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PERFORMANCE OF SOCIALLY RESPONSIBLE FUNDS IN FINLAND IN 2014-2020

Bachelor's thesis

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ABSTRACT

In recent years, there has been a substantial increase in socially responsible investment. As a result of the increased interest, the subject has been intensively researched in recent years. However, the studies could not reach a consistent consensus on the profitability of socially responsible investing. The research findings were contradictory, necessitating further investigation.

The aim of this thesis is to evaluate how socially responsible funds in Finland performed in relation to the market from 2014 to 2020. Furthermore, efforts were made to assess whether, considering the environment, social factors, and corporate governance generates financial losses for investors when making investment decisions.

The study was carried out using quantitative methods. The study focused on thirteen socially responsible funds in the Finnish market and compared their performance to the benchmark index, the OMX Helsinki GI. The performance of the funds was evaluated using three risk-adjusted return performance indicators: Sharpe's ratio, Treynor ratio, and Jensen's alpha. Additionally, performance was evaluated using geometric mean annual return and volatility.

According to the study results, the socially responsible funds assessed performed slightly worse than the benchmark on average. Socially responsible funds underperformed the benchmark index in terms of market risk and total risk. The data also indicated that taking into account social aspects, corporate governance, and environmental criteria appears to incur at least some amount of cost, which has a negative impact on the funds' performance.

Keywords: Socially responsible investing, Treynor ratio, Sharpe’s ratio, Jensen’s alpha, Finland

INTRODUCTION

Responsibility is a rapidly growing trend that influences the behavior of individuals, companies, and other societal actors. Social problems such as climate change, political crises, and environmental disasters shape the concept of responsibility, and prevalent perceptions of ethics and morality have a significant impact on understanding responsibility. As responsibility grows in importance, it is natural that it also plays a significant role in today's investment world. As a result, the popularity of socially responsible investment has grown rapidly in recent decades, generating a great deal of interest, particularly in the financial sector. According to Mollet and Ziegler (2014), the growing popularity of growth can be explained by an increase in consumer awareness of environmental, social, and ethical issues, which has influenced consumer purchasing decisions and behavior. However, due to the lack of a formal definition, responsibility is a highly subjective concept that can mean different things to different actors. The concept's subjectivity can cause difficulties in investment activities if different parties' perceptions of responsibility differ significantly.

Much of the research has been done in recent years into the performance of socially responsible funds. There are many research results on the subject, but the results are contradictory. Several research findings suggest that responsible investing and conventional investing yield similar returns, as stated by Hamilton, Jo, and Statman (1993) and Kreander, Gray, Power, and Sinclair (2005). In contrast, Kempf and Osthoff (2007) found that socially responsible investing yielded higher returns, whereas Renneboog et al. (2008a) and Belghitar et al. (2014) found that adhering to the principles of socially responsible investing reduces portfolio returns.

Naturally, due to growing the popularity of socially responsible funds, it has also received a great deal of criticism. However, it is not yet entirely certain that socially responsible funds would do better or worse than conventional funds or market portfolios.

The Nordic countries are the leading countries in sustainable development. Since these countries have focused on making decisions and policies, which have a direct impact on the environment

and the development of their communities in line with sustainable development. For example, most Nordic countries have relatively low emissions compared to their GDP (Jokinen et al. 2020). Socially responsible investment became mainstream in the Nordic countries in the early 2000s (Scholtens, Sievänen 2012). In Finland, no similar investment measures were implemented, and the country remains slightly behind the other Nordic countries in terms of socially responsible investment. In Finland, socially responsible investing has yet to grow to the same extent (Scholtens & Sievänen 2012). Although socially responsible investing is not yet widely practiced in Finland, many organizations are increasingly applying its principles to investment. In comparison to other Nordic countries, socially responsible investment in Finland has not been studied very much. Thus, it provides an interesting basis for this thesis.

This thesis is geographically focused on Finland. The thesis aims to determine whether socially responsible funds outperform the market portfolio or whether consideration of the environment, social factors, and corporate governance cause financial losses for investors when making investment decisions. The study was conducted to determine whether it is profitable to consider social responsibility when making an investment decision. Thus, this thesis focuses on the following research question:

1. How did the socially responsible funds perform in Finland between the years 2014 – 2020?

The performance of the funds will be monitored over seven years. This will ensure that the most up-to-date and accurate picture of the current situation is obtained.

Performance of socially responsible funds was studied first with an annualized geometric mean of returns and volatility, after which risk-adjusted return performance indicators were used. The used indicators in the thesis were the Sharpe's ratio, Treynor ratio, and Jensen's alpha. The valuations of funds and the benchmark index were searched in the Thomson Reuters DataStream database. All the values utilized were dividend-adjusted and all the socially responsible funds were operating in the Finnish investment market and had at least 90% of their assets invested in equities.

The structure of the thesis is as follows. After the introduction, the first chapter discusses socially responsible investing in general, followed by a look at various socially responsible investing strategies. After which, the role of socially responsible investing in Finland will be examined in more detail. Additionally, the first chapter explains the various theories upon which the thesis is

based, as well as past research findings on the performance of socially responsible investing. The methodology of the thesis is described in the second chapter, where the data used in the empirical part, as well as the research methodologies and metrics, are presented. The empirical section is in chapter 3 and examines the performance of socially responsible funds relative to the market portfolio using the previously mentioned risk-adjusted metrics. The thesis conclusions are found in the final chapter of the thesis.

1. SOCIALLY RESPONSIBLE INVESTING

The concept of socially responsible investing (SRI) can be approached from several different perspectives, as it is very multifaceted as a concept. One definition of socially responsible investment is an investment that considers fundamental analysis and engagement with an evaluation of environmental, social, and corporate governance (ESG). The so-called ESG factors aim to ensure long-term competitiveness, generate economic returns and have a positive societal impact (Eurosif 2016; Michelson et al. 2004). Financial returns have an importance to the investor, but it is not the only criterion for investing since ethical considerations are also taken into account (Michelson et al. 2004).

De Colle and York (2008) define socially responsible investment as a two-pronged approach. One advantage of socially responsible investing is that it allows people to incorporate their personal values and ethics into their financial decisions. The second aim is to encourage companies to enhance their ethical, social, and environmental practices by increasing their corporate social responsibility (CSR) and sustainability performance.

In the context of socially responsible investment, different terms are frequently used, depending on the investor's weighted perspective. Ethical investment, green investment, and value-based investment are other terms for socially responsible investment (Sandberg et al. 2009). The definition of responsible investment has also differed among countries. In Europe, socially responsible investment is often referred to as socially sustainable investment or green investment, however, in the United States, it is commonly referred to as socially responsible investment (Kurtz 2005). To avoid ambiguity, this thesis will solely utilize the term socially responsible investment.

However, socially responsible investing is highly subjective because it may be approached from a variety of angles based on individual values. Statman (2000) emphasizes the problem, underlining how complex the subject of the socially responsible investment may be due to the merging of facts and beliefs. Furthermore, cultural and ideological variations between locations, and nations influence the approach to socially responsible investing (Sandberg et al. 2009). The lack of mutual

investment criteria in SRI, as well as a theory outlining the optimal correlation between sustainable factors and investment performance, each contribute to subjectivity. Thus, determining the attractiveness of socially responsible investing in common efficient markets is challenging (Berry, Junkus 2012).

Schueth (2003) divides the motives for responsible investing into two categories, of which the first consist of people who want to invest responsibly because it will allow them to act more responsibly in accordance with their values and priorities. The second category includes individuals who want to act responsibly so that society can change in a more positive and socially sustainable direction. According to Statman (2000), these investors who want to help society can use investing to defend things that are important to them and, by doing so, force companies to act more responsibly.

Globally, socially responsible investing has increased in recent years. The five major markets of the world, the United States, Canada, Japan, Australasia, and Europe, had invested 31,1 trillion euros in socially responsible investment assets under management in 2020. Sustainable investments increased by 55% between 2016 and 2020. The proportion of sustainable investment assets was highest in Canada (62%), followed by Europe with 42 %, Australasia 38 %, the United States 33 %, and Japan 24 % (GSIA 2020, 9-10).

There are different ways to invest in a socially responsible manner. This can be done by investing in the individual businesses that have a high social value or through a socially aware mutual fund or exchange-traded fund. Mutual funds and exchange-traded funds have the ability to allow investors to diversify their investments across multiple firms and industries by a single investment (Baker, Nofsinger 2012).

1.1. Strategies of socially responsible investing

There are several different strategies for socially responsible investing. Different strategies are not mutually incompatible and can be implemented concurrently. As the significance of socially responsible investing has increased over the years, strategies have also become more diversified and complex. It has progressively extended its way into the mainstream from specialized retail investment funds (Sparkes, Cowton 2004).

Mermod and Idowu (2014) state that the three most significant strategies are portfolio screening, shareholder advocacy, and community investing. The oldest and most common of the strategies is exclusion, which is practically the implementation of negative screening (Renneboog et al. 2008). Scholtens and Sievänen (2012) argue that there is a shift whereby a socially responsible investing is increasingly focused on proactive positive screening. However, as measured in euros, the most common strategies in Europe are negative screening, shareholder advocacy, ESG integration, and norms-based screening, of which ESG integration is currently one of the fastest expanding strategies (Eurosif 2018).

1.1.1. Screening

In general, screening refers to the process of selecting companies for participation in an investment portfolio based on a set of criteria. It is typically divided into two categories, which are negative and positive screening. Through negative screening, companies with poor environmental, social, or governance records are excluded or have their portfolio weights reduced. The approach excludes investing in companies or industries or specific stocks involved in controversial business areas such as alcohol, tobacco, gambling, or the military (Kempf, Osthoff 2007).

Positive screening includes selecting companies whose operations are sustainable and fulfill high Corporate Social Responsibility (CSR) criteria. Positive screening typically focuses on corporate governance, stimulation of cultural diversity, labor relations, the environment, and sustainability. The aim is to focus investments on companies that have a higher ESG rating than others. Positive screening is frequently used in line with a Best-In-Class strategy. The Best-In-Class screening follows the same basic principles as positive screening but also ensures that the portfolio is well-balanced across industry sectors (Renneboog et al. 2008b). Positive screening is also closely linked to norms-based screening. It allows investors to decide which companies to include in their portfolios based on their level of compliance with international standards and rules. The norms are outlined in global initiatives and guidelines such as the OECD Guidelines for Multinational Enterprises and the UN Global Compact (Eurosif 2018).

Negative screening has received a lot of criticisms in recent years. De Colle and York (2008), for example, have criticized negative screening, claiming that it creates a so-called incentive problem. They claim that if one of the aims of responsible investment is to promote and assist companies in improving their ethical, social, and environmental performance, the negative screening will not help them achieve that aim. If investors entirely exclude such firms from their investment

portfolios, there will be no discourse between them and the companies, and in this way, investors will not be able to influence the behavior of these companies, and companies will continue to operate unethically. De Colle and York (2008) are therefore concerned that, when conducting negative screening, responsible investors should pay increasing attention to how responsibly a company produces and operates, rather than just to the industry in which it operates or to the products it produces.

1.1.2. Shareholder advocacy and engagement

Shareholder advocacy refers to investors' efforts to influence corporate behavior by leveraging their position as shareholders. Shareholder advocacy allows shareholders to persuade corporations to improve their social and environmental records. Engaging in dialogue with companies on matters of concern, as well as proposing and voting on proxy resolutions, are all examples of how shareholders may have leverage. As a response, shareholder advocacy contributes management to engaging more in discussions about desired changes in business policy and practice (Schueth 2003). Shareholder advocacy efforts frequently aim to improve corporate financial performance over time, encourage the corporation to consider ethical concerns, and ensure long-term development. Moreover, many investors regard influencing as part of their responsibility to enhance the advantage of all stakeholders (Eurosif 2016).

1.1.3. ESG integration

Integrating environmental, social, and governance (ESG) factors into investment strategies has been a point of discussion among investors and policymakers around the globe in recent years, and it is rapidly becoming the most popular strategy among SRI investors. ESG integration is considered as a simple approach to include sustainability factors into investment decisions. In broadly, ESG integration involves integrating ESG factors into a company's traditional financial analysis and investment decisions. However, investors, companies, and other stakeholders all have varied intentions in terms of sustainability, because objectives vary greatly depending on industry and individual values. Thus, the challenge is to identify the objectives and concentrate on the priorities. Therefore, investors often utilize the knowledge of external ESG research companies to facilitate analysis and possibly also their own tools to help implement responsible investment (Eurosif 2018).

1.2. Socially responsible investing in Finland

In Finland, socially responsible investment is a relatively new phenomenon. However, according to Finsif's (2020) market analysis, socially responsible investment is increasing and strengthening its position in Finland. According to the results of the market analysis, none of the respondents believed that the importance of being socially responsible in their operations would diminish. By 2020, 42 organizations in Finland had signed the Principles for Responsible Investment (PRI), with investment assets totaling more than EUR 530 billion (Finsif 2020).

For many Finnish investors, the concepts of ESG integration and shareholder advocacy, in particular, have formed the foundation of a socially responsible investing strategy (Finsif 2021). In 2019, ESG integration was the most popular approach to socially responsible investment in Finland, followed by negative screening and shareholder advocacy and engagement (Finsif 2021, 20).

Because socially responsible investing is still a comparatively new phenomenon in Finland, practices are primarily based on the efforts of entities such as Finland's Sustainable Investing Forum (Finsif) and those who implement the United Nations' (UN) principles of responsible investment. The UNs' publication of the Principles for Responsible Investment (PRI) in 2006 had a considerable influence on the perception of socially responsible investment in Finland. The PRI has raised public awareness of the issue and established guidelines for socially responsible investing. Finsif supports socially responsible investing in Finland. Finsif's mission is to increase awareness about sustainability and support the growth of socially responsible investing. According to Finsif (2021), socially responsible investing is an investment approach in which ESG factors are incorporated into the investment process and ownership practices with the objective of enhancing the risk-return profile of the investment portfolio.

International studies have indicated that Finland has the great potential to develop in the area of socially responsible investment. According to Sievänen and Scholtens (2012), Finland's business and management practices are exceptional in global markets, and Finland ranks highly in several international measures such as the Environment Performance Index (EPI). Finland ranked seventh in the EPI index and first in the world in terms of environmental health. EPI focuses on minimizing environmental pressures and enhancing ecosystem vitality (YCEP 2020).

In recent years, the EU has established regulations on sustainable finance and investment. The primary objective is to allocate capital toward more sustainable investments. This will be undertaken through improving the transparency of investment products from a sustainability aspect, hence eliminating investment greenwashing. In March 2021 the EU Disclosure Regulation entered into force, requiring entities to declare the sustainability risks related to their activities and investments, and whether the entities may take into consideration the negative impacts of investment decisions on sustainability aspects. Furthermore, it is critical for the entities to consider the expectations of their major stakeholders in all of their activities (European Parliament, Council of the European Union 2019).

1.3. Theories of socially responsible investing

The majority of risk and return analysis approaches for socially responsible investment are based on modern portfolio theory (Chegut et al. 2011, 78). Therefore, portfolio theory has a significant role in socially responsible investing. Portfolio theory was developed by Markowitz (1952), the core idea of the theory is to reduce the risk of the investment portfolio through effective diversification. The aim of diversification is to maximize expected returns while minimizing risk. According to Markowitz (1952), the optimal outcome is achieved when the portfolio includes investments which values are influenced by different factors along with investments with the lowest amount of correlation between its returns. A well-diversified portfolio is only exposed to unavoidable market risk (Michelson et al. 2004).

According to Lean, Ang, and Smyth (2015, 255), the most significant issue with socially responsible investing is that it conflicts with modern portfolio theory. Socially responsible investing restricts possible investments based on sustainability, reducing portfolio diversification. This conflicts with modern portfolio theory because it prevents the optimal portfolio from being achieved. Besides, the additional expenses associated with monitoring of social responsible performance may result in underperformance in socially responsible funds (Cortez et al. 2009). Moreover, Renneboog et al. (2008a) claim that socially responsible funds should be expected to perform worse than traditional funds. They rely on two arguments to support their claims. The first is that SRI funds do not invest in financially appealing locations that violate ethical norms, such as the gambling and cigarette industries, which have historically generated strong long-term

returns. Second, funds that utilize negative screens have fewer investing possibilities, which lowers their performance.

On the other hand, Kurtz (2005) observes that the relevance of portfolio theory critique of socially responsible investing has decreased since investment strategies for socially responsible investment have succeeded to gain competitive long-term returns. Cortez et al. (2009) also stress that critics tend to fail to consider the fact that corporations that engage in corporate social responsibility practices may benefit from long-term economic performance. Companies with higher levels of social responsibility are also more likely to have a higher quality of management, which may reflect relative advantages over less socially responsible corporations. Likewise, Barnett and Salomon (2006) emphasize that, while modern portfolio theory indicates that restricting investment alternatives incurs costs, it does not account for the advantages of responsible investing. It is also worth mentioning that the theory does not consider what the valuations of various companies' shares are based on. This is also the viewpoint of Moskowitz (1972), a leading proponent of socially responsible investment. He claims that SRI portfolios outperform market portfolios because they include knowledge in investment decisions that are not widely known in the market. Kurtz and di Bartolomeo (2011) also conclude from their research that the market does not price sustainability factors, allowing socially responsible investors to achieve competitive returns by employing portfolio theory, particularly portfolio optimization.

Additionally, according to Moskovitz (1972), for a company to succeed, it should focus on socially responsible operations and employee well-being. Moskowitz claimed that socially responsible corporate practices would help companies outperform their competitors in the long term. Socially responsible investment is fundamentally linked to the social and administrative factors of businesses, which Moskowitz (1972) was among the first to emphasize in terms of equity investment. Moskowitz's article focused on factors related to the stakeholder theory that emerged in the 1980s. According to the theory, companies that maintain better relationships with their stakeholders are also more financially successful. Reciprocal and bilateral negotiation processes between stakeholders and the company serve as supervisory and enforcement mechanisms, preventing managers from shifting their focus away from the organization's broad economic goals. Processing claims from various stakeholders and finding a balance between them can help the organization adapt to external requirements (Orlitzky et al. 2003).

Donaldson and Preston (1995) analyzed the effect of stakeholder theory on socially responsible investing and discovered that a firm's financial success is dependent on how well it manages its stakeholder relationships. The company's success in the market is based on good management and strong relationships with stakeholders. Jones (1995) has also applied institutional theory and classical economics to corporate responsibility. He emphasized that companies with a confidential and close working relationship have more motivated stakeholders who act truthfully, confidentially, and ethically. Furthermore, such practices frequently result in higher pay for employees.

1.4. Performance of socially responsible investments

Previous research on socially responsible investing has concentrated on the performance of socially responsible investments and the profitability of various SRI strategy options. Because the findings of the research differ, there is no consensus on the profitability of socially responsible investing. Several studies have indicated that there is no significant difference between socially responsible investments and conventional investments (Pereira et al. 2019; Statman 2000), while some suggest that socially responsible investments outperform conventional investments (Kempf, Osthoff 2007), and others find that SRI returns are lower than conventional (Belghitar et al. 2014; Renneboog et al. 2008a). This lack of empirical consensus is partially explained by discrepancies between research, such as the time horizon utilized, whether short or long term. Additionally, geographical variations might cause differences across research (van Duuren et al. 2016). The discrepancies across research might also be due to differences in ESG data sources, such as the ESG ratings or ESG rating data sets. Dorfleitner, Halbritter and Nguyen (2015) showed that the discrepancies between Bloomberg, ASSET4, and KLD, for example, are significant in terms of ESG scoring approaches, scope and risk factor consideration.

Hamilton, Jo, and Statman (1993) were among the first to study the performance of socially responsible funds; in their study, they analyzed the expected returns of US socially responsible funds using Jensen's alpha. According to the findings, the returns of socially responsible funds were no different than conventional funds, and thus did not meet statistically significant expected returns. The researchers came to the conclusion that the market does not factor in responsibility factors in its pricing. As a result, they conclude that investing in socially responsible funds has no effect on the expected return.

In Europe, Kreander, Gray, Power and Sinclair (2005) were one of the first to study the performance of European socially responsible funds. The research was conducted at a time when Europe was significantly increasing its focus on social responsibility. In their research, they included 60 funds from four different countries that were classified as ethical or non-ethical. Weekly returns and risk-adjusted metrics were used to examine the funds from 1995 to 2001. The performance of ethical and non-ethical funds was fairly similar, with no significant differences found. Consequently, the results of the study correspond with the study of Hamilton et al. (1993).

Statman (2000) studied the performance of the Domini Social Index and socially responsible funds in comparison to the S&P 500 index. The Domini Social Index is made up of 400 firms that are socially responsible. In his study, Statman found that the Domini Social Index outperformed the S&P 500 Index. However, the differences in returns were not statistically significant. For SRI funds, only one in 31 outperformed the market. The returns of all other funds were clearly lower than the market returns.

On the contrary, Kempf and Osthoff (2007) conducted one of the studies that indicates that socially responsible investments outperform conventional investments. They studied the stock market and traded shares in the S&P 500 and DS 400 indexes between 1992 and 2004. The strategy was to invest in two equity portfolios, one with a high socially responsible score and one with a low socially responsible score. The result showed that positive abnormal performance can be achieved by investing in high responsibility stocks and avoiding low responsibility stocks. The findings also indicated that the market may not accurately price businesses with a low socially responsible score. The Best-in-Class approach, in particular, provided the highest returns and performed best when several SRI strategies were applied concurrently.

Renneboog et al. (2008a) conducted a large-scale study involving over 400 socially responsible funds from 17 different countries. Renneboog et al. (2008a) used local market indexes as well as conventional funds as benchmarks. The risk-adjusted returns of the funds were calculated using different models, including the CAPM and the Fama-French 3-factor model. In addition to risk-adjusted returns the study examined the impact of screening and fund size on their performance. According to Renneboog et al. (2008a), almost all North American and European SRI funds underperformed the market. The study found no statistically significant differences in the risk-adjusted returns of conventional and SRI funds, with the exception of a few countries. In addition,

the researchers discovered that the screening process for SRI funds has a significant impact on their performance. Funds that used the management company's internal research teams for screening clearly outperformed those that relied on external services. In addition, the number of screens had an effect on the fund's income. As more screens were used, the returns on the funds decreased. The size of SRI funds in the study had no effect on their returns. This was surprising because Chen, Harrison, Huang, and Kubic (2004) have shown that the increasing size of conventional funds has a diminishing effect on their returns.

Much research on the performance of socially responsible investments has been conducted, but it is still difficult to determine with certainty if socially responsible companies or funds will perform better or worse than other companies or funds. The previous study indicates that the market does not price responsibility factors, hence socially responsible investments would provide no additional benefits or drawbacks to investors. Thus, socially responsible investing does not appear to yield higher returns than other investment strategies. Therefore, whether the investee is socially responsible makes no difference in terms of investment returns. However, because a socially responsible investor is not required to accept lower profits on investments, it is possible to believe that adopting responsibility will enhance value.

2. METHODOLOGY

The study will be conducted as a quantitative study since the study examines risk-adjusted returns and the historical performance of funds. The primary aim is to examine how socially responsible investment funds have coped with the market portfolio, as well as whether socially responsible investing causes financial losses to investors.

A mere comparison of the average returns and volatility of the funds under study yields insignificant results. For meaningful and effective comparison, it is preferable to compare investments with similar risk structures and proportion the risks of investments to their returns (Bodie et al. 2014, 837). Therefore, the focus of the study is on traditional portfolio performance metrics developed by William Sharpe, Jack Treynor, and Michael Jensen to fill gaps in the Capital Asset Pricing Model (CAPM) and improve the comparability. In performance measures, returns of funds are proportioned to their risk, as well as the market's return and risk.

The Sharpe ratio (1966), Treynor ratio (1965), and Jensen's alpha (1968) are used to analyze the performance of the funds. Sharpe ratio and Treynor ratio are widely used metrics for analyzing performance in similar studies, and both ratios adapt well to market portfolio comparison. Jensen's alpha, which is based on the CAPM, is another well-known performance measure.

The research's dataset consists of 13 Finnish socially responsible mutual funds. For empirical testing, the funds' logarithmic monthly returns were used. All funds and benchmark index were valued on the first day of each month between 01.01.2014 and 1.12.2020. The valuations of funds and the benchmark index were searched in the Thomson Reuters DataStream database. All the values utilized were dividend adjusted. Linear regressions were performed using Microsoft Excel. The study did not account for the costs related to the ownership of funds, such as subscription and redemption fees. The aim was to keep the research unambiguous and to make the research objectives comparable.

2.1 Data Collection

The study includes only funds operating in the Finnish investment market. However, some of the funds are also located abroad, as there are only a limited number of socially responsible funds

offered by Finnish banks and financial companies. For the study, equity funds having at least 90% of their assets invested in equities were selected. To make the comparison between funds as accurate as feasible, hybrid funds and bond funds were purposefully excluded from the data. Morningstar's database of SRI funds was used in the fund selection process. All of the funds selected invest primarily in shares of Finnish or European companies. The objective was to choose funds from as many different finance companies as feasible. The study period was chosen as 01.01.2014–1.12.2020, meaning a seven-year review interval. The study period was chosen because the study focuses on the long-term performance of the funds. Furthermore, the time period was influenced by the fact that socially responsible investing is a relatively new concept in Finland.

Table 1 provides basic information on socially responsible funds. All of the funds chosen were founded before the 2010s. There are significant variances in the sizes of the funds. The largest fund is Säästöpankki Kotimaa A, which has a capitalization of more than EUR 475,53 million. The smallest fund in the dataset is UB HR Suomi Kasvu, which is worth around EUR 20,63 million.

Table 1. Socially responsible funds' basic information

Fund	ISIN	Total Assets (MEUR) 29.10.2021	Inception Date
Aktia Capital B	FI0008801071	437,25	15.5.1992
Danske Invest Sustainability Equity G	FI0008802921	406,7	1.11.1999
eQ Finland 1 K	FI0008812169	72,93	13.6.2007
Fondita Equity Spice A	FI0008802848	21,41	7.4.1997
LocalTapiola ESG Dividend Finland A	FI0008811021	83,21	4.9.2006
Nordea Finnish Stars Fund A Growth	FI0008800016	408,42	15.5.1992
OP-Climate B	FI0008802434	452,19	7.4.1997
POP Finland	FI0008808456	64,94	1.2.2005
S-Bank Emerging Markets ESG Share	FI0008810148	303,07	7.12.2005
SEB Finlandia Optimized Low Carbon B	FI0008802558	254,06	30.9.1993
Seligson & Co Finland Index A	FI0008801758	185,77	1.4.1998
Säästöpankki Kotimaa A	FI0008806617	475,53	13.5.2003
UB HR Finland Growth	FI0008807334	20,63	30.4.2004

Source: Morningstar (2021)

2.2 Benchmark index and risk-free return

The benchmark index serves as a reference point for comparing the performance of the Funds to the overall development of the market. The benchmark index was selected in such a way that it

seeks to reflect the development of the Finnish market as accurately as possible. Hence, the OMX Helsinki GI index was chosen as the benchmark index since the NASDAQ OMX Helsinki is Finland's only official stock exchange and the OMXH index describes the aggregate exchange rate development of all listed shares on the Helsinki Stock Exchange. The index's objective is to reflect the market's current state and changes. The OMX Helsinki Growth Index (GI) was chosen for the study rather than the Price Index (PI), because the growth index describes the overall return on the shares included in the index, taking into account both the increase in the value of the shares and the dividends they distribute. Figure 1 presents the development of the benchmark growth index over the time period under consideration.

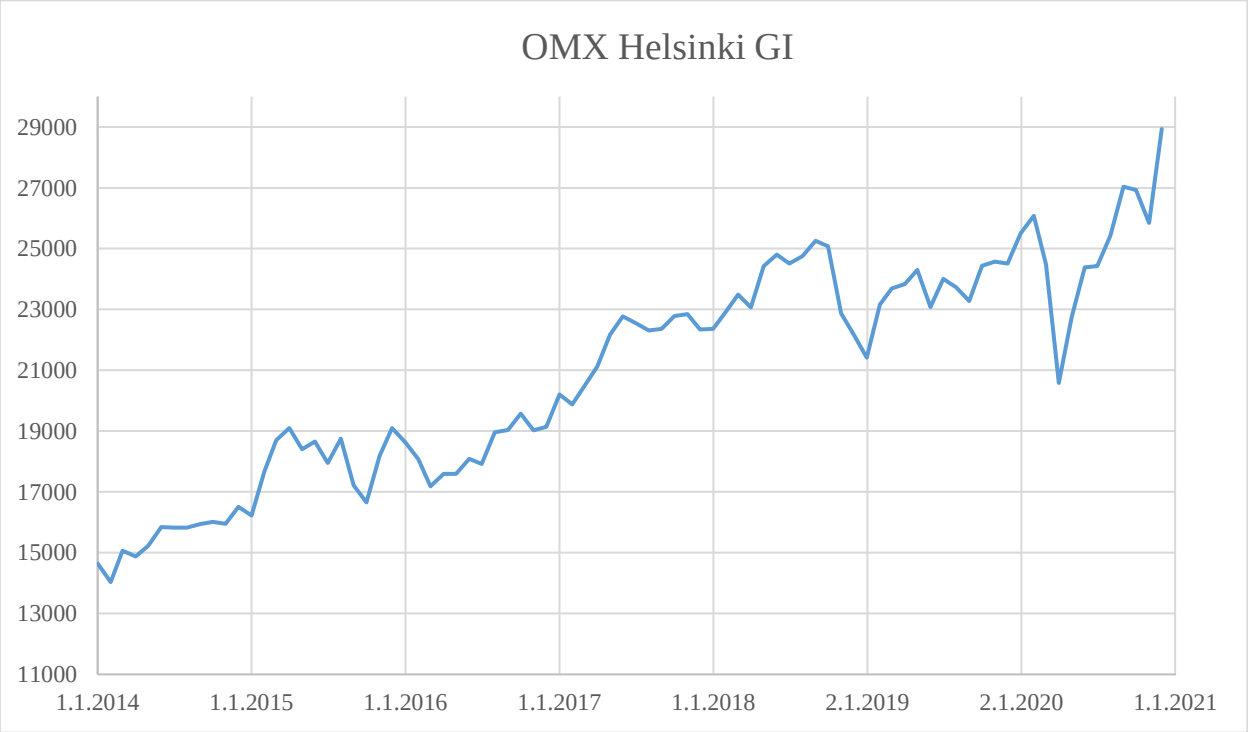

Figure 1. The OMX Helsinki Growth Index's development over the study period

Source: Thomson Reuters Datastream database (2021)

A risk-free interest rate reflects a level of market risk that cannot be mitigated through diversification. Thus, to study the risk-adjusted returns of funds using various performance metrics, the one-month Euribor rate was chosen as a risk-free return for the study. The Euro Interbank Offered Rate (Euribor) is the rate at which the largest banks in the European Economic and Monetary Union region offer fixed-term deposits from one prime bank to another. Euribor controlling banks are chosen based on market criteria, ensuring that interest rates reflect the

diversity of the European money market as a whole. Because of these factors, Euribor is a useful and comprehensive benchmark for the European Economic Area (EMMI 2021).

2.3 Research methods

The study analyzes fund performance using three widely used risk-adjusted performance metrics. Selected performance metrics were Sharpe's ratio, Treynor ratio, and Jensen's alpha. The monthly values of the funds were obtained from the Thomson Reuters DataStream database, and the first day of each month was selected as the listing date. Logarithmic returns were computed for all funds and the benchmark index, thus resulting in more normally distributed data. Logarithmic transformations were performed using Formula 1.

$$R_t = \ln\left(\frac{P_t}{P_{t-1}}\right) \quad (1)$$

where R_t is portfolio return in period t, P_t is portfolio value in period t and P_{t-1} is portfolio value for period t -1. The geometric averages of logarithmic monthly returns were used to calculate the values of all risk-adjusted performance metrics. Logarithmic monthly returns were also used to calculate the volatility of the funds and the index.

2.3.1 Sharpe ratio

Sharpe's ratio is a widely used metric for portfolio performance that is based on a formula developed by Sharpe (1966). It measures the risk-adjusted return of an investment instrument. Sharpe's ratio is calculated by dividing the difference between portfolio return and risk-free return by the unit of volatility or total risk. Therefore, it describes how much excess return is gained in exchange for the volatility of investing in a riskier portfolio. The higher Sharpe's ratio, the better the portfolio performed in comparison to the risk. Sharpe's ratio was computed using Formula 2.

$$Sharpe's\ ratio = \frac{R_i - R_f}{\sigma_i} \quad (2)$$

where R_i is the return of the portfolio, R_f is the risk-free rate and σ_i is the standard deviation of the portfolio's excess return.

2.3.2 Treynor ratio

The Treynor ratio, which was developed by Jack Treynor (1965), is another commonly used metric in portfolio comparison. The Treynor ratio is calculated by dividing the difference between the portfolio's return and the risk-free return by the portfolio's beta factor, which is systematic risk. The Treynor ratio was calculated according to Formula 3.

$$Treynor\ ratio = \frac{R_i - R_f}{\beta_i} \quad (3)$$

where R_i is the portfolio return, R_f is the risk-free return, and β_i is the beta factor known from the CAP model, which is considered as a measure of systematic risk. Treynor ratio measures the return on an investment where there is no diversification of risk. Thus, it compares the return to the market risk.

Given the difference in risk levels used in the Sharpe's and Treynor ratios, it is feasible that when comparing performance, the measures will place comparable indices in a different position. These metrics provide comparable results in a fully distributed portfolio as overall risk approaches a systematic risk that cannot be mitigated by diversification. When looking at the Treynor ratio in a weakly distributed portfolio, it is possible to find high-efficiency values, although efficiency can still be low when measured by Sharpe's ratio (Tripathi and Bhandari 2015).

2.3.3 Jensen's alpha

Jensen's alpha is a metric developed by Jensen (1968) that shows how much the return on investment differs from the CAP model's forecast at a certain risk level. Alfa describes the excess or underperformance of the average return on the market portfolio by the beta factor and the average return given by the CAP model. Jensen (1968) presented the following Formula 4 for calculating alpha.

$$Jensen's\ alpha = \alpha_i = R_i - (R_f + \beta_i (R_m - R_f)) \quad (4)$$

where R_i is the portfolio return, R_f is the risk-free return, and β_i is the beta factor, and R_m is the market portfolio return. If Jensen's alpha is positive, the portfolio has performed better than expected. Negative Jensen's alpha implies that the portfolio performed worse than other portfolios

with the same level of risk. Jensen's alpha is also known as Single Factor Alpha, which is shown in Formula 5.

$$Single\ Factor\ Alpha = R_i - R_f = \alpha_i + \beta_i (R_m - R_f) \quad (5)$$

is obtained by organizing Jensen's alpha (Formula 4). The alphas in the study were determined using the Single Factor Alpha formula.

3. ANALYSIS AND DISCUSSION

This chapter presents the study's findings and examines the performance of the responsible funds during the study's review period. Initially, the focus is on fund performance in terms of average returns and volatility, after which it examines fund performance using risk-adjusted performance metrics. Finally, the regression analysis is used to compute the beta, alpha, and coefficient of determination of the responsible funds.

3.1 Data analysis and results

Table 2 shows the geometric mean annual returns and volatility of socially responsible funds and the OMX Helsinki GI benchmark index. The geometric mean was used to calculate annual returns since it is a more accurate measure of the actual return because it accounts for year-over-year compounding.

Table 2. Returns and volatilities of socially responsible funds and index.

Fund	Returns p.a	Volatility p.a
Aktia Capital B	8,11 %	16,85 %
Danske Invest Sustainability Equity G	14,61 %	16,82 %
eQ Finland 1 K	9,45 %	18,28 %
Fondita Equity Spice A	5,90 %	16,15 %
LocalTapiola ESG Dividend Finland A	8,17 %	16,35 %
Nordea Finnish Stars Fund A Growth	8,94 %	16,87 %
OP-Climate B	9,11 %	17,09 %
POP Finland	6,64 %	17,55 %
S-Bank Emerging Markets ESG Share	4,46 %	17,85 %
SEB Finlandia Optimized Low Carbon B	7,72 %	16,62 %
Seligson & Co Finland Index A	9,48 %	16,92 %
Säästöpankki Kotimaa A	7,16 %	17,50 %
UB HR Finland Growth	8,83 %	16,03 %
Index		
OMX Helsinki GI	9,01 %	15,23 %

Source: Author’s calculations based on data from Thomson Reuters Datastream (2021)

Danske Invest Sustainability Equity G had the highest returns of the funds throughout the time period analyzed, with an average annual return of 14,61 percent, which outperformed the index

return by 5,6 percentage points. Four of all funds had higher average annual returns than the OMX Helsinki GI benchmark index. Thus, nine funds underperformed the benchmark index. However, during the time period analyzed, neither the funds nor the benchmark index made a loss. S-Bank Emerging Markets ESG Share performed the worst of the funds, with an average return of 4,46 percent, which was 4,55 percentage points lower than the benchmark index.

The eQ Finland 1 G fund had the highest volatility with an 18,28 percent volatility, which was 3,05 percentage points higher than the index. All funds exceeded the volatility of the benchmark, with UB HR Finland Growth having the lowest volatility (16,03 %).

Sharpe's and Treynor ratios allow risk-adjusted performance comparisons of mutual funds. Sharpe's ratio compares the return to the total risk of the investment, while Treynor's ratio compares the return to market risk. Table 3 presents the Sharpe's and Treynor ratios for funds and the benchmark index.

Table 3. Sharpe's and Treynor ratios of socially responsible funds and index.

Fund	Sharpe's ratio	Treynor ratio
Aktia Capital B	0,139	0,0067
Danske Invest Sustainability Equity G	0,240	0,0132
eQ Finland 1 K	0,148	0,0070
Fondita Equity Spice A	0,108	0,0054
LocalTapiola ESG Dividend Finland A	0,144	0,0069
Nordea Finnish Stars Fund A Growth	0,152	0,0073
OP-Climate B	0,152	0,0083
POP Finland	0,111	0,0053
S-Bank Emerging Markets ESG Share	0,075	0,0053
SEB Finlandia Optimized Low Carbon B	0,134	0,0064
Seligson & Co Finland Index A	0,160	0,0074
Säästöpankki Kotimaa A	0,119	0,0056
UB HR Finland Growth	0,158	0,0075
Index		
OMX Helsinki GI	0,169	0,0074

Source: Author's calculations based on data from Thomson Reuters Datastream (2021)

According to Sharpe's and Treynor ratios, Danske Invest Sustainability Equity G has performed the best, with the highest Sharpe's and Treynor ratios. Meaning that in terms of risk, the fund has outperformed other socially responsible funds and the benchmark index. Danske Invest Sustainability Equity G was the only fund with a Sharpe's ratio greater than the benchmark index.

S-Bank Emerging Markets ESG Share was the worst performing fund based on Sharpe's and Treynor ratios, which also had the lowest annual return. The Treynor ratio of nine of the funds was lower than the index.

Table 4 displays the calculated alphas and betas for socially responsible funds, as well as the coefficient of determination. At a risk level of one percent, all regression models and betas estimated for the funds were statistically significant. The coefficients of determination for all regression models were above 0,60 except S-Bank Emerging Markets ESG Share (0,390), indicating that the OMX Helsinki GI index properly explained the fund performance.

Table 4. alpha, beta and the coefficient of determination of socially responsible funds.

Fund	α	β	R^2
Aktia Capital B	-0,00056	1,009	0,832
Danske Invest Sustainability Equity G	0,00544	0,885	0,642
eQ Finland 1 K	-0,00008	1,107	0,851
Fondita Equity Spice A	-0,00168	0,926	0,763
LocalTapiola ESG Dividend Finland A	-0,00029	0,979	0,832
Nordea Finnish Stars Fund A Growth	0,00008	1,012	0,835
OP-Climate B	0,00113	0,908	0,655
POP Finland	-0,00194	1,054	0,836
S-Bank Emerging Markets ESG Share	-0,00091	0,732	0,390
SEB Finlandia Optimized Low Carbon B	-0,00085	1,006	0,849
Seligson & Co Finland Index A	0,00015	1,052	0,897
Säästöpankki Kotimaa A	-0,00175	1,079	0,882
UB HR Finland Growth	0,00017	0,977	0,861

Source: Author's calculations based on data from Thomson Reuters Datastream (2021)

Jensen's alpha is a measure of a company's risk-adjusted excess returns. Only five funds had a positive alpha during the time period under consideration, implying that they outperformed the CAP model. The funds that had a positive alpha were Danske Invest Sustainability Equity G, Nordea Finnish Stars Fund A Growth, OP-Climate B, Seligson & Co Finland Index A and UB HR Finland Growth. This was not a surprising result, as these same funds outperformed the benchmark in terms of Treynor ratio, with the exception of Nordea Finnish Stars Fund A Growth. Danske Invest Sustainability Equity G had the highest alpha and was the only fund to outperform the benchmark in Sharpe's ratio. POP Finland had the lowest alpha. All alphas, however, were much below one, remained extremely low, and were not statistically significant.

Beta is a measure of volatility in comparison to the benchmark index. It compares a fund's systematic risk to the index. Seven funds had beta values greater than one. This means that the market risk in these funds is higher than average. The highest beta risk was with eQ Finland 1 K, which had a beta of 1,107. The eQ Finland 1 K was also the most volatile. The lowest beta value was found in S-Bank Emerging Markets ESG Share.

3.2 Discussion

On average, socially responsible funds had lower returns than the benchmark index. However, none of the funds or the benchmark index made a loss during the time period studied, and thus Sharpe's and Treynor ratios for all funds were positive.

In terms of Sharpe's ratio, only one of the socially responsible funds outperformed the benchmark index. Thus, based on total risk, the majority of the funds underperformed the OMX Helsinki GI index throughout the time period evaluated. Furthermore, nearly 70% of all funds did perform worse than the index with the Treynor ratio. Hence, indicating that socially responsible funds underperformed the benchmark in terms of market risk. Therefore, it appears that socially responsible funds are more sensitive to market movements. It should be noted, however, that the differences between the funds and the benchmark were rather minor, particularly in the Treynor ratios, but also in the Sharpe's ratios.

The greatest Sharpe's and Treynor ratios were observed in Danske Invest Sustainability Equity G. Furthermore, it had the greatest annual average return and the fifth lowest volatility. S-Bank Emerging Markets ESG Share had the worst risk-adjusted performance, with the lowest annual return.

Despite the fact that the majority of the funds had a negative alpha, it appears that the CAP model adequately explained the returns of the SRI funds and that there were no significant costs or advantages to taking responsibility into account. The findings closely resemble those of Hamilton et al. (1993) in their previous study.

Based on the results, it can be stated that while some funds outperformed their benchmarks on a risk-adjusted basis, the majority of funds underperformed the market portfolio. As a result, social

factors, corporate governance, and environmental criteria appear to incur at least some costs that have a negative impact on the funds' performance. Portfolio theory would be proven correct in this regard. Screening SRI funds, i.e., limiting investment options, appears to have a negative impact on their risk-adjusted returns. However, the observed differences in risk-adjusted returns were minor. The study's results also support the findings of Renneboog et al. (2008a), who discovered that in the case of SRI funds, the fund's size has no negative impact on the fund's returns. Danske Invest Sustainability Equity G was the best performing fund in the dataset in terms of Sharpe and Treynor ratios, and it was also one of the largest funds.

CONCLUSION

The study compared the performance of 13 funds operating in the Finnish investment market to the market portfolio in terms of socially responsible investing for the period 2014-2020. The aim was to determine whether socially responsible investment funds could cope with the market portfolio and if there would be any additional costs for considering social factors, corporate governance, and environmental criteria. The performance of the funds was evaluated using annualized returns and volatility as well as three risk-adjusted performance measures, the Sharpe's ratio, the Treynor ratio, and the Jensen's alpha, with the OMX Helsinki Growth index serving as a benchmark.

The research was limited to socially responsible funds offered by Finnish banks and financial institutions. However, there were not many of these, and because of the small sample size, no strong conclusions can be drawn from the study's findings. The results, however, provide rough estimates of the situation.

Previous research on the subject has produced contradictory results, regardless of the market or investment instruments studied. It is still difficult to predict with certainty whether socially responsible companies or funds will perform better or worse than other companies or funds. And thus, no consensus has been reached on the performance of a socially responsible investment. Generally, however, previous research results suggest that the market will not price responsibility factors, so there will be no additional benefits or disadvantages for individual investors from socially responsible investment. Thus, socially responsible investment does not appear to yield any higher returns than other investment strategies. Therefore, whether or not the investee is socially responsible has no bearing in terms of investment returns. However, because a socially responsible investor is not required to accept lower returns on investments, it is possible to believe that adopting responsibility will enhance value.

According to the results of this study, socially responsible funds generated lower returns and higher volatility than the benchmark index on average. However, neither the funds nor the benchmark index made a loss throughout the time period analyzed, and thus Sharpe's and Treynor ratios were positive for all funds. According to the study's findings, the risk-adjusted performance of socially responsible funds was slightly lower than the market portfolio. Only one of the thirteen funds outperformed the benchmark in terms of Sharpe's ratio and even nine funds had a lower Treynor

ratio than the benchmark index. This suggests that socially responsible funds cope with market risk worse than the benchmark index and are thus more sensitive to market fluctuations. Moreover, when unsystematic risk is taken into account, even more funds underperform the benchmark, since nearly all of the funds surveyed underperformed in terms of overall risk. However, it should be noted that the variations in risk-adjusted returns were minor, especially with Treynor ratios.

Therefore, based on the findings, it can be stated that on average socially responsible funds underperformed the market portfolio. It also appears that considering social factors, corporate governance, and environmental criteria, socially responsible investing incurs at least some costs for the investor, that have a negative impact on the funds' performance. As a result, the risk-adjusted returns of SRI funds differ from the market, however, the changes are minor.

In recent decades, socially responsible investment has increased significantly around the world. Growth has occurred at a time when people's attention has been drawn to sustainable development, climate change, human rights, and a variety of other global ethical challenges. Consumers are becoming more concerned with social concerns and are making more responsible purchasing decisions. There has been a lot of research on responsible investing, but not much in Finland. And thus, studying the responsibility of Finnish corporations and their reporting could be an intriguing issue for future research. Many individuals prefer to invest more responsibly, but responsible investing also requires knowledge with company backgrounds. Furthermore, people differ in their sense of social responsibility; some place a higher priority on environmental issues, while others place a higher value on working conditions. It is critical to examine these challenges so that future investments are directed toward organizations that prioritize responsibility in their day-to-day operations.

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APPENDICES

Appendix 1. Descriptive statistics of the dataset

	Mean	Standard Error	Median	Standard Deviation	Sample Variance	Kurtosis	Skewness	Range	Min	Max	Sum	Count	Jarque-Bera
Aktia Capital B	0,0077	0,0054	0,011	0,049	0,0024	2,56	-0,58	0,33	-0,19	0,14	0,64	83	27,36
Danske Invest Sustainability Equity G	0,0127	0,0054	0,016	0,049	0,0024	7,00	-1,44	0,37	-0,23	0,14	1,05	83	198,23
eQ Finland 1 K	0,0090	0,0058	0,013	0,053	0,0028	7,48	-1,31	0,42	-0,26	0,16	0,75	83	216,95
Fondita Equity Spice A	0,0059	0,0051	0,011	0,047	0,0022	3,23	-0,82	0,33	-0,19	0,14	0,49	83	45,26
LocalTapiola ESG Dividend Finland A	0,0077	0,0052	0,013	0,047	0,0023	7,42	-1,39	0,37	-0,23	0,14	0,64	83	217,47
Nordea Finnish Stars Fund A Growth	0,0084	0,0054	0,012	0,049	0,0024	6,03	-1,14	0,38	-0,22	0,15	0,70	83	143,75
OP-Climate B	0,0086	0,0054	0,011	0,050	0,0025	6,77	-1,16	0,39	-0,23	0,16	0,71	83	176,89
POP Finland	0,0067	0,0056	0,010	0,051	0,0026	5,62	-1,18	0,37	-0,24	0,13	0,56	83	128,54
S-Bank Emerging Markets ESG Share	0,0050	0,0057	0,017	0,052	0,0027	3,65	-1,34	0,33	-0,21	0,12	0,42	83	71,00
SEB Finlandia Optimized Low Carbon B	0,0074	0,0053	0,014	0,048	0,0023	3,81	-0,80	0,35	-0,20	0,15	0,61	83	59,00
Seligson & Co Finland Index A	0,0088	0,0054	0,014	0,049	0,0024	3,26	-0,68	0,34	-0,19	0,15	0,73	83	43,30
Säästöpankki Kotimaa A	0,0071	0,0056	0,011	0,051	0,0026	5,42	-1,16	0,37	-0,23	0,14	0,59	83	120,06
UB HR Finland Growth	0,0082	0,0051	0,012	0,047	0,0022	5,64	-0,99	0,36	-0,21	0,15	0,68	83	123,58
Index													
OMX Helsinki GI	0,0082	0,0049	0,006	0,044	0,0020	2,77	-0,69	0,29	-0,17	0,11	0,68	83	33,10

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