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**SRI – The Future of Pension Funds**

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Executive Summary

The purpose of this thesis is to determine if it is attractive for pension funds to continue to focus on becoming and remaining socially responsible investors. This has been done by analyzing factors that influence the decision both financially and socially.

In 1980 the first socially responsible index was created, this was the beginning of a new era, which instead of purely financial return is taking other issues into consideration. Since then the focus on corporate social responsibility (CSR) and socially responsible investments (SRI) has steadily increased, and is now a major focus of many pension funds.

CSR is the first issue needed to be evaluated in order to understand the various options an investor wishing to invest socially responsible has. The next step for the investor is to determine if the particular company follows the SRI policies of the investor. This evaluation is part of the creation of a SRI portfolio.

The focus on CSR and SRI is intense due to many factors; however, the general interest of the public is playing a very large role in the continuous development of these two issues. The increased focus is being seen in pension funds; they have made it very far in the development of becoming socially responsible investors, and are often viewed as pioneers in this field of investment.

Nevertheless, for an investor to view SRI as attractive a financial benefit is needed, the financial section of the thesis analyses the performance of SRI stocks versus non-SRI stocks in a ten year period as well as during the recent crisis. Additionally several indices are evaluated for the same time periods to test if socially responsible indices are able to outperform the S&P500 index.

The results from this study indicate that during the time of a crisis there seems to be a benefit in investing in SRI. However, during the longer time period no such results are visible.

The future of SRI is affected by the performance of the stocks; however, as the first sections of this thesis indicates the interest and commitment of companies is of equal importance.
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1. Introduction

In recent years, socially responsible investments (SRI) have received more and more interest and focus from the public eye. Additionally, SRI have become an interesting investment alternative for institutional as well as private investors. There are many factors behind this development. For example, investors are increasingly aware of the business of the companies they invest in; investing in a company that contributes to warfare is not a socially attractive alternative. There is also a growing interest in investments in the focus on Green Energy, which is good for the environment and provides solutions for the future when substitute products could become scarce. However, there are many other considerations when determining if a corporation is socially responsible and thus a possible investment opportunity for the socially responsible investor.

In addition to the social perspective, for these investments to be relevant for investors, a financial benefit is of equal importance. The investors want to see that they receive a positive return for the risk they are willing to take by investing in this “new alternative segment of investment”. This leads to the interesting question of whether socially responsible investments pay off financially or not, and is the pay-off large enough to convince investors to step away from the conventional stocks, and focus on the ones that are socially responsible? The Social Investment Forum reports that investors are truly interested in this kind of investment, and from 2007 to 2010, socially responsible investments enjoyed an increase of 13%.\(^1\) Thus establishing what classifies an investment as socially responsible, and investigating how investors form socially responsible policies, is of great interest, since this segment of investing shows a pattern of growth opportunities.

1.1 Problem Statement

*The purpose of this master’s thesis is to decide if there are benefits for a Pension Fund to be socially responsible. This will be determined based on financial facts as well as theoretical information regarding corporate social responsibility (CSR) and SRI.*

To answer this question the motivation behind why companies show interest in social responsibility, will be researched, as well as what pension funds do in order to be socially

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responsible. Additionally, several financial tests will be examined to determine the risk and return of various portfolios and indices influenced by SRI.

1.2 Methodology

In order to investigate the possible benefits of SRI with a focus on pension funds, it is necessary to understand the background of SRI and the factors that influence it.

This thesis is separated into five sections; the first section will introduce Corporate Social Responsibility (CSR) which is a very important factor behind SRI and its selection criteria. After discussing CSR, the next section will provide a history of SRI including the history and the definition thereof. The following section will investigate the investment strategies of pension funds. Two pension funds will be analyzed for their position regarding SRI and the procedures they have in order to adhere to their own policies. To determine if SRI is financially beneficial, and a possible alternative to the conventional investment options, section five and six will evaluate actual data from stock and index returns, including the risk and return of SRI portfolios and non-SRI portfolios, as well as the financial measures of various indices. In chapter eight, the conclusion, information from the theoretical analysis and the financial analysis will be synthesized to determine what the future should look like for pension funds and SRI.

The following diagram shows the structure of the thesis.
1.3 Limitations

The time period for the data collected from Datastream is comparatively short, due to the selected stocks and the lifespan they have had on the stock market. Because SRI is a fairly recent development the data for both the stocks and the indices is from the last ten years. This can cause some difficulties when evaluating my results and comparing them with those of other studies done within this field. However, the use of monthly data from the past ten years should be sufficient to create reliable results which are valuable for my evaluation.

A different kind of limitation is the selection of stocks. I have decided to accept SRI stocks that are found in large socially responsible index funds, and the non-SRI stocks are based primarily on stocks that have been excluded from Danish Pensions fund’s portfolios. The selection is thus based on secondary data, and faith is put in the quality of selection and exclusion criteria.

The last limitation is the recent legislation regarding short sale; this has affected my portfolios in a way that has harmed their diversifying effect. To work around this problem, the portfolios I have created are solely minimum variance portfolios. These are, of course, not the
best for all kinds of investors due to differences in risk aversion. However, I find it sufficient for my area of focus.
2. CSR and SRI

The connection between CSR and SRI is very important. If there was no drive to develop CSR, then investors would have very limited options for socially responsible investing. Therefore, it is essential to look at CSR, which is the basis of investment opportunities for socially responsible investors.

2.1 CSR - the necessary factor behind SRI

It is very important to understand the reasons behind CSR and why certain companies behave more socially responsible compared to others. If every company showed an equal degree of social responsibility being a socially responsible investor would suddenly be more straightforward; the entire market would be an investment opportunity. The whole process of selecting company stocks for the portfolios would solely be a matter of focusing on lowering the risk and increasing the return. This thesis is focusing on SRI, but without CSR there would be no SRI.

CSR is how each individual company decides to behave in a social responsible context. The EU commission has the following definition:

“Corporate Social Responsibility is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.”

The important question for the investor, who is interested in having a portfolio that is as close to the market portfolio as possible in order to decrease the unsystematic risk as much as possible, is what causes certain companies to be more or less social responsible. There are of course several factors, but J. Campbell provides several guidelines as to which sort of institutional conditions socially responsibility corporate behavior is most likely to be seen. Campbell suggests that companies will act opportunistically, and they will even act in a socially irresponsible way, if the opportunity arises. According to Campbell many economic factors influence the degree of responsibility that companies will show; the financial condition of the company, the health of the economy and the level of competition the company faces. Nevertheless, companies are also affected by several institutional factors;

2 Anne Mette Christiansen: ”CSR – Kort fortalt” Børsen Ledelseshåndbog.
public and private regulations, the presence of NGOs, institutionalized norms, relationships with other companies and dialogue with stakeholders. By investigating these factors, Campbell discovered that a company is less likely to act socially responsible when they are in an unhealthy financial position and the state of the economy is bad. This is due to the fact that the company is struggling to maintain its position in the market, and any extra costs that could occur due to social responsibility will be avoided. Additionally, competition amongst companies affects the degree of responsibility. If a company is either facing a lot or very little competition, they will most likely not act socially responsible. In the case of high competition, it is the survival of the fittest, and companies are willing to do most things in order to be there the day after, this includes the sacrifice of being socially responsible. If the competition is minimal, the company can be classified as a monopolist, and the degree of social responsibility will be minimal because they know that their behavior will not affect their position in the market. With the right amount of competition, being socially responsible can be a way for a company to diversify itself from its competitors and attract a larger share of the market.

Campbell also recognizes the impact institutional investors can make on a company. If the stakeholders take an active stand and engage in a dialogue, they can influence the company to change the degree of social responsibility. What the investors do in order to make such a change will be discussed in further detail later in this thesis.

In order to increase the interest in CSR and the involvement of the state is also very important. Campbell argues that “strong and well-enforced state regulations are in place to ensure social responsibility”\(^3\). An example of state regulation in Denmark will be described in a later section. However, regulations are not only the responsibility of the state, industries often enforce their own regulatory systems to ensure product quality and fair practices.

When it comes to the future development of CSR the signs are clear and many. In 2007 The Economist Intelligence Unit published results that indicate this development. 55% of companies surveyed ranked CSR as a high or very-high priority. When asked what they predict the level of priority to be in three years this number rises to 70% responding that CSR is a high or very-high priority. This finding is supported by Lars Rohde, the administrative director of ATP, who states: “I do no longer encounter corporations, which are not interested

in the climate or CSR. It is here to stay\textsuperscript{4}.” The administrative director of ATP is of course interested in the development of CSR for several reasons, but especially when it comes to the focus of the funds’ investments. ATP is a leading prominent socially responsible investor, and when more corporations have CSR as a top priority, it will be easier for ATP to find new investment opportunities, without compromising their SRI policies. One might suspect the reasons behind Rohde’s statement regarding CSR. Due to the investment policies of ATP, he is interested in the general public believing in CSR, the increased interest will cause could very possibly lead to an increase in the stock price. The more Rohde acknowledges the positive future of CSR the more likely is it that the stock price of socially responsible companies will increase, which in the end will increase the value of ATP’s portfolio.

2.1.1 CSR and the Financial Crisis

The recent financial crisis has had large impact on stock prices, and thus the financial aspect of this thesis, however, it is also very relevant to determine the position of CSR in the time of a crisis. In this section, it will be evaluated how various corporations react in a time of economic instability. Will they compromise their social responsibility in order save the extra dollar? If this is the case during a crisis, the SRI investors will have fewer investment opportunities.

Depending on what kind of social responsibility the company is focusing on the degree as to how much it will be affected during time of crisis will naturally vary. The following diagram shows three different kinds of CSR, and each area will respond differently in the time of a crisis.

\textsuperscript{4}Lars Rohde: “Sustainability Quarterly” nov. 2008
Philanthropy is an area that has experienced significant cutbacks. What earlier has been used on philanthropic projects will in the time of crisis be diverted to pay salaries and other necessary production expenses. Despite a higher need for charity, both companies and governments make significant cuts in CSR. Evidence show that due to lack of government support “The Global Fund to Fights AIDS, Tuberculosis and Malaria” fell short by about $ 4 billion in 2010⁶. Thus companies which claim to show CSR by focusing on philanthropy will in the time of a crisis very possibly divert from this track of behavior.

In the case of strategic CSR, when the social responsibility is closely linked to the core business of the company, the company is more likely to protect these initiatives. An example of this is Coca-Cola, which has made the commitment to becoming a water neutral company. Since water is a very large part of their core production, they cannot afford to abandon this initiative. If they are perceived as neglecting their responsibility to the scarcity of water in the communities they operate, it is most likely going to hurt their business. Thus, because it is so closely linked to their core business and their future success, this one specific CSR initiative of Coca-Cola will most likely not be affected by the crisis ⁷.

Embedded CSR can be seen in companies in which the CSR is located so deep in the business plan and strategy, that it is part of what they do and stand for, and a part of their identity.

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⁵ M. Jothi, “CSR... In the Ea of Global Economic Meltdown”, p.93  
⁶ M. Jothi, “CSR... In the Era of Global Economic Meltdown”, p.95  
⁷ M. Jothi, “CSR... In the Era of Global Economic Meltdown”, p.96
Companies that show responsibility by focusing on renewable energy are not expected to change their position during a crisis. Additionally, in this sector the demand exceeds the supply, driving the market to grow. The continuing rising oil prices as well as the catastrophic results of the climate changes caused by lack of focus on the environment will cause the companies that have invested in this to continue to benefit from this growing market. The impact of the crisis is not likely to impact this sector’s CSR at all.

Hence, how CSR will be affected by the crisis depends on how deep CSR is in the culture of the company. Has the company simply made some changes for the sake of seeming more socially responsible, or have the changes been embedded in the company’s culture and strategy. The deeper the CSR is embedded in the company, the less likely is it that it will change its socially responsible strategy in the case of a crisis. The time of a crisis can be used to assess which companies have actually made the changes for the long run, and which companies have purely done it because it was expected of them, or to follow a trend.

A survey has been conducted regarding the belief of experts as to the future of CSR. “44% believe that CSR policies will be applied more often as a result of the crisis, 28% think that the essence of CSR will change in the context of the new conditions, while 22% believe that the crisis will have a negative impact on CSR.” Thus changes regarding the position of CSR will occur, and the majority of experts believe that CSR will grow. Cutting CSR expenses may seem like an easy place to save some money, however, not all variations of CSR will be cut in the time of a crisis.

2.2 Socially Responsible Investment and the Role of the World

With the increasing awareness of maintaining a world in which the quality of life will not decrease intangible values are becoming more recognized, and the importance thereof more accepted. Intangible values when it comes to CSR and SRI are for examples seen in the importance of employee satisfaction, brand management and supplier relationships. SRI is a mix of tangible and intangible values, but the fact that people are beginning to make financial choices based on ethical values, suggests that the world is moving in the direction where SRI will be implemented more.

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8 M. Jothi, “CSR... In the Era of Global Economic Meltdown”, p.95
When living in an educated and informed world, the choice of being socially responsible is a decision everyone has to face. This is relevant for the decisions in everyday life, as well as for investment decisions regarding one’s pension. The fact that the media increasingly is focusing on issues that are perceived by the general public as not being socially acceptable indicates the interest of the public. When it is exposed that a pension fund is investing in a company that produces parts that can be used to warfare, the public is often disapproving and the pension fund could be forced to make alterations in their portfolio. This is one of many examples in which a pension fund does not necessarily invest in the stock with the highest expected return and lowest risk, but is forced to take other factors into the calculation when determining the optimal portfolio for the pension fund and its beneficiaries.

SRI can be seen in many dimensions and aspects, however, the ones receiving the most attention are environment, and social and governance factors (ESG). Many investors are gradually realizing the importance of considering other aspects than solely the short-term financial return, and in order to achieve a long-lasting steady return other factors need to be taken into consideration. The interest for these other factors is seen by the efforts international governments make in order for changes to appear. International collaboration can as an example be seen by the recent climate conferences. These conferences received a lot of media attention, which is a clear signal that this is very relevant and important to society in general. The focus of the meeting in Copenhagen in 2009 and Mexico in 2010 was for the sake and the future of the environment. These meetings discussed the necessity of restricting carbon dioxide emissions, and of internal cooperation. If international laws are implemented regarding emission limits, more companies will be forced to change the way they operate. This change may lead them into becoming an SRI opportunity, which pension funds can invest in without compromising their social responsibility policies. In addition to the environmental benefits, the pension fund is also interested in this development in order to increase the market in which they can invest.

Investors that can anticipate new environmental regulations, and thus solely invest in companies which already has gone through the necessary changes to become socially responsible, could have the advantage of minimizing the possible risk of investing in a company that might be forced to undergo extensive change in the future, when certain regulations might be made mandatory. These changes could be very expensive for the
company and the stock price could face a decrease. In a way companies already enforcing CSR policies are regulation safe, and thus a more secure long-term investment.

2.3 SRI a definition and its criteria

The Social Investment Forum defines SRI as follows: “Socially responsible investing integrates environmental, social and governance factors into investment decisions.” When institutional investors make decisions regarding their current and future investments, corporate responsibility and its social impact should be part of the decision making process. While investments historically have been about optimizing profit, factors that have a positive impact on the society are today of equally importance.

Socially responsible investment goes under a number of names. It is sometimes referred to as sustainable investing, green investing, guideline investing, screened investing, ethical investing, mission investing, double or triple bottom line investing or social investing and natural investing. In the rest of this thesis it will be referred to solely as SRI. As the amount of names SRI covers many different types of investments; it can amongst others refer to investments focusing on renewable energy, investments that do not accept alcohol, gambling or tobacco stocks, or investments that focus on the overall social welfare of the people. The following paragraphs show three different investment strategies for SRI.

“Ethical investing: Individual and institutional investors and business leaders decide what their most important ethical values are and make their investment decisions or conduct their businesses to reflect these values, in addition to making purely for-profit economic decisions. In the SRI movement this is referred to as “the double bottom line.”

Social Investing: In addition to using social decisions in the investment process, investors use strategies such as shareholder resolutions in the proxy process to change and influence corporate programs and practices. Consumers can also apply pressure for changes.

Alternative investing: Investments in land trusts, cooperative, community-based revolving loans funds and community-based banks are designed to provide traditionally hard-to-obtain

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capital for such programs as preservation of family farms, loans to small businesses, and construction of low to moderate-income housing."

Thus an investor can be classified as socially responsible by following the investment criteria of one of these three alternatives. A positive result of the investment strategies of SRI is that it also works to enhance the bottom lines of the companies invested in; this enhancement of the specific companies delivers more long-term wealth to the shareholders. In addition to improving the companies in question, SRI investors also seek to build wealth in under-served communities worldwide. With SRI, it is possible for investors to put their money into projects that will create a better world in the long term, while at the same time generate a competitive return.

With the previous mentioned facts, it is clear that defining a company as being a possible SRI is very much up to the individual investors, and their believes and values. What is important to one specific investor might not rank as high on the list of another. However, the thing they have in common is that decisions must be made, and people are actively choosing investments that reflect their ethical values. It is stated in “Where Faith and Wall Street Intersect” that many individual investors factor their personal values into investment decisions; this is definitely also the case for investors interested in SRI.

If looking at SRI from a modern portfolio perspective, it does not seem like an attractive investment opportunity. This is due to the fact that “restricting the universe for any reason pushes the investor into a suboptimal portfolio.” This means that when creating limitations as to what an investor can or cannot invest in, for whatever reason, the portfolio cannot be as well diversified as a portfolio that can contain the entire market. Furthermore, a less diversified portfolio leads to higher unsystematic risk, which is the risk that an investor has the opportunity to minimize through diversification. Nevertheless, by looking at previous research, SRI does not seem to follow the pattern of a suboptimal portfolio according to the modern portfolio theory.

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12 MMA Praxis Mutual Funds: “Where Faith and Wall Street Intersect”
13 Lloyd Kurtz:”Answers to Four Questions”. p.127
2.4 The History of SRI

Prior to the 1980’s, SRI was considered to be no more than “feel-good-investing” or in today’s words, “politically-correct-investing”. It was mainly religious organizations that focused on SRI according to their religious and ethical concerns. Previously on Wall Street the social aspect was not taken into consideration when investing, here the slogan was “GREED IS GOOD” rather than focusing on the bigger picture and what harm greed might do.

The focus on SRI began off in the 1980’s in the USA. In this time, SRI changed from being mainly religiously based to also concern environmental, governmental and democratic issues. It was now more of a social concern than a moral concern. The first sign of U.S. corporations taking a step back and evaluating the businesses they were in, was when they stopped doing business with companies in apartheid South Africa. In the late 1980’s, the focus on SRI spread to other parts of the world including Europe, Australia and Japan.14

“Scandinavian SRI was built on a foundation of institutional elements, rather than a pursuit of economic gains.” The signs of SRI in Scandinavia can be traced back to 1965 in Sweden, when the “AktieAnsvar Aktiefond” was established by the Temperance movement of the Baptist Church, this is claimed to be the oldest ethical funds open to the public. However, it was not until 1988 that an organization other than a church was concerned with SRI.

Environmental SRI spread from being a charitable niche practice using negative screening, to become a common practice involving BIC (best in class). In 1988, “the Carlson WWF-fund” was established. This was the first Scandinavian environmental/BIC-fund.16

Denmark followed the development in Scandinavia almost a decade later. In 1996, the take-off of SRI was caused by a significant event that attracted the eye of the public. It was discovered that French oil producer Total had a financial connection to the military dictatorship in Burma. This lead to the decision of several pension funds to exclude the company’s stocks from their portfolios. Another important event was in 1997 when PKA mainstreamed SRI by creating procedures including selection along certain international conventions and industries. Mainstreaming in Denmark was developed to include mostly

\[14\] Elias Bengtsson: “A History of Scandinavian Socially Responsible Investing”. p.970
\[16\] Elias Bengtsson: “A History of Scandinavian Socially Responsible Investing”. p.973
occupational funds, and the role of private investors was limited. The following year Alm Invest launched the first Danish environmental fund. In 2004 ATP took a stand and emphasized ethical considerations in asset management. Even though ATP was active in SRI since 2001, not many divestments occurred between 2001 and 2008. The only divestment that took place was the divestiture from Wal-Mart in 2005. This was done due to Wal-Mart’s violation of international labor conventions.

In the early to mid 2000’s, SRI changed from being a small niche to being the focus of interest and was adopted by many large investors. In 2006, a new Scandinavian index was launched. The GES/SIX Ethical index was inspired by its Anglo-Saxon counterparts Dow Jones Sustainability Index and FTSE4Good. This index made it simpler for investors to evaluate potential companies. “It excludes companies that violate international conventions on environmental and human rights issues, and companies producing armaments, firearms, tobacco, alcohol or pornography, as well as the gambling industry.” It was now possible to compare the performance of one SRI portfolio to a Scandinavian benchmark. These factors enabled SRI as a whole to increase in volume and naturally also in assets. By 2005 assets managed by Scandinavian SRI investors amounted to roughly 346 billion Euro.

Since 1996, the social investment industry has been awarded an annual prize called the Moskowitz prize for the best quantitative study of socially responsible investing. This prize shows that there is continuous interest in the topic, and that investors are interested in having continuous research done to show the risks, profits and future potentials associated with SRI.

2.5 Why invest responsibly?

Client demands and regulations are important factors behind the growth of responsible investments. These demands arise because the general public is showing interest in what is right and wrong for the sake of their own future as well as the world’s future. However, it can be very hard to determine the ethical standards of a business because a standardization of evaluating the ethical side is close to impossible.

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18 Elias Bengtsson: “A History of Scandinavian Socially Responsible Investing”. p.979
20 Lloyd Kurtz: “Answers to Four Questions”. p.126
SRI – The Future of Pension Funds

What seems right from one point of view might not be the case seen from another perspective. When the Norwegian Government excluded their investments in Honeywell International because of its production of nuclear weapons, they did this for an obvious apparent reason. Nevertheless, the same company is also developing new products, which non-ozone depleting hydro fluorocarbons refrigerants for automotive, home and transportation uses\(^\text{21}\). This creates the dilemma; when is a company not following the SRI policies of an investor, and when is it. Can a socially responsible investor justify keeping the stocks of Honeywell because they are doing much for the development of non-ozone depleting products, while knowing that the same company is participating in nuclear weapons? The answer to this question is up to each individual investor; it is a question, which depending on what the investor believes as being the most important factor, will have different, but no right or wrong answers.

In order to make the decision regarding SRI more standardized and thus easier to enforce, many institutional investors have guidelines and policies that will make the decision of who and what is socially responsible, a standard procedure rather than a choice. These guidelines that the investor follows will be explained in depth in the section about ATP and Danica Pension. Nevertheless, when creating the policies and guidelines the issues of what is right and acceptable versus wrong and unacceptable, have to be considered and ways to handle and solve them have to be developed. Since there is no right or wrong answer the final decision is up to the investor, and this should be based on the ethical principles the investor represents.

Pension funds invest the money of its clients, thus it is very important that the investments they engage in do not conflict with the values of the clients; their values have to represent the values of the clients. Nevertheless, it must not be forgotten that the main purpose of pension funds is to generate an excess return, which can secure the future of the clients. The question is if this excess return can be achieved without compromising with the ethical value of the general public which is the clientele of the pension funds. Answering this question will be the focus of the financial section later on in the thesis.

\(^{21}\) “OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds”
2.6 The trend of SRI

OECD is aware of the positive direction SRI is taking and has thus created “OECD Guidelines for Multinational Enterprises” which represents one of the first international initiatives on social responsibility in international business. The guidelines set the standards for responsible business in many major areas. The adhering governments, which represent all regions of the world and account for 85% of foreign direct investment, are committed to encouraging companies in their territory to observe and acknowledge the guidelines in order to improve the level of responsible investment\textsuperscript{22}. That the guidelines are actually implemented and used by the companies can be seen in the area of human rights where 43% of the respondents of Fortune Global 500 companies indicate that their companies use the guidelines.

As mentioned previously, a trend is showing that the public is showing interest in what sort of business the money is being invested in. A 2001 poll showed that about 50% of US investors reported that they consider social criteria when making investment decisions\textsuperscript{23}. This tendency naturally affects the investment decisions of investments funds. Several examples can be seen of large funds liquidating their investment in companies perceived as lacking corporate social responsibility. Some of the most visible cases of such liquidations are funds directly owned or managed by the public sector. An example of this is Norges Bank Investment Management, in 2006 they withdrew their $416 million investment in Wal-Mart shares\textsuperscript{24}.

Four factors are seen as responsible for the rise of interest in socially responsible investments:

- “The concern over the ability of public policy to address issues such as environmental degradation and human rights abuses, especially in developing countries, coupled with an acknowledgment that business has the responsibility and financial resources to address these issues.

- Empirical research showing that investors can increase their portfolio risk-adjusted rates of returns by considering ESG issues.

\textsuperscript{22} “OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds”

\textsuperscript{23} OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds”

The perception in some countries that fiduciary responsibility may and should include wider concerns than financial returns

Public opinion favoring SRI, largely as a result of intense advocacy by lobbying groups.\(^{25}\)

The interest in SRI has led to the development of research industry dedicated to evaluate companies’ position regarding social responsibility. A technique called triple bottom line reporting is becoming increasingly accepted. This reporting is a supplement to the usual annual statement. In triple bottom line a company will include its social and environmental operations along with its financial ones.

Many EU governments have started to require reporting of companies’ social responsibility. In January 2009 Denmark became one of these countries. The Danish parliament adopted the proposed "Act amending the Danish Financial Statements Act (Accounting for CSR in large businesses)\(^{26}\) making it mandatory for the 1100 largest Danish companies, investors and state-owned companies to include information regarding its position on social responsibility.\(^{27}\)

The purpose and aim for this act is to inspire the companies to take an active position on social responsibility, it also intends to make the company more internationally competitive: The fact that the companies will become more transparent will increase their competitiveness.

If a company is already acceded to the UN PRI, the Danish law has decided that the information required from this participation is sufficient to refer to. The UN PRI is explained in the following section.

Another way for the companies to be assessed and compared in the respect to their social responsibility concerns is by using “The Global Reporting Initiative Framework” created by a none-profit organization named Global Reporting Initiative. The framework represents an attempt to standardize the disclosure on ESG performances. The benefits of following the guidelines of the framework are for the company to demonstrate sustainable development, to compare performance over time, and to assess the performance with respect to laws, standards and norms.\(^{28}\)

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25 "OECD", 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds”


Help and guidance for changing the company into becoming more socially responsible can, however, also be purchased on a contractual basis. There are many consulting businesses that have specialized in offering advice in this sort of business. Ethix, which Danica Pension uses, is an example of this. They offer their service to investment funds, they will do the screening and the advocacy, and thus secure that what the investment fund is investing in does truly fulfill the fund’s SRI policies. Thus standardization and external help is becoming of bigger interest for socially conscious investors as well as companies.

With these various ways of indentifying SRI issues and the policies that follows, it has become easier for the company to find directions and to follow guidelines. However, in Denmark, due to the newly enforced law it has also become easier for the individual consumer to identify what the institutional investor as well as the companies stand for and what is being done in order to being social responsible. The required reports, do not force the institutional investors to make any changes regarding their SRI policies, but it does force them to enclose them. This kind of transparency makes it possible for the investor and pension fund clients to determine if the fund or investment is living up to their standards and wishes.

When it comes to SRI there are several reasons why pension funds and other institutional investors should continue to show further interest. Many experts agree that SRI will have higher long-term risk adjusted return than non-SRI. Some argue that non-SRI will experience being “starved” due to consumer activism, which will lower the overall market risk.

Another reason why pension funds will continue to show interest in SRI is their fiduciary responsibility, which forces the fund to consider clients’ interests and social welfare, not solely the financial gain of the clients. A final and very important aspect as to why institutional investors need to consider SRI is political. The funds are in danger of being exposed to much criticism and getting a bad reputation, if they fail to take an action regarding SRI. Several non-governmental organizations such as Greenpeace and Amnesty International have started lobbying pension funds on their actions with SRI. In a worst case scenario the beneficiaries will move their pensions to funds that do not compromise return for social responsibility, which could lead to the end of a pension fund.
A trend in OECD countries is that more and more legislations for public pension funds and SRI are being enforced. An example is the previously mentioned law in Denmark; another is in The Netherlands where the 1995 Green Investment Directive provides an income tax exemption for returns from green financial intermediaries\(^\text{29}\).

Due to the large size of assets that pension funds have to invest, any legislation regarding SRI will most likely affect financial markets overall. Thus the legislators do have to think twice before enforcing new regulations, which could have a larger affect on the overall market than anticipated. Social responsibility is a very important issue that must be legislated; however, enforcing investors to invest solely in SRI will destroy the picture of the free market, and would have catastrophic consequences. These consequences would be seen in the developed world, but especially in the undeveloped world, which very likely would be left even further behind the developed world. These consequences would lead one to question the socially responsibility of the legislation. This could be the reason why the newly enforced legislation only demands the companies to declare their stand on SRI and what they do for it. The legislation does not enforce any company to become more social responsible.

### 2.7 UN Principles for Responsible Investment

The history of the UN PRI dates back to 2005, when a group of the world’s largest investors were invited by the UN Secretary-General to join a process in developing the principles. Representatives from 20 institutional investors from twelve countries agreed to participate in the investor group, which were the group behind the development of the principles. The group of representatives was supported by a 70-person multi-stakeholder group of experts from the investment industry, intergovernmental and governmental organizations, civil society and academia\(^\text{30}\). The developing process lasted from April 2005 until January 2006, and the principles were created through all-day long discussions and debates. Following the launch of the principles a general office was created in order for the principles to be adopted by investors, as well as assisting investors implementing the principles.

\(^{29}\) OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds”

In October 2010 more than 800 investors from 45 different countries had become signatories. Up until 2011 the PRI relied on contributions from the network, in 2011 an annual subscription fee is introduced. For this fee the signatories can expect to obtain the following:

- “Improve your understanding and management of complex issues, risks and value drivers related to responsible investing
- Gain access to a comprehensive knowledge bank of implementation support, reducing research and implementation costs, through our Enhanced portal platform and PRI in Practice posts of best practice.
- Be part of a global network of peer investors exploring and acting on ESG issues
- Reputational benefits from publicly demonstrating top-level commitment to integrating ESG issues in a way that is consistent with fiduciary duty
- Contribute to a more long-term oriented, transparent, sustainable and well-governed investment market and business activity
- Participate in shaping the global investment agenda by participating in the Initiative's various sectoral and regional groups
- Gain access to key stakeholders from the government and civil society

The UN principles have achieved the popularity for various reasons; however, the large interest stem from institutional investors, who have a duty to act in the best long-term interest of their beneficiaries. By applying these principles the broader objectives of the society will be better aligned with the investors. Thus the principles are created to help investors do the right thing, and to standardize the procedures necessary in becoming a social responsible investor. A list of the six principles follows, a comprehensive list of the six principles can be found in the appendix.

1. “We will incorporate ESG issues into investment analysis and decision-making processes.
2. We will be active owners and incorporate ESG issues into our ownership policies and practices.
3. We will seek appropriate disclosure on ESG issues by the entities in which we invest.
4. We will promote acceptance and implementation of the Principles within the investment industry.
5. We will work together to enhance our effectiveness in implementing the Principles.

6. We will each report on our activities and progress towards implementing the Principles.\textsuperscript{32}

When an investor has signed the UN PRI they are obligated to include the ESG policies in their investment considerations, they are also obligated to show an active ownership with the companies they invest in. This basically means that the investors will show engagement in the policies of the company and through an active dialogue they will try to influence the companies to make the changes necessary for the company to become more aware of its CSR. The more investors that join the UN PRI the more pressure the companies will come to experience. When UN PRI achieves more support the pressure on companies prioritizing their CSR will also increase, which as mentioned earlier will create more investment opportunities for SRI conscious investors.

3. SRI and Pension Funds

The following sections are devoted to two pension funds, ATP and Danica Pension, and their SRI operations. The reason why looking at two pension funds is first of all to see and evaluate the importance of SRI to pension funds, but also to determine whether a public pension fund invests differently than a private pension fund, and if so in which matter.

In a study where SRI practitioners were interviewed it was emphasized that pension funds are by far the most important target group of governmental SRI initiatives. This is because they are long-term investors, and because of the amount of assets at their disposal they have to invest. Moreover, public pension schemes could be used as flagships to demonstrate their commitment to CSR and SRI. Because of these facts, looking at the behavior of pension funds is very interesting, and will present a clear indication of the optimal kind of behavior and possible future for SRI conscious investors.

3.1 ATP and SRI

In addition to the above stated facts, institutional investors represent the largest and fastest growing segment of the SRI world; this is one of the reasons why I think it is interesting to see how ATP, which is the largest public pension fund in Denmark, incorporates SRI into the daily procedures.

The cornerstone for ATP and its SRI policies is stated in the following quote:

“ATP does not purchase equities in companies that deliberately and repeatedly violate the rules laid down by the national authorities in the markets in which the company operates or by international organizations endorsed by Denmark. Nor does ATP purchase equities in companies located in countries being subjected to a trade embargo imposed by the UN or the EU and endorsed by Denmark.”

ATP’s focus on SRI began back in 1997, when the board laid down a superior set of guidelines for social responsibility with regard to investments. In 2005 a committee was developed with ATP’s director as a chairman. In 2006 ATP joined UN PRI, and in 2008...

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ATP’s directory board laid down more specific policies for SRI and gave mandate to stronger contribution. In 2009 initiatives were implemented including a special SRI team.

As can be seen by the brief history of ATP in the previous paragraph, ATP is already very far in the process of considering the social responsibility when creating their investment portfolios. Each year, when ATP is disclosing the annual report a separate report concerning solely their position on SRI and their policies regarding SRI is enclosed. This report indicates which processes they perform in order to be socially responsible, and also what changes they have been forced to make in order to remain on the same track and in the same position. The following section will be devoted to the processes ATP goes through in order to continue to call themselves socially responsible investors.

ATP has estimated that a focus on social responsibility has lowered its investment risk. They believe that if a company does not act socially responsible the risk for the company will be increased and thus affect the value of the company. Naturally, realizing this and the benefits possible to gain from it is one of the reasons why ATP wants to be a leader in the process of SRI.

In 2009 ATP was in contact with 251 companies either directly or through a third party, this was due to a suspicion that there was a conflict with ATP’s guidelines of social responsibility. In 2009 only four companies was excluded from their portfolio with respect to neglecting social responsibility, which indicates that by being an active shareholder it is possible to create changes in the company in question. The largest source of inspiration in ATP’s work with SRI is the UN PRI.

When ATP included a special SRI team in 2009 the management model for SRI looked as follows:

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It is the board that determines the policy of social responsibility in investments; the committee coordinates the implementation of the policy, and is responsible for the alignment of the process with the policies for SRI. The committee meets four times a year and makes decisions on:

- More in-depth analysis of individual companies or particular issues of concern.
- Recommendations for exclusion.
- Recommendations for revised fact-finding and possible revocation of exclusion[^38].

In order to be able to carry out this procedure the SRI team is necessary; the decisions are based on information gathered by the SRI team as well as the portfolio managers. To monitor possible violations of the SRI policy the SRI team is responsible for the daily control of the companies invested in, which includes possible communication with the companies. This is done in close corporation with the portfolio managers.

The communication with the companies is an essential part of the SRI procedure. There is a set process of engagement which ATP follows in order to secure the social responsibility. The process of engagement can be seen below:

The first stage of the process, the screening phase, has the purposes of ensuring ATP that the investments do not violate the SRI policy. In case of violation of the SRI policy is the issue, or ATP has a strong suspicion thereof, the screening phase leads to a fact finding process. The purpose of fact finding is to decide if the company is intentionally violating the SRI policy and if it has happened repeatedly. If it is determined that the SRI policy has been violated the committee can decide to engage in a targeted dialogue with the company, this is done in order to influence the company to change its behavior. Several outcomes can result from the process of engagement.

- A case can be dismissed because after fact finding ATP concludes that there is no violation of the SRI policies.
- After confirming violation of the SRI policy, the companies make enough positive moves to solve the problem and ensure it will not happen again. This process of action can be done on the company’s own initiative or due to ATP’s targeted dialogue. This causes the case to be dismissed.
- Violation is confirmed and a company can be excluded, this happens if the company does not want to solve the issues or does not want to engage in a dialogue with ATP.

ATP has a long tradition of active ownership, this has previously been done in order to improve the performance of the companies and to hedge the risk. However, when it comes to active ownership and SRI the purpose behind the process is to assure that the SRI policies are being respected and complied with.

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A TP believes that with ownership comes responsibility, and is thus an investor that chooses to communicate with the companies, and does not choose another solution like voting with the feet or outsourcing the responsibility to an external partner. The communication regarding SRI issues follows the same procedure as ATP uses for other investment purposes. If the dialogue does not show specific improvements and results, ATP will sell the company’s stock, which is equivalent to excluding them from their portfolio.

Nevertheless, ATP prefer to have a critical dialogue rather than selling out of the stocks. They believe by retaining the ownership they have the opportunity to influence the company to make the necessary changes, rather than selling their share and leave the dialogue to new and maybe not so critical owners. ATP shows persistence in their dialogue, as long as they experience potential for improvements and corrections, ATP remain as stock owners. However, it must be underlined that ATP does not in all cases pursue the targeted dialogue, if the dialogue seems pointless, and there are clear violations of the SRI policies, the committee makes a decision to exclude the company. An example of this was seen in August 2009 when ATP excluded Hyundai Motor Company, where the prosecutions against the company were apparent. The CEA and chairman of the board had admitted to the creation of a fond on 100 million US$ to be used for bribery of banks, politicians and public employed.

After implementing the special SRI team in 2009, ATP have found it to be necessary to exclude four companies. This was done because they could not achieve a satisfying improvement of the SRI policies. The four companies were:

- Hyundai Motor Company
- Nissan Motor
- Dong Feng Motor Company
- Dong Feng Automotive

In order for ATP to do the proper screening it is necessary that the companies deliver the appropriate information. A problem with this occurred in the fall of 2008 when ATP became aware of prosecutions against Nissan for breaking EU’s weapon embargoes. Several times ATP took contact with the Nissan, but did not receive an respond, it was not until ATP warned the company that it would be excluded that ATP received an answer, however, the reply was inadequate, and ATP decided the following May, due to lack of willingness to engage in an open dialogue about not fulfilling the SRI policies, to exclude Nissan. As
mentioned earlier there are several ways in which a company can be violating SRI policies, the following diagram indicates the allegations of violations of ATP’s SRI policies.

![Breakdown of allegations of violations of the ATP Policy of Social Responsibility](image)

**Figure 5 Breakdown of allegation of violations of the ATP Policy of Social Responsibility**

The largest portion of violations of ATP’s SRI policies is ILO, an example of an episode of ATP owing stocks in a company violating this policy was back in the spring of 2005. ATP was made aware of a number of prosecutions against Wal-Mart Stores Inc. The prosecutions were amongst others regarding child labor, sex discrimination and forced overtime. ATP’s fact finding confirmed that the prosecutions were true, and that Wal-Mart repeatedly had broken ATP’s SRI policies. Because of the seriousness of the problem, and the fact that Wal-Mart did not respond to the targeted dialogue, ATP decided that the necessary step was to exclude Wal-Mart from the portfolio. When a company is excluded from ATP’s portfolio it is not necessarily for good, however, ATP does not use resources to keep up on information on companies in which they do no longer invest. For this reason ATP is not aware of Wal-Mart having changed the specific causes for the exclusion. If ATP were to once again invest in Wal-Mart it would go through the same procedure as when including any new company. ATP would follow the necessary steps to secure the fit of Wal-Mart in their portfolio.

ATP focus on continuous improvement and do not settle with what they so far has achieved with regards to SRI. They were the first Danish investor to join UN PRI, and they have been

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part of establishing Dansif (Danish Social Investment Forum). They are working on increasing the efficiency of work with SRI; to do this ATP have in 2009 strengthened the dialogue and cooperation with Danish as well as foreign investors; ATP are showing clear signs that they believe in the future of SRI.

3.2 Danica Pension and SRI

Contrary to ATP Danica Pension is not a public pension fund, and may not feel as obligated to consider social responsibility when investing. The focus of the fund is naturally that of the beneficiaries, however, maybe the financial return of the investments seems to outweigh the other already mentioned aspects.

Danica Pension is a private pension fund in Denmark, the pension fund has more than 600,000 clients which makes it one of Denmark’s largest pension funds. The total value of the pension funds assets is 281 billion kroner, with more than 24 billion in yearly client payments.

The fund is a subsidiary company, 100% owned by the “Danske Bank Concern”, which investment procedures they also follow. In 2010 the return on the investments were 12,9% on Danica Balance\(^{41}\) and Danica Link\(^{42}\), on the traditional products the return was 5,8%

The following table shows how the assets of Danica Pension are split between the three investment opportunities.

<table>
<thead>
<tr>
<th>Product</th>
<th>Number of clients</th>
<th>Ca. value of pension</th>
<th>Following SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danica Traditional</td>
<td>535,000</td>
<td>181 billion kroner</td>
<td>Yes</td>
</tr>
<tr>
<td>Danica Balance</td>
<td>40,000</td>
<td>6 billion kroner</td>
<td>Yes</td>
</tr>
<tr>
<td>Danica Link</td>
<td>60,000</td>
<td>16 billion kroner</td>
<td>Partly</td>
</tr>
</tbody>
</table>

Figure 6 Danica Pension's investments\(^{43}\)

A difference between ATP and Danica Pension is how Danica Pension still leaves part of the ethical question up to the clients. The client has the investment opportunity “Danica Link”,

\(^{41}\) An investment method based on the age and risk willingness of the client.  
\(^{42}\) An investment option, which gives the client more ability to determine how the money should be invested.  
with this way of investing, the client continues to have the opportunity of investing in companies that do not follow the SRI policies.

Nevertheless, as can be seen by the table above, the lion share of investments done by Danica Pension is following the SRI policies. Thus, like ATP, Danica Pension is also aware of the importance of being socially responsible. They are taking a stand, and are informing its clients about their policies, and the possible decisions the beneficiaries have to make.

The purpose of Danica Pension’s politic for SRI is to secure that the pensions of the clients are not invested in companies that intentionally violates international norms for human rights, environment, corruption or weapon. In order for companies to create long-term value Danica Pension believes in the importance of the companies following the previous stated international norms. Thus when following the SRI policies, Danica Pension believes it does not violate its goal of investing the assets of the clients in order to achieve the highest possible return.

Like ATP, Danica Pension also perform regular screening of the companies invested in, however, a difference is that Danica Pension does not perform the screening itself, it outsources this part to a specialized SRI-consultancy, Ethix SRI Advisors. The screening includes companies in MSCI World and MSCI emerging markets indices. The screening is based on the UN PRI, and follows the policy of the parent company “Danske Bank Concern.”

If a company violates the norms, Danica Pension goes into dialogue with the company. This dialogue shall declare if the company is planning to change its behavior on the issue in question. The answer to this question determines if the investment will be continued or excluded from the portfolio.

A large difference between Danica Pension and ATP is seen in how much is done in-house for ATP whereas Danica Pension still outsources part of the process. ATP is further in the process, and has invested more money and time in the development of the necessary procedures. It also indicates that ATP is determined to be in it for the long run, when everything is done in-house, the option of suddenly abandoning the project is no longer an easy and inexpensive option. Danica Pension uses Ethix SRI Advisors, which can be eliminated in case the results are not as expected and do not fulfill their demands.

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SRI – The Future of Pension Funds

With these facts in mind, it is necessary to mention that there are costs associated with being socially responsible. This is the same for ATP as well as for Danica Pension. Having to go through all the procedures in order to secure that their investments follow their policies is not free of costs. The costs of being a socially responsible investor can be compared to the costs of being an active investor; studies have shown that when the costs are taken into consideration the active investor does not outperform the passive investor. Thus in order for this kind of investment to be financially beneficial, it is important that the SRI stocks perform better than the none-SRI stocks in the long-run.

Danica Pension has a list of excluded companies, the basis for the decision of excluding a company is based on analysis performed by the independent advisors, Ethix SRI Advisors, the analysis are evaluated and updated twice a year. The following section briefly describes the work Ethix SRI Advisors are performing.

3.2.1 Ethix SRI Advisors

Ethix SRI Advisors have specialized in advising institutional investors in integrating ESG factors into the investment process. They serve clients in nine different European countries, and have more than €250 billion assets under their advise. Their services include many aspects of the SRI aspects. They offer “policy and strategy development, portfolio monitoring and company analysis, engagement and company dialogue, and communication support”.

Thus the services Ethix SRI Advisors are offering can assist institutional investors, which are interested in SRI, but not ready to develop a whole department for the necessary regulations.

4. Financial Performance and SRI

A large number of studies have shown that SRI stocks are able to perform on an equal level with non-SRI stocks. An index which only takes SRI into account has been able to show this. In section five and six I will run some tests to see if I agree with the superior performance of SRI stocks and indices.

The index MSCI KLD 400 is equivalent to the S&P 500, however, this only rates companies which are approved as being socially responsible. The index started in 1990 and has since the beginning, on a financial level, been capable of competing with the renowned index S&P500. Evidence of the trust in returns generated by SRI is seen by the amount invested. In the USA, from 1995 to 2010 the dollars under professional investment have increased from $639 billion to $3,07 trillion, this increase outpaces the overall market. The fact that large pension funds in Denmark like ATP and Danica Pension also focuses on SRI underlines the stated trend of performance, they are obligated to seek out superior investments for the portfolios they manage.

4.1 MCSI KLD 400 index

In order for investors to be able to see how their SRI portfolios are performing, a good benchmark is essential, a good measure for comparison is the MSCI KLD 400 index. The following section will be devoted to the history and the basis for the index.

In 2010 the index made a transition from FTSE KLD 400 index to be called the MSCI KLD 400. The history of the FTSE KLD 400 index goes back to 1990 which makes it one of the first indices designed to help socially conscious investors weigh social and environmental factors in their investment decisions.

Many criteria are behind the creation and the sustainability of the index. The index consists of 400 companies, with a high ESG performance, selected from the MSCI USA Investable Market Index (IMI). Before a company is included in the index an analysis and rating of its management of its ESG performance is performed. The rating criterion is done on each company based on five categories:

1. “Environment
2. Community and Society
3. Employees and Supply Chain
4. Customers
5. Governance and Ethics

Additionally, the index does not include companies that are engaged in significant business activities involving alcohol, tobacco, firearms, gambling, nuclear power or military weapons.

In order to evaluate a company the analysts review more than 500 data points and score on more than 100 indicators. The ratings then fall on a score between AAA and C, the ratings are normalized across industries, which means that one industry might not achive any C ratings while another industry does not receive any A ratings.

The index consists of mainly large cap companies, which represents 90% of the index, the last 10% is spread between 9% mid cap companies and 1% small cap. In order for the index to continue to be trustworthy maintenance is naturally required; additions to the the index is done on a quartely basis, and changes are made at the end of February, May, August and November. It is possible during the quarter for the index to fall below 400 companies, if a company is dropped from the IMI it will automaticaly be dropped from the MSCI KLD 400 as well, additionally, if a company receives a rating of “CCC” or lower, it will immedidately be deleted from the index, and as stated previously it will not be replaced until the next quarter review.

The index contains many different sectors, as can be seen from the diagram below:

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Figure 7: Sector Breakdown of MSCI KLD 400 Index\textsuperscript{47}

Since 1990 the index has naturally been compared to other indices, the following graph shows how since the beginning the MSCI KLD 400 index has performed compared to the MSCI USA Investable Market Index:

Figure 8: Index Performance\textsuperscript{48}

What can be seen on the graph is in accordance to studies on social indices already mentioned in this thesis. The social index does over the entire period outperform the regular market.


index. In order to emphasize by how much the one index outperforms the other, the exact numbers are: In the period from 1990 until September 2010 the MSCI KLD 400 index has generated a total return of 9.24% and the market index only 8.68%. The numbers speak for themselves, however, the portion of risk is not included in these numbers.

The processes described in the previous paragraphs, which is the conditions for the selection and monitoring of the MSCI KLD 400 makes the index trustworthy, and is thus a good and reliable benchmark for investors interested in SRI and the evaluations of the performance thereof.

4.2 Would firms change its business in order to appear on the MSCI KLD 400 index?

In order for a company to be more transparent and thus show its qualifications to appear on an SRI index it could consider including a technique that will publish more than purely financial numbers, which is what the known annual report does. As previously mentioned, there is a technique known as triple bottom line reporting that accommodates this criteria, "whereby a company will report in its annual statement its social and environmental operation results as well as its financial ones." The inclusion of this kind of reporting will cause the transparency of social responsibility for each company to increase. By being included in the MSCI KLD 400 index a company is no longer automatically eliminated by potential investors who are considering SRI. A large part of the world is interested in investing in the "politically correct way"; this means that focusing on the social responsibility is becoming more and more common, accepted and important. If a company is not acting according to CSR it then has the risk of eliminating itself from potential investors. Which could force the company to face a higher cost of capital. This simple financial fact indicates that a company should be willing to accept changes in order to live up to the requested criteria.

Studies done by Orlitzky and Benjamin (2001) find, using econometric analysis, that better corporate social performance (CSP) – and particularly having a reputation for social

49 “OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds” (accessed December 2010)
responsibility – results in lower firm specific financial risks. This is of course attractive to potential investors, who will be more willing to invest; again this causes the company to potentially receive a lower cost of capital.

Other advantages besides the above mentioned that focuses mainly on the financial benefits have also been documented. When a corporation is known for its CSR it might find it easier to maintain and attract new employees, also by focusing on responsible supply change management the positive results will be seen in improved quality, and improvement of the brand is yet another part of the positive perception they will achieve. They should potentially also be able to see an improvement in lower production costs due to lower energy- or water-usage. By focusing on CSR the company creates the opportunity for innovation of new products, which addresses new needs like becoming more environment conscious, this will naturally create a competitive edge. As can be seen the reasons are many, why spending time and resources on CSR is interesting for the companies.

These several arguments should be enough for many companies around the world to consider changing the way they operate. However, any change made to operations includes a cost, and this cost might at the current moment not be possible to cover. Therefore, poor financial health as well as ignorance could be two good reasons why it is not every company in the world that is capable of qualifying for a socially responsible index.

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50 “OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds” (accessed December 2010)
5. Financial Aspects of SRI portfolios

The previous sections have looked at various reasons why investors and companies should consider their position regarding social responsibility. The following section will take a deeper look at the financial aspect of the possible benefits of being a socially responsible investor. This will determine if the benefits of SRI can be seen in the financial report.

When it comes to pension funds the level of willingness to accept risk varies a lot among the beneficiaries. A young client, who has just entered the work force, and has many years left before retirement, is more willing to engage in risky investments. This is of course due to the fact that he knows that he does not need the money in the near future, and has time to wait for the risky investments to turn around and to pay off. This investor would be interested in an optimal portfolio, which mostly only focuses on return, and where the risk is not the factor that determines the investment.

However, a client, who is very close to retirement, must think differently. Here the willingness to accept risk should be much lower. This is because he is depending on the money being available in the short-term. This investor cannot afford if the value of the money invested suddenly drops. Therefore, if interested in stocks at all, this investor would be interested in the portfolio with the lowest variance; the minimum variance portfolio. The minimum variance portfolio will be the one I run my tests on, this portfolio is also very relevant to use, since the increased focus risk has received since millions of beneficiaries lost their pension money during the recent crisis.

5.1 Short Sale

I find it necessary to include this section in order to justify the way my portfolios have been created, and the limitations, due to new legislations, I have been forced to put on them. If the crisis had not happened, a law regarding short sale would probably not have been implemented and the weights of the various stocks in my calculated portfolios would have looked differently, naturally the same goes for risk and return. However, due to the financial situation, in 2008 a law was enforced to regulate short sale. This regulation was meant to help prevent a financial situation like the one just experienced to appear again.
One of the reasons why the crisis escalated in the way it did was because investors took advantage of the opportunity to use short sale. Short sale is performed by investors that speculate in benefitting from falling stock prices in the near future. The following figure shows the procedure used to make fast cash by taking advantage of the expected falling stock prices.

**Figure 9 The Procedure of Short Selling**

When the short seller borrows the stocks at time one, the only fee he is encountering is a lending fee he has to pay to the lender, also at time one he sells the borrowed shares to the market. At time two after a decline in stock prices, the short seller is able to buy the same shares back from the market at a lower price, and thus is paying less for the borrowed stocks he now repays to the lender. This is a way that an investor can speculate in the development of the market, and will be able to make a profit if prices fall. The following section will describe the law that was enforced in Denmark on 10th of October 2008.

A main object of the financial part in this thesis is regarding stocks, which is why only regulations regarding stocks are looked upon. Changes have also been made for derivatives; however, these are not relevant for the purpose of this thesis.

The necessary changes were made by law number 1003 and the following was determined⁵¹:

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Article 1: Deals regarding stocks that are purchased for business on a regulated market and distributed by financial institutions, which are followed by a short position or an expansion of an existing short position, may not be made.

Paragraph 2: A position is viewed as short according to paragraph 1 if the person involved in the deal does not:

1) At least own the amount of stock that the deal is meant to deliver, or
2) make deals, which follows that the person in question will own at least the amount of stocks that he is expected to deliver at the time of delivery.

Thus with this new law it is no longer allowed to go short in certain stocks, and I have to be aware of this when developing my portfolios, and realize the fact that it will very possibly alter my results, due to the fact that the investor will have less money available to invest in the “good” stocks.

5.2 How to select SRI to the portfolio

When it comes to choosing which SRI to invest in and under which criteria there are no specific guidelines. It varies from index to index and from investor to investor. An example of this can be seen by two different indices, which both claim to be SRI. The MSCI KLD 400 index excludes companies that generate revenue through manufacturing alcohol and tobacco, whereas another SRI index, the Calvert index, does not exclude companies that produce alcohol and firearms. Thus the screening part is very individual and what is socially acceptable to one fund, may not be the case for another.

The first step when creating a socially responsible portfolio is then to declare to oneself which factors, are the most important. If not supporting war-fare is the most essential, then this factor is what makes the investment socially responsible in this specific investor’s point of view. If living up to every single aspect of ESG is essential, when creating the portfolio, it might be hard to find that many companies to invest in.
According to Social Investment Forum social investing includes three key strategies: screening, shareholder advocacy and community investing\(^{52}\). In the appendix is a list that describes screening methods used by individuals as well as mutual funds in order to exclude or include companies in the portfolio. The list includes everything from alcohol to community investment.

### 5.2.1 Three Key Strategies

When an investor is screening a possible investment, it can be done by using three different kinds of screening: the positive screening, the negative screening and the passive screening. The positive screening is performed by setting a set of criteria, which follows the investment funds ethical principles and ESG policies. This then enables the fund to choose from a whole spectrum of acceptable investments. Negative screening is also regarding the ethical principles and ESG criteria, however, this time they are used to exclude companies from the portfolio rather than include. Passive screening simply shifts the screening decision to the SRI index manager\(^{53}\). The appendix includes a list of negative, positive and passive screenings.

The step after screening is shareholder advocacy. This is the process of actively using your power as a shareholder to influence the company. Studies about pension funds and active shareholders have been made, and the results the pension funds achieve by being an active investor are significant. A specific example of this is a clinical study of the Hermes UK Focus Fund. The study suggests “that well-focused engagements can result in substantial public returns to outside shareholders, as well as to those actually involved in the engagements\(^{54}\).” Thus, most of the time when an investor shows active ownership, results become apparent; the results can be seen financially as well as socially. As seen with ATP, if a company does not fulfill the screening requirements, the shareholder advocacy can cause a dialogue which can lead the company into changing things in order to live up to the investors’ demands and requirements. If the changes are not fulfilled, the investors’ next step will be to eliminate the company from its portfolio.

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\(^{53}\) “OECD”, 2006 “Recent Trends and Regulatory Implications in Socially Responsible Investment for Pension Funds” (accessed December 2010)

\(^{54}\) Becht, Franks, Mayer & Rossi, “Returns to Shareholder Activism: Evidence from a Clinical Study of the Hermes UK Focus Fund”, p. 3126
The last step in the key strategies for social investing is community investing. Community investing is about helping the community by providing access to credit, equity and capital to communities that would not otherwise be able to get it. The loans are used to improve education and help with housing. The community investing normally includes training to the recipients, which will increase the possibility of the success of the loan and thus the return to the investors. According to Social Investment Forum community investing is the fastest growing area of SRI; over the past three years this area of investing has increased by 60% \(^{55}\).

### 5.3 Comparison of the Portfolios

I wish to determine if SRI is financial beneficial for the investor, and the following section is dedicated to determine this. I believe that by creating four different portfolios which contain various portions of SRI stocks and none-SRI stocks I can reach a conclusion as to whether the investor should start to focus more on SRI or not. This of course is only based on numbers and figures; I have not concluded the social benefits and aspects into it. In order to test if it is financially profitable for the pension funds to invest in the SRI I will compare the risk and return of the different portfolios. The portfolios will be based on a period from 2001 to 2010, and will consist of stocks from companies world-wide.

### 5.4 The Portfolios

The four portfolios will look as follows:

- **Portfolio A** will consist 100\% of SRI stocks
- **Portfolio B** will consist of 50\% SRI stocks and 50\% none-SRI stocks
- **Portfolio C** will consist of 66,6\% SRI stocks and 33,3\% none-SRI stocks
- **Portfolio D** will consist of 100\% none-SRI stocks

Three of the ten stocks in portfolio D are the so called SIN stock which goes under the definition: “Stock of a company that derives all or a significant portion of its revenues from socially questionable activities such as gambling, selling alcoholic beverages, or manufacturing and distributing tobacco products\(^{56}\).”

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In order to test which alternative is the best from a financial perspective I will look at the return, the standard deviation, the variance and the Sharpe ratio for the four different portfolios. The results will be shown numerically as well as graphically.

5.5 Data

In the appendix are lists of stocks accepted as being SRI, as well as stocks not accepted as being SRI. Below are two lists of the companies I have selected to be part of the four portfolios.

SRI acceptable stocks:

1. Vestas
2. Novo Nordisk
3. Microsoft
4. Procter & Gamble
5. Hewlet Packard
6. Chevron
7. Home Depot
8. FedEx
9. Johnson & Johnson
10. Colgate-Palmolive

None-SRI acceptable stocks

1. Carlsberg
   - Engaged in alcohol production
2. Royal Unibrew
   - Engaged in alcohol production
3. Wal-Mart
   - Not obeying to human rights
4. Honeywell International
   - Engaged in warfare
5. Boeing
   - Engaged in warfare

6. Poongsan Holding
   - Production of cluster bombs

7. Textron
   - Production of cluster bombs and anti-personnel mines

8. Nissan Motor
   - Supplier of military equipment

9. Daewoo International
   - Supplier of military equipment

10. British American Tobacco
    - Engaged in tobacco production

The SRI stocks are chosen based on the reason that they are frequently listed in the top ten holding by SRI funds; from the list of frequently used stocks I have randomly selected ten. The list of the none-SRI stocks is based on a list which shows what companies Danica Pension has excluded from their portfolios due to violation of their SRI criteria. A total of seven different companies have randomly been picked from Danica Pension’s list. In addition to the list from Danica Pension two companies engaged in alcohol production and one engaged in tobacco have been added.

All the data used to create the portfolios is collected from Datastream. Due to the fact that not all of the chosen stocks have been registered on the stock market for an equally long time, I have found it necessary to set the timeframe from April 2001 until December 2010. In order to compare the results this is the timeframe for SRI stocks as well as for the none-SRI stocks. The risk free interest rate is due to the length of the period chosen to be the 9 year 10 months zero coupon bond rate for the portfolio for the entire period and three years zero coupon bond rate for the portfolios analyzing the crisis. Since stock prices are not all available in the same
currency various exchange rates are needed. The currency exchange is done in order to have all the results and returns appear in Danish Kroner, the currency exchange rates are also collected from Datastream.

5.5.1 Working with the data

The first step is to determine the period over which the study will be performed. This has to be a longer period in order to obtain trustworthy results. The period is finally chosen based on availability of the selected stocks. A few stocks had to be excluded from the list due to a short lifespan on a stock exchange. A monthly total return index is chosen, which gives me a number of 117 values for each stock. When working with the individual stocks the total return index and not the price index is chosen, this is due to the fact that the total return index takes dividends into consideration, and thus gives me the best estimate of what an investment would give the investor.

The monthly return continuously compounded is then calculated, this is necessary in order to calculate the expected monthly and yearly return as well as the covariance matrix.

In order to perform the next step in the process it is necessary to determine the risk-free rate, as mentioned earlier this is done based on the 9 year 10 months zero coupon rate, also downloaded from Datastream. However, a bit of adjustment is needed in order to get a yearly risk-free rate. First the rate is normalized, so that it is no longer in percentages, then the continuous yearly and monthly rate is calculated. The final step in order to achieve a risk-free rate for the entire period is to take the average.

With the risk-free rate calculated it is now possible to determine the excess return. This is done by subtracting the risk-free rate from the expected return of each stock.

Now the minimum variance portfolio can be calculated. The specification of the results from the following calculations can be found in the appendix. The first portfolio named Z in the data is showing what should be invested in which stock if it is possible to invest more than 100 percent of ones wealth; the X values indicate the percentages needed to be invested if only 100 percent of the investor’s wealth can be invested. A negative value in both portfolios indicates that the optimal solution would be to go short in this stock. As mentioned this is now no longer an option, and thus has to be adjusted for. A positive weight is of course that you
should buy the given percentage amount of that specific stock. The Z value is found by matrix calculation, matrix A being the yearly covariance matrix and matrix B being the excess returns.

The values in portfolio X are simply the percentage of the values in Z out of the total value of the entire portfolio. The values in portfolio X indicates what should be invested in which stock in order to create a minimum variance portfolio.

Having determined the minimum variance portfolio it is then possible to calculate the expected return, the variance, the standard deviation and the Sharpe Ratio.

The expected return is also a matrix calculation with the expected yearly return and the values in the X portfolio.

To find the variance matrix calculation is again taken into use. The inverse yearly covariance matrix is multiplied with the result of the yearly covariance matrix and portfolio X.

The variance is also the measure I use to implement the restriction of short sale as well as the fact that borrowing extra capital is not an option for the investor and can thus only invest 100% of his wealth.

The standard deviation is simply the square root of the variance.
A very important measure for the portfolios is the Sharpe ratio, which measures the ratio of the portfolio’s excess return over the risk-free rate of the market. The optimal portfolio will maximize the Sharpe ratio. When the Sharpe ratio is calculated it takes account of the expected return, the risk-free rate and the standard deviation.

These four values show me how well each portfolio is doing with respect to return and variance. It is then possible to determine which of the portfolio performs the best, and if SRI stocks are superior to none-SRI stocks.

5.6 Results

This section will show numerically if there is an indication of whether SRI stocks outperform none-SRI stocks or not. The portfolios are all minimum variance portfolios, which are a kind of portfolios that show a satisfying result when short sale has to be incorporated in the calculations.

5.6.1 Minimum Variance Portfolios

If the risk is what is important for the investor, and thus wants to invest in the portfolio with the lowest risk, the relevant portfolio to create is a minimum variance portfolio. As the name indicates this is a portfolio, containing stocks weighted so that the variance of the entire portfolio is the lowest. I will test to see if the SRI stocks are able to make an impact on the return and variance in the various portfolios. The results of the minimum variance portfolios are shown further below.

The minimum variance portfolio is obtained by using solver in excel, and requesting this to create a portfolio which will give the lowest possible variance. The lowest possible variance is found by changing how the various stocks are weighted. I have to be aware of two criteria when using solver, first of all the sum of the weights has to equal one, which means that the investor will invest everything, but cannot invest more. The second criterion is due to the short sale restriction; the individual weights of the stocks in the portfolio must be above or equal to zero. With these two criteria in mind it is possible to find the optimal minimum variance portfolios that do not permit short sale.
These results show that if the focus of the investment is to have the lowest risk possible while allowing no short sale, then portfolio A, the portfolio containing solely SRI stocks, is an attractive portfolio. However, when also looking at return, portfolio A cannot keep up with the portfolios that contain none-SRI stocks. This is also proved when looking at the Sharpe Ratio which takes risk and return into consideration. The results show that the most attractive portfolio is the one containing solely non-SRI stocks. The impact of the non-SRI stocks is also seen in the two mix portfolios which both have a higher Sharpe Ratio than portfolio A.
The results obtained in my study are not in accordance with results from a different study done by B. Scholtens. He states that the returns earned from SRI do not differ much from their benchmarks, however, the risk is significantly above that of the benchmark. All three of the portfolios containing SRI stocks have a lower risk than portfolio D. The reason why I have obtained different results could partially be blamed on the short sale restriction, when B. Scholtens made his study back in 2005 there were no such restrictions, and when I create optimal portfolios without short sale restriction I have results similar to his. The results of the portfolios with no restriction can be seen be in the appendix. Additionally, the time frame of my study, which includes the financial crisis, could very likely have an impact on the results as well.

It is very interesting to see how much of the 100% investment is placed with SRI stocks and how much with non-SRI stocks in the two mix portfolios B and C. In portfolio B 79% of the investments are placed in SRI stocks. Since the yearly average return of the SRI stocks are only 2.49% versus 8.6% for the non-SRI stocks, I can conclude that the reason why the SRI stocks are represented by 79% of all the investment money must be due to the lower risk they offer. A similar pattern can be seen when it comes to portfolio C. In this portfolio 84% of the investment is invested in SRI stocks, and again when looking at yearly average returns of the non-SRI stocks they are superior. The exact proportion of the weights for the various stocks in the two portfolios can be seen below.

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57 Bert Scholtens: "What drives socially responsible investment? In the case of the Netherlands" 2005, p.129
In order to test to see if this is the pattern of SRI stocks and none-SRI stocks, no matter what happens in the world, the following section will be devoted to show what the picture will look like during time of crisis.

5.6.2 Minimum Variance Portfolios during crisis

Due to the current situation and the impact the financial crisis has had on the entire world, I find it very relevant to see if SRI might be a better investment than none-SRI. I believe that because of the lower variance found with SRI stocks, the case that SRI stocks could be a better investment is very likely. According to an article by Robins and Krosinsky “sustainable investing strategies are based on the realization that the best way of generating risk-adjusted returns in the 21st century is to fully incorporate long-term environmental, social and economic factors into investments and ownership decision-making”\textsuperscript{58}. Thus according to this, by considering SRI issues the investor will be able to generate a return. However, is this also the case during the time of a crisis?

\textsuperscript{58} Robins & Krosinsky: “After the Credit Crunch” p.192
To determine if there is a financial advantage in investing more in SRI stocks during a period of crisis more tests are run. The only change in the tests lies in the time frame. The period chosen as a basis for the following results is from December 2007 to December 2010. The background for choosing this period is because of studies made by the US National Bureau of Economic Research in December 2008, they stated that the reason why the recession began in December 2007 was the deterioration in the labor market throughout 2008⁵⁹.

<table>
<thead>
<tr>
<th>Portfolio A (during crisis)</th>
<th>Expected Return</th>
<th>0.121409</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance</td>
<td>0.036804</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.191843</td>
<td></td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.466423</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portfolio B (during crisis)</th>
<th>Expected Return</th>
<th>0.120865</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance</td>
<td>0.036341</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.190633</td>
<td></td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.466529</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portfolio C (during crisis)</th>
<th>Expected Return</th>
<th>0.121409</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance</td>
<td>0.036804</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.191843</td>
<td></td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.466423</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Portfolio D (during crisis)</th>
<th>Expected Return</th>
<th>0.093057</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance</td>
<td>0.058814</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.242517</td>
<td></td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.252058</td>
<td></td>
</tr>
</tbody>
</table>

Again SRI stocks show lower variance, but this time the expected return is also superior. Thus, the conclusion of this test is quite different from the one obtained when looking at the entire time period. In the time of crisis the SRI stocks perform significantly better than the none-SRI stock, this is determined by looking at the Sharpe Ratios which is a lot lower for portfolio D than the other three.

When looking at the average yearly return for SRI and non-SRI stocks the better performance of the SRI stocks can be explained. The average yearly return for the four portfolios is as follows:

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>SRI</th>
<th>Non-SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.07%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2.00%</td>
<td>-0.31%</td>
</tr>
<tr>
<td>C</td>
<td>0.86%</td>
<td>1.37%</td>
</tr>
<tr>
<td>D</td>
<td>-0.31%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 19 Average Yearly Return for Stocks in the Portfolios

When looking at portfolio A, if the money invested was spread out equally on the ten stocks the investor would receive a return of 2.07%. This is of course not much, but when comparing to portfolio D the return from portfolio A is suddenly a lot better. Also when considering the time period of the study, which is the time of a crisis which led to a huge average fall of stock prices, most investors would have been very satisfied with a return of 2.07%

I could be tempted to make the quick assumption that SRI stocks seems to perform better in the time of crisis, if short sales are restricted. However, this superior performance of the SRI stocks can also be caused by the stocks chosen as SRI stocks versus the none-SRI stocks. When it comes to SRI stocks the one that stands out is Novo Nordisk, which has delivered an extremely high return of 21.2% in the time of the crisis. Novo Nordisk is in the medical business, which was one industry that performed quite well during the crisis; medicine is not a luxury product, which demand will decline in the time of a crisis. This one phenomenal stock will of course affect the average return of all the stocks. If this one is left out, then the average return of the SRI stocks would suddenly decline to a negative 0.14%. By looking at the various weights in the figure below, it can also be seen that in the two mix portfolios more
than 50% of the investments are in Novo Nordisk, which again can be explained more by the industry and the exceptional performance of Novo Nordisk than the fact that it is an SRI stock. Nevertheless, it is an SRI stock, and this is not causing its performance to decrease in any way.

<table>
<thead>
<tr>
<th>Portfolio B</th>
<th>Minimum variance</th>
<th>Portfolio C</th>
<th>Minimum variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vestas</td>
<td>0,00%</td>
<td>Vestas</td>
<td>0,00%</td>
</tr>
<tr>
<td>Novo Nordisk</td>
<td>51,88%</td>
<td>Novo Nordisk</td>
<td>52,76%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>0,00%</td>
<td>Procter &amp; Gamble</td>
<td>13,81%</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>17,35%</td>
<td>Hewlet-Packard</td>
<td>16,23%</td>
</tr>
<tr>
<td>Hewlet-Packard</td>
<td>11,89%</td>
<td>Chevron</td>
<td>0,00%</td>
</tr>
<tr>
<td>Chevron</td>
<td>0,00%</td>
<td>Fedex</td>
<td>0,00%</td>
</tr>
<tr>
<td>Home Depot</td>
<td>0,00%</td>
<td>Johnson &amp; Johnson</td>
<td>15,27%</td>
</tr>
<tr>
<td>Fedex</td>
<td>0,00%</td>
<td>Colgate-Palmolive</td>
<td>1,93%</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>13,69%</td>
<td>Royal Unibrew</td>
<td>0,00%</td>
</tr>
<tr>
<td>Colgate-Palmolive</td>
<td>0,00%</td>
<td>Poongsan Holding</td>
<td>0,00%</td>
</tr>
<tr>
<td>Carlsberg</td>
<td>5,18%</td>
<td>Daewoo International</td>
<td>0,00%</td>
</tr>
<tr>
<td>Royal Unibrew</td>
<td>0,00%</td>
<td>British American Tobacco</td>
<td>0,00%</td>
</tr>
<tr>
<td>Wal-Mart</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honeywell International</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boeing</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poongsan Holding</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textron</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nissan Motor</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daewoo International</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>British American Tobacco</td>
<td>0,00%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 20 Weights of Stocks in Portfolios B and C During Crisis

During the entire period it was interesting how much should be invested in SRI stocks, in the case of this shorter period it is even more significant. In portfolio A 94,82% of the entire investment is invested in SRI stocks, for portfolio B it is 100%. This indicates that SRI stock are more reliable in time of crisis, since this is a minimum variance portfolio, this must be true for return as well as for risk.

When comparing the weights from the time of crisis with the weights for the entire period, one none-SRI stock stands out. In the portfolio for the entire period British American Tobacco accounted for approximately 14% of the investment in both portfolios. Suddenly, when the crisis has emerged it is not represented at all. This could be because of it being a
luxury good, and thus one of the first things the consumer is willing to cut back on when the money is limited. However, the reasons for this are most likely more connected to other factors within British American Tobacco. These other financial reasons will not be estimated and evaluated in this thesis.

The opposite is the case when it comes to Carlsberg, the representation in portfolio B has increased from 3.97% to 5.18%. Of course many factors are behind the better performance of Carlsberg, amongst others the fact that they in 2007 made a joint venture with Scottish & Newcastle and by this joint venture they were able to enter and explore the Russian market. However, it could also be because alcohol use does not decrease in the time of a crisis. This is a product most people will still find the money for.

Nevertheless, the fact that the none-SRI stocks are so limited represented is most likely more due to the industry they are in than it has to do with them not being socially responsible. An important question that should be answered is more regarding CSR procedure, and if the companies during crisis will slack on their responsibilities. This has already been evaluated in the section regarding CSR.

5.7 Conclusion

Having a restriction like short sale imposed on the portfolios, has created quite some issues. If an ordinary optimal portfolio was created, and then restricted by short sale I would run into the problem of “wild” estimates on mean values. This can be seen in the appendix, which shows that an ordinary optimal portfolio with a short sale restriction will suddenly only consist of Novo Nordisk stocks, which would totally eliminate the diversification effect of the portfolio. The reason why Novo Nordisk would play such a large part in the portfolio is of course due to the superior return it has had since 2001, but just because it has had superior return for the past ten years it is not a guarantee that the pattern of good performance will continue in the future. In order to keep the diversification effect I could have made an equally weighted portfolio; however, I think this would not be the optimal solution. Therefore, I have decided to look purely on the minimum variance portfolios and the results they could generate.
Yet another aspect of SRI is that it possibly can prevent yet another breakdown of the economy. By looking at the following illustration of the constituents of the 21st century investment a pattern is drawn between a good investment and a sustainable planet.

![Diagram: Successful Investment Flowchart]

**Figure 21 the Constituents of 21st Century Investment**

By following the steps of the illustration many of the issues that went wrong during the crisis is taken care of, while at the same time making sure that the investment is socially responsible. Thus if the focus is on investing socially responsible, situations like the mortgage problem, which started in the US should not be an issue. Social responsibility is about the long-term, and many factors behind the crisis were due to a strong focus on short-term benefit. This is an indicator that maybe because of the long-term focus of SRI stocks, they will be a valuable tool to limit or prevent a future crisis like the one just experienced.

The graph below shows what the risk and return looks like when displayed graphically. The return generated during the time of crisis for portfolio A, B and C are performing a lot better than the same portfolios during the entire period. Portfolio D for the entire period, is the only one capable of generating the same return without compromising the risk. What is also very apparent is the relatively poor performance of portfolio D during the time of the crisis. In

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60 Robins & Krosinsky, “After the credit crunch”, p139
order to achieve a return that is very similar to portfolio A, B and C for the entire period, portfolio D must undertake a lot more risk.

Thus it can be concluded that SRI stocks do not seem to outperform the none-SRI stocks during the entire time period. This could be due to the selection of stocks or simply due to poorer performance. However, in time of a crisis the SRI stocks are generating a higher return at a lower risk, this of course is very attractive to any investor. But again it must be remembered that good stock picking could be the reason for this as well this assumption is based on the previous discussion about the impact the Novo Nordisk share is playing on the portfolios during time of crisis.

Figure 22 Risk & Return of the Portfolios
6. Financial Aspect of the indices

Much literature has been written about the performance of SRI indices compared to a market index. This section is devoted on testing if my results are similar to the ones of the literature, if this is not the case I wish to evaluate the possible reasons why.

6.1 Methodology

The purpose of this section is to evaluate how indices that take social responsibility into account perform compared to the well known S&P500. The period for this study is from April 2001 till December 2010. The monthly returns of the indices are used in order to achieve the wanted calculations and ratios. The following social responsibility indices have been selected to compare to S&P500:

MSCI KLD 400 Social

- “The MSCI KLD 400 Social Index is a free float-adjusted market capitalization index designed to provide exposure to U.S. companies that have positive Environmental, Social and Governance (ESG) characteristics.”

Calvert Social

- “The Calvert Social Index is a broad-based, rigorously constructed benchmark for measuring the performance of large, U.S.-based socially responsible companies.”

DJSI US EX alc.gam.tob. & arms

- “Corporate sustainability performance is an investable concept. This is crucial in driving interest and investments in sustainability to the mutual benefit of companies and investors. As this benefit circle strengthens, it will have a positive effect on the societies and economies of both the developed and developing world.”
- This specific DJSI subset does not invest in companies associated with alcohol, gambling, tobacco and armaments.

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Euro Stoxx sustainability

- “The EURO STOXX Sustainability 40 Index offers a consistent, flexible and investable blue-chip representation of the largest sustainability leaders in the Eurozone, i.e. the Eurozone leaders in terms of long-term economic, environmental and social criteria\(^\text{64}\).”

DJSI World Denmark Subset

- This index follows the same lines as the previously mentioned DJSI, however, the difference is that the subset is Denmark.

In order to be able to calculate the wanted ratios and measurements, some steps need to be followed. Due to the length of the period the nine years ten months zero coupon bonds was chosen as a measure of the risk free rate. In order to have the yearly and monthly average risk free rate, the same steps were followed as when calculating the portfolios in the previous section.

The next step is to calculate the yearly and monthly return and standard deviation. This gives a vague picture of which index performs well and which is not as profitable, nevertheless, as mentioned previously, looking solely at returns does not offer a realistic picture of the situation, which is why I continue with further calculations.

The following step is to calculate the variance of the S&P500, the covariance of the five indices with the S&P500 and then the beta value. The covariance shows a measure of the strength of the correlation between the S&P500 and each specific index, it shows how much the returns of the indices move in tandem, a high covariance indicates that there will not be much possibility of diversification. The covariance can span between 1 and -1.

The beta value shows the amount of systematic risk each index has. The reason why the S&P500 index has a beta value of 1 is because this is seen as the market index. A beta value higher than one indicates that the index has more systematic risk than the market. The following table shows the values for the indices.

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From this table it can, by looking at the beta value, be concluded that only two of the indices have less systematic risk than the market, which means that only these two are better diversified.

Before moving on to the explanation of the following calculations, the next part will explain the meaning of the ratios and measurements. I will look at the Sharpe ratio, the $M^2$ measure, the Treynor measure and the Jensen alpha. These measures are chosen, because they consider not only return, but takes the risk of the investment into account as well.

6.2 Explanation of the ratios and measurements

**Sharpe Ratio**

The Sharpe Ratio shows how well the return compensates for the risk taken. The optimal portfolio maximizes the Sharpe ratio\(^6\). While a high Sharpe ratio indicates superior risk-adjusted performance of a fund, a low or negative ratio is an indication of an unfavorable performance. The Sharpe ratio is the proper measure to use if one wishes to hold one portfolio, and the question is which one is the better.

**$M^2$**

$M^2$ is a measure similar to the Sharpe ratio, however, it is a bit easier to interpret because it scales the risk to be equal to the market portfolio, or in this case to the market index. The measure is shown in percentages. The following graph indicates the interpretation of this measure. Once again, the higher the number is, the better is the chosen index performing compared to the market.

---

The Treynor index is a measure of the excess return earned over what would have been earned if the investment were invested in government bonds or other risk-free investments. The higher the Treynor index, the better is the portfolio performing. The Treynor measure shows the return in percentage. A negative index is an indication of an unfavorable performance. The Treynor index is useful if one holds many portfolios, and the question, of which one out of many should be added, is asked; with this measure it is possible to rank the various alternatives.

**Jensen Alpha**

Higher alpha values indicate superior performance. The Alpha is a good measure when one holds many portfolios and needs to decide if one portfolio is good or bad. Unlike the Treynor measure, this is not a relative measure, which must be compared to other portfolios. The simplicity in interpretation is an advantage; if the alpha is positive it is good, if negative it is bad. The limitation of this measure is that it only takes systematic risk into account, not the entire risk associated with the investment, an assumption for using this measure is thus that the portfolio is well diversified, meaning that the unsystematic risk is minimal. A regular

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investor cannot ease unsystematic risk, and thus the knowledge received from this measure is imperfect.

6.3 Working with the data

In order to determine anything from my selected indices, it is necessary to make some calculations, which will give me the previously stated measures.

6.3.1 Indices performance for entire time period

The Sharpe Ratios was found by implementing the formula:

\[
Sharpe = \frac{\bar{r}_p - \bar{r}_f}{\sigma_p}
\]

\(\bar{r}_p\) = Return for the index

\(\bar{r}_f\) = Risk free rate

\(\sigma_p\) = Standard deviation for the index

<table>
<thead>
<tr>
<th>Indices</th>
<th>Monthly Sharpe</th>
<th>Yearly Sharpe</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500</td>
<td>-0.04457</td>
<td>-0.15439</td>
</tr>
<tr>
<td>MSCI KLD 400 Social</td>
<td>-0.04834</td>
<td>-0.16745</td>
</tr>
<tr>
<td>Calvert Social</td>
<td>-0.05510</td>
<td>-0.19088</td>
</tr>
<tr>
<td>DJSI US ex. Alc, gam, tob, &amp; arms</td>
<td>-0.08527</td>
<td>-0.29539</td>
</tr>
<tr>
<td>Euro Stoxx Sustainability</td>
<td>-0.6043</td>
<td>-0.20934</td>
</tr>
<tr>
<td>DJSI World Denmark Subset.</td>
<td>0.13152</td>
<td>0.45560</td>
</tr>
</tbody>
</table>

Figure 25 Sharpe Ratio Values

The Sharpe ratio shows that only one out of the five indices is capable of competing with the S&P500 index. The negative Sharpe ratio shows by first instinct that the index is not capable of earning the risk free rate, however, comparing returns with the risk free rate must be done with caution since the results depend very much on the sample period. Also the negative Sharpe ratios must be interpreted with caution, the Sharpe ratios become more negative when
the standard deviation gets smaller, but since a small standard deviation is not a bad thing other measures must be applied to determine if any of the indices can compete with the S&P 500. The $M^2$ measurement is what can be used in this case, since with this measure the standard deviation is normalized across the indices\(^{67}\).

The calculation of $M^2$ is similar to the Sharpe ratio; however, it also takes the market index into consideration.

\[
M^2 = \left( \frac{\bar{r}_p - \bar{r}_f}{\sigma_p} - \frac{\bar{r}_m - \bar{r}_f}{\sigma_m} \right) \sigma_m
\]

$r_m =$ Return for the market index (S&P500)

$\sigma_p =$ Standard deviation for the market index

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly based $M^2$</td>
<td>0,00</td>
<td>-0,00023</td>
<td>-0,00065</td>
<td>-0,00251</td>
<td>-0,00097</td>
<td>0,01086</td>
</tr>
<tr>
<td>Yearly based $M^2$</td>
<td>0,00</td>
<td>-0,00279</td>
<td>-0,00777</td>
<td>-0,03013</td>
<td>-0,01161</td>
<td>0,13037</td>
</tr>
</tbody>
</table>

Figure 26 $M^2$ Values

As mentioned earlier the $M^2$ measurement shows its results in percentages. By looking at the figure above only one index is performing better than the market index, which in graphical terms means that all but one would have been below the Capital Market Line. The one index to lie above the CML is the DJSI World Denmark Subset; an investment in this index would have given 13% more in yearly return than if it was invested in the market portfolio. This is even if the investment was combined with an investment in the risk free rate so that the standard deviation of the total investment was the same as the standard deviation of the S&P500 index\(^{68}\). The MSCI KLD 400 Social and the Calvert Social both have performances

\(^{67}\) Peter Raahauge, Lecture 5 spring 2010

\(^{68}\) Peter Raahauge, lecture 5, spring 2010
that can be compared to the S&P500. An investment in these indices would respectively have generated 0.28% and 0.78% less than if the money had been invested in the market portfolio.

The Treynor index, can be used to rank the indices, if one were to hold more than one index.

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.03354</td>
<td>-0.03663</td>
<td>-0.04176</td>
<td>-0.06453</td>
<td>-0.05122</td>
<td>0.2371</td>
<td></td>
</tr>
</tbody>
</table>

Figure 27 Treynor Values

A negative Treynor measure indicates unfavorable performance, thus only the DJSI World Denmark Subset is favorable in this period, not even the S&P500 was able to generate an excess return of what would have been earned if the investment had been invested in T-bills or a similar risk free investment. A reason for this could of course be the fairly short time period, and the fact that during this short period of time the financial market has gone through two crisis; first when the IT bubble burst back in 2001 and then the most recent crisis that started in 2007. Nevertheless, it is interesting to see that almost none of the indices were able to outperform an investment in regular T-bills. However, when interpreting Treynor values, I must be careful when only achieving negative values, this could be an indication that the measure might not be the best for this data-sample, thus the evaluation of these numbers cannot be 100% accepted.

The next measure is the Jensen’s Alpha; this will determine if an index is good or bad. Of course the previous measures and ratios have given a pretty clear picture, but this measure is able to separate it into black and white, or good and bad.
Once again it is confirmed that the only index that can be classified as being a good investment is the DJSI World Denmark Subset. Not only does the measure indicate that it is good, it also shows that the return is 10.86% more than required by the CAPM. The previous mentioned limitation of Jensen Alpha only taking systematic risk into account, is not a problem here, since I believe the indices are well diversified, and the unsystematic risk has then been minimized.

6.3.2 Indices performance during crisis

Earlier in the thesis, I have looked at how various portfolios perform during a time of crisis. This is done in order to evaluate the prospects of SRI being the safer way to invest in the future. I find it important to determine if the chosen indices show a similar pattern of SRI being able to outperform the regular S&P 500 index. The calculation from the previous part will be repeated, the only difference is the time period now only being from December 2007 until December 2010.
The Sharpe ratio of this shorter period, has the same tendencies as for the entire period, but this time three out of five indices are able to compete with the S&P500. The same precaution as earlier must be taken regarding the negative ratios, which is why I will focus more on the following index, the M².

<table>
<thead>
<tr>
<th></th>
<th>S&amp;P 500</th>
<th>MSCI KLD 400</th>
<th>Calvert Social</th>
<th>DJSI US ex. Alc, gam, tob, &amp; arms</th>
<th>Euro Stoxx Sustainability</th>
<th>DJSI World Denmark Subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly based M²</td>
<td>0,00</td>
<td>0,00152</td>
<td>0,00192</td>
<td>-0,00343</td>
<td>-0,00785</td>
<td>0,02633</td>
</tr>
<tr>
<td>Yearly based M²</td>
<td>0,00</td>
<td>0,01820</td>
<td>0,02302</td>
<td>-0,04112</td>
<td>-0,09419</td>
<td>0,31961</td>
</tr>
</tbody>
</table>

Figure 30 M² Values

The results from the M² measurement show that three of the indices are able to generate a performance better than the S&P500: The MSCI KLD 400, the Calvert Index and the DJSI World Denmark Subset. An investment in these would respectively have given 18,20%, 23,02% and 31,96% more in yearly return than if the money had been invested in the market portfolio. This is even if the investment was combined with an investment in the risk free rate such that the standard deviation of the total investment was the same as the standard deviation of the S&P500 index. The last two indices are still not able to generate a return comparable to the S&P500. Nevertheless, there is an indication that during the time of a crisis, the SRI indices might be performing slightly better than the market.

<table>
<thead>
<tr>
<th></th>
<th>S&amp;P 500</th>
<th>MSCI KLD 400</th>
<th>Calvert Social</th>
<th>DJSI US ex. Alc, gam, tob, &amp; arms</th>
<th>Euro Stoxx Sustainability</th>
<th>DJSI World Denmark Subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treynor</td>
<td>-0,09473</td>
<td>-0,07689</td>
<td>-0,07222</td>
<td>-0,13656</td>
<td>-0,20873</td>
<td>0,51343</td>
</tr>
</tbody>
</table>

Figure 31 Treynor Values

The results from the Treynor test indicate three indices are capable of generating an excess return of what would have been earned if the investment had been invested in a risk-free...

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investment. Once again the majority of the numbers are negative. This could be due to the overall poor performance of the entire market, basically all stocks dropped in value during that time span. However, when interpreting Treynor values I have to be careful when getting mostly negative numbers. This could be an indication of this measurement not being the best key-figure for this data-sample. The next measure is the Jensens’s $\alpha$ which separates the good from the bad.

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</thead>
<tbody>
<tr>
<td>Jensen’s monthly $\alpha$</td>
<td>0,00</td>
<td>0,00141</td>
<td>0,00185</td>
<td>-0,00332</td>
<td>-0,01062</td>
<td>0,01474</td>
</tr>
<tr>
<td>Yearly $\alpha$</td>
<td>0,00</td>
<td>0,01689</td>
<td>0,02225</td>
<td>-0,03987</td>
<td>-0,12740</td>
<td>0,17689</td>
</tr>
<tr>
<td>Average $\alpha$</td>
<td>0,00813</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 32 Jensen's $\alpha$ Values

This measure confirms what I have already detected, that three of the indices can be classified as good investments, and gives me the indication that SRI could be a very good alternative in the time of a crisis.

6.4 Conclusion

The results I have achieved from the analysis covering the entire time period, does not quite follow the results obtained in previous studies. In these studies the majority has found SRI indices to outperform the S&P500. For example according to MSCI webpage when the FTSE KLD 400 index celebrated its 20th anniversary, it could be seen that the index over the last twenty years had outperformed the S&P500, indicating that an index or portfolio following ESG criteria over the long-term is able to deliver competitive risk-adjusted returns. The Social Investment Forum has numbers proving this superior performance of the FTSE KLD 400 index. In the period from 1990 till Dec. 2009 the index had returns of 9,51% compared with 8,66% generated by the S&P500.$^{70}$

Nevertheless, my results suggest that my timeframe for comparison should have been longer in order to see the same pattern. The reason for the shorter time period was my interest in having several indices, and many of the socially responsible indices have not existed as long as the MSCI KLD 400 index.

However, another study has been made and the results of this are more comparable to mine. According to the study done by Zakri Y. Bello in 2005 his studies “indicate that socially responsible mutual funds do not differ significantly from conventional funds in the characteristics of assets they hold, the degree of portfolio diversification, or investment performance.” This is also in accordance to a study by Goldreyer, Ahmed and Diltz. They compare 49 socially responsible mutual funds with a random sample of conventional funds. This is done in the time period from 1981 to 1997. They find that the performance of socially screened portfolios does not differ significantly from that of conventional mutual funds. Based on these studies as well as my own, I can conclude that for a shorter time period of only ten years, and when it is not the time of a crisis, a superior investment performance of SRI might not be very obvious. However, pension funds invest for the long-term, and thus this is what should be in focus, and could also be the reason why the development of SRI and pension funds is going the way it is, since the results of other studies do indicate a long-term financial benefit of SRI. For individual investors, who do not invest with the same long-term period in mind, the above stated facts have to be considered. Of course this is only the case if the financial benefit is the only important factor for the investor.

When it comes to the shorter period; the period of the crisis, very interesting results occur. Signs of superior results of the SRI funds are achieved in the time of the recent crisis. In this study three of the SRI indices were able to outperform the S&P500 index. Due to the potential SRI could have as a security investment when times are insecure this finding is very interesting. Nevertheless, in order to confirm my findings more crises need to be evaluated, and more funds need to be included, but the potential of higher security in the shape of better performance during crisis could be a very attractive benefit for SRI.

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71 Zakri Y. Bello: “Socially responsible Investing and Portfolio Diversificaion”, p. 43
7. Discussion

The challenge of this part is to determine the future of SRI. Will all the efforts made so far pay off, and will the world be a more socially conscious place to live in. I believe, since there are various benefits to SRI that it is here to stay. Financially it does not seem to significantly underperform other stocks or indices, and it even has the potential benefit of performing better during time of crisis. The potential benefit of SRI performance during time of crisis needs further research, but my results indicate tendencies towards it.

When it comes to the social responsibility and the financial issues are not the center of attention, I believe it will only receive more and more attention. More regulations will be enforced, and a focus on standardization will continue to expand. Everywhere around the world, people are interested in maintaining a world that will also exist tomorrow. The continuous pressure from the society will help increase the focus on CSR. As long as the public will be kept informed about the situation and the development thereof, the interest in expanding this field will most likely continue to increase. I believe keeping the society informed about the potential benefits from CSR, and the possible dangers of ignoring the issue will lead to an increase in companies engaging in CSR.

The importance of CSR and SRI is evident, and it is necessary to acknowledge the benefits and necessities of these. If this is done I believe many issues of the world will be easier to solve, or possibly avoided. The following quote indicates that SRI will not just happen if everything remains unchanged.

“The challenge for sustainable investing is not to become like today’s mainstream but, rather to, replace it.”

SRI involves changes, and the necessity of these changes needs to be accepted by the society, but more important is it that the society understands the need for changes.

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72 Robins & Krosinsky: "After the credit crunch" p.197
8. Conclusion

This part of the thesis is meant to join the theoretical analysis and the financial analysis, and to determine the possible benefits that pension funds have due to the focus and money they already have invested in SRI.

When interested in evaluating the possible benefits of SRI, it is not sufficient to solely look at either the financial part or the theoretical part. Socially responsible investment is a lot more than generating positive return. If an investor claims to be socially responsible, but, when investing, only goes for the “good” stocks, he cannot claim himself to be a socially responsible investor; this is rather a sign of stock picking, which happens to follow the criteria for SRI. Therefore, by taking the numerical facts, and combining them with the theory behind social responsibility, is the best way to determine if the criteria of SRI are being maintained, if it is beneficial, and if the pension funds should continue on the track they now are on.

When looking at the theoretical analysis concerning CSR and SRI, I believe there are many reasons why during the last few decades this area of interest has grown so rapidly. Every day the world encounter new environmental, social and governance problems, which possibly could have been avoided if the companies behind the problem had been better guided or had had more restrictions imposed upon them. It is up to the society surrounding the companies to restrict the opportunities of the companies. If the society’s support of the companies disappears the companies will be forced to change the way they do business. For the society to start to demand more it is absolutely essential to continue to expand their area of knowledge; ignorance is the way to continue on the current track.

When it comes to the financial part, I have results that are not quite similar to those of earlier studies. The results of my study does not prove that during the entire time period the SRI stocks show superior performance, this is the same when it comes to the indices. This could be due to the limitations I have in my study: the time period is not as long as the other mentioned studies, and I have a short sale restriction that limits the possibility of achieving a higher return.

The SRI seems to perform better than non-SRI during the time of a crisis, which is a very important security aspect of investing, and gives the investors and the beneficiaries a sort of
comfort when times get tough. This better performance is the case for the portfolios as well as for the indices. I think further studies are needed to confirm the tendency I have found, but this could be a very attractive selling point for SRI.

Nevertheless, there is no such thing as a free lunch, and this is also the case when it comes to CSR and SRI. The changes that companies need to make will come at a cost. And when only looking at short-term benefits these costs might seem too high for what one gets in return. It is expensive to change a way of doing business, and not every company will be able to manage these extra costs. Thus the financial aspect of CSR might be a very large factor as to why not all companies are willing to make the changes. The same idea goes for SRI, a lot more research behind every investment is needed in order to secure that the investments are following the path one wishes. The results from these extra costs need to be acknowledged, but unfortunately the results do not all show at the bottom of the financial statement, which could make it difficult for an investor to understand and accept.
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<td>66</td>
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</tbody>
</table>

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Appendix 2 - Types of screening methods

1. Alcohol: Companies that profit from alcohol.
2. Tobacco: Companies that derive significant revenue from tobacco products.
3. Gambling: Companies that derive significant revenue from gambling enterprises.
4. Defensive weapons: Companies whose primary source of revenue is derived from the manufacture of weapons-related products or from defense contracts. Some funds exclude investments in U.S. Treasury securities.
5. Animal testing: Companies that conduct unnecessary animal testing for personal care products. Some recognize that medical products are required to undergo animal testing in compliance with the FDA.
6. Products/services: Companies in Pharmaceuticals, biotechnology, medical diagnostic services, and products. Seek companies that provide eco-friendly products, green technology, and organic/natural foods. Evaluate companies based on consumer protection and product purity. No investment in abortion, pornography, or related products.
7. Environment: Seek companies that protect and improve the environment and use natural resources properly. Exclude major electric utilities and companies whose primary source of revenue is derived from nuclear generation. Avoid or limit companies engaged in the genetic modification of plants and animals or in the extraction of natural resources.
8. Human rights: Do not invest in companies with negative economic impact on disadvantaged communities. Favor companies with best practices, and may focus on women's issues.
9. Labor relations: Seek companies not involved in sweatshop operations, forced labor, discrimination, unfair or unsafe labor practices, or Maquiladora operations (Mexican assembly plants that manufacture goods for export, generally owned by non-Mexican corporations).
10. Employment/equity: Seek companies offering equal employment opportunities, with fair wages, and with safe working conditions. May choose to invest in companies with women in management positions and strong benefits.
11. Community investments: Seek companies that direct capital to communities underserved by traditional financial services, making it possible for local
organizations to provide financial services to low-income individuals and capital for small businesses.
Appendix 3 - SRI accepted companies

S&P 500 Companies Frequently Listed in Top Ten Holdings by SRI Funds

JP Morgan Chase & Co.
Bank of America
Procter & Gamble
Johnson & Johnson
Microsoft
AT&T
Citigroup
Exxon Mobil
Pepsi
Intel
Wells Fargo
Pfizer
Goldman Sachs Group
General Electric
Chevron
Home Depot
Hewlett-Packard
Emerson Electric
Conoco Phillips
Amgen Inc.
American International Group
Verizon Communications
Lehman Brothers Holdings
FedEx
Costco Wholesale Co.
Baker Hughes Inc.
Apache Corporation
Texas Instruments
Sysco
Merck
Intuit
Colgate Palmolive
UPS
Appendix 4 - Non-SRI accepted companies

Stocks not accepted as being SRI, these have been excluded by Danica pension due to the listed reasons.

<table>
<thead>
<tr>
<th>Selskab</th>
<th>Årsag til ekskludering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerostar S.A.</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Africa Israel Investments Ltd.</td>
<td>Involveret i byggeaktiviteter i strid med international humanitær lov.</td>
</tr>
<tr>
<td>Alliant Techsystems Inc.</td>
<td>Involveret i produktion af klyngebomber og anti-personelminer, hvilket er i strid med internationale konventioner.</td>
</tr>
<tr>
<td>Aryt</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Cintas Corporation</td>
<td>Involveret i overtrædelse af internationale normer for arbejdstagerrettigheder.</td>
</tr>
<tr>
<td>CNOOC Ltd.</td>
<td>Involveret i olieudvinding i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Daewoo International Corporation</td>
<td>Involveret i leverancer af militært udstyr, som anvendes i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Danya Cebus</td>
<td>Involveret i byggeaktiviteter i strid med international humanitær lov.</td>
</tr>
<tr>
<td>Dongfeng Motor Group Company, Ltd.</td>
<td>Involveret i leverancer af militært udstyr, som anvendes i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Doosan</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Elbit Systems Ltd.</td>
<td>Involveret i leverancer af elektronisk udstyr som anvendes i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>FMC Corporation</td>
<td>Involveret i import af råstoffer, som er udvundet i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>GenCorp Inc.</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>General Dynamics Corporation</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Company</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hankook</td>
<td>Involveret i overtrædelse af internationale normer for arbejdstagerrettigheder.</td>
</tr>
<tr>
<td>Hanwha Corporation</td>
<td>Involveret i produktion af klyngebomber og anti-personelminer, hvilket er i strid med internationale konventioner.</td>
</tr>
<tr>
<td>Hyundai Motor Company</td>
<td>Agerer i strid med normer for anti-korruption.</td>
</tr>
<tr>
<td>Incitec Pivot</td>
<td>Involveret i import af råstoffer, som er udvundet i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Innophos</td>
<td>Involveret i import af råstoffer, som er udvundet i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Jiangxi Hongdu</td>
<td>Involveret i leverancer af militært udstyr, som anvendes i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>L-3 Communications Corporation</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Lockheed Martin Corporation</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Nissan Motor Company Ltd.</td>
<td>Involveret i leverancer af militært udstyr, som anvendes i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Poongsan Corporation</td>
<td>Involveret i produktion af klyngebomber, hvilket er i strid med en international konvention.</td>
</tr>
<tr>
<td>Potash Corporation of Saskatchewan</td>
<td>Involveret i import af råstoffer, som er udvundet i konflikt med menneskerettighedsnormer.</td>
</tr>
<tr>
<td>Singapore Technologies Engineering Ltd.</td>
<td>Involveret i produktion af klyngebomber og anti-personelminer, hvilket er i strid med internationale konventioner.</td>
</tr>
<tr>
<td>Sterlite Industries India Ltd.</td>
<td>Involveret i overtrædelser af normer for menneskerettigheder og miljø.</td>
</tr>
<tr>
<td>Textron Inc.</td>
<td>Involveret i produktion af klyngebomber og anti-personelminer, hvilket er i strid med internationale konventioner.</td>
</tr>
<tr>
<td>Vedanta Resources plc.</td>
<td>Involveret i overtrædelser af normer for menneskerettigheder og miljø.</td>
</tr>
<tr>
<td>Wesfarmes Ltd.</td>
<td>Involveret i import af råstoffer, som er udvundet i konflikt med menneskerettighedsnormer.</td>
</tr>
</tbody>
</table>
Appendix 5 - Method for creating the portfolios

Portfolio A for the entire time period is used as an example

<table>
<thead>
<tr>
<th>The Expected Return</th>
<th>Vestas</th>
<th>Novo Nordisk</th>
<th>Microsoft</th>
<th>Procter &amp; Gamble</th>
<th>Hewlett-Packard</th>
<th>JP Morgan Chase &amp; Co</th>
<th>Chevron</th>
<th>Home Depot</th>
<th>Fedex</th>
<th>Johnson &amp; Johnson</th>
<th>Colgate-Palmolive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average yearly</td>
<td>-0,0056</td>
<td>0,01288</td>
<td>-0,00217</td>
<td>0,00527</td>
<td>0,00066</td>
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<td>0,00446</td>
<td>0,00134</td>
<td>0,00204</td>
</tr>
<tr>
<td>Average yearly</td>
<td>-0,0675</td>
<td>0,15460</td>
<td>-0,02609</td>
<td>0,06325</td>
<td>0,00791</td>
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<td>0,06197</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
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<td>0,00562</td>
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<td>0,00446</td>
<td>0,00484</td>
<td>0,00206</td>
<td>0,00238</td>
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<tr>
<td>Novo Nordisk</td>
<td>0,00205</td>
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<td>0,00157</td>
<td>0,00086</td>
<td>0,00207</td>
<td>0,00186</td>
<td>0,00169</td>
<td>0,00241</td>
<td>0,00155</td>
<td>0,00135</td>
<td>0,00120</td>
</tr>
<tr>
<td>Microsoft</td>
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<td>0,00157</td>
<td>0,00576</td>
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<td>0,00413</td>
<td>0,00398</td>
<td>0,00232</td>
<td>0,00333</td>
<td>0,00328</td>
<td>0,00235</td>
<td>0,00231</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>0,00221</td>
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<td>0,00190</td>
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<td>0,00206</td>
<td>0,00128</td>
<td>0,00283</td>
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<td>0,00211</td>
<td>0,00240</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
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<td>0,00207</td>
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<td>0,00169</td>
<td>0,00941</td>
<td>0,00645</td>
<td>0,00272</td>
<td>0,00533</td>
<td>0,00407</td>
<td>0,00192</td>
<td>0,00174</td>
</tr>
<tr>
<td>JP Morgan Chase &amp; Co</td>
<td>0,00521</td>
<td>0,00186</td>
<td>0,00398</td>
<td>0,00206</td>
<td>0,00645</td>
<td>0,01184</td>
<td>0,00213</td>
<td>0,00589</td>
<td>0,00555</td>
<td>0,00223</td>
<td>0,00168</td>
</tr>
<tr>
<td>Chevron</td>
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<td>0,00169</td>
<td>0,00232</td>
<td>0,00128</td>
<td>0,00272</td>
<td>0,00213</td>
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<td>0,00251</td>
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<td>0,00148</td>
</tr>
<tr>
<td>Home Depot</td>
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<td>0,00533</td>
<td>0,00589</td>
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<td>0,00155</td>
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<td>0,00407</td>
<td>0,00555</td>
<td>0,00251</td>
<td>0,00525</td>
<td>0,00825</td>
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<td>0,00260</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>0,00206</td>
<td>0,00135</td>
<td>0,00235</td>
<td>0,00211</td>
<td>0,00192</td>
<td>0,00223</td>
<td>0,00185</td>
<td>0,00275</td>
<td>0,00265</td>
<td>0,00332</td>
<td>0,00239</td>
</tr>
<tr>
<td>Colgate-Palmolive</td>
<td>0,00238</td>
<td>0,00120</td>
<td>0,00231</td>
<td>0,00240</td>
<td>0,00174</td>
<td>0,00168</td>
<td>0,00148</td>
<td>0,00310</td>
<td>0,00260</td>
<td>0,00239</td>
<td>0,00392</td>
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</table>
### SRI – The Future of Pension Funds

<table>
<thead>
<tr>
<th>Company</th>
<th>Z Value</th>
<th>Minimum Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vestas</td>
<td>-0.46774</td>
<td>0</td>
</tr>
<tr>
<td>Novo Nordisk</td>
<td>3.047891</td>
<td>0.2634379</td>
</tr>
<tr>
<td>Microsoft</td>
<td>-1.65276</td>
<td>0.0237777</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>3.035459</td>
<td>0.3876871</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>0.303524</td>
<td>0.0040795</td>
</tr>
<tr>
<td>JP Morgan Chase &amp; Co</td>
<td>-0.25971</td>
<td>0</td>
</tr>
<tr>
<td>Chevron</td>
<td>1.048196</td>
<td>0.1325731</td>
</tr>
<tr>
<td>Home Depot</td>
<td>-1.5443</td>
<td>0</td>
</tr>
<tr>
<td>FedEx</td>
<td>1.045368</td>
<td>0</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>-2.2231</td>
<td>0.1249041</td>
</tr>
<tr>
<td>Colgate-Palmolive</td>
<td>-0.49859</td>
<td>0.0635406</td>
</tr>
</tbody>
</table>

| Sum                  | 1.834244| 1                |

<table>
<thead>
<tr>
<th>Financial Metrics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Return</td>
<td>0.0764393</td>
</tr>
<tr>
<td>Variance</td>
<td>0.0246124</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.1568832</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>0.2019835</td>
</tr>
</tbody>
</table>
Appendix 6 - The UN principles for responsible investment

1 We will incorporate ESG issues into investment analysis and decision-making processes.

Possible actions:

- Address ESG issues in investment policy statements
- Support development of ESG-related tools, metrics, and analyses
- Assess the capabilities of internal investment managers to incorporate ESG issues
- Assess the capabilities of external investment managers to incorporate ESG issues
- Ask investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors into evolving research and analysis
- Encourage academic and other research on this theme
- Advocate ESG training for investment professionals

2 We will be active owners and incorporate ESG issues into our ownership policies and practices.

Possible actions:

- Develop and disclose an active ownership policy consistent with the Principles
- Exercise voting rights or monitor compliance with voting policy (if outsourced)
- Develop an engagement capability (either directly or through outsourcing)
- Participate in the development of policy, regulation, and standard setting (such as promoting and protecting shareholder rights)
- File shareholder resolutions consistent with long-term ESG considerations
- Engage with companies on ESG issues
- Participate in collaborative engagement initiatives
- Ask investment managers to undertake and report on ESG-related engagement

3 We will seek appropriate disclosure on ESG issues by the entities in which we invest.

Possible actions:

- Ask for standardised reporting on ESG issues (using tools such as the Global Reporting Initiative)
- Ask for ESG issues to be integrated within annual financial reports
- Ask for information from companies regarding adoption of/adherence to relevant norms, standards, codes of conduct or international initiatives (such as the UN Global Compact)
- Support shareholder initiatives and resolutions promoting ESG disclosure
4 We will promote acceptance and implementation of the Principles within the investment industry.

Possible actions:

- Include Principles-related requirements in requests for proposals (RFPs)
- Align investment mandates, monitoring procedures, performance indicators and incentive structures accordingly (for example, ensure investment management processes reflect long-term time horizons when appropriate)
- Communicate ESG expectations to investment service providers
- Revisit relationships with service providers that fail to meet ESG expectations
- Support the development of tools for benchmarking ESG integration
- Support regulatory or policy developments that enable implementation of the Principles

5 We will work together to enhance our effectiveness in implementing the Principles.

Possible actions:

- Support/participate in networks and information platforms to share tools, pool resources, and make use of investor reporting as a source of learning
- Collectively address relevant emerging issues
- Develop or support appropriate collaborative initiatives

6 We will each report on our activities and progress towards implementing the Principles.

Possible actions:

- Disclose how ESG issues are integrated within investment practices
- Disclose active ownership activities (voting, engagement, and/or policy dialogue)
- Disclose what is required from service providers in relation to the Principles
- Communicate with beneficiaries about ESG issues and the Principles
- Report on progress and/or achievements relating to the Principles using a 'Comply or Explain' approach
- Seek to determine the impact of the Principles
- Make use of reporting to raise awareness among a broader group of stakeholders
### Appendix 7 - Types of screening methods

#### A. Negative Screens

<table>
<thead>
<tr>
<th>Screens</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>Firms that produce, market, or otherwise promote the consumption of alcoholic beverages</td>
</tr>
<tr>
<td>Tobacco</td>
<td>Manufacturers of tobacco products</td>
</tr>
<tr>
<td>Gambling</td>
<td>Casinos and suppliers of gambling equipment</td>
</tr>
<tr>
<td>Nuclear Power</td>
<td>Manufacturers of nuclear reactors and related equipment and companies that operate nuclear power plants</td>
</tr>
<tr>
<td>Firearms</td>
<td>Companies producing firearms for personal use</td>
</tr>
<tr>
<td></td>
<td>Defence Contracting (Military) Production of weapons for domestic or Weapons foreign militaries</td>
</tr>
<tr>
<td>Irresponsible Foreign</td>
<td>Investment in oppressive regimes such as Burma or China and mistreatment of indigenous peoples</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
</tr>
<tr>
<td>Abortion/Birth Control</td>
<td>Abortion providers, drug manufacturers that manufacture and distribute abortifacients; insurance companies that pay for elective abortions (where not mandated by law); or companies that provide financial support to Planned Parenthood; Manufacturers of birth control products</td>
</tr>
<tr>
<td>Usury</td>
<td>Predatory lending, bonds, fixed income securities</td>
</tr>
<tr>
<td>Pornography</td>
<td>Pornographic magazines; production studios that produce offensive video and audio tapes; companies that are major sponsors of graphic sex and violence on television</td>
</tr>
</tbody>
</table>
### B. Positive or Negative Screens

<table>
<thead>
<tr>
<th>Screens</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products/Services</td>
<td>Strong investment in R&amp;D, quality assurance, product safety, avoidance of antitrust violations, consumer fraud, and marketing scandals.</td>
</tr>
<tr>
<td>Animal Rights</td>
<td>Seeks promotion of humane treatment of animals; avoids animal testing, hunting/trapping equipment, and the use of animals in end products.</td>
</tr>
<tr>
<td>Labour Relations and Workplace</td>
<td>Avoids worker exploitation and sweatshops; seeks strong union Conditions relationships, employee empowerment, and/or profit-sharing.</td>
</tr>
<tr>
<td>Diversity</td>
<td>Minorities, women, gays/lesbians, and/or disabled persons recruited and represented among senior management and the board of directors.</td>
</tr>
<tr>
<td>Environment</td>
<td>Avoids companies that pollute, produce toxic products, and contribute to global warming; seeks proactive involvement in recycling, waste reduction, and environmental cleanup</td>
</tr>
<tr>
<td>Human Rights</td>
<td>Avoids companies directly or indirectly complicit in human rights violations; seeks companies promoting human rights standards</td>
</tr>
</tbody>
</table>

### C. Positive Screens

<table>
<thead>
<tr>
<th>Screens</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy</td>
<td>Power derived from sources such as hydroelectric dams, fuel cells geothermal energy, solar energy, and/or wind energy.</td>
</tr>
<tr>
<td>Community Involvement/Investment</td>
<td>Proactive investment in surrounding communities by sponsoring charitable donations, employee volunteerism, and/or housing and education programs</td>
</tr>
<tr>
<td><em>Fund Participation</em></td>
<td>The mutual fund itself invests in Community Development Financial Institutions (CDFIs)</td>
</tr>
<tr>
<td><em>Shareholder Activism</em></td>
<td>The mutual fund attempts to influence company policies and actions through direct engagement with management and/or sponsoring shareholder resolutions</td>
</tr>
</tbody>
</table>

*These categories apply to the investment and management policies of the socially responsible mutual fund itself, rather than to those of the companies in which it invests.

Source: Geczy et al. (2005)
## Appendix 8 - Portfolios with no short sale restriction

### Portfolio A (100% SRI)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
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<td>Sharpe Ratio</td>
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### Portfolio B (50% SRI and 50% none-SRI)

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</thead>
<tbody>
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<td>Standard Deviation</td>
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</tr>
<tr>
<td>Sharpe Ratio</td>
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</table>

### Portfolio C (66.6% SRI and 33.3% none-SRI)

<table>
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</thead>
<tbody>
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</tr>
<tr>
<td>Standard Deviation</td>
<td>0.44679</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>1.01444</td>
</tr>
</tbody>
</table>

### Portfolio D (100% none-SRI)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Return</td>
<td>0.45029</td>
</tr>
<tr>
<td>Variance</td>
<td>0.19889</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.44567</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.90934</td>
</tr>
</tbody>
</table>
Appendix 9 - Minimum variance portfolios with not short-sale restriction

Portfolio A (100% SRI)

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Expected Return</strong></td>
<td>0,08731</td>
</tr>
<tr>
<td><strong>Variance</strong></td>
<td>0,23200</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0,15232</td>
</tr>
<tr>
<td><strong>Sharpe Ratio</strong></td>
<td>0,27939</td>
</tr>
</tbody>
</table>

Portfolio B (50% SRI and 50% none-SRI)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Expected Return</strong></td>
<td>0,11353</td>
</tr>
<tr>
<td><strong>Variance</strong></td>
<td>0,01862</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0,13645</td>
</tr>
<tr>
<td><strong>Sharpe Ratio</strong></td>
<td>0,50409</td>
</tr>
</tbody>
</table>

Portfolio C (66,6% SRI and 33,3% none-SRI)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Expected Return</strong></td>
<td>0,09356</td>
</tr>
<tr>
<td><strong>Variance</strong></td>
<td>0,02150</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0,14662</td>
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<tr>
<td><strong>Sharpe Ratio</strong></td>
<td>0,33284</td>
</tr>
</tbody>
</table>

Portfolio D (100% none-SRI)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Expected Return</strong></td>
<td>0,12121</td>
</tr>
<tr>
<td><strong>Variance</strong></td>
<td>0,03750</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0,19364</td>
</tr>
<tr>
<td><strong>Sharpe Ratio</strong></td>
<td>0,39484</td>
</tr>
</tbody>
</table>
## Appendix 10 - Portfolio A with “wild” estimates due to short-sale

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Vestas</td>
<td>-0.46774</td>
<td>0</td>
</tr>
<tr>
<td>Novo Nordisk</td>
<td>3.047891</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft</td>
<td>-1.65276</td>
<td>0</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>3.035459</td>
<td>0</td>
</tr>
<tr>
<td>Hewlet-Packard</td>
<td>0.303524</td>
<td>0</td>
</tr>
<tr>
<td>JP Morgan Chase &amp; Co</td>
<td>-0.25971</td>
<td>0</td>
</tr>
<tr>
<td>Chevron</td>
<td>1.048196</td>
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</tr>
<tr>
<td>Home Depot</td>
<td>-1.5443</td>
<td>0</td>
</tr>
<tr>
<td>Fedex</td>
<td>1.045368</td>
<td>0</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>-2.2231</td>
<td>0</td>
</tr>
<tr>
<td>Colgate-Palmolive</td>
<td>-0.49859</td>
<td>0</td>
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<tr>
<td><strong>Sum</strong></td>
<td>1.834244</td>
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<tr>
<td><strong>Expected Return</strong></td>
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</tr>
<tr>
<td><strong>Variance</strong></td>
<td>0.054707</td>
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</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>0.233895</td>
<td></td>
</tr>
<tr>
<td><strong>Sharpe ratio</strong></td>
<td>0.469655</td>
<td></td>
</tr>
</tbody>
</table>