better research and information. Both investors and asset managers are also encouraged to develop and communicate proxy voting strategies on ESG issues.

Pension fund trustees and their selection consultants are encouraged to consider ESG issues in the formulation of investment mandates and the selection of investment managers, taking into account their fiduciary obligations to participants and beneficiaries. Governments are asked to proactively consider the investment of their pension funds according to the principles of sustainable development.

Led by the United Nations, a group of the world's largest institutional investors developed the six Principles for Responsible Investment (PRI) in 2005, which provide a menu of possible actions for incorporating ESG issues into mainstream investment decision-making and ownership practices. Signing is voluntary and represents a commitment to the Principles, demonstrating support from the top-level leadership of the whole investment business.

In its short existence, the UN PRI has grown very rapidly to 362 signatories representing asset owners, investment managers, and professional service partners that have over US\$14 trillion in assets under management. In fact, many major institutional investors cite PRI in their investment policy documents.

A large number of signatories reported that the PRI has been successful in raising awareness and many are confident that significant change will eventually follow. The main benefits noted generally have been in building networks among like-minded investors, facilitating information-sharing and enhancing the profile and credibility of SRI/ESG issues and investment approaches. On the other hand, a small number of signatories stated that they had not yet derived any tangible benefit from their participation in the PRI Initiative.

Investment trends aimed at a low carbon future

Against this backdrop, a variety of regional and global initiatives have been launched by investors and companies themselves that focus specifically on addressing climate change issues. One of the largest, the Carbon Disclosure Project (CDP) representing institutional investors with combined assets of over US\$57 trillion under management, has encouraged companies to disclose information on the business risks and opportunities presented by climate change and GHG emissions data from the world's largest companies³⁰. Another example is the Institutional Investors Group on Climate Change (IIGCC), a coalition of UK-based institutional investors which has formed working groups to investigate the most effective means to effect change. It has produced reports on aviation and power generation, analysing the investment opportunities and risks in a low-carbon economy. See Box 1.1 for more detail on these types of initiatives.

³⁰ For more information see <http://www.cdproject.net/>

However, it remains to be seen how effectively these climate change initiatives can influence the policy-making process of governments and the reduction of environmental impact by companies. All of these international initiatives have undoubtedly raised awareness about socially responsible behaviour, among both companies and investors. The rapid growth in their membership as well as the proliferation of the initiatives themselves are indicators that they are effective in meeting their objectives of fostering dialogue and increasing knowledge on climate change issues.

There is certainly significant potential impact on sustainable development through their engagement activities. For example, the Investor Network on Climate Risk (INCR) helped to coordinate jointly filed shareholder resolutions by some of Exxon Mobil's largest shareowners to address climate change risks and opportunities in May 2008. While the resolutions did not pass, they received enough support ensure that shareholders got the attention of management and can return next year to reintroduce the issues, if the company has not yet addressed them³¹.

Nevertheless, many of these initiatives have received criticisms centred around three main points³². First, some critics argue that their vague language and lack of enforcement mechanisms prevent them from providing clear guidance to institutional investors. For example, the PRI states that they provide "possible actions" to accompany each principle, but the actions themselves can be somewhat ambiguous.

Secondly, there are concerns that recommendations provided by these initiatives may not incorporate a sufficient amount of concern over environment or social issues since these initiatives tend to be funded by financial institutions themselves. These institutions would not have an interest in elaborating recommendations which run counter to their financial interests. A final criticism is that the international initiatives do not provide effective incentive structures to encourage more responsible investment or punish bad practices.

Still, some initiatives have begun to make changes to address these criticisms. For example, UN PRI recently announced that it is considering more comprehensive analysis of the funds that join with the Principles and a stricter certification process. Firms and fund managers who have signed onto the UN PRI could be expelled if they do not follow through with its disclosure provisions. In addition, at the most basic level these initiatives provide a platform for the financial sector to collaborate and a good starting point to contribute towards a low carbon economy.

³¹ For more information see <http://www.incr.com>

³² Oxford Business Knowledge 2007

Box 1.1: Investor Initiatives with Climate Change Focus

Carbon Disclosure Project

The Carbon Disclosure Project (CDP) provides a secretariat for the world's largest institutional investor collaboration on the business implications of climate change. It allows investors to obtain information on the business risks and opportunities presented by climate change and greenhouse gas emissions data from the world's largest companies. Launched in 2000, currently CDP represents institutional investors with combined assets of over US\$57 trillion under management. CDP has a repository of greenhouse gas emissions data for 3,000 companies around the world.

Institutional Investors Group on Climate Change

The Institutional Investors Group on Climate Change (IIGCC) was established in 2001 as a forum for collaboration between pension funds and other institutional investors to address the investment risks and opportunities associated with climate change. The group currently has 39 members, with assets of over €3.5trillion. IIGCC seeks to promote better understanding of the implications of climate change amongst members and other institutional investors and encourage companies and markets in which IIGCC members invest to address any material risks and opportunities to their businesses associated with climate change and a shift to a lower carbon economy. IIGCC is already affecting government and fiscal policy and consumer behaviour in Europe.

Investor Network on Climate Risk

The Investor Network on Climate Risk (INCR) is a network of institutional investors and financial institutions that promotes better understanding of the financial risks and investment opportunities posed by climate change. INCR was launched at the first Institutional Investor Summit on Climate Risk at the United Nations in November 2003. INCR's membership has since grown from 10 investors managing US\$600 billion in assets to more than 60 investors managing US\$5 trillion of assets. INCR leverages the collective power of these investors to promote improved disclosure and corporate governance practices on the business risks and opportunities posed by climate change.

Extractive Industries Transparency Initiative

Founded in 2002, the Extractive Industries Transparency Initiative (EITI) supports improved governance in resource-rich countries through the full publication and verification of company payments and government revenues from oil, gas and mining. Resource-rich countries implementing EITI can benefit from an improved investment climate by providing a clear signal to investors and the international financial institutions that the government is committed to strengthening transparency and accountability over natural resource revenues. Some twenty countries have either endorsed, or are now actively implementing EITI across the world. An International Advisory Group on the future of EITI has been established that will work over the next year to make recommendations on how to validate different countries' implementation of EITI, and how the initiative should be organised in the future.

Equator Principles

Launched in 2003, The Equator Principles represent a financial industry benchmark for determining, assessing and managing social and environmental risk in project financing. Over forty financial institutions adopted the Principles in order to ensure that the projects financed are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project-affected ecosystems and communities should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately.

These Principles are intended to serve as a common baseline and framework for the implementation by each financial institution of its own internal social and environmental policies, procedures and standards related to its project financing activities.

2 Approaching the climate challenge as a socially responsible investor

Investors at the forefront of tackling climate change are using socially responsible investing strategies to make investment decisions and allocate assets. This chapter presents the key SRI techniques investors are using today and explains how these SRI techniques can lower risks and increase profits for investors.

2.1 CURRENT STATUS OF SOCIALLY RESPONSIBLE INVESTING (SRI)

Investment managers with SRI funds and mandates overlay a qualitative, and increasingly a quantitative analysis, of corporate environmental and social policies, practices, and performance onto traditional financial analysis of profit potential. This is typically achieved through screening – excluding or selecting stocks based on specific criteria – or shareholder influence – engaging in dialogue, exerting pressure or voting at meetings.

There has been a significant increase in the number of investors who have adopted SRI strategies and are holding companies more and more accountable for their social and environmental practices. According the 2008 Asset Manager Landscape Survey by Responsible Investors, global asset managers (representing US\$19.4 trillion in assets) said current levels of responsible investment represented more than 10% of assets at US\$2.2 trillion. The managers predict that by 2010 this figure will have reached US\$2.94 trillion – a rise of US\$700 billion or 35% in the next two years.

SRI techniques

Historically, negative screening was the most basic and the most popular strategy of social investing. Today, values-based avoidance screening continues to play an important role in SRI, but new screening issues have also emerged, and SRI strategies continue to evolve. In the past decade, the number and the complexity of the mechanisms used in SRI have grown considerably and often involve a combination of screening and shareholder influencing techniques. The following describes the main strategies used in SRI today.

Screening

Screening is the practice of evaluating investment portfolios or mutual funds using social and/or environmental criteria. **Negative screening** is sometimes called exclusion. It consists of barring investment in certain companies, economic sectors or even countries for ESG-related reasons. For example, in the beginning of the SRI movement religious investors in the US and the UK started excluding investments in so-called 'sin stocks', such as gambling and alcohol companies.

Norms-based screening is often grouped together with negative screening since exclusion can be used at the end of the analysis process. The norms-based approach involves monitoring corporate complicity with internationally accepted norms, such as the UN's Global Compact, Millennium Development Goals, ILO Core Conventions and OECD Guidelines for Multinational Enterprises.

There are limitations to using negative screening as a strategy on its own. Negative screening, especially extensive screening, can potentially increase risk by altering sector and geographic allocations within an investment universe. This could in turn affect a portfolio's performance relative to its benchmark index. Nevertheless, negative screening remains the most common initial strategy employed by investors entering into SRI.

Many social investors now also employ **positive screening** to select companies with positive attributes for investment. The most popular form of positive screening is '**best-in-class**', where stocks are selected within each sector of a given index, thereby retaining sector balance within the investment universe. The companies are selected on their ESG performance relative to their peers. A less often used, but equally interesting form is **pioneer screening**, where funds specialise in the best-performing companies against a specific theme or criterion, such as management of natural resources. Motivated by a desire to set standards for, and improve, corporate social and environmental performance, social investors use such positive screening techniques to identify companies with competitive advantages over their peers, many of which may be intangible in nature. Positive screening also provides a means for regular monitoring of companies that are chosen for inclusion within a portfolio.

Positive screening is viewed as an excellent SRI strategy. Due to its systematic approach in covering a large number of companies and clarity of practice, it is often considered a more accountable strategy than engagement. Positive screening not only allows investors to identify which companies are performing better on ESG issues, it is the first step in selecting which companies to engage with. As is the case for negative screening, some investors believe that positive screening reduces investment diversification and therefore contradicts the obligations imposed by fiduciary duty. However, best-in-class selection, specifically, addresses this criticism by maintaining sector balance.

Shareholder Advocacy and Engagement

These strategies relate to investors taking an active role as owners of corporate stock to encourage more socially and environmentally responsible behaviour. Efforts include dialoguing with companies on ESG issues as well as filing, co-filing, and voting on shareholder resolutions. Proxy resolutions on social issues and corporate governance issues are aimed at improving company policies and practices, addressing perceived shortcomings, encouraging management to exercise good corporate citizenship while promoting long-term shareholder value and financial performance.

There are a variety of tools available to the engaging investor, from writing letters directed at senior management, to filing resolutions at AGMs to voting and, ultimately, divestment. Filing resolutions is considered a good way to warn

management that the investor strongly disagrees with some of the company's policies.

One advantage of engaging with companies is that it can address the poorest performers on ESG issues and encourage them to move towards sustainability. In this sense, it is not just rewarding good company behaviour but also promoting changes in behaviour at the individual company level. A downside is that the focus of engagement is intrinsically limited by human factors such as size of engagement teams and time allotment, thus potentially covering less ground than positive screening strategies. Engagement has also been criticized for lack of accountability since results of shareholder advocacy are often not reported, inconsistently reported or difficult to measure. To overcome these challenges, there is growing trend within the SRI community to practice collaborative engagement, where investors pool their resources on researching issues and combine their influence in order to achieve economies of scale.

SRI investment products

The SRI strategies can be employed across an entire portfolio of assets or can be used to create customized SRI products that incorporate ESG issues into the stock selection process. The following describes SRI products that are currently available to investors.

SRI Indices and Tracker Funds

An SRI index is a stock index of publicly traded companies that have met certain standards of social and environmental excellence. Potential candidates for the index will have positive records on a variety of ESG issues such as employee and human relations, product safety, environmental safety, and corporate governance. Companies engaged in the business of alcohol, tobacco, firearms, gambling, nuclear power and military weapons are often excluded. An SRI index tracker fund is a mutual fund made up of companies from a particular SRI index. For example, the Domini Social Equity Fund appeared in 1991, followed by social indices from Dow Jones, FTSE, and Calvert.

Exchange Traded Funds (ETFs)

ETFs are mutual funds that are traded on exchanges just like stocks and have become popular due to the growth in demand for index linked products, their tax efficiency, low cost, and ease of trading. Socially responsible investors have a handful of ETF products to choose from, with a growing number of environmentally focused ones. Both FTSE and Dow Jones have created SRI- focused ETFs to develop a niche in the US and Europe.

Thematic investment funds

These funds typically employ a pioneer screening technique and focus on a range of themes emerging from the shift to a more sustainable economy, such as clean technology, energy efficiency, renewable energy, waste management, and water treatment. The idea is that a portfolio which is over-weight in these long-term themes will out-perform because the change to a more sustainable economy is

necessary and unavoidable. These funds generally invest exclusively in companies which provide environmental solutions, often called *pure-play* environmental companies because they dedicate a majority of their business activities to environmental issues. Thematic investment funds provide investors with some of the purest environmental investment options.

Venture capital and private equity funds

An increasing number of venture capital and private equity funds are investing in private companies that develop new environmental products and services. These funds are relatively illiquid and represent a higher risk investment than many of the funds above which invest in public companies. These investments generally go directly to the investee companies and enable them to expand and develop their businesses. Some of these funds specialise in specific types of environmental companies whereas others take a more generalist approach to portfolio selection. For example the Low Carbon Accelerator, an AIM listed fund, invests in sustainable building, energy efficiency and clean energy; whereas the London Asia Chinese Private Equity Fund, as its name suggests, is focused on private companies in China.

2.2 SRI: AN OPPORTUNITY TO LOWER RISK AND INCREASE RETURNS

As with many investment issues, there are conflicting views regarding the likely impact of using SRI strategies on investment risk or returns. However, there is increasing evidence building clearly against the sceptical view that investors will suffer increased risk and/or lower return on investment (ROI) by adding criteria which are not solely financial. On the contrary, the evidence suggests that SRI is likely to be less volatile and can result in higher returns than a traditional approach.

Several studies have demonstrated that companies with higher ESG standards have lower risk exposure in financial markets. For example, lower share price volatility was found in a study by the Cass Business School³³ that examined companies from an environmentally-focused index and the correlation with share price performance. It found there was a significant difference in share price volatility between these environmental leaders and the low-scoring companies.

Some investors believe that SRI limits the investment universe, and thus, limits the potential for ROI. The reality is that all investment strategies embrace some sort of process that seeks to narrow the vast array of investment choices and ultimately produce a portfolio that is some subset of the full investment universe. Active money managers attempt to add value by creating dynamic portfolios that are somewhat concentrated. With virtually any active management strategy, the question is whether the investments being chosen (or eliminated) for economic,

³³ Business in Environment 2002

financial, social, or environmental reasons are likely to enhance returns or reduce risk.

Some investors also argue that integrating ESG issues into investment policy violates the legal responsibilities of an investor. This stems from the idea that fiduciary duties require a portfolio manager solely to pursue profit maximisation and inhibit them from incorporating other objectives. Contrary to this belief, a groundbreaking study by law firm Freshfields Bruckhaus Deringer concluded that *“integrating ESG considerations into an investment analysis so as to more reliably predict financial performance is clearly permissible and is arguably required in all jurisdictions”*³⁴. In other words, by considering ESG issues investors are indeed acting in the best interest of their beneficiaries.

SRI and potential for out-performance

The biggest debate regarding SRI relates to whether ESG factors can have a material impact on investment performance. A growing number of academic studies have demonstrated that SRI funds perform competitively with non-SRI funds over time. Several of these peer-reviewed and published studies have been awarded the prestigious Moskowitz Prize, a global award recognizing outstanding quantitative research in the field of SRI sponsored by the University of California Berkeley's Haas School of Business.

For example, the 2005 Moskowitz Prize winner³⁵ found that stocks that perform relatively well along environmental dimensions collectively produce superior portfolio returns. The results suggest that the benefits of considering environmental criteria in the investment process can be substantial. Overall the portfolio, constructed of environmentally efficient stocks using a best-in-class approach³⁶, was found to produce superior returns to the portfolio of low-ranked environmental stocks.

In addition in 2007, Innovest carried out a literature review of the most relevant studies published from 1996 to 2006 that explore the linkages between ESG factors and financial performance. A review of 88 studies revealed strong evidence for the existence of a positive relationship between ESG management and performance and financial performance. There were 79 positive correlations, 11 neutral relationships and 9 negative correlations³⁷.

In other words, in 90% of the total number of relationships that were assessed, a positive correlation between ESG factors and financial performance was identified. In only 10% of cases could a negative relationship be said to exist. The implementation of a comprehensive environmental management strategy in particular can be linked to good financial performance, as can development of good governance structures.

³⁴ Freshfields Bruckhaus and Deringer 2005

³⁵ Guenster et al 2005

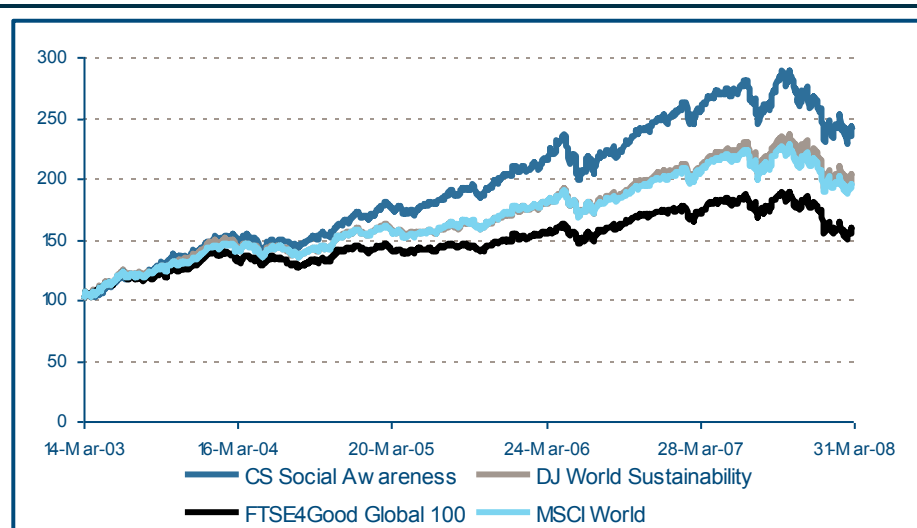
³⁶ Based on company environmental ratings from Innovest

³⁷ In some cases, an individual study identified a mix of correlations, depending on the range of ESG factors and financial indicators examined and which ones were correlated with another. For this reason the total number of correlations exceeds the total number of studies included in the review (88 in total).

Those studies that do highlight negative relationships have many flaws. They tend to use inappropriate comparisons or have narrow focuses. Many of the negative relationships relate more to fund choices and individual fund performance than to the SRI "style". For example, one study found that investors who opted for SRI index funds would fare little differently to those who chose non-SRI index funds. The more significant losses came from choosing active management in particular styles, e.g. value, for which there is a much smaller choice of SRI funds. In fact, the majority of studies of share price (rather than fund) performance have not found that socially responsible investors will lose out³⁸.

Established indices around the world also show that companies that incorporate social and environmental standards historically deliver competitive returns. For example, backtests for the Credit Suisse Social Awareness Index, which includes companies that adhere to the ten principles of the UN Global Compact, have demonstrated the potential to out-perform other major indices on a total return basis since 2003 (illustrated in Figure 9).

FIGURE 9 Performance of Credit Suisse Social Awareness Index compared to major indices



Source: Bloomberg

Most significantly, the rapid growth of SRI in recent years is the best evidence that socially responsible investing yields competitive returns. Over the past 20 years, the total amount of money invested in SRI has grown exponentially, as has the number of institutional, professional, and individual investors involved in the field. Between 1995 and 2007, total dollars under professional management in SRI grew from US\$639 billion to US\$2.71 trillion in the US and up to €1.6 trillion in Europe³⁹, outpacing the overall market.

³⁸ Cowe 2004

³⁹ Social Investment Forum and Celerant

SRI investing has become part of the mainstream, and as a result, a number of conventional companies now offer SRI products to their clients. The bottom line is that more and more investors adopt and use SRI strategies not only because such investments allow a focus beyond the bottom line, but also because returns are comparable to or better than those of more conventional investments.

2.3 CURRENT BEST PRACTICES IN SRI

SRI fund managers can use any combination of the above techniques to achieve their environmental and social objectives. While opinions differ on which technique is better, there is an overall consensus that integrating the strategies can often be more effective than using a single technique by itself. For example, European Social Investment Forum (Eurosif) suggests an investor utilise a combination of strategies to not only reap the benefits of SRI, but also to ensure that its assets are protected in an efficient manner. They recommend using the following strategy:

- » Negative screening applied to sectors that the investor in no way wishes to support;
- » Positive screening applied to ensure that the investor's views are represented over all of its investments; and
- » Engagement applied to tackle specific issues and create a working relationship with the investee company that enables collaboration on and tracking of the evolution of those issues.

Best practices in SRI today not only involve using a combination of the SRI techniques and products described above to manage portfolios, but they also place an emphasis on positive screening. This means that investors are analysing how companies are managing ESG risks as well as opportunities to drive their stock selection, instead of just relying on excluding companies based on their business activities.

Positive screening can overcome the challenges of a limited universe that extensive negative screening creates. By using a best-in-class approach, investors can potentially lower risk by balancing their portfolio across all sectors. Moreover, a best-in-class approach allows companies to identify both leaders and laggards in a sector so that they can both reward the leaders by selecting them for their portfolio and also engage with both those that are interested in improving their performance and the laggards to discuss how they can improve their company performance on particular ESG issues.

In addition, the public's broader awareness of climate change and its impacts have supported increased pioneer screening and demand for the creation of new SRI investment products with a specific environmental focus. Such environmental funds differ from traditional SRI funds in that they apply only an environmental screen to the companies in which they invest. Climate change, especially, has become a very popular theme for these funds. In the past year alone, over ten 'climate change funds' have been launched with many coming from mainstream financial

institutions such as HSBC and Deutsche Bank. The trend for ‘green’ investments is also spreading to emerging markets.

Furthermore, some of the biggest and most respected names in the banking, private equity, institutional, and corporate arenas have made significant investments or commitments to cleantech businesses or markets in recent years. All of these players forecast cleantech in some shape or form to be one of the most important industries of the 21st century. The number of funds seeking sustainable energy opportunities has risen to 441, with an estimated a total of US\$67.4 billion under management, with 62% of these funds aimed at buying shares in publicly listed companies⁴⁰. This is a four-fold increase over the same period in the previous year.

Several public pension funds are leading the SRI field and incorporating these best practices into their investments, which reflect the full range of innovative ways in which ESG factors are being used in investment decisions. These include award-winning funds that have delivered out-performance against their benchmark. Funds such as ABP, CalPERS, the UK Environment Agency and the UK University Superannuation Scheme have moved beyond negative screening in stock selection and some have even setup thematic environmental funds. The table below provides a summary of these innovative approaches and the Appendix provides more detail on these funds.

FIGURE 10 Summary of innovative SRI practices of public pension funds

Fund	Innovative Practice
ABP	Incorporates ESG considerations into all of its investments; Utilizes a combination of strategies including best-in-class selection, engagement and thematic investment funds
CalPERS	Leading corporate governance activities that are publicly reported on; Specific environmental investment initiatives that include thematic investment funds, engagement, environmental screens
Environment Agency	Favours best-in-class selection approach, shareholder advocacy and engagement approach rather than negative screening; Fund managers evaluated on both environmental performance and financial performance
USS	Focuses on engagement with companies rather than divestment; Collaborates regularly with other investors on engagement and research on ESG issues

Source: Company websites, annual reports and corporate social responsibility reports

For example, Dutch pension fund ABP announced its intentions to incorporate ESG factors in all of its investments in its \$311 billion portfolio using two key approaches: bottom-up best-in-class stock selection and top-down theme driven investments. ABP also regularly engages with companies to encourage better disclosure and better management of ESG risks, and will withdraw investment from companies that persistently fail to improve their practices. ABP, together with a number of partners, is investing over US\$1.8 billion in funds with environmentally focused themes. They have invested US\$500 million each into a sustainable energy fund and a clean technology fund, US\$363 million in a climate change private equity fund and US\$60 million in a sustainable timberland projects fund.

⁴⁰ As of March 2008; based on figures from UNEP Report: *Global Trends In Sustainable Energy Investment 2008*

3 Sustainable investment opportunities in the 21st century

The innovative SRI practices described in Chapter 2 are confined to a small number of institutional investors. While SRI is growing at a rapid pace, it still only represents less than 5% of the total global asset management industry⁴¹. In order to affect bigger change and exert greater influence over companies, more investors need to use SRI practices and in a greater proportion of their portfolios.

Furthermore, the future for SRI products is likely to be one where investment universes are progressively more customised so that the needs of all SRI practitioners are met. While mainstream investors have in excess of 50,000 indices in which to invest, SRI investors have only around 100, indicating that there is untapped potential for index creators to provide new products for the environmentally-conscious investor⁴². In the past few years, some indices have already been developed that focus on a particular investment theme; examples include the Carbon Disclosure Project – Climate Leadership Index⁴³, Opportunities for the Majority Index⁴⁴ and Global 100 Most Sustainable Corporations in the World⁴⁵. However, there is room for more innovative and low carbon-focused investment instruments.

The low carbon future will provide many opportunities for investors, especially for those that incorporate sustainability issues in their decisions. This chapter discusses how SWFs can mitigate risks that investors face, take advantage of upside opportunities and take a greater leap to lead the transition towards a low carbon economy.

3.1 CAPTURING INVESTMENT OPPORTUNITIES IN THE LOW CARBON FUTURE

“Our understanding of the risks of climate change has advanced strongly, and in particular, we now understand the urgency and scale of action required. Delay or weak action means greater risks and higher costs. Both reducing emissions and adjusting to climate change involve investment and risk. There is a central role for financial institutions to play in the efforts to combat and adjust to climate change.”

--Lord Nicholas Stern⁴⁶

⁴¹ Estimated from RI 2008 and Butte et al 2007

⁴² Van Schnydel 2002

⁴³ <http://www.cdproject.net/climateleaders2006.asp>

⁴⁴ http://www.iadb.org/am/2008/docs/OM_Index_Final_Report_v2.pdf

⁴⁵ <http://www.global100.org/2005/index.asp>

⁴⁶ UNEPFI 2007

Climate change has emerged as the number one global sustainability risk driver for many companies. It is clear from many sources that the risk posed by climate change and climate change policy is serious and immediate. For the investment community, the indirect environmental impacts associated with financial products and services (the environmental impacts of the companies and projects they invest in) can be significantly greater in scale than the direct impacts of financial institutions' operations (i.e. the amount of energy consumed, volume of waste generated, etc.). Thus, investors are being increasingly invited to consider – and in some countries have a legal requirement to monitor – environmental and social issues when making investment decisions.

Because of their large size, institutional investors (representing approximately US\$48.1 trillion in 2006⁴⁷) wield significant influence over future economic development and industrial management pathways and, therefore, the pattern of future global GHG emissions. The longer-term investment risk and performance horizons of SWFs and pension funds in particular should provide them with natural incentive to incorporate climate-related factors into future asset management activities. As the executive director at Eurosif Matt Christensen notes, "*Public pension funds are in an ideal position as the most independent investors in the financial services sector, with the least amount of conflict of interests, to employ a range of strategies around socially responsible investment.*"

Risks for SWF investors

The underlying rationale for investors, especially large ones such as SWFs and public pension funds, to address climate change risks stems from the nature of their business. Because large institutional investors invest across the whole economy, successful fund management relies closely on the performance of the economy as a whole. Therefore, since climate change threatens the development of the entire economy as well as individual companies, it is in the direct interests of these investors to seek to avoid or reduce such threats⁴⁸. Investors face risks centred on three broad categories: 1) international policies and national regulations; 2) sectoral risk variances; and 3) differing company levels of adaptation.

Regulatory risks

International, national, state, and local regulations are putting increasing pressure on companies with GHG emissions from operations or products to reduce those emissions and to purchase and trade carbon credits. The impact of these existing and potential regulations will cut across sector and industry lines to affect the entire economy. Understanding how individual companies and industries are incorporating these regulations into capital investment decisions and strategic planning is increasingly critical for investors seeking a complete understanding of a company's health and financial value.

Because of regional differences in approaches to the Kyoto Protocol and natural variations in climate conditions, the geographic distribution of a firm's operations

⁴⁷ Butt et al 2007

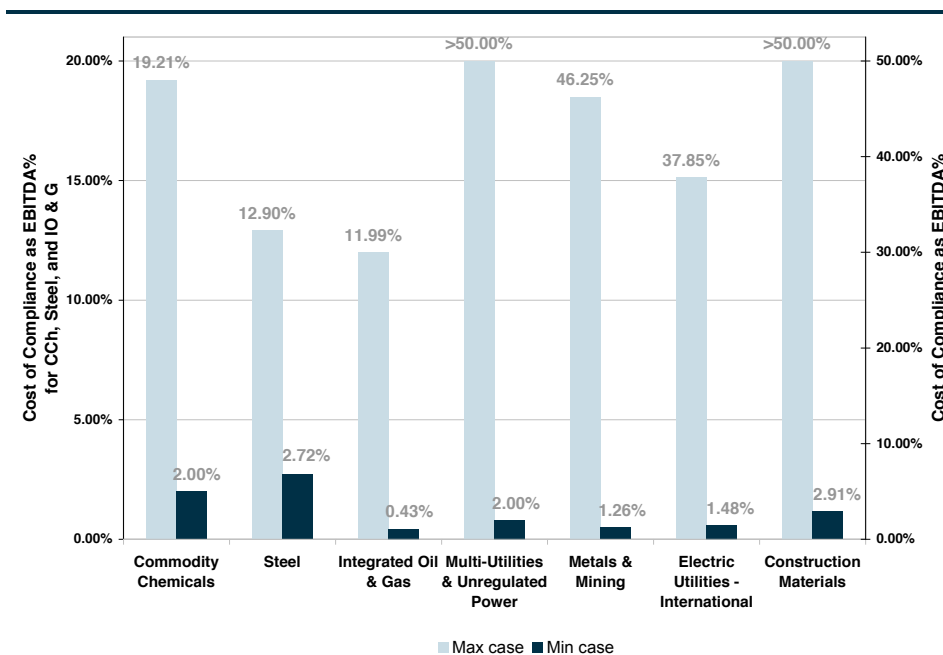
⁴⁸ Mansley and Dlugolecki 2001

and markets is a critical determinant of climate change risk. Investors heavily exposed to GHG-intensive sectors in regions aggressively pursuing emissions reductions – the EU, Japan, parts of the US, and several provinces in Canada – will clearly face greater climate change risks than those with more carbon-diversified portfolios. On the other hand, the threat of climate-related litigation hangs over US emitters much more than probably any other. The costs of adapting to the new environmental and regulatory carbon-constrained reality are critical to the investment decision process of picking and diversifying a portfolio.

Sectoral risks

Some industry sectors such as oil and gas, electric utilities, and autos are more carbon-intensive than others and face greater challenges in dealing with climate change issues. Moreover, in some sectors different companies will have widely varying risks, whereas in other sectors the risks will be more similar and the key decision becomes the appropriate exposure to the sector.

FIGURE 11 Cost of CO₂ Regulatory Compliance as percentage of EBITDA in Select Industries



Source: Carbon Beta Ratings from Innovest

As Figure 11 illustrates, climate risk exposure varies widely, between and even within industry sectors. The chart shows the annual cost for abating emissions to achieve compliance with the relevant regulations faced by a company during the corresponding commitment period. This cost is expressed as a percentage of current EBITDA⁴⁹. The light bar represents the company with the highest compliance costs in the sector, while the dark blue bar is the company with the

⁴⁹ EBITDA is Earnings Before Interest, Taxes, Depreciation and Amortization; This is a common indicator used to compare the financial performance of different companies

lowest costs. For example, the compliance costs in the construction materials sector range from more than 50% of EBITDA to less than 3% of EBITDA. That is a difference of at least 47% in carbon risk exposure that is not yet fully priced into current asset values on the mainstream markets. Knowing this information can help investors to determine which companies will be better positioned to meet climate challenges in the future.

Solely considering companies based on their carbon intensity regardless of the sector characteristics would imply that some companies are good investments simply because they operate in sectors with a low carbon footprint, such as software for instance. In a global economy, all sectors are relevant and need to work towards a low carbon future. In addition, for many investors, especially SWFs, excluding entire industries from their portfolios to avoid high carbon-risk sectors is not feasible so looking at these differences within sectors can be a more useful investment strategy.

Company level risks

Companies are at the frontline of confronting climate challenges. As climate change brings about shifts in weather patterns, the frequency and severity of extreme weather events are increasing, which in turn affects the daily operations of many companies – from business interruption and property damage to inventory and utility service loss. In addition, growing environmental awareness among the general public has raised the bar for companies to behave more responsibly or else risk reputational damage.

Companies in carbon-intensive industries are already starting to face litigation concerning corporate contributions to global climate change. For example, in July 2005, eight state attorneys general, the City of New York, and three land trusts brought suit against the five largest electric utilities in the US, on the grounds that they were substantial contributors to the “public nuisance” of global warming. The plaintiffs are seeking to have the utilities reduce their emissions. These and other similar cases pose a significant risk to businesses. Should the courts find against companies in such cases, the potential liability is immense. Even if some of the suits are unsuccessful, the costs of litigation and the reputation damage incurred by companies involved could be damaging in their own right⁵⁰.

All of these factors will increase volatility of market values of companies and increase the risks for investors. A company’s climate risk preparedness will be a key factor in determining its ability to compete globally and domestically. Companies that have not begun to adapt to changing consumer and regulatory demands might find themselves lagging behind their industry peers. Therefore, making investment decisions based on how well companies are managing their climate risks will benefit investors over the long-term.

⁵⁰ INCR website, <http://www.incr.com/NETCOMMUNITY/Page.aspx?pid=253&srcid=198>

Opportunities for SWF investors

Several leading fund management companies are already examining ways to develop risk management programs and innovative new solutions that not only promote greenhouse gas emissions reductions but also provide new business opportunities. Even so, the severity of the climate change challenge requires even more action from the investment community in the near future. This is where SWFs can step in and take a leadership role to move the investment community in the right direction.

While institutional investor awareness of climate risk has increased dramatically through various initiatives, only a tiny handful have moved beyond rhetoric and shareholder resolutions to take concrete investment action. Innovest currently estimates that far less than 0.1% of the CDP signatories' US\$57 trillion+ in assets is currently guided by any investment strategy which explicitly and systematically takes climate risk into account. Even fewer have guidelines that see climate mitigation as an *opportunity* and select companies that are potential winners in a low carbon economy. Yet, current policy recommendations are pushing for strong and early action from both government and private sector in order to reduce GHG emissions and limit costs.

As a result, significant upside opportunities exist for investors willing to branch out and be first-movers in addressing the climate risk and opportunity challenge. Opportunities can be exploited by SWFs by using SRI techniques in at least three ways⁵¹:

1. Incorporate climate risk exposure into valuation and asset allocation decisions to invest in companies with superior management of climate-driven risks *and* opportunities.
2. Engage strategically with companies to encourage greater corporate disclosure and better climate risk and opportunity management
3. Extend scope of investing into clean technology and renewable energy development

These opportunities are not mutually exclusive; in fact, a strategy incorporating elements of each of these opportunities will allow an investor to maximise their chances for greater returns in the low carbon future.

Valuation and stock selection based on superior climate risk management

Based on good research and SRI strategies, SWFs can incorporate climate risk considerations directly and systematically into their actual stock selection and portfolio construction processes. It is at this level that investors can send the strongest message to companies, produce significantly changed company behaviour, and, most importantly, improve their long-term, risk-adjusted returns.

Currently, many investors are simply relying on companies' voluntary public disclosures about their "carbon footprint" as the sole or even primary basis for stock

⁵¹ This study focuses on options based on equities since this is the most significant asset class for most SWFs and public pension funds. There are many other asset classes such as fixed income and commodities that present attractive investment opportunities, but discussion of these are beyond the scope of this research.

selection and portfolio construction. This is not effective for several reasons. First, disclosed information is notoriously unreliable, inconsistently reported across companies and over time, and generally not validated by independent third parties. Secondly, carbon footprints must be placed in geographical context since carbon emissions have very different regulatory, financial, and strategic implications depending on where they occur. Research also suggests that the relationship between companies' carbon footprints and their financial performance is frequently a counter-intuitive one – that is, contrary to widespread belief, the larger the carbon footprint, the better the financial returns. Finally, emissions data alone – if it is available at all, and even where it has been analysed properly, provides less than 25% of the information a sophisticated investor requires.

While disclosure is a positive first step, taken by itself it misses other important dimensions of risk and opportunities. To move beyond this, investors can use a variety of the SRI approaches described in Chapter 2 for stock selection. A particularly useful methodology for SWFs is the best-in-class approach, which allows investors to assess the relative performance and strategic positioning of any individual company within a sector. Because SWFs often have higher risk aversion and spread their investments across many sectors to maintain portfolio balance, the best-in-class approach allows them to seek out best-performing companies without excluding entire sectors. Robust analyses, such as Innovest's Carbon Beta™ platform that considers risk exposures, risk management capabilities *and* market-driven upside opportunities, can also allow investors to make more informed decisions.

There is increasing evidence showing that superior performance in managing climate risk and opportunities is a useful proxy for superior, more strategic corporate management, and therefore for superior financial performance and shareholder value-creation. These opportunities are discussed in more detail in the next section. In the longer term, the out-performance potential will become even greater as the capital markets become more fully sensitised to the financial and competitive consequences of environmental and climate change considerations

Engagement

For institutional investors, engagement with investee companies on their exposure to, and management of, climate change related risks is an effective way to start addressing climate change risks in the equity portfolio. Given that climate change is a long term challenge, it can be difficult to integrate directly into investment decision-making without compromising day-to-day investment choices. This makes engagement a good strategy: it will not affect short term investment returns. Engagement also encourages change and gives companies a chance internally to address the risks they face before any investment decisions are made.

As described earlier, engagement and shareholder advocacy involves many activities. One example is for investors to vote in support of climate resolutions in order to protect and enhance shareholder value as well as promote environmental and social sustainability. Another example is collaboration with other investors to communicate shared concerns with companies or to highlight a collective position on investment risk issues. By combining expertise and shareholdings, investors are

better able to understand climate change risks and take a more strategic approach to engagement. The initiatives highlighted earlier such as INCR and IIGCC provide a forum for investors to participate in these activities.

Investment in clean technology and renewable energy

Evidence shows that significant reductions in GHG emissions can be achieved through the introduction of low-carbon and energy efficiency technologies. Institutional investors have an important role to play in facilitating and channelling capital to these types of projects, and thus mitigating climate risks.

Investing in the clean technology and renewable energy sectors can not only help to address climate change issues, it can provide investors with above-average returns. The FTSE Environmental Technology (ET) 50 Index comprises the 50 largest pure play environmental technology companies, by full market capitalisation, globally. As the table below shows, the FTSE ET50 has out-performed the Global All Cap Index consecutive for the past 5 years, delivering 31.7% return each year versus only 19.7%.

FIGURE 12 Performance of FTSE ET 50 Index compared with benchmark

% return	3M	6M	12M	3YR	5YR	5YR- %pa
FTSE ET50 Index	15.8	28.5	72.3	161.7	295.9	31.7
FTSE Global All Cap Index	-1.7	1.5	12.3	54.0	145.6	19.7

Source: FTSE Group and Thomson Datastream, data as of 31 December 2007

One example of a successful clean tech company is Suzlon Energy Limited, an Indian-based pioneer in end-to-end wind power solutions and ranks as the fifth leading supplier of wind turbines in the world. The company was established in 1995 and has grown to become a global corporation with operations across 5 continents and many more countries, and a workforce of over 13,000 people from over 14 nationalities.

Clean tech companies are also contributing to the growth of economies. These companies are investing in new plants and technologies, delivering R&D and thus becoming more and more profitable, creating economic wealth and making shareholders happy. A German government-commissioned report showed that, over the past five years, new renewable energy companies created 214,000 jobs, mostly in regions where unemployment was high. In 2006, €9 billion (US\$11.3 billion) of investment was attracted to create new plants in Germany. For the state, there was a cost – €3 billion (US\$3.8 billion) distributed as subsidies – but it was offset by the creation of €9 billion in total wealth (less energy consumption, less oil imports etc). The net gain for the country is therefore €6 billion (US\$7.5 billion)⁵². Thus, clean technology investments provide benefits not only to shareholders, but also to the greater economy, and are in line with long-term investment goals.

⁵² Responsible Investor 2007

While investment capital flowing into renewable energy is increasing rapidly (jumping from US\$33 billion in 2004 to US\$148 billion in 2007)⁵³, these are modest in comparison with the scale of the climate change problem and future energy investment needs. The International Energy Agency estimates that US\$17 trillion of investment⁵⁴ will be required in the energy sector from now until 2030. The UNEP Global Trends in Sustainable Energy Investment 2008 report states that investment in the sustainable energy sectors must continue to grow strongly if targets for GHG reductions and renewables and efficiency increases are to be met. SWFs, therefore, can direct more capital in these sectors, gain excellent returns and facilitate the transition to a more sustainable future all at the same time.

Examples of investor approaches to climate change

Several institutions are already applying the strategies described above and have developed specific products using climate change considerations. The table below summarizes some their funds. For more information on these funds, please see the Appendix.

FIGURE 13 Summary of institutions incorporating sustainability themes into investments

Institution	Fund	Innovative Characteristics
Henderson Global Investors (UK)	Industries of the Future	Seeks to invest in companies that contribute to, benefit from and best adapt to the shift to an environmentally sustainable and socially responsible global economy
Allianz RCM (UK)	Global Eco Trends Fund	Targets selected companies within the themes of eco energy, pollution control and clean water
Jupiter (UK)	Jupiter Ecology Fund	Fund utilises are rigorous ethical exclusions on the companies it can invest in, while actively focusing on six green investment themes: clean energy; water management; green transport; waste management; sustainable living; and the beneficiaries of regulation.
Banco Fonder AB (Sweden)	Banco Svensk Miljö (Environment Fund)	Uses best-in-class approach to select sustainable companies; Conducts carbon audit of fund then purchases emissions credits to offset impact

Source: Company websites, annual reports and fund documentation

While these funds are a good start in the right direction towards a low carbon future, many of them remain relatively small funds and represent only a handful amongst thousands of traditional funds. With much larger pools of capital, SWFs can take leadership and setup larger funds with only a small proportion of their assets, and generate positive returns. Taking it one step further, they have the ability to encourage companies to reconsider their carbon dependency and re-evaluate their existing business models in order to accelerate the transition to a low carbon economy. By doing so, SWFs would influence many other market players to move in this direction.

⁵³ UNEP 2008
⁵⁴ UNEPFI 2007

3.2 THE NEXT STEP: A NEW INVESTMENT PARADIGM IN A LOW CARBON FUTURE

As mentioned earlier, in the global economy of the 21st century several mega trends are increasing the pressure on companies to reconsider the business-as-usual scenario. Companies now have an imperative to adopt innovative approaches in their business activities in order to capture new potential profits in the transitioning economy or risk being left behind. How rapidly this transition takes place will depend partly on the financial sector, which dictates how much capital is available to pursue these innovative projects and companies.

The business value of innovation is well recognised. Most leading companies emphasise their innovation focus and strengths in external communication and for internal motivation. Although notoriously difficult to measure, the premise that effective innovation creates company value – in terms of additional sales or profits – is now generally taken as a given. Research by Arthur D. Little⁵⁵ has shown that innovative firms achieve on average a six-times-higher EBIT margin, and a growth rate that is 13% higher, than the underperformers’.

Leading companies also understand the importance of being seen to be innovative, because a reputation for being innovative enhances a company’s reputation – among investors, customers, business and government partners, staff and target recruits – and thereby generates additional value. Innovation will be an especially important factor in helping companies adapt to more sustainable business activities in the future.

Although innovation should be a critical theme for companies and investors, historically it has been low on the corporate governance agenda. Larger corporations have often been reluctant to launch new, niche market solutions, for fear of undermining their core revenue streams from traditional products and services. In turn, major investors have not always been adept at identifying whether the companies in which they invest are acting on the growing need to develop energy and resource efficient products, technologies and operational processes.

In this section, we highlight three themes of innovation that are paving the way for companies to reap even greater profits in the low carbon future⁵⁶:

- » **Product and process innovation** – a involves the introduction of a new good or production process or delivery methodology that is new or substantially improved (e.g. environmental technologies that increase energy efficiency)
- » **New market innovation** – involves launching an entirely novel product or service rather than providing improved products & services along the same lines as currently (e.g. renewable energy and alternative energy)
- » **Business model innovation** – involves changing the way business is done in terms of capturing value (e.g. shifting from delivering a stand-alone product to a full service business)

⁵⁵ Keeble et al 2007

⁵⁶ Adapted from Doblin Inc., *The Ten Types of Innovation*TM: <http://www.doblin.com/ideas/TenTypesOverview.html>

Innovation should interest investors because it is a key driver in effectively growing market share, nurturing revenues and therefore increasing returns. All organisations can innovate, including large scale companies and not just small, start up firms. Thus, investors have many opportunities to incorporate these emerging themes into their investment decisions by applying SRI selection criteria that reflect these innovative characteristics across their entire portfolio and/or by creating specific indices or thematic funds to invest in. Investors can also encourage companies to innovate in sustainable ways through strategic engagement.

The following describes how each of these themes of innovation is essential for a low carbon economy and explains how they can be integrated into investment strategies and quicken the pace for creating a sustainable future.

From risk to profit - resource efficiency as a driver for innovation

Product and process innovations are the easiest to execute and involve the least amount of risk. Taking a resource-based view, a proactive environmental policy within companies ultimately requires a structural change in production and delivery processes. This redesign involves the development, acquisition and implementation of new technologies and may lead to economic advantages vis-à-vis competitors. Product and process innovations are thus incremental and can be a first step in addressing future sustainability.

Innovation in environmental technologies is especially important because of rising regulations and market constraints and increasing awareness of the environmental impacts of businesses. These are technologies designed to prevent or reduce environmental impacts, at any stage of the life cycle of the product or activity. The specific applications we now find in environmental technologies stem from older ideas about cleaning up dirty industries to more recent ideas of pollution prevention and reducing GHG emissions.

Environmental technologies currently include technologies that address the following broad themes:

- » **Dirty industry modifications.** Technologies that aim at cleaning up previously dirty industries where pollution is already released. For example, technologies that remediate contaminated land (e.g. soil surveys and purification solutions of Nippon Steel).
- » **Cleaner substitutes.** Provide cleaner substitutes to existing technologies or materials, often using the same infrastructure. Examples include biofuels like ethanol, or low toxic auto paints (e.g. Bayer's new waterborne automotive coating system).
- » **End of pipe.** Technologies that reduce or control environmental harm or externalities associated with industrial manufacturing. Examples include filters or scrubbers on smoke stacks (e.g. Alstom emissions reduction technologies and scrubbers to remove SO_x, NO_x) or catalytic converters on car exhaust.

- » **Efficiency.** Enhance efficiency of existing processes – so that fewer inputs used leads to reduced outputs. Examples include energy efficient lighting (e.g. Philips Green Flagship products) and building materials that enhance thermal efficiency.
- » **Pollution prevention.** Eliminate pollution—for example using sensors and monitors to optimise process inputs in order to reduce NOx or other emissions (e.g. Johnson Controls products).
- » **Industrial ecology.** Models of efficient use of resources, energy and waste in a system-setting using closed-loop design. An example of this would be taking waste, energy or other materials and turning it into a feedstock (e.g. BASF Verbund initiative).

Companies that integrate these technologies into their operations can reduce significant costs associated with climate change risks as well as capture market share. The automotive sector is an example of one sector that is seeing a realignment of the competitive landscape, and is particularly exposed to environmental technology choices and positioning. In a low carbon future, the success of most automakers (excluding certain niche manufacturers) will be determined heavily by their capacity to produce automobiles for a market with high fuel prices and tight regulations. Thus, looking at how auto companies approach fuel economy in the design of their fleet, invest in new powertrain technologies and manage supply chains can reveal who will be winners in a sustainable future.

A clear leader in the auto sector on the product innovation front in terms of sustainability is Honda. Honda is the industry's leading developer of environmental technologies, followed closely by Toyota. Honda has had an excellent record of commercializing leading-edge technologies, such as launching the first hybrid vehicle, (the 70mpg Insight) in the U.S. The company has set high standards of fuel efficiency as a core quality for all Honda products from motorcycles, to cars, to power products. As oil prices rise and regulators respond to climate change this will become a significant continuing source of profitability and brand value for the company.

In fact, the company was the first to demonstrate publicly a fuel cell vehicle and is a leader in fuel cell technology; and is readying a proprietary super high mileage clean diesel engine for 2009. Relative to its competitors in this sector, Honda is one of the top leaders in terms of strategic recognition of the business case for addressing climate change. Honda's future growth strategy focuses on small cars, bucking the trend of other automotive companies that are still investing in SUVs for future revenues. It has maintained fuel efficiency as a central tenant of product development regardless of customer demand. As fuel prices have risen, fuel economy has been a direct benefit to the company's bottom line. As a result, Honda has successfully positioned itself as a top competitor in the upcoming carbon constrained economy.

Investment idea #1: Low Carbon Lock-in Index

Using innovation in environmental technology as a basis, this index would select companies that are investing in and contributing to long-term solutions essential for a low-carbon future. Moving beyond just measuring the carbon footprint of

companies, the index would identify companies with superior carbon management in place and those that are relatively better positioned to benefit from low carbon regimes in the long-term, with the potential to generate additional alpha. Those companies that are adapting production technologies and developing products that will help society move toward a low carbon economy will score higher. Those companies that have poorly developed (or absent) mechanisms to adapt to carbon risks and perpetuate high-carbon dependency will be avoided.

An example of a tool that could be used to develop this index is the Carbon Beta™ platform⁵⁷ which examines several different dimensions of a company's management of carbon issues in order to identify out-performing companies. The tool evaluates the carbon risks a company faces (calculating the costs of adapting to new environmental and carbon-constrained regulatory landscapes), how a company manages those risks and how it positions itself to benefit from potential opportunities. The Low Carbon Lock-in Index would specifically highlight this last pillar and analyse a company's ability to profit from carbonless products and services, its R&D and strategic partnerships on climate change, its emission trading competence, and its ability to monetize environmental attributes in emerging commodity trading markets. Those companies that pursue profit opportunities that lock society into a carbon intensive development path would be especially avoided.

Taking the steel sector as an example, Carbon Beta™ identifies Kobe Steel as a leader in capturing carbon strategic opportunities. Kobe Steel's carbon management strategy is above average for the sector, focusing on energy efficiency and recycling. The company is working to commercialize technology to achieve zero emissions in steel mills through the full utilization of mill dust. Kobe Steel has also focused on creating and increasing its "Number One, Only One" eco-efficient products. The company has integrated its manufacturing and engineering technologies, systems and know-how to provide eco-friendly materials and products. Leading efforts in product development include the creation of ultra-high strength steel that is lighter and stronger, the dispensing of chromate treatment in electro-galvanized steel sheet, and waste generation through the development of new technologies for difficult-to-recycle waste.

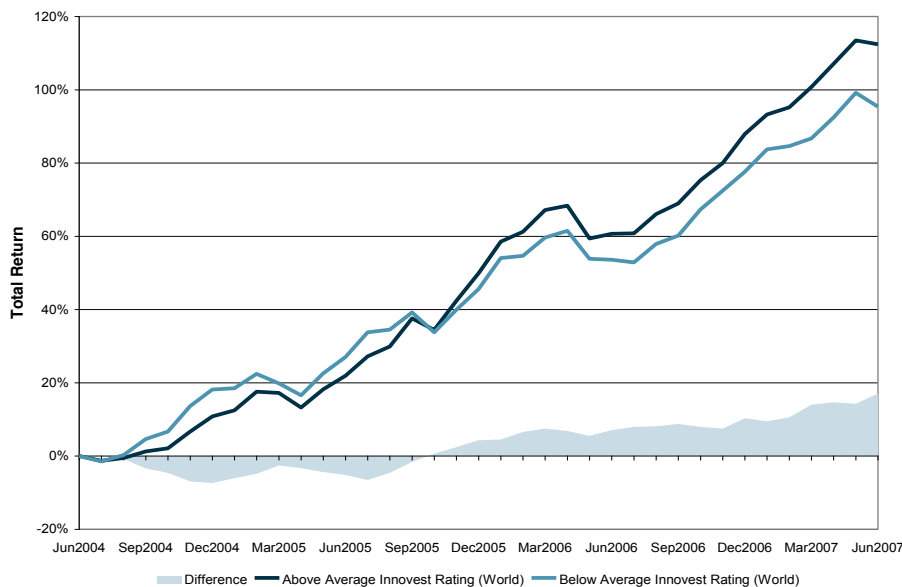
On the flipside, Carbon Beta™ gives Spanish steelmaker Acerinox SA a low rating. Acerinox's carbon strategy is below average for the sector. The company does not disclose a formal environmental or climate change policy, nor does it disclose a formal strategy or targets in relation to the business impacts of climate change. Acerinox also does not actively market its products from an environmental perspective and may be missing opportunities relative to sector leaders, especially in Europe where environmental requirements are higher.

In terms of returns, Figure 14 shows that companies rated under the Carbon Beta™ platform as top carbon performers surpassed the return of companies rated as below average from June 2004 to June 2007 by an annualised rate of return of 3.06% (a cumulative total return of 81.85% compared to 72.67%).

⁵⁷ Proprietary methodology developed by Innovest

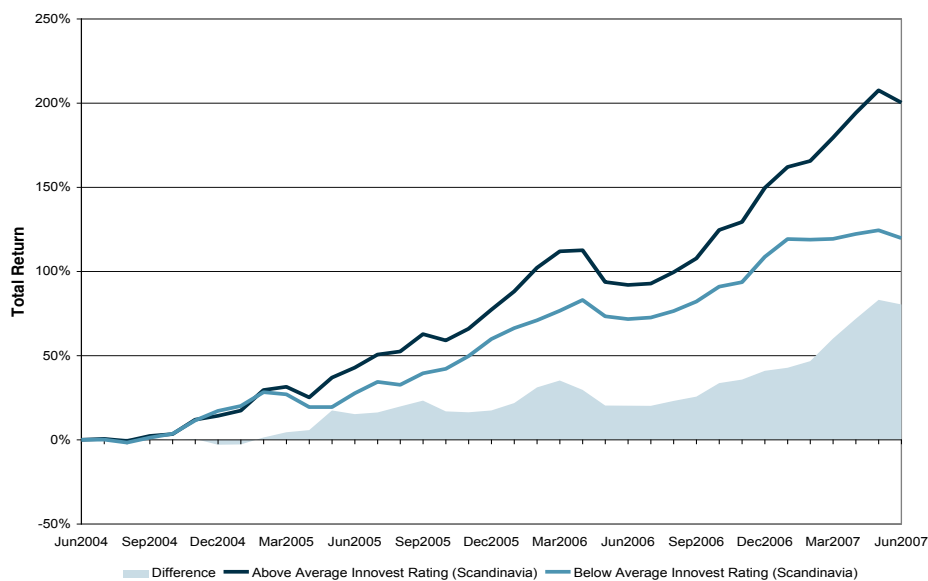
For the Scandinavian case, the out-performance is even greater (see Figure 15 below). Companies rated under the Carbon Beta™ platform as top carbon performers surpassed the return of companies rated as below average from June 2004 to June 2007 by an annualised rate of return of 11.00% (a cumulative total return of 114.59% compared to 81.59%).

FIGURE 14 Carbon Beta™ Performers vs. Laggards Globally



Source: Innovest; The selected period was chosen due to the fact that only in 2005 the first significant carbon restricting regulation took place in Europe. Therefore, it is most likely that the market started capturing the climate change effects on the perceived value and risk of a company and sector at this time. For the purposes of this study, "top carbon performers" were defined as those achieving an Innovest Carbon Beta™ rating of BBB "investment grade" or better.

FIGURE 15 Carbon Beta™ Performers vs. Laggards Scandinavia



Source: Innovest

As an example, JPMorgan Chase launched in February 2007 the first high-grade corporate bond benchmark index, the JENI-Carbon Beta Index, designed to address the risks and opportunities of climate change in a rigorous way⁵⁸. Other investors could launch similar indices for equities in specific regions, or even specific sectors to reward companies who are helping to transform society to become carbon-independent.

Redefining markets – looking for tomorrow

New market innovation involves introducing a different product or service within the same line of business, such as the movement of utility company from coal-powered plants to wind farms. It is often called 'substantial' innovation since it typically involves more risk than product or process innovation and accepting uncertain future returns. However, it can deliver significant rewards when it does succeed.

In terms of climate change opportunities, these are typically related to products and services focusing on renewable and alternative energy sources. Investments in providers of renewable and alternative energy have historically been the preserve of specialist investors, making investments in so-called 'pure-play' companies. In recent years, however, there has been a surge in investment in these areas. In 2007 global investment in sustainable energy broke all previous records, with \$148.4 billion of new money raised, an increase of 60% over 2006⁵⁹. Furthermore, not only smaller pure-play companies are entering into these new segments. Many large cap companies are beginning to see the opportunity in venturing into these products.

Amongst large cap companies, General Electric's cleantech promotion strategy (Ecomagination launched in May 2005) is a prime example of how large firms can generate new growth, develop new markets and become more sustainable. Since the launch of Ecomagination, GE has become one of the leaders in the development of products that meet the environmental and energy efficiency specifications of customers. Products range from energy efficient lighting and locomotives to water treatment and renewable technologies. With over half of sales coming from industrial and consumer products, this is a significant contribution to the greening of the company.

Wall Street has recently expressed some concern about the ability of large companies like GE to generate new growth. But Ecomagination complements GE's overall emphasis on high growth industries, particularly given the significantly improving investment outlook for cleantech. According to the Clean Energy Trends report, clean energy markets are poised to quadruple in the next decade, growing from US\$77.3 billion in revenues in 2007 to US\$254.5 billion by 2017 in four key renewable energy sectors⁶⁰.

Collaboration amongst companies is also needed in order for these new market innovations to grow more quickly. An example of how different companies can

⁵⁸ For more information see <http://www.jpmorgan.com/pages/jpmorgan/investbk/solutions/research/jeni>

⁵⁹ As of March 2008; based on figures from UNEP Report: *Global Trends In Sustainable Energy Investment 2008*

⁶⁰ Makower et al 2008

work together can be seen in the solar energy market. Real estate company ProLogis recently announced that it is leasing 607,000 square feet (56,392 square meters) of warehouse roof space to utility company Southern California Edison to house solar panels. It will hold enough solar panels to power 1,426 households for a year, and that's just the beginning. With 179 more facilities the Southern California territory, ProLogis can offer a total of 41 million square feet (3.8 million square meters) of rooftop to the utility, which can be a significant strategic profit opportunity for the company and produce enough power for 162,000 homes⁶¹.

Investment idea #2: Low Carbon New Markets Innovation Index

This index would select companies that are implementing innovations that reduce climate risks and allow them to enter new markets in a low carbon future. It will analyse key dimensions of the innovation process, including organisational structures, R&D spends and collaboration that deliver low carbon solutions. Specifically, this index would rank companies according to their innovation in entering into new markets such as clean technology and renewable energy.

The rating model for the New Low Carbon Markets Innovation Index will attempt to balance the level of environmentally and socially driven investment risk with the companies' managerial and financial capacity to manage that risk successfully and profitably into the future. Risk alone is only one-third of the equation; what is also crucially important to investors is how well that risk is likely to be managed, and what upside profit opportunities might be created and captured. Innovest's Intangible Value Assessment methodology have been designed with these three parts of the equation in mind, and the upside profit opportunities are captured in the rating model.

Using the example of a well-known Norwegian company, it is possible to show a company is analysed according to their environmental innovation capacity, both in terms of operational performance and product development. Innovest has analysed Tandberg's performance on a range of environmental factors among others, and found that:

'The telecommunications equipment sector stands to benefit from the worldwide growth of the sustainability ethos. Concerns over the growing environmental impact of business travel create significant opportunities to develop products and services which reduce or eliminate the need for travel (e.g. teleconferencing). In the wider telecom industry, leaders are paying serious attention to these opportunities. Tandberg is very proactive in this area, marketing its videoconferencing as a 'green' technology. The company has also developed a tool for customers to calculate the environmental benefits from using its videoconferencing products. These initiatives are considered sector best practice and Tandberg is expected to gain considerable competitive advantage from its green marketing strategy going forward'.

⁶¹ For more information see <http://www.prologis.com>

Another example of a company that could be potentially selected for this index is the Daily Mail and General Trust (DMGT), a publishing company that provides media services across six divisions. Instead of focusing on just newspapers and magazines, DMGT has entered into a new market of innovative products to facilitate the environmental and terrorism risk assessment process, an increasingly high-demand and profitable business. Under its business information division, DMGI, the company has acquired and invested in several research companies that provide information on climate, energy and other environmental risks. In fact, DMGT recently appointed one of these companies (RMS) to assess the impact of climate change across the company and the related business risks (physical, regulatory and competitive) and opportunities.

A company that has incorporated new markets collaboration into their climate strategy framework is Hewlett Packard (HP). Beyond looking at its own operational efficiencies and energy efficient products, HP is now developing and providing low carbon solutions through IT services such as videoconferencing. HP has also developed a model that clarifies the importance of a strong focus on services for a low carbon economy. To amplify the impact of its efforts, HP has collaborated with industries, governments, NGOs as well as other computer companies⁶².

Investment idea #3: Low Carbon Opportunities for the Bottom of the Pyramid

New markets can also entail new segments of the market that are underserved. Based on the theory of the 'Fortune at the Bottom of the Pyramid (BoP)⁶³', this index would identify those companies that deliver environmental and price value effectively to customers in the lower-income market segments.

Half the world — nearly three billion people — live on less than two dollars a day⁶⁴. Many of the new environmentally friendly technologies and products provided by companies are beyond the reach of these people. Companies that recognize the opportunity in providing low carbon goods and services to this market segment will help to instill low-carbon structures in this segment as they move upward on the income scale (for example with regards to lighting, utilities, transport, etc.), thus contributing to a sustainable society.

Accessing and serving BoP markets constitutes an extraordinarily challenging test for companies' management quality, creativity and adaptability. Companies that can meet those challenges more effectively than their competitors are quite likely to be better managed, more forward-looking companies in general; and therefore financial out-performers as well, at least in the medium term. In that sense, leadership on this issue can be viewed as a proxy and leading indicator for companies' overall management quality.

An example of a company that could be selected for this index is Coelce, a transportation and electricity distributor in Brazil. Strongly committed to

⁶² <http://www.hp.com/hpinfo/newsroom/press/2008/080619b.html>

⁶³ Economic theory by C.K. Prahalad that argues the poorest socio-economic group is the largest and represents a profitable market segment for companies willing to respond to the needs of that market

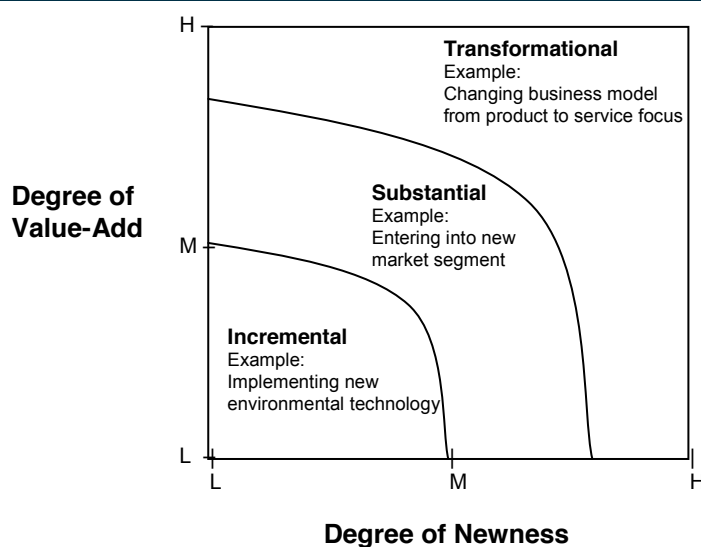
⁶⁴ United Nations Millennium Development Goals

environmental protection, the company offers low-income customers the opportunity to pay their bills with recyclable materials, a very unique and differentiating feature from other firms. Coelce provides these customers with a card which allows them to participate in the program. The company currently has 18 collection points of recyclable materials and has approximately 10,000 clients participating in this program.

From incremental to transformative changes - creating robust systems

Achieving innovation in business models involves the most risk and can be very challenging to execute successfully. It requires larger leaps of understanding, perhaps demanding a new way of seeing the whole problem. This typically means taking a much larger risk than the innovations described above and accepting uncertain future outcomes and delayed returns. Consequently, these innovations are described as transformative in nature, as opposed to incremental. The uncertainty of these innovations means fewer companies pursue transformative innovations, but for those that do succeed, the rewards can be tremendous. Figure 16 below illustrates the increasing value of these types of innovations.

FIGURE 16 Value of Transformative Innovation



Source: Innovest

Transformative innovation involves considerable change in how a company runs its business. Conducting a life cycle analysis (LCA) of a business model is one way to initiate new thinking about how a business can operate sustainably. This entails evaluating the environmental impact of each step in the life cycle of a product – from raw material production to distribution to use and disposal. Subsequently, companies can modify their business model to reduce high impact steps in the life cycle of its product. Companies can also consider ‘closing the loop’ and shift from being a product-focused business to a service-focused business that changes the natural system of operations.

For example, one of the world's largest carpet manufactures, InterfaceFlor, used a LCA to change the way it approached the carpet business. After realizing the intensity of raw materials required to make carpets and the amount of waste created when customers disposed of their carpets, InterfaceFlor evolved its business practices to become more sustainable. Instead of selling carpet as a single product to customers InterfaceFlor now sells a service of carpeted floors which provides customers with replacement carpets over time. Old carpet is collected and brought back to its recycling facility to be recycled back to its original material and resold.

In 2006, 18 million pounds was diverted from landfill and used in recycling (84%), energy capture and conversion (14%), and repurposed (2%). Interface is creating new methods of delivering value to customers, changing its purchasing practices, and supporting initiatives to bring about market-based incentives for sustainable commerce. It is focusing on the services delivered by multiple life cycles of its products. This has minimised the amount of waste that the company produces and also increased its revenue streams.

Another example of transformative innovation is how the automotive sector is approaching transportation in urban settings. In Japan several automotive companies, with support from the government, are reviewing a concept for future urban transportation systems that puts electric vehicles at its core. The system would involve automotive companies providing a car rental service for short distances so that commuters can share cars and reduce the amount of vehicles on the road.

Investment idea #4: Services for Tomorrow Index

Based on this concept of transformational innovation, the Services for Tomorrow Index would focus specifically on companies that provide services which help consumers transition to a low carbon society. The index would not only review companies in conventional service industries such as the telecommunications or hospitality sectors, but also manufacturers and other traditionally product-driven industries that could deliver services as part of a low-carbon adaptation strategy. Companies that demonstrate service and business model innovations within their industries such as InterfaceFlor will score higher. For example, videoconferencing company Tandberg would be included as they provide services to businesses that reduce business travel.

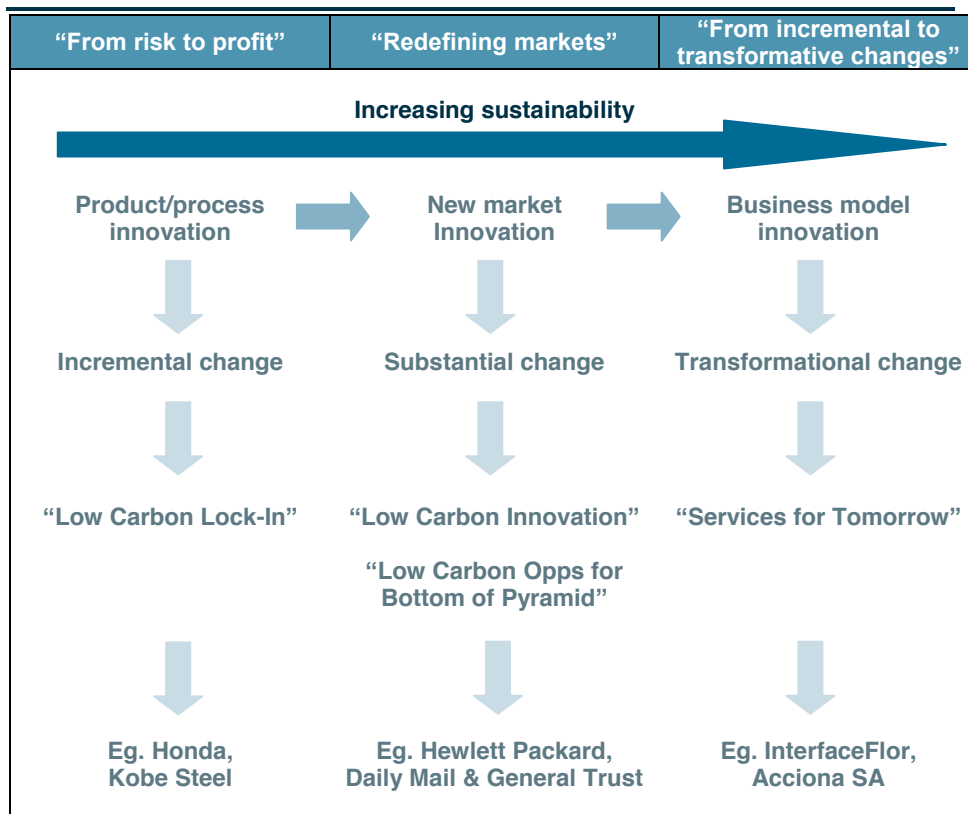
The construction and engineering sector provides a good example of how companies can be selected for implementing business model innovation in services. In the past, construction companies have followed a classical model of building and selling infrastructure, plants and properties. This short-term approach exposes companies to cyclical downturns and lowers the value of their construction. In a sustainable future, construction companies have the opportunity to capture profits by building low carbon infrastructure such as renewable energy facilities and energy efficient properties. In addition, they can change their business model from just selling what they build to owning and servicing their construction projects. This diversifies their revenue streams and provides long-term profitability while reducing their exposure to cyclical downturns.

Acciona SA, one of Spain's largest international contractors, is a pioneer in developing this new business model and has become leading player in the renewable energy market in Spain. Acciona has not only installed 4,500 megawatts of renewable energy infrastructure through solar and wind farms, but also owns and sells that electricity. The company has also bought stakes in Spain's largest utility company. As a result of this transformation, Acciona has been able to post profits of €1.4 million⁶⁵ in 2007 (23% of which came from its renewable energy arm), despite a significant decline in the building and construction sector in Spain.

SWFs as leaders in the low carbon future

The figure below provides a summary of how SWFs can take the next step to ensure a low carbon future by encouraging innovation in sustainability.

FIGURE 17 New investment paradigm in low carbon future



Source: "Fund Management in the 21st Century", Innovest and WWF (2008).

SWFs have the opportunity to develop new selection criteria to apply to their portfolios or to create indices or thematic funds around the different themes described above. These new criteria would evaluate companies based on their contributions to a sustainable, low carbon future. Then, SWFs could select the companies that are performing better on these criteria to include in their portfolio, or

⁶⁵ EBITDA

engage with companies that may be performing poorly to encourage them to become more sustainable.

By shifting even a small portion of their large pool of funds to any of these indices, SWFs can send signals to the rest of the capital markets that these are good investments. They also have the opportunity to invest thematically beyond listed equity; 'green' real estate funds are being launched, as are fixed income funds, and there is already significant opportunity in clean technology funds. Still, much more research around these themes must be undertaken. In order to meet the low carbon challenges within the next decade, investors must work with governments and other policy stakeholders to promote shifts in this direction.

4 SWF Case Study: Norway's Government Pension Fund Global and SRI

4.1 NGPFG'S CURRENT APPROACH TO RESPONSIBLE INVESTMENT

NGPFG currently follows ethical guidelines that were laid down by the Ministry of Finance in 2004. The ethical guidelines for NGPFG are premised on the fund having two fundamental ethical obligations: a) to ensure the owners of the fund (i.e. current and future generations of Norwegians) achieve favourable long-term returns and b) to avoid investments that entail an unacceptable risk that the fund contributes to certain specified gross or serious ethical violations.

To achieve its goals, NGPFG currently utilises two SRI techniques to promote its ethical guidelines:

1. **Shareholder advocacy and engagement** – NGPFG exercises its ownership rights to ensure the fundamental rights of the owners are observed, and to encourage responsible corporate behaviour, with a special focus on good corporate management, the rights of children and protection of the environment. Norges Bank is responsible for these activities which include proxy voting and engaging in dialogue with companies to improve corporate behaviour.
2. **Negative screening** – NGPFG does not invest in companies that either themselves, or through entities they control, produce weapons which violate fundamental humanitarian principles. It also excludes companies where there is considered to be an unacceptable risk of contributing to grossly unethical conduct. This applies to companies that contribute to serious or systematic human rights violations, serious violations of individuals' rights in situations of war or conflict, severe environmental damage, gross corruption and other particularly serious violations of fundamental ethical norms.

A Council on Ethics provides recommendations on filtration and exclusion, but the decision as to whether a company shall be excluded lies with the Ministry of Finance. The Ministry of Finance bases its decision on the Council's assessment, but will also attach weight to Norges Bank's views as to whether the Bank may, through its ownership effort, reduce the risk of complicity in grossly unethical conduct.

At present, only 28 companies have been excluded from the investment universe of NGPFG. The majority (20) of the companies have been excluded because they contribute to the production of inhumane types of weapons. The remaining companies are excluded to avoid an unacceptable risk that NGPFG will contribute

to serious or systematic human rights violations and severe environmental damage. Figure 18 below lists all of the companies that NGPFG excludes from its portfolio. In 2007, Norway amended its ethical guidelines to prohibit investments in Burmese state-owned enterprises or enterprises engaged in the extraction of timber, metals, minerals and gemstones.

FIGURE 18 Companies excluded from the portfolio of NGPFG

Reason	Date	Company
Antipersonnel land mines	26 April 2002	Singapore Technologies Engineering
Cluster munitions	31 August 2005	Alliant Techsystems Inc, General Dynamics Corporation, L3 Communications Holdings Inc., Lockheed Martin Corp., Poongsan Corp., Raytheon Co., Thales SA
	30 November 2006	Poongsan Corporation
	31 December 2007	Hanwha Corporation
Nuclear arms	31 December 2005	BAE Systems Plc, Boeing Co., EADS Co ¹ , EADS Finance BV, Finmeccanica Sp. A., Honeywell International Corp., Northrop Grumman Corp., Safran SA., United Technologies Corp
	31 December 2007	Gen Corp. Inc., Serco Group Plc.
Human rights violation	31 May 2006	Wal-Mart Stores Inc. and Wal-Mart de Mexico SA de CV
Environmental damage	31 May 2006	Freeport McMoRan Copper & Gold Inc.
	31 March 2007	DRD Gold Ltd.
	31 October 2007	Vedanta Resources Plc., Sterlite Industries Ltd., Madras Aluminium Company
	September 2008	Rio Tinto

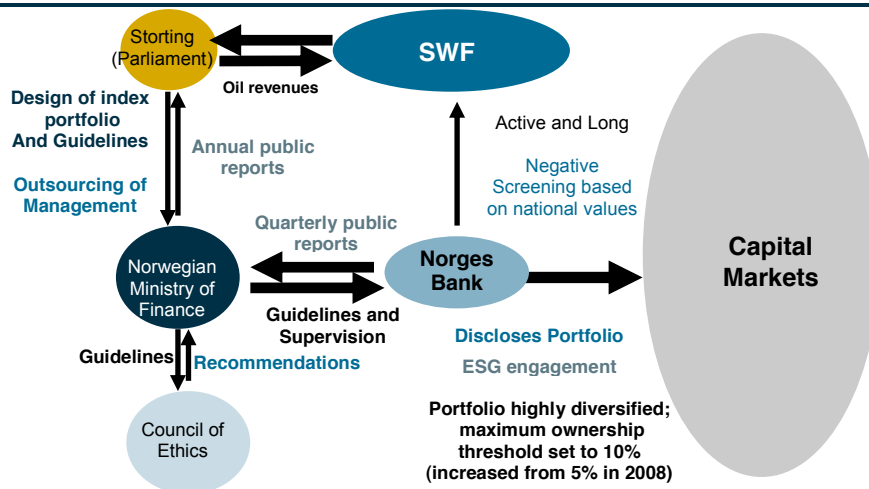
Source: Norway Ministry of Finance

In terms of shareholder engagement, Norges Bank has continued contact with about 60 companies on issues relating to social matters, with a focus on child labour and the rights of children. The Bank has prepared a document titled “NBIM Investor Expectations on Children’s Rights”, in order to highlight the position and expectations of Norges Bank in relation to this area. The document is based on the UN Convention on the Rights of the Child, as well as the ILO conventions on child labour.

In March 2008, NGPFG continued its trend of openness by publishing for the first time its annual shareholder voting record at each company in which it invests. Norges Bank sees “voting as one of the most important tools an owner has to influence company boards.” For example, at ExxonMobil and Ford Motor Co, Norges Bank voted its shares in favour of shareholder resolutions, opposed by the boards, calling for the companies to adopt CO₂ emission reduction goals. However, the resolutions were defeated by majorities of 93% and 86% respectively.

The figure below provides a summary of the relationships between the different institutions that are involved with NGPFG and SRI.

FIGURE 19 Summary of NGPFG approach to SRI



Source: Innovest

How well is NGPFG doing compared to its peers?

Norway's Government Pension Fund Global is often highlighted as a model for other SWFs because of its openness and transparency. In comparison to other SWFs, NGPFG has demonstrated a high degree of transparency in all aspects of its operation, including its role as an investor with non-strategic holdings, its explicit aim to maximise financial returns and the clear lines of responsibility between political authorities and the management of the fund.

In terms of consideration of ESG issues in investments, NGPFG ranks high amongst its SWF peers, but that is not necessarily a meaningful benchmark since all SWFs, including the NGPFG, significantly lag behind other large institutional investors such as public pension funds in terms of exercising SRI best practices.

The table below summarises the SRI practices of selected public pension funds and SWFs and shows that only one SWF has earmarked part of its capital for environment related investments. Moreover, the overall level of integration of ESG factors in investment practices seems low, and engagement activities by SWFs tend to be limited and not as comprehensive as those of other fund managers.

One exception, and a leader in SRI practices amongst SWFs, is the New Zealand Superannuation (NZS) Fund. It utilises a range of SRI strategies, focusing on engagement and collaboration with other investors rather than negative screening. The NZS Fund also publicly discloses its proxy voting activities and reports on its SRI actions on a regular basis. Box 4.1 provides more detail on the NZS Fund.

There also seems to be growing interest in SRI amongst SWFs. For example, the Chinese Investment Corporation recently announced that it will invest in

environment-friendly technologies and in addition, it will negatively screen its portfolio for arms and gambling⁶⁶.

FIGURE 20 SRI Practices of selected SWFs and Public Pension Funds

	Size (bn US\$)	Launch Date	Source of Capital	Negative Screening	Positive Screening	Engage Activity	Environ-Related Invest	Reporting on SRI activities
ABP (Netherlands)	311	1922	Contributions	Yes	Yes	Yes	Yes	Yes
CalPERS	230	1932	Contributions	Yes	Yes	Yes	Yes	Yes
UK Environment Agency Pension Fund	2	1993	Contributions	Yes	Yes	Yes	Yes	Yes
UK Universities Superannuation Scheme	60	1975	Contributions	No	Yes	Yes	No	Yes
New Zealand Superannuation Fund	13.8	2003	Non-Comm	Yes	No	Yes	No	Yes
Norwegian Global Pension Fund	396	1990	Oil	Yes	No	Yes	No	Yes
Chinese Investment Corporation	200	2007	Non-Comm	Yes	No	No	Yes	No
Kuwait Investment Authority	264	1953	Oil	Yes	No	No	No	No
GIC (Singapore)	330	1981	Non-Comm	No	No	No	No	No
Stabilization Fund of the Russian Federation	32	2007	Oil	No	No	No	No	No
Abu Dhabi Investment Authority	875	1976	Oil	No	No	N/A	No	No

Funds in bold are public pension funds; Compiled from various sources by Innovest
Source: "Fund Management in the 21st Century", Innovest and WWF (2008).

NGPFG indicates that it takes its role on responsible investing seriously, with the government noting it has excluded 27 companies from its total universe of equities. In addition, Norges Bank has strengthened its role as an active share owner in 2007. The level of direct dialogue with companies in the portfolio was stepped up, and the firm voted on more than 38,000 proposals at more than 4,200 companies in 2007, with details of all of its voting decisions during the year published on its website.

⁶⁶ Chen 2008

While voting on shareholder proposals is important, NGPFG has yet to engage strategically with a large number of companies to change company behaviour. Furthermore, NGPFG currently does not employ a positive screening mechanism or the best-in-class approach to select companies. Its threshold for excluding a company from NGPFG is also very high which yields only a handful of excluded companies.

In a letter to the UK's Financial Times in February 2008, Robert Strand, professor of corporate responsibility and business ethics at University of Minnesota, suggested NGPFG should move to a positive screening approach. Strand, who was a former US Fulbright scholar to Norway, praised the Ministry for its *"transparent management"*, but described its screening technique as an *"approach [which] represents a century-old practice that seeks to exclude companies deemed bad because of what they produce or how they produce it"*.

Current best practices amongst industry leaders and global initiatives such as the UNPRI emphasise the importance of using a combination of SRI strategies that move beyond just negative screening in order to generate greater impacts on sustainability issues. The well-established SRI techniques highlighted above further demonstrate that there are many ways to successfully incorporate ESG issues into investments. This means that NGPFG has much room for improvement in investing for economic as well as environmental and social aims already in the short-term.

Box 4.1: New Zealand Superannuation Fund

The New Zealand Superannuation Fund is a sovereign wealth fund with assets of NZD 14.7 billion created to partially provide for the future cost of funding New Zealand pension payments. The NZS Fund implements a responsible investment policy through a number of processes including direct engagement with companies, working with investment managers, and participating in joint shareholder initiatives. The NZS Fund believes it can, in most instances, have a greater impact on company practices through dialogue with company management than through divestment, which it uses as a 'last resort' tool. The NZS Fund also has an active corporate governance and proxy voting policy that provides the mechanism by which shareowners can hold boards accountable.

In terms of transparency for SRI, the NZS Fund is the most transparent of all the SWFs. Regular SRI updates, practice reports and proxy voting reports are posted on the NZS Fund's website. The NZS Fund also participates in international forums to maintain and develop best practice in the SRI field. In fact, it was a founding signatory for the UN PRI and collaborates often with other signatories to engage with companies on a variety of ESG issues. The NZS Fund also reviews its SRI policy regularly and increased its alternative investments.

4.2 NGPFG AND ITS CARBON PROFILE

As a SWF that collects petroleum revenues, NGPFG has an imperative to respond to climate change risks in order to meet its objectives of providing a sustainable future for Norwegian generations to come. But how is NGPFG meeting the challenges of climate change currently? To answer this we must look at the indirect environmental impacts associated with NGPFG investments, which are more significant than the direct environmental impacts of NGPFG's own operations such as energy efficiency in buildings or recycling activities.

Although Norges Bank lists all of NGPFG holdings publicly on its website, an analysis of its portfolio would not be meaningful since the fund holds over 7,000 stocks with small positions in most large-cap global companies in the major indices. Thus in this section we evaluate NGPFG's strategies in approaching climate change, analysing how it is selecting companies to be included in its portfolio and in managing its investments.

Norway is a signatory to the Kyoto Protocol and has a well-developed climate change policy. In fact, its Prime Minister Jens Stoltenberg announced recently that Norway will take the lead in international climate change efforts and committed to reducing GHG emissions by 30% by 2020. In the period up to 2050, Norway will undertake to reduce global GHG emissions equivalent to 100% of its own emissions – aiming to be carbon neutral at that point.

Nevertheless, these ambitious targets for tackling climate change have yet to filter into the investment activities of NGPFG. While the NGPFG does highlight climate change as one of the areas it considers in its ethical guidelines, the extent to which it is integrating climate change considerations into its investment strategies and decision-making appears limited, not yet systematic and at a very early stage of development.

So far most of the discussions about the relationship between the Norwegian Government, its pension fund, investments and sustainability has focused on negative filtration and so called "active ownership". Negative criteria, that exclude a few companies, are often a good thing to safeguard against financial risks as well as ensure that basic ethical guidelines are followed. It helps raise the bar for acceptable conduct but does not really contribute to changing unsustainable mainstream business practices. Under its current Ethical Guidelines, NGPFG has only excluded five companies for environmental reasons. This hardly sends a signal to other companies that climate change is a serious issue for NGPFG,

"Active ownership" is a positive contribution to improve harmful business practices as well, but an engagement strategy can also be very labour intensive, can only be targeted at small numbers of investee companies in a meaningful way and it is not always easy to measure results. NGPFG engagement efforts tend to focus on voting on shareholder resolutions to prevent violations of basic ecological and social sustainability criteria. It has strategically engaged with only a small number of companies to change behaviour.

Moreover, Norges Bank only recently joined the Carbon Disclosure Project, which encourages companies to be more open in the effort to cut emissions. Norges Bank reports that it has analysed more than 100 companies in the portfolio to identify those companies that are the most active when it comes to contact with government authorities on climate issues. It has approached 20 companies and held meetings with 15 of these to emphasise technology development and adaptation to new emission and tax regimes, in addition to the positions of the companies in their contacts with government authorities.

These efforts are commendable, but do not represent anything beyond status quo in terms of actively addressing climate change issues. While NGPFG has been in contact with 60 companies for social issues and 20 firms for climate change related

issues, this number of companies represents only a very small fraction – less than 2% – of the overall number of companies in the fund.

Overall, NGPFG's strategy for approaching climate change rates poorly when compared to other institutional investors and does not reflect the ambitious goals of the Norwegian government. It has demonstrated a limited use of SRI techniques that are reliant on negative screening and restricted engagement, which is counter to recent trends in both the mainstream and the SRI markets. Furthermore, NGPFG's investment strategy has failed to avoid many of the climate risks faced by investors or to capture any of the upside opportunities that a low carbon future presents.

Ragnar Torvik of the Norwegian University of Science and Technology argues that since the Norwegian Government is extracting petroleum at a faster pace compared to others and using those revenues in order to secure national wealth, it does not make sense for NGPFG to invest in oil sectors or oil-dependent sectors⁶⁷. In order to hedge its risks NGPFG should invest in sectors that will counter-balance down cycles in the oil sector. This is an argument for increasing NGPFG investments in renewable energy and low carbon development. Moreover, as NGPFG is based on petroleum revenues and therefore linked to the global warming problem, it would be natural for NGPFG to create a thematic energy efficiency and renewable energy fund as a key SRI practice.

With the current Ethical Guidelines under review, NGPFG has the opportunity to re-evaluate its investment policies and take a step closer to a more comprehensive approach to tackling climate change.

⁶⁷ Torvik 2007

5 Conclusions: Fund management in the 21st Century

SRI is growing rapidly in the global investment community, reflecting an increasing understanding in the market that there is not necessarily a conflict between SRI and ROI. Such an understanding is backed by recent studies and models demonstrating that companies with higher ESG standards tend to have lower risk exposure in financial markets.

New and emerging research models now also show that companies with superior carbon management practices can out-perform laggards, both at the global level and in a regional context – notably in Scandinavia.

In the transition towards a low-carbon, sustainable society, sovereign wealth funds will play a key role. They can either be a part of the problem where they ignore the challenges and only look at traditional ways of doing business, or they can become part of the solutions where they explore new ways to support the transitions to a resources efficient economy with long-term sustainability.

SWFs like NGPFG can enjoy a favourable financial return over time for the benefit of its owners. However, this favourable return can and should be part of a strategy where the fund takes responsibility for fostering a transition to global sustainable development through selective investments. This is not idealism; rather it is to play a part in averting global climate crisis and thereby securing stable future markets that can provide returns for many future generations of Norwegians.

In the 21st century investment policies and “ethical guidelines” should go from being mostly reactive and aimed at reducing worst practices, to becoming proactive focusing on positive selection of companies and strategic investments to encourage innovation and leadership among companies in developing low-carbon, sustainable solutions of tomorrow. SWFs can play an important role in the development of such solutions, which are very much needed if the international and regional agreements and targets for climate change and other environmental goals are to be realised. In Europe in particular, those targets are set to become very stretching ones. This new and demanding agenda for action on climate change will have significant impacts for business.

There is no longer a business argument for SWFs not applying a mix of all available SRI instruments when investing; there is no evidence that this will have a negative influence on ROI. Rather, a wealth of recent studies indicates that systematically applying SRI tends to increase ROI, making SRI an essential part of any 21st century investment strategy. This also implies that being not only in the forefront of applying SRI but also in developing SRI instruments further, is possibly the best growth strategy for a SWF or pension fund in the 21st century where the stability and growth of global markets are threatened by enormous environmental and social challenges.

To meet the climate challenge, NGPFG can pursue two options. The first is to adopt best practices in SRI techniques, incorporate positive selection into its investment strategy and set aside funds to invest specifically in environmental technologies. This option would not require significant change, but would bring NGPFG up to the level of other leading public pension funds and large institutional fund managers. The second option is more ambitious and would entail NGPFG to take a leadership role amongst institutional investors, particularly SWFs, and set the pace for SRI investing that secures a low carbon future. The following discusses how these proposed strategies can be part of a low carbon investment platform.

5.1 BRINGING NGPFG UP TO SPEED

In terms of applying current SRI best practices and contributing to a low carbon future, an investor such as NGPFG can mitigate climate change risks and capitalise on opportunities immediately in at least three well-established ways:

- » Engaging strategically with companies on climate change issues
- » Utilising SRI strategies to incorporate climate risk and opportunity management into valuation and asset allocation decisions
- » Investing into clean technology and renewable energy development

NGPFG has begun the first activity, but it has the potential to increase the number of companies it engages with and improve the strategic element. To overcome the labour-intensiveness of these engagement activities, NGPFG could collaborate with other investors on engagement and shareholder advocacy activities. Groups such as INCR and IIGCC have large institutional members from around the world that pool their resources to research climate change issues and to secure greater influence in their activities. NGPFG can join these initiatives and have confidence that they are working towards the same goals.

In terms of positive screening and incorporating climate risk exposure criteria, NGPFG has not included any criteria to reflect this in its portfolio selection process. By using a best-in-class stock selection approach, NGPFG can maintain a sector balance and overcome the concerns that positive selection reduces the investment universe and thus increases risk. Several research advisors have already created tools that can help NGPFG integrate these risks into long-term valuation. These types of tools can help investors to weight their investments towards stocks that perform better on climate change management and in turn yield a better financial performance result.

Finally, NGPFG can set aside funds to invest specifically in environmental technologies. As we discussed earlier, this market has tremendous growth potential as well as significant profit opportunities. Several large pensions funds have already started to invest in this sector and are seeing excellent returns. However, there is a significant gap between the investment needed and the capital available and NGPFG can move in to capture the growing returns.

In the end, successful investment depends on a vibrant economy, which is ultimately dependent on a sustainable planet. In the long-term, therefore, investment markets have a clear self-interest in contributing to better management of climate challenges in a way that contributes to the sustainable development of global society. A better inclusion of ESG factors - especially climate change - in investment decisions will ultimately contribute to more stable and predictable markets, which is in the interest of all market actors.

5.2 TAKING A LEAD: OSLO – THE SRI CAPITAL OF THE WORLD

There are many reasons why it would be natural for the Norwegian Government to continue to take a lead in the global investor landscape in integrating SRI instruments in fund management and make SWFs and public pension funds active agents for a change towards a more socially and environmentally sustainable world economy:

- » Norway is a rich and well-functioning democracy with a well-educated population and with ambitious policy goals for tackling climate change and promote global sustainable development.
- » The NGPFG is based on revenues from extraction of petroleum, the use of which is a main cause for global warming threatening globally sustainable development and particularly the livelihoods of the world's poor.
- » Norway is (like Switzerland) a European country which is not a member of the EU and has no colonial history. This provides a good position from which to take a lead and be a driver for supporting global sustainable development in the international investment community.
- » Norway is a small country outside the major Western political blocks. Norway is therefore dependent on being innovative and developing specific niches, if it is to be relevant in international politics.
- » Norway's petroleum extraction has already peaked. Being a high-cost Western society, Norway must in a future more knowledge based economy find niches in order to stay relevant and competitive in the global economy. Fostering a cutting-edge financial milieu can be such a niche.

Beyond just being a leader in terms of SRI practices, NGPFG can be a leader and driver in its field for a sustainable low carbon future. This could be pursued simultaneously with the first option discussed in 5.1, and could be integrated over a longer period of time. In order to accelerate the transition to a low carbon economy, NGPFG will need to engage with other stakeholders and collaborate with government, companies and other institutional investors.

First, NGPFG should engage in policy dialogue with the government about how investors can contribute further to climate mitigation and adaptation. Working together, they can develop regulations and incentives that will encourage investors to invest in renewable energy, low carbon and energy efficient projects and

companies. Once these policies are established in the Norwegian context, it can be used as a basis for European and even global policy discussions.

Secondly, NGPFG can influence other SWFs to invest responsibly. NGPFG could initiate low carbon investment forums, lead sub-groups that reflect SWF interests in other international initiatives such as INCR or IIGCC and collaborate with other investors to invest in low carbon companies and projects. Finally, NGPFG can apply innovative low carbon selection criteria or create new low carbon indices as described in Chapter 4 to invest in. Some funds have already begun this activity, but NGPFG can take it to another level by investing some or even all of its funds in this manner.

The following are recommendations that can help make NGPFG world-leading in socially responsible funds management:

- » NGPFG should consider driving and facilitating coordination among SWFs and public pension funds in raising and consistently promoting ESG issues through strategic investments in financial markets, for instance under a UN umbrella. Coordinating and mainstreaming SRI in SWF and public pension funds will contribute to a much larger impact on the world economy than what NGPFG can affect alone.
- » NGPFG should consider investing in consistent engagement with research firms, scientific milieus and other stakeholders who can analyse, compare and publish the ESG practices of SWFs and public pension funds thereby helping diffusion and assisting in further development of best practices.
- » NGPFG should consider actively pursuing further development of positive screening, with indicators identifying transformative innovation and development that contribute to a low carbon future (such as those described in Chapter 4).
- » The Norwegian Government should consider holding an annual international conference on “Sustainable Funds Management in the 21st Century” in Oslo. This will provide a forum for sharing of best practices and mainstreaming SRI in SWFs and public pension funds. It will also help position (“brand”) Oslo as “SRI capital of the world”.
- » The Norwegian Government should consider investing in public and private education, research and development in order to make Oslo a global “knowledge hub” for responsible financial management.⁶⁸ The spearhead of such a strategy could be the establishment of a research centre on “Profit and SRI in the 21st century”.
- » The Norwegian Government should consider establishing a separate climate venture capital fund providing risk capital to new companies focusing on providing low carbon solutions, in order to stimulate the radical innovation needed to tackle current sustainable development challenges and reach

⁶⁸ This idea was launched by Yiva Lindberg and Hilde Nagell (2007).

Millennium Development Goals.⁶⁹ Together with the more mainstream green thematic fund and the NGPFG, this would create a variety of SRI-oriented fund managers in Oslo constituting a dynamic and interesting milieu with potential for further development of SRI instruments and practices.

Making NGPFG truly “the best managed fund in the world” and Oslo “the SRI capital of the world”, would not only help secure Norwegian investments in a long-term perspective, but also put Norway at the forefront of innovation in the future economy. It would also make the NGPFG the most important tool for realising the Norwegian Government’s ambitious goals of promoting global sustainable development and tackling climate change.

⁶⁹ The Norwegian Government setting up a climate venture fund has been suggested by Marc Levy, deputy director of Earth Institute, Columbia University, New York (2007). See also Reinvang and Peters (2008, p.5) “Norwegian Consumption, Chinese Pollution” which links such a fund to the “cost” of the carbon footprint of Norwegian consumption in developing countries and suggests it to be established over the state budget. Marc Levy also suggests that a portion of Norwegian North Sea revenues is allocated to a high-profile prize designated to motivate effective innovation to commercialize breakthrough technologies to high-priority global problems (e.g. carbon capture, desalinization, energy efficiency).

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Appendix

A. GLOBAL INITIATIVES

In the past decade, many global initiatives have been launched which have influenced major financial institutions to become more socially responsible in their investment strategies and processes. The following are key international initiatives that are shaping the future policy decisions of investors.

Global Reporting Initiative

The Global Reporting Initiative (GRI) started in 1998 and created a sustainability reporting framework that sets out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. The GRI encouraged companies to provide more uniform data on different ESG issues and allowed investors make comparisons on ESG performance. To-date, nearly 1000 organizations in over 60 countries have declared their use of the GRI Reporting.

UN Global Compact

Started by the United Nations, the Global Compact is a framework for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption. The Global Compact is a purely voluntary initiative with two objectives: 1) mainstream the ten principles in business activities around the world; and 2) catalyse actions in support of broader UN goals, such as the Millennium Development Goals (MDGs).

Since its official launch in 2000, the initiative has grown to more than 5,200 participants, including over 4,000 businesses in 120 countries around the world. In 2004, the UN Global Compact published a report for the financial industry aiming to enhance clarity concerning the respective roles of different market actors, including companies, regulators, stock exchanges, investors, asset managers, brokers, analysts, accountants, financial advisers and consultants. It includes recommendations for different actors, striving to support improved mutual understanding, collaboration and constructive dialogue on ESG issues. The diagram below identifies the key recommendations of each actor in the financial industry.

Investors are urged to explicitly request and reward research that includes ESG aspects and to reward well-managed companies. Asset managers are asked to integrate research on such aspects in investment decisions and to encourage brokers and companies to provide better research and information. Both investors and asset managers are also encouraged to develop and communicate proxy voting strategies on ESG issues.

Pension fund trustees and their selection consultants are encouraged to consider ESG issues in the formulation of investment mandates and the selection of investment managers, taking into account their fiduciary obligations to participants and beneficiaries. Governments are asked to proactively consider the investment of their pension funds according to the principles of sustainable development.

FIGURE 21 Role of Different Financial Actors in Sustainable Societies



Source: UN Global Compact, 2004, 'Who Cares Wins'

Enhanced Analytics Initiative

The Enhanced Analytics Initiative (EAI) is an international collaboration between asset owners and asset managers aimed at encouraging better investment research, in particular research that takes account of the impact of extra-financial issues on long-term investment. The Initiative currently represents total assets under management of approximately €1.3 trillion (US\$1.8 trillion). Launched in 2004, EAI explores credible market incentives that will encourage research agencies to adapt their research process and to become more innovative.

Principles for Responsible Investment (PRI)

In 2005, the United Nations Secretary-General invited a group of the world's largest institutional investors to join a process to develop the Principles for Responsible Investment (PRI). They developed six Principles which provide a menu of possible

actions for incorporating ESG issues into mainstream investment decision-making and ownership practices.

Signing is voluntary and represents a commitment to the Principles, demonstrating support from the top-level leadership of the whole investment business. In its short existence, the PRI has grown very rapidly to 362 signatories representing asset owners, investment managers, and professional service partners that have over US\$14 trillion in assets under management. In fact many major institutional investors cite PRI in their investment policy documents.

A large number of signatories reported that the PRI has been successful in raising awareness and many are confident that significant change will eventually follow. The main benefits noted generally have been in building networks among like-minded investors, facilitating information-sharing and enhancing the profile and credibility of RI/ESG issues and investment approaches. On the other hand, a small number of signatories stated that they had not yet derived any tangible benefit from their participation in the PRI Initiative.

B. PENSION FUND LEADERS IN SRI

Several institutions have taken new approaches to investment that reflect the full range of innovative ways in which ESG factors are being used to drive stock selection. These include funds that have delivered out-performance against their benchmark and award-winning pension funds. The following highlights some of these institutions that apply ESG factors in the investment decision-making process in an innovative way and have developed specific products using an environmental, social, governance or integrated ESG approach.

ABP

ABP is the pension fund for employers and employees in service of the Dutch government and the educational sector. With an invested capital of US\$311 billion, ABP is the third largest pension fund in the world. While ABP has been working on sustainability issues for a long time, in 2006 it announced its intentions to incorporate ESG factors in *all* of its investments. They are currently applying this policy to equities with a total value of approximately 22 billion Euros using two key approaches: bottom-up fundamental stock selection and top-down theme driven investments.

In the first approach, ABP uses ESG research to evaluate company's financial performance on a sector by sector basis, and selects better-managed companies for its portfolios; in other words a best-in-class approach. ABP also regularly engages with companies to encourage better disclosure and better management of ESG risks, and will withdraw investment from companies that persistently fail to improve their practices. Exclusion strategies are used to avoid companies that are directly involved in the production of antipersonnel landmines, cluster bombs, or chemical or biological weapons. In the second approach, ABP, together with a number of partners, is investing over US\$1.8 billion in funds with environmentally focused themes. They have invested US\$500 million each into a sustainable energy fund and a clean technology fund, US\$363 million in a climate change private equity fund and US\$60 million in a sustainable timberland projects fund.

CalPERS

CalPERS is the largest public pension plan in the US and the third largest in the world with approximately US\$230 billion assets under management. The plan provides a variety of retirement and health benefits programs and services to the State of California's public employees, retirees, and their families. CalPERS is a leader in the area of corporate governance. It votes on its domestic and international equity holdings, posting its decisions on its websites two weeks prior to annual general meetings taking place. In addition to its voting activities, CalPERS undertakes systematic engagements which it prefers to do rather than divest. Companies are given a timescale to implement behavioural changes and report on improvement.

CalPERS also has a strong track record of mobilizing financial capital in new and innovative ways, consistent with the highest fiduciary standards. CalPERS has invested US\$500 million in stock portfolios that use environmental screens and US\$600 million investment in environmental technologies. CalPERS Board has also adopted a plan to reveal corporate environmental liabilities, and improve transparency and timely disclosure of environmental impacts. Under the plan, they are pursuing a number of initiatives aimed at improving environmental data transparency, including targeted efforts in the auto industry and the electric utilities industry.

Environment Agency Active Pension Fund (EAPF)

The Environment Agency's Active Pension Fund for England and Wales, with a market value of £1.1bn, is the twentieth largest fund in the Local Government Pension Scheme. EAPF has been highly commended and been granted twelve prestigious awards including the IPE SRI Fund of the Year Award, and the Global Money Management Public Pension Fund of the Year Award.

EAPF commenced a new investment strategy in May 2005 which entailed a move from three 'balanced' managers to eight specialist fund managers following a period of disappointing investment returns and considering new evidence that supported a positive link between environmental performance and financial performance. The aim of the new investment strategy is to increase returns by diversifying its investments, spreading risk, and increasing the EAPF's activism. There is also an increased allocation of 7% to a good practice environmental mandate. EAPF favours investing on a positive best-in-class selection basis, takes an active approach to the exercise of its shareholder rights and encourages the use of engagement rather than negative screening.

Each new manager has been awarded a three-year investment management agreement, extendable subject to satisfactory performance. They will be evaluated on not only financial targets, but also their delivery of the EAPF environmental overlay strategy. This includes their integration of environmental considerations into risk management, stock selection, company engagement, and proxy voting, and referral of any environmental resolutions to the Agency. Their relative performance will also be benchmarked using corporate governance and SRI indices and environmental reporting tools.

EAPF believes the results have been positive so far, in particular for specialist sustainability mandates and alternative energy related investments. The EAPF's overall return in 2006 was 22.8% (0.8% above its benchmark). Seven managers exceeded their performance benchmarks and four beat their performance targets. Sarasin Chiswell, the Agency's specialist SRI fund manager, which manages 7% or US\$195 million of the actively managed assets and mainly invests in EU based companies, produced the best performance (9% above their benchmark) this year.

Universities Superannuation Scheme (USS)

The USS is one of the largest pension funds in the UK with £30 billion (US\$60 billion) assets under management representing 378 universities and academic institutions. The USS approach to responsible investing is one of engagement, not exclusion and USS aims to work with companies and managers to encourage responsible corporate behaviour. USS believes that selling shares in a controversial company does not address the deeper issues relating to a particular sector in which that company operates and it is generally these issues which are the cause for divestment campaigns. Indeed, significant disposal of shares in one company by a large investor could create attractive buying opportunities for other investors who are likely to have much less interest in encouraging the company to be more responsible.

USS utilizes a proactive approach to engagement on a key set of issues. If company management does not respond to concerns raised in the engagement process, USS will maintain or where possible, escalate its engagement strategy. This could involve putting forward resolutions, working with other investors and commentators to raise concerns in a higher profile manner and, eventually, reviewing exposure to the company's stocks and announcing this once it has taken place. USS has seen success in its detailed engagement activities with targeted oil and gas companies on a range of environmental and social issues, evidenced by changes in company policies and practices subsequent to its engagement. In addition, USS has initiated a collaborative research project that will produce four sector studies analysing the investment impact of climate change and exploring how investors can address these in their interaction with companies.

FIGURE 22 Summary of leading public pension funds

Fund	Best Practice
ABP	Incorporates ESG considerations into all of its investments; Utilizes a combination of strategies including best-in-class selection, engagement and thematic investment funds
CalPERS	Leading corporate governance activities that are publicly reported on; Specific environmental investment initiatives that include thematic investment funds, engagement, environmental screens
Environment Agency	Favours best-in-class selection approach, shareholder advocacy and engagement approach rather than negative screening; Fund managers evaluated on environmental performance and financial performance
USS	Focuses on engagement with companies rather than divestment; Collaborates regularly with other investors on engagement and research on ESG issues

C. INNOVATIVE SUSTAINABILITY FUNDS

The following highlights institutions that are applying the innovation themes described above and have developed specific products using environmental considerations. These funds are aiming to identify companies investing in new technologies and which are moving away from traditional forms of energy and materials use.

FIGURE 23 Innovative sustainability funds

Institution	Fund	Innovative Characteristics
Henderson Global Investors (UK)	Industries of the Future	Seeks to invest in companies that contribute to, benefit from and best adapt to the shift to an environmentally sustainable and socially responsible global economy
Allianz RCM (UK)	Global Eco Trends Fund	Targets selected companies within the themes of eco energy, pollution control and clean water
Jupiter (UK)	Jupiter Ecology Fund	Fund utilises are rigorous ethical exclusions on the companies it can invest in, while actively focusing on six green investment themes: clean energy; water management; green transport; waste management; sustainable living; and the beneficiaries of regulation.
Banco Fonder AB (Sweden)	Banco Svensk Miljö (Environment Fund)	Uses best-in-class approach to select sustainable companies; Conducts carbon audit of fund then purchases emissions credits to offset impact

Henderson Global Investors

Henderson Global Investors manages over £1 billion (US\$2 billion) in pooled and segregated SRI portfolios on behalf of personal and institutional investors. Henderson seeks to invest in companies that contribute to, benefit from and best adapt to the shift to an environmentally sustainable and socially responsible global economy. Henderson refers to these companies as 'Industries of the Future'.

The Industries of the Future Fund invests exclusively in global companies providing solutions to sustainability challenges. Investments are made in 10 Industries of the Future themes. These include: Cleaner Energy; Efficiency; Environmental Services; Health; Knowledge; Quality of Life; Safety; Social Property and Finance; Sustainable Transport; and Water Management. Typically these companies provide solutions to sustainability problems and challenges and Henderson therefore believes that they can create positive long-term investment opportunities.

Allianz RCM

The Global Eco Trends fund targets selected companies within the themes of eco energy, pollution control and clean water. EcoEnergy Sector. The Sub-Adviser considers the "EcoEnergy" sector to include the following two areas: Alternative Energies and Energy Efficiency.

“Alternative Energies” include the provision of services and the manufacture, building, distribution, delivery, transportation, planning, storage, research and other production of products or technologies directly or indirectly connected to the provision or manufacture of alternative, especially regenerative, forms of energy, or connected with the preparation, manufacture or distribution of the corresponding preliminary products. This area also includes the provision and manufacture of alternative, especially regenerative, forms of energy and the preparation, manufacture or distribution of the corresponding preliminary products themselves.

“Energy Efficiency” includes the provision of services and the manufacture, distribution, delivery, transportation, planning, storage, research and other production of products or technologies directly or indirectly connected with the efficient use of energy or increasing energy efficiency.

Examples of investment opportunities within the EcoEnergy sector to which the fund could gain exposure include, but are not limited to, companies involved in or with: renewable energy sources (e.g., wind turbines, solar cells, and geothermal and biomass energy generation); microgeneration (e.g., combined heat and power); energy-saving products (e.g., light bulbs); efficient transport technologies; automobiles powered by alternative energy sources; insulation for buildings; energy-efficient heating technology; energy efficiency consulting; energy distribution (e.g., cables); fuel cell production; bio-fuel and synthetic fuel; environmentally friendly catalysers; and combined heat and power technologies.

Jupiter

Jupiter is a subsidiary of Commerzbank, one of Germany's leading banks, and is a recognised leader in the field of SRI. The Jupiter Ecology Fund aims to deliver long-term performance through investing in companies that have positive growth supported by trends in environmental and social policies and regulations. The fund invests in companies on a global basis that are responding positively to the challenges of environmental sustainability and are making a positive commitment to social wellbeing. The fund is considered ‘dark green’, in that there are rigorous ethical exclusions on the companies it can invest in, while actively focusing on six green investment themes: clean energy; water management; green transport; waste management; sustainable living; and the beneficiaries of regulation.

The Ecology Fund assesses each company’s financial prospects and their ethical and environmental performance. Only once they meet these criteria will the fund consider investing. Investment themes focus on identifying companies providing profitable solutions to environmental and social problems and spotting relevant trends and technologies at an early stage. Jupiter believes that this approach not only benefits Jupiter’s Green Funds but also the wider sustainable development process.

Banco

Banco Fonder is an asset management firm based in Sweden with approximately US\$70 million assets under management. Banco’s investment criteria are based

on the principles of the Global Compact, and it utilises a variety of SRI strategies including negative screening, positive screening and shareholder advocacy. In order to streamline its work according to the Global Compact Principles, it has over the past years converted a number of mainstream funds into SRI funds, representing 58% its assets. In 2007 Banco implemented a new investment tool with focus on upside and opportunities instead of the traditional risk perspective. This means that Banco favours companies that integrate sustainability within core business and products.

Banco's Svensk Miljö Fund (Environment Fund) invests in Swedish companies that are in the frontline of operating in a future environmentally sustainable society. It was launched in 1994 and has approximately SEK 420 million in assets. The fund utilises a 'best-in-class' approach to select companies, but it also employs other SRI techniques such as engagement. For example, Banco went to Tunisia to visit an oil platform owned by a Swedish company to evaluate their environmental practices. After the meeting the company was urged to develop an environmental plan for decommissioning of the site in order to minimise impact on the marine environment.

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