

Why the climate change debate has not created more cleantech funds in Sweden.

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MISTRA

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1. Introduction

1.1 Global demand for cleantech

There are a number of long-term global trends driving the demand for more environmentally friendly technologies. This area, referred as “cleantech”, was coined in the United States during this century and described as “new technology and related business models offering competitive returns for investors and customers while providing solutions to global challenges” (Cleantech Network, 2007). This and others like it represent broad definitions of technology that can replace old technology with new and improved solutions that offer a reduced impact on the environment.

Urbanization and growing world population are strong drivers for technologies that offer solutions in the area of transportation, water supply and treatment, air pollution and energy (Nutek, 2006). As mentioned in reports by Stern and International Panel of Climate Change (IPCC) the consequences of over 150 years of mainly western industrialization have resulted in imbalances of the global ecosystem. The unsustainable production and consumption of non-renewable energies have caused a global increase in green house gas emissions and the emerging threat of climate change (Stern, 2006). The depletion of energy resources calls for a need to develop even more effective ways of combustion of fossil fuels or renewable energies. The uncertainty of global fossil fuel supply is causing non-renewable energy price to move up. This has a destabilizing effect on national security as governments grow dependent on oil & natural gas imports (Nutek, 2006).

For these reasons there are strong incentives for investors to receive attractive returns for investments in cleantech industries. So far the interest from the investment community has been by far greater in the United States than in Europe and especially Scandinavia. This by itself is remarkable as US is many times portrayed as unwilling to take on and bare responsibility for its contribution towards climate change. In spite global trends driving demand for cleantech companies this paper looks at reasons why Swedish fund managers have not until now launched a few products for private investors on the Swedish fund market.

2. Background

In this section we will discuss what type of mutual funds that is available today for private investors with a desire to invest in companies operating in industries offering products and services that reduce the impact on environment and climate change.

2.1 Ethical Funds

There are about 70 registered *socially responsible investment* (SRI) funds in Sweden (Folksam, 2006). These are investment funds offered to the general public and representing what is referred to as the *retail market*. These funds all represent some type of environmental, social and ethical profile. The investment focus is broad (Global, Europe, Nordic or Sweden) and varies among the funds. These fund types can be equity funds or interest funds or a combination of both. Folksam divides SRI-funds into four different categories.

- **Exclusion funds.** Fund managers entail full avoidance of specific industry or companies on the basis on social and ethical criteria. The accepted level of company turnover that comes from “unethical” business tend to vary among funds. For instance an industrial company may have a weapons division accounting for 10 % of total company turnover and be excluded by one fund and not the other depending on degree of acceptance.
- **Best-in-class funds.** Companies in this category are made up of good environmental and ethical examples for the industry or the sector.
- **Idealistic funds.** These funds donate parts of the fund’s return or management fee to a specific idealistic cause.
- **Environmental technology funds (Cleantech).** Cleantech funds are for instance funds that invest in renewable energies, energy efficiency and companies with a business idea of reducing CO2 emissions and related greenhouse gases.

The total capitalisation of Swedish registered SRI funds amounts to 123 billion SEK or 11 percent of total Swedish fund savings. Even though it is not the scope of this paper to compare return on investment between SRI funds and regular funds, Folksam (2006) states that between 1996 and 2006 the average annual rate of return is higher for SRI-funds compared to all other funds (153 percent compared to 105 percent).

The history of SRI can be traced back as far as to the 18th century with religious implications among Quakers and other religious gatherings (Hawken, 2004). In UK Church investors have managed ethical investment portfolios since 1948 and in the US since 1926. It was not until the 1970s a larger focus was generated to the area as political events of international proportions also involved SRI such as the campaign against apartheid regime in South Africa and not profiting from the Vietnam War (Sparkes, 2001). During the 1980’s environmental aspects gained influence in SRI funds (Folksam, 2006).

2.2 The lack of cleantech funds

This paper is set out to investigate why there are considerably few cleantech funds offered on the Swedish retail market. With strong global drivers for reducing climate change there should be a strong need for technical solutions to global warming (Stern, 2006). By examining some investment companies that offer cleantech funds and those that do not it is the ambition of this paper to be able to come up with a number of reasons why the investment community has not yet on a full scale made these financial products available to broad groups’ of retail investors.

3. Methodology & theory

3.1 Research methods

In order to identify mutual funds relevant for this study we have used multiple listings of ethical, environmental and cleantech funds. The Swedish insurance company Folksam

(2006) has annual listings of ethical funds marketed in Sweden. Another useful source is the daily mutual fund quotations listed in Sweden's two major newspapers Svenska Dagbladet and Dagens Nyheter. A general internet search was conducted using the search engine www.google.se. In the searches keywords like "ethical funds", "environmental funds", "cleantech funds" and "environmental technology funds" were used. Several hits were accounted for linking to newspaper articles and business magazines. A gross list of mutual funds targeting the Swedish market was established. Web pages of asset management companies were also scanned. To properly classify funds each funds' *investor prospectus* was carefully studied. Finally, an academic article search was done (Business Source Premier) to determine if research was conducted on this topic.

From a gross list of SRI mutual funds five mutual funds with environmental focus was further studied. These funds were selected because they were labelled either with the word "environment" or "ecology". Next, a similar listing was done for cleantech or environmental technology funds actively sold on the Swedish market. This is difficult to determine but we were mainly interested in funds having a marketing organisation based in Sweden. In some cases the asset management company have issue more than one cleantech fund. In this case the study only recognises one fund. As new funds are issued this study is set out to recognize cleantech funds on the Swedish market on the half year mark of 2007. Once secondary data had been gathered three environmental and three cleantech funds with offices in Sweden were singled out. Semiformal telephone interviews were conducted with either portfolio managers or ethical analysts representing these funds. The answers were coded and interpreted.

There are limitations to this study as the sample size of the studied funds is very low. The five recognised cleantech fund should not be seen as an exhaustive list of funds. The material should therefore be viewed as a good representation of asset management companies active on the Swedish market in the category of broad cleantech funds.

3.2 Research theory

This study is applied with two well established theoretical applications in mind. Empirical evidence from both secondary and primary sources is tested against theoretical answers. Here follows a brief discussion on *agency theory* and *institutional theory* applied in this study.

The principal-agent theory refers to control problems between principals (company owners) and agents (company management). The theory relates to information advantages gained by agents over principals. The type of implications and strain on the organisation is that agents may start to act in self-interest and the costs associated with this control problem (Jensen & Meckling, 1976; Hung, 1998). Are there evidence in this study that agents may apply their own personal values and beliefs in applying and transferring policy decisions referring to portfolio management in SRI mutual funds?

As agency theory is used to explain how different actors exert different types of dependence and pressure on each other, institutional theory applies a broader societal, economical and political outlook. Organisations are formed, developed and adjusted based on both internal and external influences. DiMaggio & Powell (1991) identifies different mechanisms in which institutional isomorphic change occurs. Pressures can be felt as a force, persuasion or as a direct response to government mandate. Another type of pressure

is the *mimetic isomorphism* deriving from uncertainty. For instance when organisations do not know how to relate to new demands they tend to model themselves on other organisations. Institutional isomorphism promotes the success and survival of organisations according to Meyer & Rowan (1991), as it incorporates externally legitimated formal structures. Can we find evidence of institutional isomorphism among financial actors offering SRI mutual funds? We will return and address this and other theoretical questions in the discussion section of the paper.

4. Critical aspects of ethical and environmental funds

In this section we will look at some critical aspects of ethical and environmental funds. It seems that no real standard exist to become an ethical or environmental fund. Much is up to the mutual fund company to define. We will also see that the environmental association with companies listed in the examined environmental funds tend to vary a lot. The equity positions from three environmental funds investing in Swedish stocks differ very little from equivalent ethical funds offered by the same asset management companies.

4.1 What are ethical and environmental funds?

The problem with ethical and environmental funds is that the name implies a lot of ambiguity. The notion of ethical investments is interpreted by people in many different ways. What is ethical for some may not be so for others. To be called an environmental fund there are no formal requirements to be achieved. It is up to the fund company to define according to its *investment objective* or *profile*. For this reason critical voices are heard calling for standardisation or a kind of certification which shows that the fund company has to fulfil a number of predetermined criteria to call its fund ethical or environmental (Folksam, 2006). Currently these types of standards are missing and the supply of SRI funds consist of a large variety of ethical offerings many times difficult for the consumer to fully comprehend. In a study from Swedish Environmental Research Institute (IVL) it was stated that ethical funds used a wide variety of selection criteria (IVL).

4.1.1 How to become an ethical fund?

The Swedish consumer agency (Konsumentverket) asked the Ethical committee for fund marketing (Etisk nämnden för fondmarknadsföring, ENF) as part of the Swedish investment fund association (Fondbolagens förening) for guidance on what is to be considered good industry practice for ethical funds. In 2002 an agreement between both parties was made. The committee determined that a fund can still market itself as “ethical” even though it owns shares in companies that operate in businesses such as weapon, alcohol, tobacco or gambling which account no more than ten percent of company turnover. This agreement considers good practice also to clearly state information on considerations based on ethical values linked to the investment objective of the fund and how these ambitions are to be achieved. It is also considered good practice to annually report on how these investment ambitions were accomplished and when applicable state what actions were taken to achieve these objectives (ENF, 2004).

4.1.2 How green are environmental funds?

Environmental funds have not become a large type of savings form. An increase was anticipated once the Premium Pension Authority (PPM)¹ was established and beneficiaries were able to manage the Premium pension through a variety of funds individually. However, the increase never took place and during recent years the environmental funds has transformed. Most Nordic Environmental funds also place ethical considerations on companies. Environmental funds more and more start to look like ethical funds (Sveriges Natur, 2004). An ethical analyst from Robur explain that someone interested in environmental friendly companies probably also would like to see companies taking on ethical and social considerations as well (Sveriges Natur, 2004). Next we will look at four environmental funds to try and determine what investment objective they are using and decide on what type of companies are considered environmental.

4.2 Examining four environmental funds

Among the total sample of SRI funds marketed in Sweden four environmental funds were identified based on how they are labelled. The four identified funds are Banco Svensk Miljö, Robur Ethica Miljö Sverige, Öhman Nordisk Miljöfund, and UBS Eco Performance (table 1). The first three are labelled in Swedish and contains only holdings in Swedish companies. The UBS environmental fund has a global orientation. The investment profile of the four funds described in their respective simplified prospectus use different wordings on how the fund see environment or eco performance as an investment category.

Banco refers to investments in companies that “actively work with relevant environmental aspects directly influenced by their operations” (translation from Swedish). It is unclear in the wording if this implies companies in environmental effecting industries or any company with an environmental ambition to do well? In the investment objective of Robur references are made to international environmental policies. They as well use the word “relevant” to describe the level of environmental industry focus. They also mention that companies they invest in shall be aware of their environmental risks and opportunity.

The third Swedish fund is from Öhman Fonder and invests in companies that can show good solutions on resource efficiency in their corporate policy among other sustainable criteria. The also state that the fund will invest in companies that understand the coming need and of tomorrow’s customers and future regulatory demands in the area of environment. UBS with its global reach describe its fund profile as mainly investing in leaders that offer the best environmental sector performance. They are stated as mostly large companies. To a lesser extent investments are made in innovators showing environmental commitment. All four funds also invest in companies that take social and ethical considerations, besides their focus on environmental issues.

The examined funds all offer four different ways of explaining its environmental focus. In the limited descriptive space for each fund it does not become very clear what this is meant. No fund has any reference to clarification or what criteria have been used. UBS is the only fund that refers to best environmental performance which suggests a “best-in-

¹ The premium pension is part of the national pension and is administered by the Premium Pension Authority (PPM). Beneficiaries personally decide how their money is managed by choosing from PPM’s range of mutual funds. (source: www.ppm.nu).

class” investment approach. It is not explicitly stated in what way the fund is weighted towards environmental performance as compared to socially and ethical performance in the entire portfolio. This occurs as a lesser problem if the fund is labelled a SRI fund but it becomes somewhat of a concern if the fund is marketed as an environmental fund. The potential problem being that the customer anticipates investment in companies with an environmental profile but ends up investing in companies with a broader SRI objective.

Next we will look at how the Swedish and Nordic environmental funds compare with funds labelled as ethical and how these differ in terms of major equity positions.

4.3 Comparing largest equity positions

In this section we will compare the equity positions of both environmental and ethical funds from Banco, Robur and Öhman as all three offer funds under both labels. UBS offer two social responsibility funds which are divided into “leaders” (mostly large companies) and “innovators” (mostly small-scale companies) and does not offer the environment versus ethical comparability. When we compare the ten largest equity positions between the three mutual fund companies’ environmental and ethical funds we get the following results. The environmental and ethical funds from Banco and Robur have Sweden as geographic investment focus and the ten largest equity positions are similar. For Robur nine out of top ten equity holdings are exactly the same in Robur Ethica Miljö Sverige and in Robur Ethica Sverige Global. In Banco six top ten equity positions found in the ethical fund is also present in the environmental fund. Even though Öhman ethical fund has a Swedish focus and the environmental fund has a Nordic concentration six of the top ten equity positions are identical. It becomes clear from the examined mutual fund companies that equity holdings in the ethical and the environmental fund differ very little.

Further if we compare the equity positions of three environmental funds from Banco, Robur and Öhman with each other we also see a reoccurring investment pattern. Five of the top ten equity positions are identical in all three environmental funds. Two stocks occur in two of the three funds. These five identical equities (Hennes & Mauritz, Ericsson, Nordea, TeliaSonera & Volvo) consist of more than one third of the fund allocation in Banco and Robur environmental funds and about one fourth in Öhman environmental fund.

These findings may suggest that regardless ethical- or environmental- or only economic screens applied to a portfolio of Swedish stocks – all portfolio selections offer little variation.

5. Examining Cleantech funds

In this section we look at funds registered in Sweden that are focusing on investing in what is called cleantech funds. What is cleantech? According to Cleantech Network which is an affiliation of investor members, the cleantech industry consists of a broad range of products, services and processes. The cleantech name was coined in the United States and the industry span from alternative energy generation to water purification and waste treatment to more resource efficient industrial processes. The Network defines the term “clean technology” as *“technologies developed by biological, computational, and physical scientists and engineers that enable more valuable use of natural resources and greatly*

reduce ecological impact, although this may be only one of a technology's benefits". [...]
(Cleantech Network, 2007)

We will examine funds from five investment companies that offer cleantech funds on the Swedish retail investment market (table 2). The identified funds both come from foreign and Swedish investment companies. Four out of the five funds were issued spring of 2007. The oldest fund from this sample was issues 2001.

5.1 Investment profile of five examined cleantech funds

The investment profile of the five cleantech funds consists of some variation (table 2). Hence, it is possible to detect three broad similarities among the range of funds. In all funds there are equity positions of companies operating in renewable energies. These companies predominately work in the solar- and windpower industry. In four of the five funds investments are made in companies involved in technology improvement that lead to energy efficiency and reduced environmental impact. Finally, in three of the cleantech funds companies are developing and producing alternative fuels such as ethanol and biodiesel. Other investment themes observed in the fund profiles are water purification, materials recycling, transport emission reduction and smart distribution.

5.2 Investment prospectus describing drivers for cleantech funds

Investment prospectuses of investment funds are written documents issued by the investment company to attract investments. These documents are naturally subjective and can be viewed as marketing tools for each fund. When analysing the content of these sources of information a number of key drivers for cleantech funds are observed.

References are made to both the Stern review and the IPCC climate report. Changes in climate and global warming are probably the biggest challenge and “according to many” it is the largest threat to the survival of man kind (ABN AMRO, 2007; BlackRock Merrill Lynch, 2007). Another fund describes that climate change and greenhouse gases (ghg) have put focus on environmental concerns more than ever before. With daily global emission of 70 million ton ghg “most” people have realised that future energy use in large scale must come from renewable energies (Akelius Insurance, 2007).

Another type of argumentation found in several prospectuses is issue of governmental policy regulations. The EU-parliament is expected to accept a resolution that would result in 20 percent of all energy use to come from renewable energies and that 10 percent of all fuels for transport comes from biofuels by year 2020 (Akelius Insurance, 2007). Also around the world this regulatory momentum is building. In China a renewable energy law was enacted in 2006 and California has agreed on the second largest solar incentive program in the world (BlackRock Merrill Lynch, 2006).

A reoccurring theme among prospectuses is the need for renewable energies in order to remain competitive. Counties like China and India has an increasing need for energy and to secure supply over time new solutions are needed. Governments are steering research funds to address climate change and the impact on environment. Investors are on-board with long-term investments as well as the enlightened public. All this together generate growth (Gustavia, 2007).

Finally, global oil demand is expected to rise substantially between 2010 and 2030, while new oil deposits are more difficult to find. Renewable energy sources such as bio fuels, wind-, solar- or hydropower only make a small contribution of global energy supply today. In spite of strong growth rates for renewables, cleaner sources of conventional energies and technologies that lower CO₂ emissions of conventional energy sources will also make a strong contribution in the future (Pictet, 2007).

5.3 Aspects hindering Cleantech funds from emerging

In this section we have approached both fund managers or ethical analysts in three environmental funds and three cleantech funds. The contacted funds were those based in Sweden. When approached and asked about specific risks with cleantech funds seven different aspects were mentioned. All interviewees referred to the sector as risky based on the so far limited number of listed cleantech companies in Sweden and the Nordic region. This risk would be offset if the fund had a global investment focus interviewees from both environmental and cleantech funds believed.

One respondent each from environmental and cleantech funds expressed concerns about the size of the listed companies. Stock prices of small companies are more volatile. With few listed cleantech companies the demand is likely to drive up prices. Fund managers eager to fill their funds may risk buying at overvalued prices. Further, two respondents from cleantech funds referred to the “dot.com bubble” which resulted in global stock prices falling spring of 2000 as a reoccurring risk scenario as some cleantech stock are becoming high valued.

Other aspects hindering cleantech funds from emerging on the Nordic market mentioned by a single respondent were risk associated with ending or changing governmental incentive programmes relating to renewable energies, alternative non fossil fuel or carbon dioxin reductions. One fund managers of an environmental fund voiced a concern about how local Swedish cleantech fund managers based in Sweden are best positioned to manage a global fund. As a fund manager there is a need for closeness to the market to feel comfortable with the holdings according to this respondent.

Only one respondent representing an environmental fund mentioned low knowledge about the sector as a possible reason why cleantech funds have not emerged fully. Finally, the same respondent also identified technical risk. For instance there is a risk that technical solutions for energy efficiency or renewable energy do not lead to any advances or technical innovations may not lead to a more sustainable brake through. One criticized area mentioned as an example of the latter would be bioethanol depending on type of resource used.

6. Discussion

In this section we will bring the discussion together regarding ethical, environmental and cleantech funds and offer a number of potential answers to the posed questions in the paper.

6.1 Why the largest equity positions are so similar in ethical and environmental funds?

The similarity in equity holdings between Swedish ethical and environmental funds as shown in this paper is also supported by earlier management studies (Skillius, 2002; Nordin, 2006). These reports conclude that ethical or SRI funds do not differ significantly from regular or non-SRI funds when it comes to equity holding. One reason for this is that few Swedish large capitalization companies are listed on the Stockholm stock exchange. Once ethical, social and environmental screens are applied half of the investment universe (about 50-60 companies) are made available for the portfolio manager to invest in (Olander, 2007). Consequently, the portfolio choices for Swedish funds does not offer very much variation for the portfolio manager regardless if the fund is ethical, environmental and non-SRI.

Is this important for the private investor? Well some private investors would probably be surprised at the fact that their SRI investment in Swedish companies does not differ from any non-SRI fund in Swedish stocks. Private investors, in general are not familiar on a company level what stocks the fund contain. Hence, here lies the whole idea with mutual funds. You do not need to be involved on a company level. But on an aggregate level private investors are concerned with the overall profile of the fund.

In the case of Robur, the Swedish Financial Supervisory Authority (Finansinspektionen) did not allow a name change for Robur Ethica Miljö Sverige. This fund is said to be identical to Robur Ethica Sverige Mega. If Robur could decide they would prefer to market only one fund. Both funds apply broad SRI criteria where environmental considerations apply (Lindberg, 2007). As for Banco, another Swedish asset management company with a strong SRI profile, the investment decision after ethical and environmental screening is applied by an external company are based on a very similar company sample (Olander, 2007).

6.2 Why environmental funds and not cleantech funds?

The contacted Swedish fund managers or ethical analysts all agree that cleantech companies provide an interesting investment segment. They also concur that investing in companies that in different ways contribute to the reduction of climate change as something positive and sustainable. But when you view the largest equity holding from the funds in table 1 they represent industry sectors with relatively little environmental impact. The company selection is justified based on how these companies perform compared to their industry peers. In contrary to cleantech companies it seems that environmental fund like banking, IT and retail where environmental impact is relatively small. But from a reduction of climate change perspective it is debatable whether investing in companies like these will have an impact on drastically decrease CO₂ emissions. On the contrary cleantech funds consist of industries that do. It is somewhat surprising that little of the critical academic literature have discussed this.

The environmental funds in this small sample all explain that there are too few large Swedish cleantech companies listed to provide an interesting investment area. Öhman Fonder has taken an approach in their Nordic environmental fund by investing 25 % in environmental technology and 75 % in environmental strategy. The latter focuses on companies considered leaders in their industry concerning managing ethical, social and

environmental issues. It seems for two of the examined funds that a cleantech fund with a global focus would not be an option as it violates the company's Nordic investment focus. For one of the asset management companies (Robur) this is solved by offering clients their partner product, BlackRock Merrill Lynch's New Energy Fund (Lindberg, 2007). Banco, in a similar situation, is reasoning quite differently. Even though they are owned by ABN AMRO they are not actively referring customers or visitors on Banco home page to ABN AMRO's open end certificate already described. The company acknowledges merely that this is currently unfortunate and does not offer any other type of explanation to this (Olander, 2007).

6.3 Why the large asset management companies have not yet launched their cleantech funds?

Judging from the answers of respondents it becomes clear that we will soon expect to see offerings for cleantech fund from the big Swedish asset management companies in a not too distant future. One respondent said that it is a typical pattern that smaller mutual fund companies are often launching new sectors and the larger are slower and reactive (Bekkewold, 2007). To illustrate this phenomenon BRIC² investment funds was mentioned. The segment was opened by smaller fund companies and today all major asset management companies offer a similar product (Åkerfelt, 2007).

Both Robur and Banco acknowledge the fact that they are currently lacking an investment product which is demanded by large customer groups and in the case of Banco cleantech fund discussions are currently on-going. As these late comers feel pressured to enter the market there is a risk with a limited supply of clean tech companies that stock prices are over valued (Åkerfelt, 2007). Is this not exactly what we experienced during the height of the internet era during 2000 which resulted in a massive drop in global share value? The risk is certainly there but what fundamentally differs this time is the underlying need to reduce CO₂ emission, promote renewable energies and stimulate technology transfers. There is a substantial number of governmental investments and incentives introduced on the market to provide purified water, clean air and the development of non-fossil based energies (Åkerfelt, 2007).

6.4 Is this not a customer driven investment segment?

In the aftermath of information documentaries like Al Gore's "An inconvenient truth", BBC television series "Planet Earth", and numerous newspaper articles on climate change – the global warming issue has captured the general public. There is little surprise that six out of ten Swedish respondents in survey from March 2007 answered that they perceive global warming as a moderate to serious threat. The same Gallup, which was ordered by Banco, stated that half of the respondents were positive to the idea of starting to save in an environmental mutual fund (Banco Fonder, 2007).

All respondents in this study concur that cleantech is an investment segment customers are asking for. In the current vacuum of Swedish mainstream cleantech mutual funds vast amount of private savings are steered into ethical and environmental funds. There is fundamentally nothing wrong with the investment objective of these mutual funds but

² Funds investing in stocks and stock related assets in the so called BRIC countries, i.e. Brasil, Russia, India & China.

there are currently better alternatives for investors who seek to invest in companies that actively contribute to developing renewable energies, alternative fuels, technology efficiency and either a contribution to or an actual reduction of CO2 emissions. It is understandable if consumers would automatically turn to trusted and reliable asset management companies and listen to their investment advice and product offerings. As seen in table 2 the newly introduced cleantech funds are only very marginal in terms of fund value compared to environmental funds. If sustainable investments are meant to lead the way in so that companies with a broader view of environmental, social and economical perspectives are favored, it may then consequently be argued that banks and investment companies share responsibility to develop and channel such financial products to their customers.

6.5 Can we theoretically rationalize about early and late entrants on the fund market?

From the empirical findings in this small survey we can link theory with practice in two observations. Findings suggest a wait and see approach to new fund products among large and established asset management firms. These firms take on a follower attitude as they respond to new trends and products on the market. They avoid being in the front line developing new investment themes. Instead they take on a wait and see approach and react to the needs of large customer groups. This can be explained using institutional theory and referred by DiMaggio and Powell (1991) as *mimetic isomorphism*. Organisations form, develops and adjusts based on influence from other institutions. In the case of the large asset management companies they mimic trends and early entrants on the fund market. They reduce risk by letting other actors develop new fund products and they enter the market once a strong customer demand have crystallized for the products.

Another potential theoretical explanation can be linked to the first Swedish cleantech fund. The initiative came from an individual with a financial industry experience and an idea of setting up a cleantech fund. He approached a smaller asset management company with coinciding ideas. The principal-agent theory refers to control challenges between the principal (owner) and the agent (portfolio manager). The theory relates to information advantages gained by agents over principals. The type of implications and strain on the organisation is that agents may start to act in self-interest and the costs associated with this control problem (Cerin, 2001). Can we then suggest that early adopters challenge institutional norms and stiffness by bringing in entrepreneurial actors thinking as independent agents?

7. Conclusion

This paper started out looking at the difference between equity holdings of some selected Swedish ethical funds and environmental funds. In the few funds we examined we saw very little difference. These findings support prior criticism that Swedish SRI mutual funds differ very little from regular non-SRI funds in actual equity holdings. In direct contact with portfolio managers and ethical analysts we have learned that after SRI screening is performed on the 110 largest Swedish listed companies about half remain. Even though investment universe is reduced in ethical or environmental funds the majority of holdings are still the same as if only an economic screen was used. Environmental and social

screens are not to a very large extent reducing the investment selection of portfolio managers creating a Swedish fund.

In spite of the global launch of mutual funds investing in environmental technology companies, renewable energies or other technical solutions reducing the impact on global warming few investment products with this focus have been made available on the broader Swedish mutual fund market. However, until recently a number of smaller asset management companies have launched cleantech funds. Our investigation offer a number of potential answers to why these offerings are coming relatively late as the perceived customer demand has been high for some time. The low number of listed companies in Sweden and the Nordic region is a major barrier for establishing cleantech funds with a Nordic focus. Globally the numbers of listed companies are better and portfolio managers are able to diversify and adjust for risk like any other fund. Other risk factors in this segment are reported to be the small-sized companies and the high stock price earning ratios sending reminders to the internet crises some years back.

The high scientific and media interest in global climate change is reported to be a concern of the Swedish general public according to a Gallup. Respondents in this study unanimously confirmed that interest in cleantech funds is driven by strong customer demands. Mimetic isomorphism patterns have been observed in the financial market. Smaller asset management firms are more proactive to gain new market niches while mainstream investment companies are reactive and over time complement their product offering and enter into competition. This theory is confirmed among the respondents representing mainstream fund managers with environmental funds not yet launched their cleantech products.

Finally, the paper touches on the responsibility of large Swedish asset management companies that currently only offer environmental funds. There is a risk current and potential private investors with an urge to invest responsibly and reduce global warming believe current existing environmental funds are the best alternatives on the market. Market leaders of SRI mutual funds are trusted and legitimate authorities in the area. They hold an important position as they channel large amounts of SRI funds. Savings of private investors with a big interest in investing in companies actively reducing global warming should be accommodated with the most suitable financial product. Here lies responsibility with mainstream asset management companies.

Tables

Table 1 Private mutual funds with environmental focus marketed in Sweden

Fund name	Investment profile	Annual Performance (Source: Morningstar per 2007-08-01)	Benchmark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
Banco Svensk Miljö	Investments in companies that actively work with relevant environmental aspects directly influenced by their operations. Social and ethical considerations shall also apply.	2007:13,6 % 2006 27,6 % 2005:38,0 % 2004:19,0 % 2003:29,2 %	OMXSB Cap	177 MSEK (2007-08-01)	1.7 %	Ericsson (Information technology) Nordea (Banks & credit institution) H&M (Retail) Swedbank (Banks & credit institution) Astra Zeneca (Pharmaceutical) Skanska (Industry and services) TeliaSonera (Telecom) Volvo (Transport) ABB (Industry and services) Meda (Healthcare) Top ten equity positions account for 59.9 % of all equity positions.
Robur Ethica Miljö Sverige	Companies shall respect principles in international policies on human rights and environment. Companies shall run a relevant environmental focus for its industry and work with its environmental	2007:12,9 % 2006 27,3 % 2005:32,7 % 2004:18,8 % 2003:22,8 %	SIX Portfolio Index	1 688 MSEK (2006-12-31)	1.425 %	H&M (Retail) Ericsson (Information technology) Volvo (Industry and services) Nordea (Banks & credit institution) TeliaSonera (Telecom) SEB (Banks & credit institution) Sandvik (Industry and services) Industrivärden (Financial &

Fund name	Investment profile	Annual Performance (Source: Morningstar per 2007-08-01)	Benchmark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
	risks and opportunities. Social and ethical considerations shall also apply.					investment companies) Atlas Copco (Industry) AstraZeneca (Pharmaceutical) Top ten equity positions account for 56.6 % of all equity positions.
UBS Eco Performance	“...Invests largely in leaders and to lesser extent in innovators. Leaders are mostly large companies that offer the best environmental and social performance in their respective sector.”	2007:8,3 % 2006 2,9 % 2005:25,8 % 2004:5,1 % 2003:7,0 %	MSCI World	1 426 MSEK (2007-08-01)	2.04 %	Citigroup (Banks & credit inst.) General Electric (Industry and serv) Vodafone (Telecom) Vestas (Wind energy) France Telecom (Telecom) Royal Bank of Scotland (Banks) Johnson Controls (Industry) UBS (Banks & credit institution) Headwaters (Energy efficiency) Banco Santander (Banks) Top ten equity positions account for 17.8 % of all equity positions.

Fund name	Investment profile	Annual Performance (Source: Morningstar per 2007-08-01)	Benchmark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
Öhman Nordisk Miljöfond	Invests in Nordic companies that can meet high demands on resource efficiency, environmental and ethics in their corporate policy. A long term high rate of return will be accomplished by identifying companies assessed to meet tomorrow's customer demands and regulation in the environmental area.	2007:19,9 % 2006 26,0 % 2005:41,4 % 2004:14,7 % 2003:22,1 %	Enskilda Nordic Portfolio Index	207 MSEK (2007-08-01)	1,7 % *) *) 25 % of mgmt fee is donated to Swedish Society for Nature Conservation (Svenska Naturskyddsföreningen)	Nordea (Banks & credit institution) Ericsson (Information technology) Nokia (Information Technology) Swedbank (Banks & credit inst.) Hennes & Mauritz (Retail) SCA (Forest & Paper) TeliaSonera (Telecom) Telenor (Telecom) Volvo (Transportation) SHB (Banks & credit institution) Top ten equity positions account for 46.3 % of all equity positions.

Table 2 Private mutual funds with cleantech focus marketed in Sweden

Fund name	Investment profile	Issue date/ Performance (2007-08-01)	Bench- mark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
ABN AMRO Open End Certifikat Hållbar Miljö (Climate Change)	<p>Invest in companies that have the best opportunity to reduce climate change and at the same time can benefit financially from the large number of environmental actions that are taken.</p> <p>Investments in three segments: 1) Companies which produce alternative forms of energy. The criterion for selection is no net increase in CO2 from energy generation. 2) Companies engaged in managing and supplying Water for consumption and industry and waste management. 3) The emission of toxic pollutants and global warming gases resulting from burning of fuel in transport is addressed by inclusion of Platinum and Palladium in this index. These metals are vital as industrial catalysts, as well as catalytic converters in engines.</p>	<p>24 April 2007</p> <p>2007: 0,14 %</p>	<p>ABN AMRO Climate Change & Environment Total Return Index</p>	<p>Ca 300 MSEK</p>	<p>1.0 %</p>	<p>Veolia Environment (Water) Severen Trent (Water) Kelda Group PLC (Water) Geberit AG (Water) Suez (Recycling and waste management) Allied Waste Industries (Recycling and waste management) Republic Services (Recycling and waste management) Waste Management Inc (Recycling and waste management) Nordex AG (Windpower) Clipper Windpower (Windpower)</p> <p>Water 25% Recycling and waste management 20% Hydropower 10.5% Platinum and palladium 10% Windpower 10% Geothermal power and alt fuel 8.5% Ethanol 8% Solarenergy 8%</p>
Akelius Insurance Ny energi (New Energy)	<p>Invests globally in companies that either research, develop and market:</p> <ul style="list-style-type: none"> - new technology for energy production - energy produced via renewable energies 	<p>22 May 20007</p> <p>2007: 5,05 %</p>	<p>-</p>	<p>< 50 MSEK</p>	<p>2.15 %</p>	<p>MLIF New Energy (Mutual Fund) Alfa Laval AB (Technology) Abengoa S.A (Renewable energy & technologies) Solarworld (Solar) NGR Energy (Energy provider) Gamesa Corp Technologiga</p>

Fund name	Investment profile	Issue date/ Performance (2007-08-01)	Bench- mark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
	<ul style="list-style-type: none"> - systems for increased energy efficacy - systems for reduced CO2 emissions and also companies that in some way act to reduce the effects of global warming					(Windpower) ABB (Technology) Andersson Inc (Etanol) D1 Oils Plc ord (Biodiesel) Biopetrol Industries (Biodiesel) Echelon (Automation)
Gustavia Blue Engine	Global equity fund with investments in renewable energy sources and energy saving procedures, products and services.	30 April 2007 2007: 4,52 %	OMRX-TBILL + 3 percent points	80 MSEK	1.75%	Q-Cells AG (Solar) EDF Energies Nou AS (Windpower) Gamesa Corp Tec SA (Windpower) Conenergy AG (energy consultations) Nordex AG (Windpower) Solarworld AG (Solar) Vestas Wind Systems (Windpower) Solon AG (Solar) Roth & Rau AG (Solar) Greentech Energy Systems (Windpower) Sector allocation: Windpower (21 %) Solar (23 %) Bioenergy (18 %) Other - Hydrogen and fuels cells, energy efficacy and smart distribution (38 %)

Fund name	Investment profile	Issue date/ Performance (2007-08-01)	Bench- mark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
BlackRock Merrill Lynch New Energy Fund	Invests primarily in the equity securities of companies worldwide whose predominant economic activity is in alternative energy and energy technology sectors. Emphasis may be given to renewable energy, automotive and on-site power generation, energy storage and enabling technologies.	6 April 2001 2007:28,0 % 2006 13,6 % 2005:45,0 % 2004:21,0 % 2003:21,4 % (Source: Morningstar)	MSCI World	5507 MUSD* * 193 MUSD of holdings is for Sweden source: BlackRoc k Merrill Lynch	1,75%	Vestas Wind Systems (Windpower) Gamesa Corp Technologiga (Windpower) Solarworld (Solar) Clipper Windpower (Windpower) Itron (Enabling energy technology) Sasol (Alternative fuels) Archer-Daniels-Midland (Alt. fuels) FPL (Automotive & On-site Generation) Q-Cells (Solar) Suzlon Energy (Windpower) Sector allocation: Renewable energies (56.3 %) Alternative Fuels (21.2 %) Enabling energy technology (7.9 %) Cash (5.8 %) Materials Technology (5.3 %) Automotive & On-site Gen. (3.4 %) Energy Storage (0.1 %)
Pictet Funds – Clean Energy	Invest worldwide in companies that contribute to and profit from the world's transition to less carbon-intensive energy.	15 May 2007 2007: 10,08 %	MSCI World	234 MUSD	1.6 %	Renewable Energy Corp Gamesa Corp Technologiga (Windpower) Vestas Wind Systems (Windpower) Q-cells (Solar) Energias de Portugal (Energy provider) Acciona (Energy and technology) Clipper Windpower (Windpower) Everlight Electronics (Electronics) Williams Companies (Energy production) Chesapeake Energy (Energy production)

Fund name	Investment profile	Issue date/ Performance (2007-08-01)	Bench- mark index	Total fund asset	Annual Mgmt Fee	10 largest equity positions
						Technology & Equipment (40.3 %) Infrastructure (37.8 %) Energy Efficiency (13.7 %) Resources (7.1 %) Cash (1.1 %)

References

- ABN AMRO, (2007). Open End Certifikat Hållbar miljö. [Online] Available: http://www.abnamromarkets.se/MediaLibrary/Document/PDF/ProductDocuments/NL0000857837/NL0000857837_SV_Brochure.pdf [2007, 04 August]
- Akelius Insurance, (2007). Ny Energi . Fonden med ren drivkraft!, [Online] Available: http://www.akeliusinsurance.com/images/pdfs/Akelius_Broschyr.pdf [2007, 01 August]
- Banco Fonder, (2007). Gallupundersökning om Svenska folkets syn på miljöfrågor och klimatförändringar. [Online] Available: http://www.banco.se/nyheter/~/_media/Files/bf/bfse/press/Sammanfattning%20Klimatundersökning_Banco%20pdf.ashx [2007, 01 August]
- Bekkewold, D. (2007) Personal interview (telephone). Portfolio Manager, Akelius Insurance. (2007, 26 June)
- BlackRock Merrill Lynch, (2006). BlackRock News Release: New Energy Technologies – Moving Into The Mainstream (15th November 2006). [Online] Available: <http://www.blackrock.co.uk/uksite/about-mlim/press-room/press-releases/20061115.pdf> [2007, 01 August]
- Cerin, P. (2001). Corporate Environmental Reporting: An Innovation of Accounting, working paper, Department of Industrial Economics and Management, Royal Institute of Technology, Stockholm, Sweden.
- Cleantech Network, (2007) [Online] Available: www.cleantechnetwork.com [2007, 20 June]
- DiMaggio P., Powell W. (1991). *The New Institutionalism in Organisational Analysis*. (Eds.) The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organisational Fields (Ch 3). University of Chicago Press.
- ENF, Etiska nämnden för fondmarknadsföring, 2004. Vägledande Uttalande (19/1 2004) angående etiska fonder. [Online] Available: http://www.fondbolagen.se/upload/v%C3%A4gledande_uttalande_19_januari.pdf [2007, 01 August]
- Folksam, (2006). Folksams kapitalförvaltning Rapport 2006: Folksams Etikfond Index 2006 [Online] Available: <http://www.folksam.se/resurser/pdf/Etikfondindex2006.pdf> [2007, 01 August]
- Gustavia, (2007). Gustavia Blue Engine: Investing in sustainable energy . [Online] Available: [http://www.gustavia.com/media/pdf/Lanseringsbroschyr%20Gustavia%20Blue%20Engine%20\(LowRes\).pdf](http://www.gustavia.com/media/pdf/Lanseringsbroschyr%20Gustavia%20Blue%20Engine%20(LowRes).pdf) [2007, 01 August]
- Hawken, P. (2004). Socially Responsible Investing: How the SRI Industry has failed to respond to people who want to invest with conscience and what can be done to change it., Natural Capital Institute, US.
- Hung, H. (1998). A typology of the theories of the roles of governing boards. *Scholarly Research and Theory Papers*. Volume 6, number 2. pp. 101-111.
- Jensen, M., Meckling, W. (1976). Theory of the Firm – Managerial Behavior. Agency Cost, and Ownershipstructure. *Journal of Financial Economics*. Oct., pp. 305-360.
- Meyer M., Rowan B. (1991). *The New Institutionalism in Organisational Analysis*. (Eds. Dimaggio, Powell). Institutionalized Organisations: Formal Structures as Myth and Ceremony. University of Chicago Press.
- Nutek, (2006). Rapport: Potential för investeringar i Svenska miljöteknikbolag – med marknadspotential från exportmarknaderna Kina och Rumänien. [Online] Available: <http://www.nutek.se/content/1/c4/39/32/DAKS%20DealFlower%20Resultus%20-%2020060821%20slutversion.pdf> [2007, 01 August]

- Lindberg, A. (2007). Personal interview (telephone). Analyst Ethical Funds, Robur Asset Management. (2007, 27 June)
- Malmsten, H. (2007). Personal interview (telephone). Portfolio Manager, Gustavia. (2007, 20 June)
- Nordin, H. (2006). Sinners or Saints – Ethical mutual funds (Master's Thesis). [Online] Available: www.diva-portal.org/diva/getDocument?urn_nbn_se_hj_diva-553-1_fulltext.pdf [2007, 01 August]
- Olander, H. (2007). Personal interview (telephone). Manager Ethical Funds, Banco Fonder. (2007, 26 June)
- Pictet, (2007). Press release: Investment in the future of energy (27 April, 2007). [Online] Available: http://www.pictet.com/en/home/services/funds/news/clean_energy.html [2007, 01 August]
- Rosenqvist, J. (2007). Personal interview (telephone). Portfolio Manager, Öhman fonder. (2007, 20 June)
- Skillius, Å. (2002). Etiska Fonder. [Online] Available: http://www.itpilot.se/~jonte/nextwork/Etiska_fonder_2002Q4.pdf [2007, 01 August]
- Sparkes, R. (2001). Ethical Investment: Whose Ethics, which Investment?, *Business Ethics: A European Review* 10, 194-2005.
- Stern, N. (2006). *The Economies of Climate Change, The Stern Review*. Cambridge. ISBN-13 978-0-521-700801.
- Sveriges Natur, (2004). Hur gröna är miljöfonderna? Nr 5-2005. [Online] Available: <http://www.snf.se/sveriges-natur/artikel.cfm?CFID=11030998&CFTOKEN=66506998&id=647> [2007, 01 August]
- Åkerfelt, N. (2007). Personal interview (telephone). Portfolio Manager, ABN AMRO. (2007, 26 June)