



# Responsible Investments

*Exploration of Investor Motives and ESG Stock Market Performance*

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# Abstract

This master thesis contributes to existing research on responsible investments in two ways. Not only do we study the performance of responsible investments, but also responsible investment behaviour. Therefore, our first objective is to analyse the stock market performance of responsible investments through examining the performance differences between high rated and low rated ESG companies. Secondly, this master thesis aims to investigate responsible investment behaviour through exploring investor motives to invest responsibly.

With regards to the first objective of this master thesis, we study the relationship between ESG scores and stock market performance for 1167 companies constituting the MSCI World Index for the period of 2014 to 2019. We find no significant difference in risk-adjusted historical performance between high and low rated ESG companies. This is evidenced with alphas that are not significantly different from 0, when controlling for risk factors with the CAPM single-factor, Fama-French three-factor and Carhart four-factor model. We find a significant difference with respect to risk premium when being exposed to high ESG big market cap companies and low ESG big market cap companies with the former having a higher risk premium than the latter. This empirical analysis is based on ESG scores from Sustainalytics ESG rating agency.

In terms of the second goal of this master thesis, we conduct a survey among 4100 individual investors in Norway and find that responsible investment behaviour is driven by moral objectives rather than financial considerations. This is evidenced with a statistically significant difference between moral and financial objectives being the main driver for responsible investors' decisions to invest responsibly. We also find that responsible investors are committed to their responsible investments and keep them despite poor performance.

**Keywords** – Sustainable Finance, Responsible Investment, Stock Market Performance, Investor Motives

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# 1 Introduction

There is a widespread agreement of the need to address global warming and promote sustainable development. The cost of irreversible climate change is severe, threatening the quality of life of present and future generations (Wilson, 2010). These growing concerns over sustainable development have resulted in the rise of interest in sustainable finance and responsible investments (GSIA, 2017; Beal et al., 2005). One could argue that finance is well connected with sustainable development. For instance, stock markets are viewed to be vehicles that promote social and economic development (Levine, 1998). After all, the allocation of capital to its most productive use is the core function of the financial system (Schoenmaker and Schramade, 2019). A true transition toward a sustainable economy still needs a greater mobilisation and shifting of investments, both private and public, towards sustainable development.

Despite sustainable finance being crucial and timely, there are a number of issues that need to be explored and addressed for the concept to be purposeful (Wilson, 2010). For instance, existing literature on Responsible Investments (hereafter RI) has almost exclusively focused on the performance aspects and analysing historical returns (Lagoarde-Segot, 2019). Despite the increased research into this aspect of responsible investments, research yields conflicting results in terms of whether responsible investments have inferior, the same or superior performance relative to conventional counterparts. Furthermore, investors' motives to invest in RI has received little attention from academia. Thus, this master thesis aims to study responsible investments from two perspectives. Our first objective is to examine the performance of responsible investments. Secondly, we aim to investigate the behavioural side of responsible investments through examining investors' motives to invest responsibly. Therefore, the master thesis has two goals with two research studies.

With respect to our first goal, we conduct a study on ESG stock market performance. In this study, our objective is to analyse the performance of high rated ESG companies relative to low rated ESG companies. To conduct this analysis, we employ a data set of 1167 companies constituting the MSCI World Index for the time period of 2014-2019. We utilise ESG scores from 0-100 for the aforementioned universe of companies for the whole sample

period from Sustainalytics ESG rating agency, where 0 represents the worst ESG score and 100 the best. Based on ESG score thresholds, we divide the companies into three different portfolios named Star, Average and Laggard using both equally- and value-weighted portfolio construction methods. Portfolio Star represents high rated ESG companies with ESG scores between 70-100, portfolio Average companies with average ESG scores between 31-69 and portfolio Laggard low rated ESG companies with ESG scores between 0-30. Furthermore, we construct a long-short investment strategy in which an investors holds a long position in portfolio Star and short in portfolio Laggard. We deploy both the CAPM, Fama-French and Carhart risk factor models for analysing the historical performance of the portfolios. Findings from the empirical analysis on ESG stock market performance show that all three portfolios generate abnormal returns that the four systematic risk factors are unable to explain. This is evidenced with alphas that are significantly different from 0, when applying all three risk factor models. Importantly, however, we find no statistically significant difference in risk-adjusted historical performance between high rated and low rated ESG companies, when studying the long-short investment strategy. Also, an investor deploying this strategy is likely to buy big market capitalisation companies. The above findings are robust to changes in ESG score thresholds. Therefore, the main inference from this empirical analysis is that there is no significant difference in risk-adjusted historical performance between high and low rated ESG companies. These results are in line with findings in studies by Hamilton et al. (1993); Mallin et al. (1995); Kreander et al. (2005); Bauer et al. (2005); Halbritter and Dorfleitner (2015), who suggest that there is no difference in performance between RI and conventional investments.

With respect to our second goal in this master thesis, we investigate individual investors' motives to invest responsibly through a survey among individual investors of Nordea. To conduct this study, we construct a survey based on prior literature of Døskeland and Pedersen (2016, 2019); Riedl and Smeets (2017); Webley et al. (2001); Nagy and Obenberger (1994). The survey contains two novel variables - trust in ESG frameworks and knowledge of RI - that are intended to expand the understanding of individual investor decision-making within the RI context. We also investigate the moral component of RI in more detail through constructing two variables directed to measure descriptive and injunctive norms. The invited sample consists of 4100 real-life responsible and conventional investors. The survey was conducted electronically in April 2019 and a total

of 551 individual investors took part with a response rate of 13%. Findings from the study on investor motives show no significant difference between responsible and conventional investors with respect to neither the importance of expected return in investment decisions nor return expectations on RI. However, we find that responsible investors are significantly more likely to invest in RI when there is no difference in return between RI and conventional investments. Therefore, it appears that responsible investment behaviour is driven by other objectives than pure financial motivation. Importantly, the findings point to moral values being the main driver for responsible investment behaviour. This is evidenced with significant difference between moral and financial motives in responsible investors' decision to invest in RI. Furthermore, there appears to be knowledge gap for conventional investors given they outline lack of information as the main reason for not investing in RI. Lastly, we find that responsible investors are committed to their investments and keep them despite poor performance. The above results are in accordance with studies by Riedl and Smeets (2017); Barreda-Tarrazona et al. (2011); Glac (2009); Webley et al. (2001); Beal et al. (2005), who suggest that moral objectives are of primary concern for responsible investors.

The remainder of this master thesis is structured as follows. First, we outline the background to this thesis project, which includes discussing what sustainable finance is as well as responsible investments are in detail. Second, literature review on studies regarding stock market performance of responsible investments and investors' motives to invest in RI are provided. Third, we discuss our overall methodological choices made in this master thesis. Followingly, we dive into the study on ESG stock market performance together with outlining models and data used for this analysis in detail. Fourth, we outline the study on investor motives together with discussing the survey developed for this master thesis as well as presenting results from the survey. Finally, we draw conclusions based on our findings.

## 2 Background

This section begins with outlining the background to this research project. Followingly, the topics of sustainable finance and responsible investments are introduced to the reader. The aim of this section is to provide an overview of what sustainable finance is as well as to discuss the main research object of this master thesis - responsible investments - given that these phenomena are relatively new in the academia and industry.

### 2.1 Nordea

This master thesis has been written in collaboration with Nordea Life & Pensions Norway (hereafter Nordea Liv) through Finans|Bergen research group at NHH. Nordea is the largest financial services group in the Nordic region and one of the largest banks in Europe (Nordea, 2018a). Nordea Liv sub-division is part of Nordea Asset & Wealth Management division that provides investments, savings and pension solutions to individual and institutional investors (Nordea, 2019). As of October 2018, Nordea Asset & Wealth Management has a total of EUR 205 billion assets under management (AuM) (Nordea, 2018b, p. 36).

The starting point of this master thesis was Nordea's desire to explore the topic of sustainable finance and to study responsible investments in more detail. Representatives from Nordea expressed their interest in understanding why individual investors should choose RI if there is no consensus in the industry or academia about the stock market performance of RI. After further investigation to the topic, we choose the following twofold research question: *Do high rated ESG companies outperform low rated ESG companies on the stock market? Furthermore, what are the motives for investors to invest responsibly?*

Therefore, this master thesis studies RI from two perspectives. Firstly, Nordea expressed interest in an empirical analysis of stock market performance of RI given that there is mixed evidence in research with regards to whether RI under- or outperforms conventional investments. Secondly, Nordea wishes to understand which motives are underlying responsible investment behaviour and what perceptions investors have about RI. These constitute the two goals of this master thesis for which we conduct two studies. We now turn to briefly discussing what sustainable finance is.

## 2.2 Sustainable Finance

Sustainable Finance (hereafter SF) is a nascent field that has emerged as a response to sustainability crisis, but also as a result of financial liberalisation (Lagoarde-Segot, 2019). It is a relatively new concept that has become increasingly important in the financial industry due to rising regulatory requirements as well as societal pressure (Schoenmaker and Schramade, 2019). However, the term sustainable finance is rather broad and ambiguous, and there is no agreed upon or standardised definition (Wilson, 2010). In many academic works or scientific publications, it is often not defined or there are a number of other expressions that are used interchangeably. For instance, Zadek and Flynn (2013) outline that terms such as "green finance", "climate finance" or "sustainable finance" are used in a mixed manner, making it difficult to differentiate between them. The loose use of language in this field has introduced problems related to terminology as the differences between the expressions remain obscure (Zadek and Flynn, 2013). Therefore, a clarification of the definition of sustainable finance is needed to avoid ambiguity and confusion.

Swiss Sustainable Finance (SSF, 2019) defines sustainable finance as encompassing *“any form of financial service integrating Environmental, Social and Governance (ESG) criteria into the business or investment decisions for the lasting benefit of both clients and society at large”*.

Based on the above definition, SF encompasses the whole spectrum of financial activities (e.g. banking, insurance, lending, investing), which incorporate the concept of sustainability, as well as a range of sustainable financial instruments (SSF, 2019; Schoenmaker and Schramade, 2019). For instance, microfinance and green bonds are examples of a financial service and instrument respectively that fall under SF (SSF, 2019). However, it is important to note that SF should not be confused with climate finance as these terms have different meanings. Climate finance, often known as green finance, refers to “the funds required for addressing climate change” (Ramiah and Gregoriou, 2016). Thus, one could argue that climate finance is specifically focused on the environmental dimension. Sustainable finance, on the other hand, is concerned with “the provision of finance to

investments taking into account ESG considerations” (European Commission, 2019b).<sup>1</sup> Based on the above definitions, one can argue that sustainable finance encompasses all dimensions of ESG and, therefore, the whole spectrum of sustainability.

In its core essence, SF is based on sustainability principle (Lagoarde-Segot, 2019). This means that the concept of triple bottom line - people, planet and profit - is intrinsic to SF. The most prevalent definition of sustainability was first put forward in the Brundtland Report (1987). It outlines that the needs of the present generations should be met in a way that do not compromise the ability of future generations to meet their own needs (IISD, 2019). This definition highlights that sustainability is about the future and, hence, has a long term perspective. It follows that sustainable development is a development in which both current and future generations have the resources needed without straining our planet (Schoenmaker and Schramade, 2019). It is an integrated concept, encompassing three dimensions: economic, social and environmental (Schoenmaker and Schramade, 2019). Therefore, SF is about the interaction between finance and economic, social and environmental issues (Schoenmaker and Schramade, 2019, p. 31). SF hinges on a stakeholder perspective and long-term value creation, which integrates financial, social and environmental value (Schoenmaker and Schramade, 2019). This means that SF is about ensuring and improving economic efficiency and prosperity for both today and for the long term. At the same time, it supports the protection and restoration of environment as well as enhances cultural diversity and social well-being (SSF, 2019). Hence, SF is an important element in the transition towards a sustainable future. The following Sub-section 2.2.1 aims to discuss in more detail why sustainability has become high on agenda, thereby also influencing the finance field. It highlights why sustainability matters in today’s world, which is one of the motives for the choice of topic (i.e. responsible investments) for this thesis project.

### 2.2.1 Sustainable Development Challenges

There is growing evidence from science stressing that human activities are affecting Earth’s ecosystems and have resulted in approaching tipping points, where the carrying capacity

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<sup>1</sup>We acknowledge that the definition by Ramiah and Gregoriou (2016) and the definition by European Commission (2019b) are specifically directed towards role of investments.

of the planet would be exceeded. This could potentially destabilise the climate system, thereby threatening the future liveability of our planet. Therefore, climate change is considered to be one of the biggest environmental risks affecting humanity (Schoenmaker and Schramade, 2019). Thus, there is an urgency to deal with climate change and other challenges associated with sustainable development in order to transition towards a low-carbon and more circular economy and society. For this reason, the United Nations Framework Convention on Climate Change (UNFCCC, 2019) was established in 1992 at the Earth Summit in Rio de Janeiro. It is the first international environmental treaty that 197 countries have ratified with an ultimate aim “to stabilise greenhouse gas concentrations at a level that would prevent dangerous anthropogenic <sup>2</sup> interference with the climate system” (UNFCCC, 2019).

The Paris Agreement from 2015 is one of the most recent treaties that have emerged from annual meetings of the UNFCCC (Climate Talks, 2019). Its key goal is to limit the rise in global average temperatures this century to below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase further to 1.5°C (UNFCCC, 2018). Given this objective and how much carbon dioxide ( $CO_2$ ) that has already been emitted, one can calculate the remaining amount of  $CO_2$  - called a carbon budget - that can be emitted in the future. With regard to this, the Intergovernmental Panel on Climate Change (IPCC) has estimated that the remaining carbon budget is around 1170 gigatonnes (Gt) from 2018 and onwards with 67% chance of staying below the 2°C threshold (IPCC, 2018b). However, current global emissions have been estimated to be around 42 Gt  $CO_2$  per year (IPCC, 2018a). Therefore, if emissions are not severely cut, the threshold of 2°C will be reached in less than three decades, threatening the liveability of our planet.

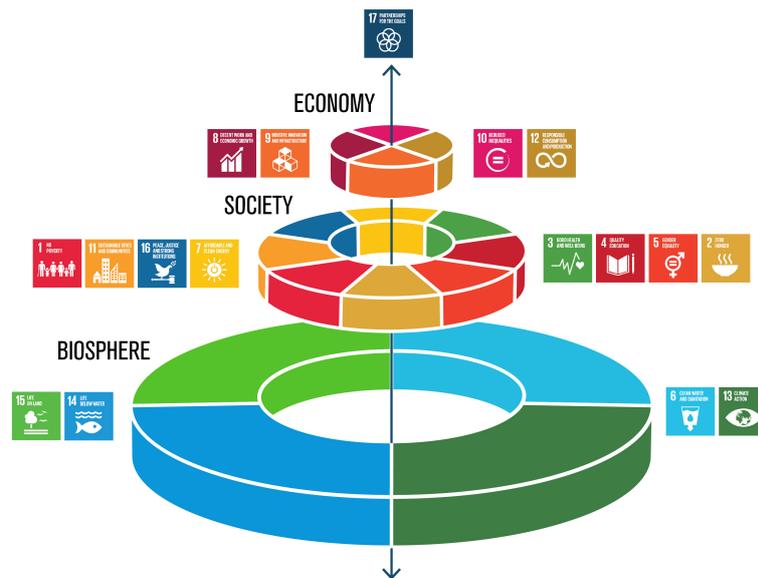
As discussed earlier in Sub-section 2.2, the aim of sustainable development is to ensure that the planet is liveable for both current and future generations. This means that the needs of both generations should be met within the boundaries of the planet without overshooting pressure on Earth’s ecosystems on which we fundamentally depend on (Raworth, 2017). To steer this transition towards a sustainable future and shift the world onto a more resilient path, the United Nations (UN) has developed a global strategy for sustainable development - the 2030 Agenda for Sustainable Development (UN, 2019). In this agenda, 17 Sustainable Development Goals (SDGs) have been specified in 169 targets

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<sup>2</sup>Originating in human activity. (Oxford Dictionaries, 2019)

to stimulate action in areas of critical importance for the planet and humanity (UN, 2019). These SDGs are interrelated and cover the three dimensions of sustainable development introduced in Sub-section 2.2: economic, social and environmental (or biosphere) (UN, 2019). The Figure 2.1 below illustrates the sustainable development challenges at these three dimensions.

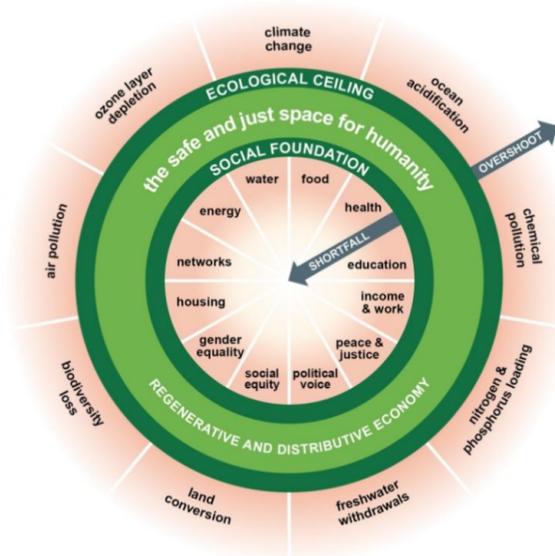
**Figure 2.1:** Sustainable Development Challenges at Different Levels. (Stockholm Resilience Centre, 2019).



It is important to note that these three different levels in Figure 2.1 are interconnected as well as economies and societies are embedded parts of the environment (Stockholm Resilience Centre, 2019). This notion is illustrated in Figure 2.1 with “the wedding cake”. It means that a liveable planet is a foundation for humankind to prosper and an inclusive society is needed to organise production and consumption in order to secure enduring economic prosperity for all (Schoenmaker and Schramade, 2019). In reverse, economic systems, organised through firms, have environmental and social impacts, which affect both the society and environment. Therefore, these external effects or externalities of firms are not separable from production decisions and need to be internalised to mitigate the potential harm (Schoenmaker and Schramade, 2019). Overall, economic, social and environmental challenges are not separate parts, and development in one of these levels will affect development in others (Stockholm Resilience Centre, 2019). Thus, it is important to have a system perspective when dealing with sustainable development challenges across

the three interlinked levels. It also follows that trade-offs between environmental, social and economic goals need to be made. This challenge is illustrated in Figure 2.2.

**Figure 2.2:** The Doughnut of Social and Planetary Boundaries. (Raworth, 2018).



The doughnut depicted in Figure 2.2 is based on planetary boundaries framework devised by Steffan et al. (2015). They outline ecological capacities of the planet and exceeding them would result in detrimental environmental degradation and triggering of tipping points in Earth systems (Raworth, 2018). Given that this framework summarises the social and planetary boundaries, it outlines an environmentally safe and socially just space within which humanity can operate and thrive (Figure 2.2) (Raworth, 2017). The safe operating space lies between the social foundations of human well-being and the ecological ceiling of the planet (Schoenmaker and Schramade, 2019). Therefore, this framework brings together all sustainable development challenges. To operate within this space, however, trade-offs between the three goals are needed to be made to find a balance (Raworth, 2017). From a societal perspective, this would mean, for instance, banning underpayment or child labour as it sacrifices the well-being of children despite forgoing potential higher financial profits (Schoenmaker and Schramade, 2019).

As discussed above, the concept of sustainable finance incorporates a long-term value creation and stakeholder perspective. Therefore, SF is aimed at helping to achieve the SDGs outlined above (Schoenmaker and Schramade, 2019). A question that arises is how does sustainable finance facilitate sustainable development? From SF perspective,

any financial activity that integrates the sustainability principle in its core essence could potentially help to facilitate the shift towards a low-carbon and circular economy and society. However, in the following Section 2.3 we specifically zoom in the investment side of sustainable finance concept - responsible investments. This is the main research object of this thesis as our objective is to study responsible investments from two perspectives - investment performance and investor behaviour. It points to how sustainable finance in practice can help to transition towards a sustainable future through directing capital to sustainable companies and projects.

## 2.3 Responsible Investments

The above Section 2.2 introduced us briefly to the concept of sustainable finance. Given the research question of this master thesis, this section aims to further discuss the investment side of sustainable finance. This means that responsible investments will be examined in greater detail.

Similarly to sustainable finance gaining momentum over the past decades, Socially Responsible Investing (SRI) has become increasingly widespread in financial markets (Eurosif, 2018a; Glac, 2009; Nilsson, 2008). Nilsson (2008) argues that this can be explained to a large degree by two societal trends: regular people are increasingly moving their savings from bank accounts to investment products such as mutual funds in addition to an increase in consumer concern for environmental, social and ethical issues. As with the concept of sustainable finance, however, there are a number of different terms used when referring to SRI such as ethical investments, sustainable investments and responsible investments (Nilsson, 2008). Hence, there is a terminology problem when studying different research papers and publications. For this reason, an explanation of the definition of SRI is needed to prevent lack of clarity.

Døskeland and Pedersen (2016, p. 1632) define SRI as “an investment that is designed to yield the highest possible risk-adjusted financial return while also taking into account social, ethical and/or environmental concerns”. On similar account, Eurosif (2018a, p. 12) outlines that a sustainable and responsible investment (in this report referred to as SRI) “is a long-term oriented investment approach, which integrates ESG factors in the

research, analysis and selection process of securities within an investment portfolio”. In their recent study, Døskeland and Pedersen (2019, p. 2) define a responsible investment as an investment “aiming to maximise risk-adjusted return while taking social, environmental, and moral concerns into account”. Thus, when comparing the two definitions used in Døskeland and Pedersen (2016, 2019), it appears that socially responsible investments and responsible investments are to a great extent the same concept despite the use of slightly different terms. Furthermore, the definition put forward by Eurosif (2018a) is to a large degree similar to the ones posited by Døskeland and Pedersen (2016, 2019) as both of the definitions incorporate ESG concerns. Given that governance concerns deal with ethical corporate governance practices of companies, it is covered by moral or ethical concerns in Døskeland and Pedersen definitions (2016; 2019). Overall, considering that these terms have to a great degree similar definitions, one can argue that they refer to the same concept. However, responsible investments and responsible investing will be used throughout this master thesis for the purpose of avoiding confusion and ambiguity. This entails that RI and SRI will be treated as synonyms in this master thesis.

In principle, RI is concerned with the integration of financial and non-financial objectives (Døskeland and Pedersen, 2016). This means that environmental, social and ethical criteria is combined with traditional financial criteria in investment decisions (Nilsson, 2008). Similarly to sustainable finance, RI has long-term focus with the aim to benefit the society and environment as well as to capture returns for investors (Eurosif, 2018a). Although RI is a relatively new phenomenon in financial markets, the concept has its roots in screening of moral vices from portfolios (Hong and Kostovetsky, 2012). This refers to the exclusion of sin stocks that used to predominantly include companies involved in producing alcohol, tobacco and gaming (Hong and Kostovetsky, 2012). However, the exclusion investment approach has evolved to include a broader spectrum of ESG issues such as labour standards and production of weapons (Hong and Kostovetsky, 2012). In general, the adoption of ESG considerations into asset investment value chain has continuously matured in past decades. This means that RI has evolved from risk management focus (typically investment exclusion) to one that seeks long-term value creation opportunities for businesses and society (Eurosif, 2018b). We now turn to discussing the SRI market in order to specifically outline the extent to which responsible investments have gained momentum in financial markets. It points to the importance of responsible investments in financial markets.

### 2.3.1 SRI Market

As mentioned above, RI has gathered impetus in recent years, which can be exemplified by the growth in the SRI market and by its share of total professionally managed assets. Therefore, this sub-section aims to provide an overview of the current size of the SRI market. With regards to this, it is worth noting that we mainly rely on the data compiled by Global Sustainable Investment Alliance (GSIA) and Eurosif. The reason for this is that Eurosif and GSIA classification frameworks for SRI closely align with each other (Eurosif, 2018a). Nevertheless, the reported SRI market data below should be taken with a grain of salt as there is a potential for overstatement given that there is no clear definition in terms of what constitutes SRI (Nelson, 2018).

**Figure 2.3:** Growth of SRI Assets by Region 2016-2018. (GSIA, 2019, p. 8).

The figure depicts the value of global SRI assets in five major markets. Note that asset values are expressed in billions of U.S. dollars (GSIA, 2019).

Region	2016	2018
Europe	\$ 12,040	\$ 14,075
United States	\$ 8,723	\$ 11,995
Japan	\$ 474	\$ 2,180
Canada	\$ 1,086	\$ 1,699
Australia/New Zealand	\$ 516	\$ 734
<b>TOTAL</b>	<b>\$ 22,890</b>	<b>\$ 30,683</b>

As Figure 2.3 illustrates, there are \$30.7 trillion assets being professionally managed under SRI in five major markets as of the start of 2018. This represents a 34% increase since 2016 (GSIA, 2019)<sup>3</sup>. Furthermore, all of the five regions depicted in Figure 2.3 have exhibited an increase in SRI assets between the period of 2016 to 2018. Based on the total value of SRI assets, the three largest regions are Europe, the United States (US) and Japan. However, the fastest growing regions from 2016 to 2018 are Japan, Australia and New Zealand, and Canada (Figure 2.3). Figure 2.4 depicts the share of SRI assets relative to the total of assets under management (AuM).

<sup>3</sup>Note that GSIA report from 2019 uses the term sustainable investing instead of SRI. However, GSIA recognises the issues related to the use of different terms and outlines that sustainable investing in their 2019 report has an inclusive definition without drawing distinction between socially responsible investing (SRI) and responsible investing (RI). In their earlier report from 2017, GSIA, however, relied on the use of SRI term. For clarity purposes, SRI will be used throughout this master thesis when discussing the data collected from GSIA reports (2019; 2017).

**Figure 2.4:** Proportion of SRI Assets Relative to Total Managed Assets 2014-2018. (GSIA, 2019, p. 9).

The figure illustrates the share of SRI assets relative to total AuM in each of the five markets. Note that the data for Japan was combined with the rest of Asia in 2014 and, therefore, this information is not available (GSIA, 2019).

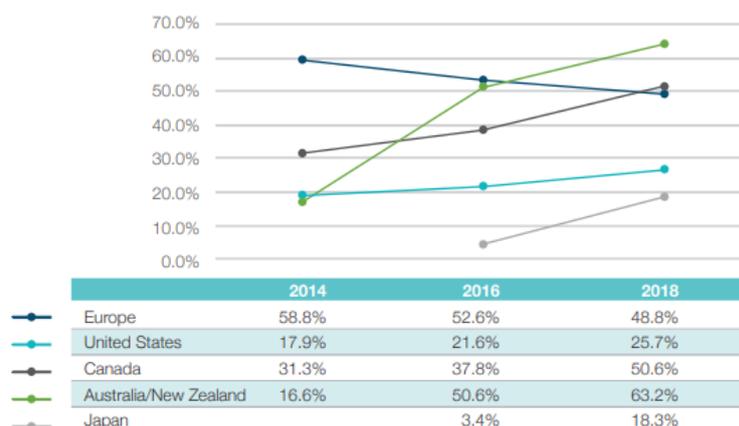


Figure 2.4 depicts that SRI commands a sizeable share of total professionally managed assets in each of the five regions, varying from around 18% in Japan to around 63% in Australia/New Zealand (GSIA, 2019). Furthermore, SRI share of AuM has increased between the period of 2014 to 2018 in all regions except Europe.<sup>4</sup> As SRI is capturing an increasing share of total AuM, one could argue that SRI constitutes a major force across global financial markets.

It is also important to note that, institutional investors dominate the SRI market with 75% share of SRI assets (GSIA, 2019, p. 12). Nevertheless, GSIA (2019) reports that interest by retail investors in SRI has been steadily increasing since 2012. At the start of 2018, retail investors held 25% share of SRI assets, which represents a 5% increase since 2016 (GSIA, 2019, p. 12). Altogether, it is clear that there is a growing interest of both investors to direct their capital towards sustainable action.

Considering all of the above SRI market data, one could argue that the RI no longer represents only a marginal part of the traditional market. Therefore, RI has become a major phenomenon in the finance industry, which motivates our master thesis in this area. Furthermore, the growing interest among retail investors is interesting in the light

<sup>4</sup>Note that the decline in SRI share of total AuM in Europe is partly been attributed to a shift to stricter standards and definitions for SRI (GSIA, 2019).

of the survey that is conducted for this master thesis. Given that increasingly more of individual investors are moving their capital to responsible investments, we aim to explore what drives their investment behaviour through a survey. A better understanding of investors' decision-making is critical in order to encourage a greater shift of capital towards sustainable companies and projects, thereby facilitating sustainable development. However, as discussed above responsible investments is a broad term, which can be exemplified with several strategies that fall under it. Therefore, the following Sub-section 2.3.2 briefly discusses the specific investment strategies or approaches that fall under SRI.

### 2.3.2 SRI Strategies

There are several different SRI strategies applied by practitioners when evaluating assets and constructing portfolios. GSIA (2019) and Eurosif (2018a) distinguish seven different investment strategies as categories that constitute SRI:

1. Negative / exclusionary screening
2. Positive / best-in-class screening
3. Norms-based screening
4. ESG integration
5. Sustainability-themed investments
6. Impact / community investing
7. Corporate engagement and shareholder action

These different strategies constitute the universe of SRI.<sup>5</sup> It would be interesting to study the performance of each of these individual strategies. The data set used for this master thesis, however, does not facilitate this. However, as mentioned in Section 2.3, RI has evolved from a risk management focus to one that seeks long-term value creation opportunities. This is exemplified with the wide spectrum of different investment strategies that are categorized under RI. Hence, also “investment strategies have evolved towards the intention to greater social and environmental impact, alongside a financial return, which

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<sup>5</sup>See Appendix A1 for definitions of each of these SRI strategies.

should be financially sustainable in the long run” (Eurosif, 2018b, p. 3). For instance, impact investing is concerned with investments that are made into companies, which have a clear aim to solve a problem associated with the environment or society whilst also making financial return. Therefore, impact investing is one of the investment strategies that illustrates how RI has advanced to seek long-term value creation opportunities. Altogether, RI has progressed from being predominantly based on negative screening to now increasingly incorporating pro-active positive screening and shareholder engagement (Scholtens and Sievänen, 2013).

An interesting SRI strategy that is investigated in this master thesis is sustainability-themed investments. It is one of the fastest growing SRI strategies with a growth rate of 269% over the past two years as of 2018 (GSIA, 2019). Sustainability-themed investing refers to "the selection of assets that are specifically related to sustainability in a single- or multi-themed funds" (Eurosif, 2018a, p. 18). We explore the potential of this SRI strategy in Norway through the survey among Nordea’s clients. This is done in the light of Nordea recently releasing a gender diversity fund. We first explore which SDGs resonate with Nordea’s clients in order to identify which areas of sustainability are important to them. Further, we explore whether individual investors would rather invest in a green fund or a sustainability-themed investments. The survey results outline that the three most important SDGs for Nordea’s clients are climate action, peace, justice and strong institutions as well as clean water and sanitation. 39,1%, 29,1% and 28,9% of respondents selected these SDGs respectively out of 516 respondents. Further, 19,6% of Nordea’s clients would invest in sustainability-themed investments relative to 22,5%, who select a green fund. However, more than a majority of individual investors outline that they would invest in both of them. Therefore, one could argue that there exists potential for sustainability-themed investments. We now turn to discussing an important problem related to RI that has arisen with responsible investments gaining momentum over recent years.

### 2.3.3 Investment Greenwashing

As discussed earlier, the concept of responsible investment remains ill-defined. With regards to this, Bauer et al. (2006, p. 45) raise the possibility that some ethical funds

may really be "conventional funds in disguise". The researchers find that ethical funds in their sample follow an investment style, which does not deviate to a large degree from conventional funds (Bauer et al., 2006). Thus, there exist a likelihood that some RI investment products may hold portfolios that do not differ from conventional counterparts.

The absence of an uniform definition and systematic framework for RI classification raises concerns for greenwashing of investments <sup>6</sup> (Riding, 2019). Beal et al. (2005), for instance, study two Australian ethical funds and find that they have only four equities in common (Beal et al., 2005). This indicates that there is a very small ethical component in one of the funds' criteria for asset selection despite being classified and advertised as RI. Therefore, one could argue that RI is simply a marketing tool deployed to attract capital. The absence of a uniform framework makes it challenging to draw the line between sustainable and conventional investments (The Economist, 2018). Buying such investment products also give false sense of security or satisfaction to investors (Nelson, 2018).

The problem of greenwashing arises also because of varying methodologies employed by ESG rating agencies (Nelson, 2018). This results in companies receiving contradictory scores from different ESG rating agencies. For instance, Tesla is ranked at the top of the industry by MSCI but as the worst car company globally on ESG issues by FTSE (James, 2018). As RI products proliferate with little oversight, the problem of investment greenwashing raises a need for stricter standards and a systematised taxonomy (Nelson, 2018). In response to this, the European Union (EU) agreed in March 2019 on new rules on disclosure requirements for sustainable investments (Riding, 2019). They require asset managers to disclose ESG risks in their investments and to inform investors about ESG considerations as a part of fiduciary duty (European Commission, 2019a). European Commission (2019a) outlines that the end goal is to establish a unified EU taxonomy. Thus, the investment greenwashing problem has been acknowledged and work is done to address it, thereby also facilitating research on responsible investments with potentially greater uniformity in ESG frameworks. Followingly, we outline literature review for this master thesis.

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<sup>6</sup>Investment greenwashing is defined as misleading or unsubstantiated claims about sustainability characteristics of an investment product (European Commission, 2019a).

## 3 Literature Review

The aim of this section is to outline and discuss previous research on the topic of responsible investments. However, it is important to note that the academic literature is relatively limited. The small body of existing literature has mainly focused on looking at the topic through a lens of shareholder value maximisation and analysing investment performance of RI (Lagoarde-Segot, 2019). Despite this aspect receiving the most attention from the academia, the empirical findings of studies on performance are mixed. In comparison, the behavioural aspects of sustainable finance have received much less attention from the academia. This refers to motives and behaviour of investors, who invest in RI. Therefore, this section begins with discussing findings from previous studies on performance of RI. Thereafter, we outline research on investor motives to invest responsibly.

### 3.1 Performance of RI

Previous literature yields varying evidence with regards to stock market performance of RI. In this sub-section, we firstly discuss prior studies, which find that RI performs better relative to conventional investments. Secondly, we outline previous research suggesting that there exist no difference in performance between them. Lastly, this sub-section examines studies, which find evidence in terms of RI underperforming when compared to conventional investments.

In terms of studies, which propose that RI outperforms conventional investments, Derwall et al. (2005) analyse two portfolios of stocks with high and low performance on eco-efficiency. The degree of eco-efficiency is measured by using Innovest Strategic Value Advisors' corporate eco-efficiency scores. Derwall et al. (2005) find that the high-ranked portfolio generates higher average monthly returns than the low-ranked portfolio between the period of 1995 to 2003. More importantly, they find a statistically significant difference between the high- and low-rated portfolios, where the former outperforms the latter when applying the Carhart (1997) model. The performance differential between these two portfolios is 5,06% a year for the whole period after controlling for risk factors. Interestingly, Derwall et al. (2005) also find that the difference in performance remains

significant when adjusting for transaction costs.

Moreover, Kempf and Osthoff (2007) construct a long-short value-weighted portfolio using negative, positive and best-in-class screening.<sup>7</sup> Their sample consists of stocks from the S&P 500 and DS 400 from 1992 to 2004 with ESG ratings from KLD (now named as MSCI). Findings in Kempf and Osthoff (2007) suggest that investors earn high abnormal returns by deploying a long-short investment strategy when using both positive and best-in-class screening approach. However, they find no significant abnormal return if investors deploy the negative screening approach. The best-in-class approach generates 8,7% in abnormal return per year while positive screening approach generates 4,8% after adjusting for systematic risk factors. In similar lines, Lean et al. (2014) find that SRI funds in Europe and North America outperform the market benchmark from 2001 to 2011. Moreover, the alpha in the Carhart (1997) model indicates that SRI funds in North America perform better than European SRI funds.

With regards to research suggesting that there exist no difference in performance between RI and conventional investments, Hamilton et al. (1993) use the CAPM single-factor model in addition to Jensen's alpha to explore if there is any difference in excess return between U.S. socially responsible funds compared to U.S. conventional funds for the period of 1981 to 1990. Results from their analysis point to no statistically significant difference in excess return between the funds. Hence, findings from their study suggest that investors can expect not to lose money, when investing in socially responsible mutual funds. Findings by Hamilton et al. (1993) are later confirmed by research conducted by Mallin et al. (1995), Kreander et al. (2005) and Bauer et al. (2005), who also find no significant difference between RI and conventional investments.

Contrary to Kempf and Osthoff (2007), research conducted by Halbritter and Dorfleitner (2015) suggests no difference in performance between high and low rated ESG companies. They analyse performance by using ESG ratings from ASSET4, KLD (now named as MSCI) and Bloomberg. This means that Halbritter and Dorfleitner (2015) use comparable data sets from three different ESG providers. Results from their analysis suggest that investors should not expect abnormal returns by trading a difference portfolio of high and

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<sup>7</sup>For the positive screening, Kempf and Osthoff (2007) use a 10% cut-off that describes the top and bottom quantile of companies based on how they perform on ESG ratings from KLD. The top 10% represents the stocks with high ESG rating while the bottom 10% represents the stock with low ESG rating.

low rated ESG companies. Furthermore, Halbritter and Dorfleitner (2015) find that the results are consistent of no significant difference in financial performance between high and low rated ESG companies when testing for all three ESG providers. Also, the findings are robust when using different cut-offs as well as using different weights for the construction of portfolios.<sup>8</sup>

Concerning previous literature, which finds evidence to RI underperforming conventional investments, Renneboog et al. (2008) study all SRI funds across the world from 1991 to 2003. In particular, Renneboog et al. (2008) are interested in examining whether investors pay a price for ethics and corporate governance or if SRI obtains superior returns. Findings from their study show that most of the SRI funds are strongly underperforming their domestic benchmarks. However, when adjusting for relevant risk factors, the alphas of the SRI funds compared with the conventional funds are not significantly different. These results are consistent across the world except for funds domiciled in France, Ireland, Japan and Sweden, where SRI funds experience lower risk-adjusted returns compared to their conventional counterparts. The latter indicates that investors are paying a price for investing in SRI funds.

Furthermore, Sabbaghi (2011) investigates if Green Exchange-Traded Funds (ETFs) outperform the S&P500. Finding suggest that green ETFs outperform the S&P500 before the financial crisis, but underperform after the financial crisis. Moreover, Chang et al. (2012) also research performance of green mutual funds and find that they generate lower returns and have similar risks compared to traditional mutual funds. The findings from this study outline that green mutual funds underperform traditional mutual funds on a risk-adjusted basis (Chang et al., 2012).

As outlined above, there is a significant number of previous studies, which analyse the performance of RI. However, it is evident that the literature has not reached a consensus regarding whether RI performs better, the same or worse than conventional investments, given the conflicting results that yield different conclusions. The findings from the empirical analysis of ESG stock market performance in this master thesis outline no significant difference in performance between high and low rated ESG companies. Therefore, our results follow the body of literature, which suggest no difference in performance between

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<sup>8</sup>The cut-offs describe the top and bottom quantile of high and low rated ESG companies.

RI and conventional investments (Hamilton et al., 1993; Mallin et al., 1995; Kreander et al., 2005; Bauer et al., 2005; Halbritter and Dorfleitner, 2015). Moreover, the methods applied for analysing the performance of high and low rated ESG companies in this thesis are similar to the methods used in Derwall et al. (2005), Kempf and Osthoff (2007) and Halbritter and Dorfleitner (2015). However, findings from our analysis are different from Derwall et al. (2005) and Kempf and Osthoff (2007), who find a significant difference between RI and conventional investments as mentioned above. Our study on ESG stock market performance is different to previous literature in two ways. Firstly, we study a more recent period of 2014 to 2019. Secondly, we deploy ESG scores from Sustainalytics ESG rating agency, which is considered to be one of the leading ESG rating agencies in the industry (Doyle, 2018).

## 3.2 Investor Motives

Despite the increased interest in RI, research on investors' motives to invest responsibly is limited. There are few previously published studies that explore this pro-social and pro-environmental decision making within financial markets context (Glac, 2009). Some studies investigate the characteristics of responsible investors (Beal et al., 2005; Nilsson, 2008). For instance, Beal et al. (2005) find that RI investors are likely to be female, highly educated and have lower household incomes than conventional investors. Similarly, Nilsson (2008) reports that women and better-educated investors are more likely to allocate a greater proportion of their portfolio in RI. Nevertheless, the understanding of decision-making of responsible investors and their motives remains incomplete (Glac, 2009). It follows that the question of why some investors invest responsibly and others do not is still largely unanswered. The aim of this sub-section is to provide a comprehensive literature review on studies that form the foundation for a survey developed for this master thesis.

According to traditional financial theory, the fundamental factors in investment decisions are return and risk (Markowitz, 1952). This is supported by Nagy and Obenberger (1994), who find that most of the variables that rank significant in terms of importance to investment decisions are classical wealth-maximisation criteria. Nevertheless, studies also reveal that there are other non-financial factors that influence investment decisions and subsequent investment behaviour (Barreda-Tarrazona et al., 2011; Nagy and Obenberger,

1994). For instance, Nagy and Obenberger (1994) report that "feelings for a firm's products and services" ranks as the third most important variable in terms of influence. This clearly is a non-financial and non-rational driver for an investment decision. Therefore, there is evidence that investors do not behave as rational mean-variance optimisers which traditional finance theory typically assumes (Beal et al., 2005).

There is a general consensus in the literature that both financial and non-financial objectives can drive RI investment decisions (Beal et al., 2005; Glac, 2009; Barreda-Tarrazona et al., 2011; Hong and Kostovetsky, 2012; Døskeland and Pedersen, 2016; Riedl and Smeets, 2017; Døskeland and Pedersen, 2019). This is due to the nature of RI as it integrates both financial and non-financial motives as discussed before (Døskeland and Pedersen, 2016). This entails that investors who invest responsibly may exhibit dual concerns that influence their investment behaviour; they may have a combined desire for financial and non-financial objectives (Døskeland and Pedersen, 2016). However, despite this duality, RI does not necessitate moral concerns (Døskeland and Pedersen, 2019). This means that investors can decide to invest in RI based on purely self-interested reasons to maximise wealth. Therefore, responsible investment behaviour is not unequivocally pro-social (Døskeland and Pedersen, 2019). Nevertheless, the existence of the duality in terms of objectives in RI presents a challenge for distributors of financial products in terms of which of these concerns drives investment decisions (Døskeland and Pedersen, 2016). Thus, it follows to ask how do investors weigh financial and non-financial objectives and which of them is the main driver of RI decisions?

Several studies argue that moral objectives are of primary concern for responsible investors (Webley et al., 2001; Beal et al., 2005; Glac, 2009; Barreda-Tarrazona et al., 2011). For example, Barreda-Tarrazona et al. (2011) find that investors invest significantly more in RI fund when they are given explicit information about the ethical nature of the fund. Glac (2009) finds that participants, who receive information that focuses on the financial aspects of RI are less likely to engage in RI. Moreover, Barreda-Tarrazona et al. (2011) also argue that the importance an investor gives to RI matters for investment decisions. They find that RI-concerned investors value RI at 7.45% of the difference between the expected return of the non-RI and the RI fund (i.e. RI premium) (Barreda-Tarrazona et al., 2011, p. 317). This means that RI-concerned investors are willing to invest in

RI even if the returns are lower than in conventional investments, indicating that they weigh moral concerns over financial ones. In comparison, Barreda-Tarrazona et al. (2011) outline that the RI premium is close to zero and only expected returns matter for those investors who are not concerned with RI. Taken together, these results indicate that RI-concerned investors seem to have higher acceptance for return differentials. Glac (2009) and Bollen (2007) explain this by responsible investors deriving utility from both financial and non-financial characteristics of responsible investments.

Opposite evidence to the premise that moral objectives are the main driver of RI decisions can be found in a study by Døskeland and Pedersen (2016), who argue that financial or wealth concerns are the primary motive for investors to invest responsibly. The study investigates the influence of wealth and moral concerns on RI investment decision through measuring differences in investment behaviour after framing information either from wealth or morality perspective. Findings from their study show that wealth framing is more effective in terms of influencing individual investors to invest in RI relative to moral framing (Døskeland and Pedersen, 2016). Investors, who received wealth focused information about green funds bought 21% more green funds than investors who received morally framed information (Døskeland and Pedersen, 2016, p. 1633). Nevertheless, both of these experimental groups engaged more in responsible investing than those investors who did not receive the treatment (i.e. control group) (Døskeland and Pedersen, 2016). Based on these findings, Døskeland and Pedersen (2016) argue that financial or wealth concerns are the primary motive for investors to invest responsibly. One could argue that this is an intuitive finding because the stakes involved in the investment context are relatively high compared with, for instance, buying an environmentally friendly product. Nevertheless, Døskeland and Pedersen (2016) outline that moral concerns still remain important in the RI investment context despite them being less salient than wealth concerns. Considering all of the above, Døskeland and Pedersen (2016) conclude that investors faced with the decision to invest in RI act with both brain and heart, but wealth concerns are of primary motive. It is important to note that one of the strengths of this study is that it provides insights into real-life investment decisions as the environment in this study is one where the subjects naturally undertake investment decisions and allocate their own money.

In their recent study, Døskeland and Pedersen (2019) continue their study from 2016 and investigate whether personal wealth has a moderating effect on individual investors' decisions to invest in RI. In the main analysis of this study, an investor's net wealth<sup>9</sup> is used as a proxy for wealth. They find that financial arguments are more effective than moral arguments with regards to influencing investors of high wealth to invest in RI (Døskeland and Pedersen, 2019). A high wealth investor exposed to financially framed information was 18% more likely to invest in a green fund than a high wealth investor exposed to morally framed information (Døskeland and Pedersen, 2019, p. 16). However, Døskeland and Pedersen (2019) find no significant difference in the effectiveness of financial and moral treatment among low wealth investors. Taking the findings from both of the studies (Døskeland and Pedersen 2016 and 2019) together, it appears that wealth concerns are of primary motive for RI investment decisions and this finding increases with personal wealth. However, a weakness of the studies by Døskeland and Pedersen (2016 and 2019) is that they do not consider other variables such as financial literacy, which previous studies have shown to influence investor behaviour (Van Rooij et al., 2007). This and other variables, however, may have influenced the investment decisions in these studies.

Similarly to Døskeland and Pedersen (2016;2019), Riedl and Smeets (2017) also study the role of financial and moral objectives in holding RI funds. In terms of moral motives, they distinguish between intrinsic social preferences and social signalling (Riedl and Smeets, 2017).<sup>10</sup> On the contrary to Døskeland and Pedersen (2016), Riedl and Smeets (2017) find that the major factors, which determine the likelihood of holding RI, are intrinsic social preferences and, to a lesser degree, social signaling. Through eliciting investors' social preferences in a trust game, the researcher find that investors, who share the money equally are 14% more likely to hold a RI equity fund compared to selfish investors, who keep all the money (Riedl and Smeets, 2017, p. 24). Interestingly, they also find that social signalling (i.e. reputation) is positively related to the likelihood of investing in RI (Riedl and Smeets, 2017). In terms of financial motives, the study shows that both RI investors and conventional investors are relatively pessimistic in terms of financial performance of RI funds (Riedl and Smeets, 2017). Nevertheless, they find responsible

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<sup>9</sup>Defined as the total balance of all accounts, including deductions for negative balance such as housing credit and account credit (Døskeland and Pedersen, 2019, p. 8).

<sup>10</sup>Financial objectives are studied through eliciting return and risk perceptions. Intrinsic social motive "refers to pro-social motives that do not provide any future material benefit to the individual itself". Social signalling is concerned with improving one's social reputation (Riedl and Smeets, 2017, p. 20).

investors to be slightly less pessimistic about the returns on RI funds (Riedl and Smeets, 2017). Overall, Riedl and Smeets (2017, p. 24) outline that investors who expect RI equity fund to underperform relative to conventional equity fund are 5.8% less likely to hold a RI equity fund. At the same time, those investors, who expect RI equity funds to outperform conventional funds are not significantly more likely to hold a RI fund (Riedl and Smeets, 2017). Taken together, this implies that investors do not hold RI funds because they expect that these funds will outperform conventional counterparts, but rather that investors, who are pessimistic about returns of RI funds avoid investing in such funds (Riedl and Smeets, 2017). In terms of risk perceptions, the study finds that they are unrelated to holdings of RI funds as both responsible investors and conventional investors have similar risk perceptions regarding RI relative to conventional investments (Riedl and Smeets, 2017). Taken together, Riedl and Smeets (2017) conclude that performance expectations play some role in explaining why investors invest in RI given that RI investors were found to be slightly more optimistic. Nevertheless, Riedl and Smeets (2017) also outline that financial motives alone do not explain the decisions to invest in RI. Therefore, Riedl and Smeets (2017) argue that strong moral motives measured through social preferences are the most important determinant of RI investment decisions (Riedl and Smeets, 2017).

Furthermore, an interesting discovery in terms of RI investment behaviour is in a study by Webley et al. (2001), who posit that poor performance of ethical funds does not deter RI investors. Webley et al. (2001) find that more responsible investors increase their ethical investment than decrease as well as many responsible investors leave their portfolios unchanged when RI is depicted to perform poorly relative to conventional fund. In comparison, both investors decrease their investment in an ordinary fund when it is performing poorly. Therefore, it appears that responsible investors are committed to their ethical investments and keep them despite poor performance. Webley et al. (2001) explain these findings by arguing that RI is based on ideology as well as identity and not just on financial return. Thus, such investments are often important to individuals, which in return makes responsible investors vulnerable to sunk costs and commitment biases (Webley et al., 2001). Therefore, the conclusion from this study is that responsible investors are not only ethical, but also committed as they display strong tendency to stick with their investments.

Overall, literature on investors' motives to invest in RI reaches the conclusion that both financial and moral concerns can drive RI investment decisions. However, as it is evident in the discussions above, existing studies yield differing evidence in terms of the weighing of financial and moral motives. Therefore, there is no uniform conclusions in terms of which of these motives is of primary concern for RI investors. In this master thesis, we conduct a study on investor motives through a survey and find evidence that points to moral concerns being the main driver of investor decisions to invest in RI. Therefore, this master thesis accords to the strand of literature suggesting that moral objectives are of primary concern for responsible investors (Webley et al., 2001; Riedl and Smeets, 2017; Beal et al., 2005; Glac, 2009; Barreda-Tarrazona et al., 2011). We find that responsible and conventional investors are not significantly different with respect to neither the importance of expected return in investment decisions nor return expectations on RI. The latter contradicts with findings in Riedl and Smeets (2017). However, results from the study indicate that responsible investors are more likely to invest in RI, when there is no difference in return between RI and conventional investments. The results from this study are further discussed in Section 6.

Differently to research by Barreda-Tarrazona et al. (2011) and Glac (2009), where the sample consists of either students or uniquely of responsible investors, the sample of the investor motive study in this master thesis comprises of both real-life responsible and conventional investors as in Døskeland and Pedersen (2016) and Riedl and Smeets (2017). Furthermore, the survey in this master thesis also investigates the morality component further based on further research advice in Døskeland and Pedersen (2016). Interestingly, we also add two novel variables to our study in order to contribute to the literature discussed above and measure knowledge of RI as well as trust in ESG frameworks that could moderate the decisions to invest in RI. We find significant differences between responsible and conventional investors with respect to both of these aforementioned variables. Results show that not only do responsible investors rate their RI knowledge higher, but also that they have higher trust in ESG frameworks than conventional investors. We now turn to discussing overall methodology of this master thesis.

## 4 Methodology

This section explains our research approach to full-fill the two goals of this master thesis. As outlined previously, our objective is to study the topic of RI from two aspects: stock market performance of RI and responsible investment behaviour. This entails that we have two goals in this master thesis and, therefore, it consists of two research studies. In this section, we firstly discuss the overall methodological rigour with regards to research design of this master thesis. Second, we also outline how we take ethical considerations into account in this thesis. Note that further details concerning methodology are outlined separately for the two studies in Sections 5 and 6. This, for instance, concerns secondary data and models used in empirical analysis of stock market performance.

### 4.1 Research Design

Our master thesis embodies quantitative research design, involving conducting both a survey to identify investors' motives to invest in RI as well as an empirical analysis of the stock market performance of high rated ESG companies relative low rated ESG companies. Therefore, this master thesis can be classified as a multi-method quantitative study, where more than one quantitative data collection technique and analytical procedure has been used. In this master thesis, a survey is conducted and analysed separately from empirical analysis of secondary data. We see this to be appropriate given that the research question is twofold: Do high rated ESG companies outperform low rated ESG companies on the stock market? What are the motives for investors to invest responsibly?.

Furthermore, a deductive approach is used in this master thesis as we aim to use data to test theory (Saunders et al., 2016). This holds particularly true for the study on ESG stock market performance, where the aim is to examine the relationship between ESG rating and companies' performance on the stock market. However, the combined purpose of this master thesis is both exploratory and explanatory. An exploratory study has been deemed to be useful, when researchers wish to clarify the understanding of an issue, problem or phenomenon when the precise nature of the topic is unclear (Saunders et al., 2016, p. 175). Given that RI is relatively new topics, we aim to clarify and explore this

concept. Furthermore, as one part of the research question is concerned with identifying investors' motives to invest responsibly, we, therefore, aim to explore why investors invest in RI through the use of a survey. At the same time, given that we aim to explore whether there is a causal relationship between ESG rating and stock market performance, this master thesis has an explanatory purpose. Explanatory research aims to study a situation or a problem to explain the relationship between variables (Saunders et al., 2016, p. 176). We conduct statistical tests to determine whether there is a relationship between ESG rating and return. Therefore, our master thesis can be classified as a combined study with more than one purpose in its design (Saunders et al., 2016). Followingly, we discuss how we took into account research ethics in this master thesis.

## 4.2 Research Ethics

It is important to consider ethical issues in the design and conduct of a research in order to take steps to avoid the possibility of causing harm to subjects of the research and other relevant parties. Given that this master thesis involves conducting a survey, keeping research ethics in mind is particularly critical. This master thesis follows the ethical principles described in Saunders et al. (2016, pp. 243-244).

To begin with, we pursue the researchers' integrity and objectivity principle throughout this master thesis. This means that all results obtained from either the empirical analysis of stock market performance or from the study on investor motives (i.e. survey) are reported in a open, truthful and accurate manner.

However, the main ethical issues of this master thesis concern the survey. Therefore, several ethical principles have been taken into consideration such as respect for others, the avoidance of harm, ensuring privacy of respondents, the maintenance of anonymity, the voluntary nature of participation (Saunders et al., 2016). A web-based survey developed for this master thesis was distributed to potential respondents via email. Given that NSD has strict guidelines regarding electronically distributed surveys, we notified NSD about the research project prior to conducting the survey. As Nordea administered the survey on the behalf of us and has strict General Data Protection Regulation (GDPR) rules, we are not given access to neither the email addresses nor the IP addresses of the

respondents. Therefore, we were given a confirmation from NSD to go further with the survey without the need for a formal approval. To safeguard the interests and privacy of the survey's subjects, all data received by the researchers is anonymised. By implication, this means that anonymity of respondents is ensured in the analysis of the survey data and all findings from the survey are reported in a non-attributable manner.

Moreover, Nordea's clients were notified about this research project, the purpose of it as well as that the data will be anonymised and handled in a secure manner prior to taking the survey. Participation in the survey is also voluntary and clients were given the option not to take it if they wish to do so. All respondents have the right to withdraw from the survey study.

Furthermore, we also took the interests of our research subjects into account in the design of the survey. We, therefore, assume that potential respondents do not have any knowledge of RI or ESG issues to avoid stress or embarrassment resulting from participation. This means that we simplify questions and provide explanations to guide potential respondents through the survey. Furthermore, all questions are written in un-intrusive and neutral language. However, limited knowledge of investing is assumed in the design of the survey. We consider it to be a reasonable assumption given that the survey is conducted among Nordea's clients who invest. Overall, we are confident that we have considered the potential ethical issues that may arise in all phases of the research process. We now turn to study on ESG stock market performance.

## 5 Study on ESG Stock Market Performance

This section focuses on the study on ESG stock market performance. The main purpose of the empirical analysis in this thesis is to compare the stock market performance of companies that perform well on ESG issues with companies that perform poorly. Firstly, we briefly outline models that form the foundation of the analysis. Secondly, we discuss the collection and description of the data set used in the analysis together with how we construct portfolios of ESG rated companies. Thereafter, we present results of the empirical analysis. This section ends with examining limitations of this study.

### 5.1 Models

This sub-section outlines the models used in the empirical analysis. To begin with, we initially deploy the Capital Asset Pricing Model (CAPM) devised by Sharpe (1964), Treynor (1961), Lintner (1965) and Mossin (1966). Furthermore, in order to achieve a complete assessment of the performance, we also utilise the Fama-French three-factor model in addition to the Carhart four-factor model (Fama and French, 1993; Carhart, 1997). Equation 5.1 represents the CAPM regression model.

$$r_{it} - r_{f_t} = \alpha_i + \beta_i(r_{mkt} - r_{f_t}) + \varepsilon_i \quad (5.1)$$

Where:

$r_{it}$  = the return on portfolio  $i$  in month  $t$

$r_{f_t}$  = risk-free rate in month  $t$

$r_{mkt}$  = the return of the market benchmark in month  $t$

Furthermore, we expand the above regression model by including the Fama-French risk factors (Fama and French, 1993) as provided in Equation 5.2:

$$r_{it} - r_{f_t} = \alpha_i + \beta_i(r_{mkt} - r_{f_t}) + s_iSMB_t + h_iHML_t + \varepsilon_i \quad (5.2)$$

Where:

$SMB_t$  = Small Minus Big in month  $t$

$HML_t$  = High Minus Low in month  $t$

To further advance our model, we followingly utilise the Carhart four-factor model (Carhart, 1997). Equation 5.3 represents how each of the portfolios is exposed to the four risk factors.

$$r_{it} - r_{ft} = \alpha_i + \beta_i(r_{mkt} - r_{ft}) + s_iSMB_t + h_iHML_t + u_iUMD_t + \varepsilon_i \quad (5.3)$$

Where:

$UMD_t$  = Up Minus Down in month  $t$

## 5.2 Data

This sub-section examines the collection and description of the data set used in the empirical analysis of performance differences. First, we explain the sources we make use of to collect the secondary data. Second, we provide a detailed explanation of how we categorise the companies depending on their ESG score into respective groups. Lastly, we explain how we construct portfolios for each group using both equal and value weights.

### 5.2.1 Data Source

In order to evaluate performance of high rated ESG companies relative to low rated ESG companies, we need data on companies historical performance on the stock market in addition to companies' historical sustainability performance in terms of how to address material ESG risk and opportunities to their business.

The data we use for the empirical analysis is collected from Sustainalytics, which is an analysis platform. Sustainalytics is a global leader on rating companies on ESG factors and is designed to help investors identify and understand financially material ESG risks at a security and portfolio level (Sustainalytics, 2018b).

We collect data on 1635 companies that constitute the MSCI World Index for developed markets for the period of 28.02.2014 to 28.02.2019. MSCI World Index captures large and mid-cap representation across 23 developed market countries (MSCI, 2019c). The data set consists of:

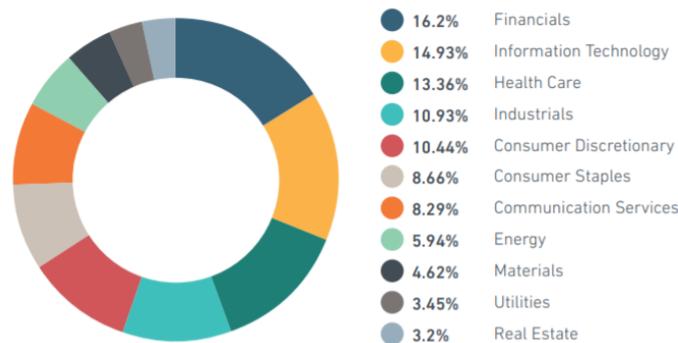
1. Monthly reported share prices
2. Monthly reported Sustainalytics ESG scores
3. Weight each company has in the MSCI World Index

The monthly reported share prices in our data set are adjusted for both dividend and corporate actions. This implies that the total performance of the stocks is the same as the difference in the share prices. However, as the purpose of our analysis is to measure the performance of stocks, we convert the share prices into returns by calculating the return series for all the stocks in the data set. In terms of the ESG score, it represents a percentile ranking of a company relative to its industry peers and global universe (Sustainalytics, 2018a). Given that this is of high importance for our analysis, we discuss Sustainalytics ESG scores in more detail in Sub-section 5.2.2. In terms of the weight each company has in the MSCI World Index, this information is reported in the data set as of February 2019.

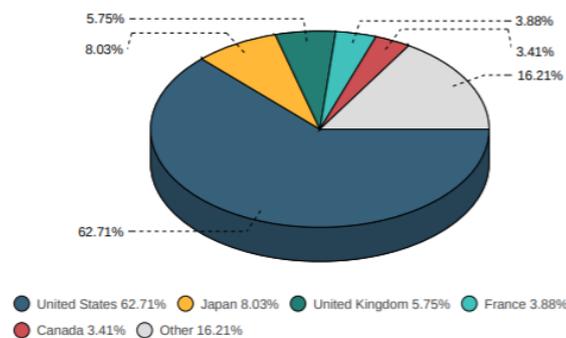
During the initial screening of data, we detect that 468 companies do not have any reported ESG scores for the whole period of February 2014 to February 2019. In order to conduct a logical analysis, our only cleaning criterion is to exclude all the companies that do not have any ESG score reported during the entire period we analyse. The exclusion of these companies results in a cleaned data set that consists of 1167 stocks. Furthermore, we have several companies in our time-series data that come into the index at different times during the period of 2014 to 2019. The MSCI World Index is semi-annual reviewed, and the index is rebalancing during May and November (MSCI, 2019c). As a result of the rebalancing, large and mid-capitalisation cutoff points are being recalculated and the combination of companies that are included in the index changes (MSCI, 2019c). We assume that when there is a reported share price in the data set, the companies are included in the MSCI World Index. We decide not to remove the companies that come into the index at a later stage in order to avoid loss of observations. Figure 5.1 and 5.2 below provide an overview of the sector allocation and the country weights of the MSCI

World Index for developed markets.

**Figure 5.1:** MSCI World Index Sector Allocation. (MSCI, 2019b).



**Figure 5.2:** MSCI World Index Country Weights. (MSCI, 2019c).



Furthermore, we also collect data from Kenneth French data library for systematic risk factors (French, 2019). In order to estimate excess return and exposure to the different risk factors, we need a representable risk-free rate, market index, SMB and HML factors as well as UMD factor. Given that we are analysing global develop markets, we employ Fama-French Global 3 factors as well as Global Momentum Factor from Kenneth French data library. Note that we utilise the U.S. 1-month treasury bill (hereafter t-bill) as a proxy for the risk-free rate. The reason for this is that approximately 60% of the MSCI World Index contains companies located in the U.S. (Figure 5.2). Therefore, we consider it to be suitable to use a U.S. t-bill rate as a representable risk-free rate given the relatively large share of companies domiciled in the U.S. Furthermore, when applying the Fama/French Global 3 factors, the market factor is adjusted using a U.S. 1-month t-bill. Thus, the use of a U.S. 1-month t-bill ensures consistency with the way in which other factors are calculated. Next paragraph gives a more detailed explanation of the ESG scores we use to assign companies into different groups.

## 5.2.2 Sustainalytics ESG Score

As mentioned above, the ESG score in the data set is a percentile ranking showing the relative performance of a company on ESG issues when compared against industry peers and global universe (Sustainalytics, 2018a). Sustainalytics ranks companies from 0 to 100, where 0 represents the worst possible percentile ranking and 100 the best (Sustainalytics, 2018b).

In order to investigate the stability of the ESG scores in our data set, we analyse the average ESG score for all of the companies each month in order to see if there exist a trend in ESG scores from 2014 to 2019 (Figure 5.3).

**Figure 5.3:** Average ESG Score Each Month.

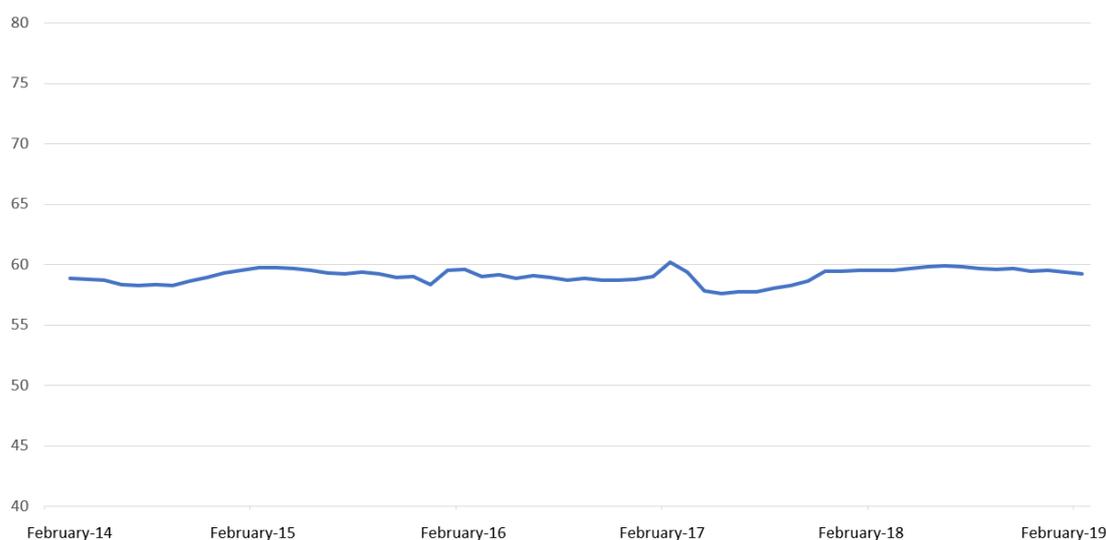


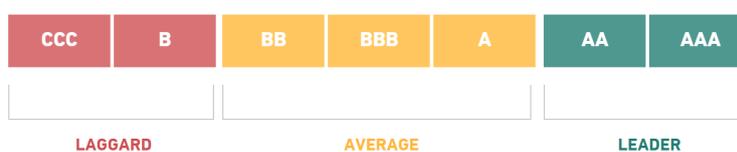
Figure 5.3 helps to detect whether there is a trend in terms of companies receiving a better ESG rating over time. As it appears, there is no upward trend in ESG scores over the period of the sample data.

Before we explain how we assign the companies to their respective groups, we outline and clarify characteristics of the ESG score provided by Sustainalytics. Sustainalytics determines each company's ESG score across five risk levels: negligible, low, medium, high and severe (Sustainalytics, 2018c). Firstly, Sustainalytics analyses each companies' exposure to material ESG issue within their business sector (Sustainalytics, 2018d). Further, Sustainalytics overlooks how the companies are managed and how well companies

mitigate their exposure to material ESG issues. This refers to manageable risks that companies are faced with. How well companies manage these risks is reflected in the company's policies, programmes, practices and quantitative performance measures (Sustainalytics, 2018d). However, Sustainalytics argues that some manageable risks may be unmanageable all together. For instance, Sustainalytics suggests that an oil company does not have a possibility to fully eliminate all its risks related to carbon emissions (Sustainalytics, 2018d). Sustainalytics does not punish companies for being exposed to unmanageable risks, which means that these risks are not considered in the calculation of the score. It is crucial to outline that only the unmanageable risks, which companies do not have any possibility to mitigate, are ignored when Sustainalytics evaluates companies' exposure to material ESG risks. Furthermore, Sustainalytics also includes a controversy score, which has a discounting effect on the overall management score. If the company faces controversies, the mitigation of manageable risk through programmes and policies has not been effective and could lead to a potential risk for investors. The controversy score adjusts for these matters. Finally, Sustainalytics provides an overall score by adding the amount of unmanaged risk for each material ESG issue (Sustainalytics, 2018d).

One of our objectives in this thesis is to compare companies based on their ESG performance in order to investigate if there are any differences in stock performance between companies with high and low ESG scores. In order to conduct this comparison, we divide the companies into different groups depending on the reported monthly ESG scores. Hereafter the groups we divide the stocks into will be referred to as buckets. We separate the companies into three different buckets based on their performance on ESG issues. With regards to this, we take inspiration from the MSCI ESG framework that divides companies into three groups based on how companies are handling their ESG risks and opportunities (MSCI, 2019a). The companies are divided into their respective groups based on ratings as presented in Figure 5.4. Laggard represents companies with the worst ESG rating while Leader constitutes of companies with the best rating.

**Figure 5.4:** MSCI ESG Rating. (MSCI, 2019a).



As the ESG score provided by Sustainalytics is a percentile ranking from 0 to 100 and not structured as a rating from AAA-CCC, we replicate the MSCI's method. We separate the universe of stocks into three buckets, where the threshold are as follows:

1. Stocks with an ESG score between 70-100 constitute bucket Star
2. Stocks with an ESG score between 31-69 constitute bucket Average
3. Stocks with an ESG score between 0-30 constitute bucket Laggard

We name these thresholds Criteria 1 based on which we divide the companies into respective buckets. In this replication of MSCI's method, we assume that companies that have an ESG score of 70-100 are rated AAA or AA, which is consistent with the method MSCI use for rating companies on ESG. Furthermore, we deduce that companies with an ESG score of 31-69 are rated A, BBB or BB. Finally, we include all the companies that have a score between 0-30 into the Laggard group and assume that they are rated B or CCC. If companies do not report an ESG score for one or several months, the company is not assigned to a bucket. Bucket Star represents the companies with the best ESG rating, while bucket Laggard represent the companies with the worst. We now turn to explaining how we construct the portfolios for each of the three buckets that are analysed in Section 5.3 Analysis.

### 5.2.3 Construction of Portfolios

After dividing the companies in our data set into the three buckets Star, Average and Laggard, we followingly construct three portfolios using two different methods: equally-weighted and value-weighted. We first construct portfolios where we assign the same weight to each stock. Furthermore, we construct portfolios using the value weight each stock has in the index. These two methods of constructing portfolios will be used throughout the empirical analysis.

#### 5.2.3.1 Equally-Weighted Portfolio

For the equally-weighted method, we assign an equal weight for all the companies in the sample. We calculate the expected return for a portfolio as a weighted average of the

possible returns in each month with equal weights as presented in Equation 5.4.

$$E(R) = \sum w_i \times r_i \quad (5.4)$$

Where:

$E(R)$  = expected return of the equally-weighted portfolio

$r_i$  = return of stock  $i$

$w_i$  = weight of stock  $i$

As outlined in Sub-section 5.2.2, companies in our data set first start to report share prices when they are included in the MSCI World Index. Furthermore, the criteria of being assigned to a bucket is met when the company has a reported monthly ESG score in that month. This means that the number of companies in each month changes and the companies that do not report ESG scores are not assigned to a bucket. Table 5.1 provides an overview of the minimum, maximum and average number of companies that are in the different portfolios during the whole sample period.

**Table 5.1:** Number of Companies in Portfolios Each Month.

The table demonstrates the minimum, maximum and the average number of companies that are in the portfolios Star, Average and Laggard each month.

Number of Companies	Min	Max	Average
Portfolio Star	402	501	462
Portfolio Average	326	457	410
Portfolio Laggard	196	244	215

The difference between the sum of all the companies in portfolio Star, Average and Laggard each month and the total amount of companies in our data set equals to the companies that are excluded due to not having a reported ESG score that month. We now turn to outlining how we construct value-weighted portfolios.

### 5.2.3.2 Value-Weighted Portfolio

The value-weighted method weights each company depending on the total market value of their outstanding shares or the company's market capitalisation. Contradictory to the equally-weighted portfolio where we assign the same weight to all companies, we now depend on the value weight each company has in the MSCI World Index. In our data set, we have the reported weights as of February 2019 for all of the companies in the MSCI World Index. As mentioned in Sub-section 5.2.1, we removed 486 companies which means that the initial weights for each company provided in the raw data set can no longer be used.

Alternatively, in order to adjust the weights of the companies in the cleaned data set, we could employ data on shares outstanding or the market capitalisation of each company. This data could be used to calculate the value for each company and divide it by the total value of the portfolio (Berk and DeMarzo, 2014). This data could be collected through various databases, but the index represents companies from 26 countries. Thus, it is time-consuming to collect the data on market capitalisation for each company given that the data set consists of 1167 stocks. Instead of this, we decide to use a different approach in order to calculate the value each company has in the index. After removing the 486 companies, the weights of all the companies in the index are equal to 87,21%. In order to adjust the weights to be equal to 100%, we have to divide the companies weight in the old index by the total sum of the weights of all companies in the index after the cleaning process (i.e. 87,21%). This calculation results in new adjusted weights for each company. Moreover, after dividing the companies into portfolio Star, Average and Laggard, we need to adjust the weights again for the companies in order for the portfolio's total weight to be equal to 100%. We deploy a similar method with the same logic as mentioned above. Conducting the calculations results in new weights for each company for all three portfolios where the total portfolio weight is equal to 100%. In the following section, we report findings from the analysis of the three portfolios.

## 5.3 Analysis

In this sub-section, we present the findings from an empirical analysis of stock market performance of ESG rated companies. The main aim of this analysis is to test whether there is a significant difference in performance between high rated ESG stocks and low rated ESG stocks in the global developed markets. Moreover, we explore if there are differences in how the three portfolios constructed are exposed towards systematic risk factors. Firstly, we outline descriptive statistics of the sample. Followingly, results from regressions are presented along with a robustness test. This sub-section ends with outlining limitations of this empirical analysis.

### 5.3.1 Descriptive Statistics

The below Figures 5.5 and 5.6 depict cumulative returns for equally-weighted and value-weighted portfolios separately for Star, Average and Laggard. Note that portfolio Star represents high rated ESG companies, whereas portfolio Laggard delineates low rated ESG companies. More specifically, portfolio Star consists of stocks with an ESG score between 70-100, portfolio Average 31-69 and portfolio Laggard 0-30 as outlined in Sub-section 5.2.2. The cumulative return of investing in either of the three portfolios is the aggregate amount the investment has gained or lost over time during the time period of the investment.

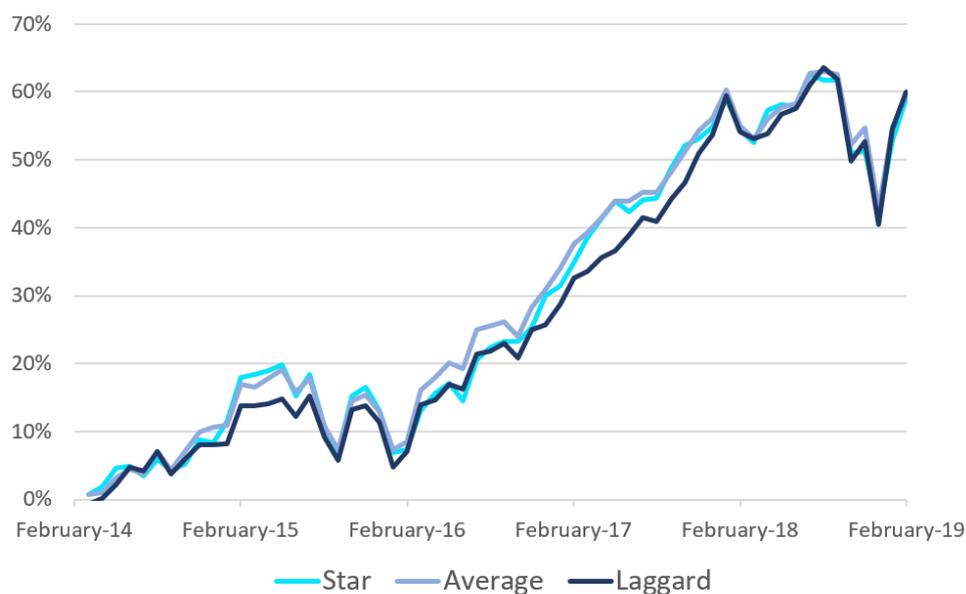
**Figure 5.5:** Cumulative Returns for Equally-Weighted Portfolios.

Figure 5.5 illustrates the cumulative returns for the equally-weighted portfolios Star, Average and Laggard from 2014 to 2019. The cumulative return for the three portfolios throughout the period we analyse are 58,99%, 59,78% and 59,97% respectively. As it can be seen in Figure 5.5, the differences between the cumulative returns for the portfolios are marginal. However, the portfolio Laggard generates the highest cumulative return as of February 2019.

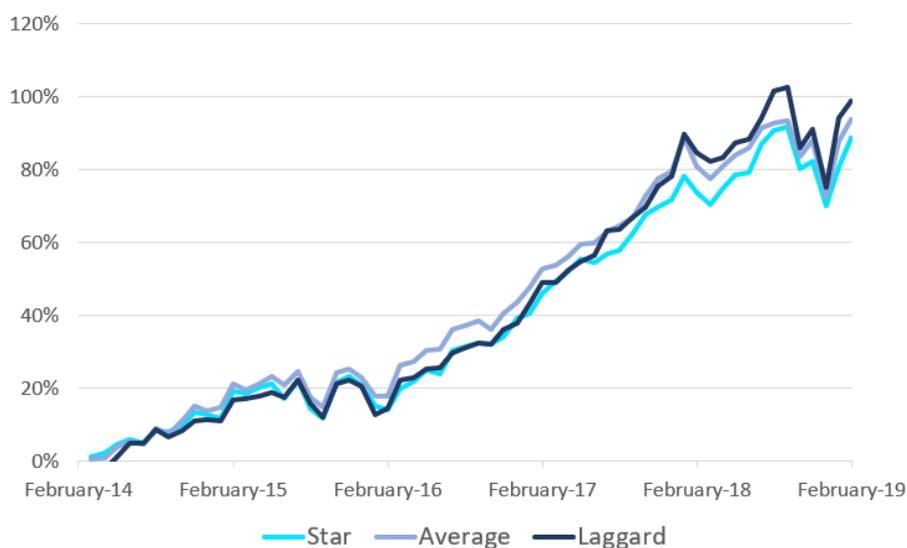
**Figure 5.6:** Cumulative Returns for Value-Weighted Portfolios.

Figure 5.6 above depicts the cumulative returns for the value-weighted portfolios Star, Average and Laggard from 2014 to 2019. The respective cumulative returns throughout the period we analyse for the three portfolios are 88,56%, 93,94% and 99,00%. Similarly to the equally-weighted portfolios, the portfolio Laggard generate the highest cumulative return as of February 2019.

According to Figures 5.5 and 5.6, the cumulative returns are higher for the value-weighted portfolios when compared to the equally-weighted portfolios. This indicates that companies with high market capitalisation in the respective portfolios generate high returns and thereby increase the return for each portfolio when using the value-weighted method. We followingly outline other descriptive statistics in Table 5.2 below for both equally-weighted and value-weighted portfolios Star, Average and Laggard.

**Table 5.2:** Descriptive Statistics of Portfolios.

The table demonstrates average historical monthly returns, Standard Deviations (SD), Sharpe ratios, Compound Annual Growth Rates (CAGR) and the minimum and maximum monthly returns for the portfolios Star, Average and Laggard during 2014-2019. Panel A depicts this information for equally-weighted portfolios, whereas Panel B for value-weighted portfolios.

Note that the monthly average return is the arithmetic average of the returns calculated by taking the average return of all 60 months. CAGR is the geometric average of the returns calculated by the following equation  $[(1 + r_i) \times (1 + r_i) \times \dots \times (1 + r_t)]^{\frac{1}{t}} - 1$ , where  $t=5$  years. The Sharpe ratio is calculated by dividing the average monthly return by the average standard deviation for all of the three portfolios.

	N	Mean Return	SD	Sharpe Ratio	CAGR	Min	Max
Panel A: Equally-Weighted Portfolios							
Portfolio Star	60	0,82%	3,01%	27,26%	9,72%	-6,72%	7,77%
Portfolio Average	60	0,83%	2,94%	28,14%	9,83%	-7,68%	8,34%
Portfolio Laggard	60	0,83%	3,10%	26,87%	9,85%	-8,00%	10,01%
Panel B: Value-Weighted Portfolios							
Portfolio Star	60	1,11%	2,98%	37,10%	13,52%	-6,76%	8,84%
Portfolio Average	60	1,16%	3,07%	37,72%	12,26%	-8,25%	8,91%
Portfolio Laggard	60	1,21%	3,36%	35,99%	14,75%	-8,28%	10,83%

Panel A in Table 5.2 illustrates the descriptive statistics for equally-weighted portfolios. As it can be seen in Panel A, the portfolio Laggard has the highest Compound Annual Growth Rate (CAGR) of 9,85% over the period of 2014 to 2019 (see table notes for calculation explanations). However, when looking at Standard Deviations (SD) that measures the volatility of each portfolio, portfolio Average appears to be less volatile compared to Star and Laggard as evidenced with having the lowest SD of 2,94%. In addition, the Average

portfolio has the highest Sharpe Ratio of 28,14%, which indicates that the risk-adjusted return historically has been highest for portfolio Average.

Furthermore, Panel B in Table 5.2 depicts descriptive statistics for value-weighted portfolios. As Panel B outlines, the portfolio Laggard has the highest monthly average return and CAGR during 2014 to 2019, similarly to the equally-weighted portfolio. Furthermore, portfolio Star is less volatile with the lowest SD of 2,98% than the other two portfolios. Lastly, portfolio Average has the highest risk-adjusted return with a Sharpe ratio of 37,72%. Portfolio Star, however, has experienced the least negative monthly return of -6,76% during the whole period and portfolio Laggard has experienced the the highest monthly return of 10,83%. We now turn to discussing the results from regressions.

### 5.3.2 Performance of Portfolios

This paragraph outlines the findings from the empirical analysis of stock market performance of the three different portfolios. Note that portfolio Star represents high rated ESG companies, whereas portfolio Laggard depicts low rated ESG companies. Furthermore, portfolio Average consists of companies with average ESG scores. We utilise the CAPM, Fama-French three-factor and Carhart four-factor models in regressions, as discussed in Sub-section 5.1. This sub-section begins with examining portfolios individually. Thereafter, we present results from analysing a long-short investment strategy. Panel A in Table 5.3 depicts regression results for equally-weighted portfolios and Panel B for value-weighted portfolios. Note that the dependent variables in the regressions are explained in table notes.

**Table 5.3:** Main Regressions for Portfolios.

The table below depicts results from the regressions for the portfolios Star, Average and Laggard. Panel A provides this information for equally-weighted portfolios. Panel B outlines regression results for value-weighted portfolios.

In regression specifications 1 to 9 the dependent variable is the excess return on monthly basis of the respective portfolios. Note that the excess return is the portfolio's monthly return minus a U.S. 1-month t-bill. In specifications 10 to 12 the dependent variable is monthly return of portfolio Star minus monthly return of portfolio Laggard. The underlying assumption in the analyses is that portfolios are rebalanced on monthly basis.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Star	Star	Star	Average	Average	Average	Laggard	Laggard	Laggard	Star-Laggard	Star-Laggard	Star-Laggard
Panel A: Equally-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.874*** (17.71)	0.883*** (18.25)	0.860*** (16.03)	0.887*** (24.71)	0.887*** (24.31)	0.851*** (21.68)	0.925*** (21.94)	0.915*** (22.22)	0.879*** (19.66)	-0.051 (-0.91)	-0.033 (-0.61)	-0.019 (-0.32)
$\beta_{\text{SMB}}$		-0.258** (-2.29)	-0.247** (-2.18)		-0.054 (-0.64)	-0.036 (-0.43)		0.068 (0.71)	0.087 (0.92)		-0.327** (-2.63)	-0.334** (-2.65)
$\beta_{\text{HML}}$		-0.017 (-0.21)	-0.087 (-0.80)		-0.050 (-0.81)	-0.162** (-2.02)		-0.155** (-2.21)	-0.267** (-2.92)		0.138 (1.52)	0.179 (1.47)
$\beta_{\text{UMD}}$			-0.087 (-0.97)			-0.138** (-2.12)			-0.138** (-1.85)			0.051 (0.51)
$\alpha$	0.00314* (2.00)	0.00280* (1.81)	0.00297* (1.90)	0.00313*** (2.74)	0.00295** (2.53)	0.00321*** (2.82)	0.00300** (2.24)	0.00272** (2.06)	0.00298** (2.29)	0.00014 (0.08)	0.00008 (0.05)	-0.00001 (-0.01)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.84	0.86	0.86	0.91	0.91	0.92	0.89	0.90	0.90	0.01	0.16	0.16
adj. $R^2$	0.84	0.85	0.85	0.91	0.91	0.92	0.89	0.90	0.90	-0.00	0.12	0.10
Panel B: Value-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.883*** (20.42)	0.891*** (25.28)	0.894*** (22.66)	0.913*** (21.46)	0.916*** (24.30)	0.912*** (21.63)	0.990*** (19.91)	0.981*** (21.03)	0.992*** (19.03)	-0.108 (-1.70)	-0.090 (-1.47)	-0.098 (-1.43)
$\beta_{\text{SMB}}$		-0.436*** (-3.31)	-0.437*** (-5.25)		-0.317*** (-3.61)	-0.315*** (-3.54)		-0.098 (-0.91)	-0.104 (-0.94)		-0.338** (-2.37)	-0.334** (-2.31)
$\beta_{\text{HML}}$		-0.143** (-2.37)	-0.135 (-1.68)		-0.171** (-2.66)	-0.184** (-2.14)		-0.256*** (-3.21)	-0.223* (-2.10)		0.113 (1.08)	0.088 (0.63)
$\beta_{\text{UMD}}$			0.009 (0.14)			-0.016 (-0.23)			0.040 (0.47)			-0.031 (-0.27)
$\alpha$	0.00596*** (4.33)	0.00511*** (4.53)	0.00510*** (4.45)	0.00630*** (4.65)	0.00553*** (4.58)	0.00556*** (4.54)	0.00642*** (4.06)	0.00571*** (3.82)	0.00563*** (3.72)	-0.00047 (-0.23)	-0.00059 (-0.30)	-0.00053 (-0.27)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.88	0.92	0.92	0.89	0.92	0.92	0.87	0.89	0.89	0.05	0.16	0.16
adj. $R^2$	0.88	0.92	0.92	0.89	0.91	0.91	0.87	0.89	0.89	0.03	0.11	0.10

$t$  statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

In order to analyse the portfolios constructed, we need to take a closer look at the results from the regressions. With respect to equally-weighted portfolios, Panel A in Table 5.3 illustrates that the portfolios Star, Average and Laggard have statistically significant ( $p < 0.01$ ) positive market factor betas when applying the CAPM model. Furthermore, the betas are less than 1 which indicates that the respective portfolios are underexposed to the market portfolio. Similar results also hold true for the value-weighted portfolios as shown in Panel B of Table 5.3. This implies that the returns on all three portfolios are less sensitive to the fluctuations in the market returns with portfolio Star being the least sensitive as evidenced with the lowest beta. Furthermore, regression output in Panel A and Panel B of Table 5.3 also indicate alphas that are significantly different from 0 for all of the three portfolios when applying the single-factor model. These positive alphas

outline that a part of the excess return on these portfolios cannot be explained by the exposure to the market factor. For instance, when looking at  $R^2$  adjusted with respect to equally-weighted portfolio Star, it indicates that 84% of variation in excess return on portfolio Star can be explained by the CAPM single-factor model. The positive alphas in CAPM regressions pinpoint to that all of the three portfolio's average monthly returns are above the security market line (SML), thereby being underpriced and having abnormal returns. CAPM, however, postulates that alpha should not be significantly different from zero. Overall, the market factor betas are statistically significant throughout the regressions for both equally- and value-weighted portfolios Star, Average and Laggard. This implies that the excess return on the portfolios is mainly driven by exposure to the market factor. This holds also true when taking the other risk factors into account, which we will discuss next.

With regards to the Fama-French three-factor model, the results reveal risk premiums with respect to big market capitalisation (hereafter market cap) and growth companies. Regression output in Panel A shows that only equally-weighted portfolio Star has statistically significant ( $p < 0,05$ ) exposure to the SMB risk factor with negative factor loading. This indicates that portfolio Star's return is driven by big market cap companies. These companies are typically well-established and have the resources to invest in corporate social responsibility. As Panel B illustrates, both value-weighted portfolio Star and Average also have significant negative exposure to the SMB factor. Both of them also have a statistically significant negative exposure to the HML factor. Therefore, in a rapidly changing market, being responsible seems to play an important role and from the regression we can see that growth companies that are responsible have a positive impact on portfolio Star. However, it is yet unclear that this good ESG performance is what is driving investors to buy these growth stocks. Regression results also demonstrate that there are no consistent signs with respect to tilt towards either small or big companies in relation to the portfolios Average or Laggard. With regards to portfolio Laggard, it has statistically significant ( $p < 0,05$ ) HML factor beta with negative factor loading in both portfolio construction methods. This means that portfolio Laggard is on average skewed towards low book-to-market companies, also known as growth stocks, that explains some of the portfolio Laggard's excess return. This makes clear that growth stocks do not necessarily need to have good ESG performance for investors to invest in them and it may

be driven by these companies having growth opportunities.

In terms of regression results when applying Carhart's four-factor model, one can detect risk premium towards being negatively exposed towards the momentum (UMD) factor. However, this only applies for equally-weighted portfolio Average and Laggard. With respect to portfolio Star with the Carhart model, one can detect similar patterns in terms of risk factor exposures in both the equally- and value-weighted portfolio construction methods, similarly to results with Fama-French model. The same holds true for portfolio Laggard to a large degree. However, equally-weighted portfolio Laggard is also significantly negatively ( $p < 0,05$ ) exposed to the momentum factor, indicating that it is on average tilted towards stocks that have increased and are more likely to decrease in the next period. This suggests high volatility and may be due to inconsistency between investors on the value of the companies. Furthermore, given that there is a tendency for alphas to increase when applying the Carhart four-factor model, it indicates that including the momentum factor together with SMB and HML factors makes the model less explanatory with more unexplained return. This is particularly evident when looking at alphas for the equally-weighted portfolios in Panel A.

Taking the findings discussed above together, alphas for the portfolios Star, Average and Laggard remain statistically significant throughout the regressions when applying either single- or multi-factor models. These positive alphas outline that a part of the excess return on these portfolios cannot be explained by the exposure to the systematic risk factors. This implies that the historical monthly returns on all three portfolios have been higher relative to the expected returns predicted by the models. Therefore, the main inference from analysing portfolios individually is that evidence points to all three portfolios having abnormal returns when adjusting for the risk factors. These findings are surprising as they indicate that all of the three portfolios irrespective of ESG scores generate excess return that the risk factors are unable to explain.<sup>11</sup>

In addition to analysing portfolios individually, we construct a long-short investment strategy in which an investor holds a long position in portfolio Star and short position

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<sup>11</sup>Note that we also conducted regression using the MSCI World Index as the market factor. The results were similar as those presented in Table 5.3 with respect to alphas being significantly different from 0 for portfolios. However, we acknowledge that there are differences in risk factor exposures. We also note that we use Kenneth French data for the rest of the risk factors and, therefore, they are calculated using a different market factor. See Appendix A2.

in portfolio Laggard (denominated Star-Laggard in Table 5.3). The rationale for this strategy is that we postulate that high rated ESG companies outperform low rated ESG companies. However, when adjusting return by risk in Sub-section 5.3.1, we see that portfolio Laggard has the lowest Sharpe ratio which is inferior to Sharpe ratio for portfolio Star. This indicates that portfolio Laggard has the lowest return per measure of total risk. This holds true for both equally- and value-weighted portfolios. Therefore, by constructing this investment strategy we aim to examine whether or not there is a significant difference in risk-adjusted historical performance between portfolio Star and Laggard, where we control for systematic risk factors. This method is similar to Derwall et al. (2005) who compare high-ranked and low-ranked eco-efficient stocks.

The results outlined in Panel A and B of Table 5.3 show no statistically significant alphas between Star-Laggard in any of the risk factor models. This means that there is no significant abnormal return differentiating the performance between companies with high and low ESG scores. With respect to CAPM regressions, the betas are negative but statistically insignificant and, therefore, show no significant difference in exposure to the market factor. To further examine the performance, Fama-French regressions show that there is a statistically significant ( $p < 0,05$ ) negative exposure to the SMB risk factor. This indicates that high ESG big market cap companies have risk premium. This would imply that an investor deploying this strategy is more likely to buy big market cap companies with high ESG score. In addition, as portfolio Laggard is slightly tilted towards small market cap, even though not significant, the difference in the SMB coefficient is amplified when performing this strategy. This shows that large and well-established companies with high ESG rating have a higher risk premium relative to big market cap companies with low ESG scores. Derwall et al. (2005) also find statistically significant exposure towards large cap stocks when looking at the difference between high-ranked and low-ranked eco-efficient stocks. When controlling for all four systematic risk factors, the alpha is not significantly different from zero for both equally- and value-weighted Star-Laggard strategy. Therefore, we find no evidence for differences in risk-adjusted historical performance between portfolios Star and Laggard.

Overall, based on the results from Table 5.3, we find no significant difference in performance between highly rated ESG companies relative to low rated ESG companies. This is

evidenced with statistically insignificant alphas when adjusting for the systematic risk factors with respect to the long-short investment strategy. This finding hold true for both equally-weighted and value-weighted methods of constructing portfolios. Further, there exists abnormal return for all of the three portfolios individually when applying the CAPM, Fama-French and Carhart models. Lastly, we find some differences in factor exposure, where an investors investing in portfolio Star is likely to buy big market cap companies, whereas with portfolio Laggard an investor is likely be exposed to growth companies. To see if these findings are robust to a change in thresholds of ESG scores based on which we assigning companies into the respective portfolios, we now turn to conducting a robustness test.

### 5.3.3 Robustness Test

To test the robustness of the results from the main analysis discussed above, we change the thresholds used for assigning companies into respective portfolios. Therefore, we construct a new criteria for ESG score thresholds which is as follows:

1. Stocks with an ESG score between 77-100 constitute bucket Star
2. Stocks with an ESG score between 47-76 constitute bucket Average
3. Stocks with an ESG score between 0-46 constitute bucket Laggard

We name this Criteria 2 based on which we divide the companies into respective groups.<sup>12</sup> Note that when selecting new thresholds, we also aimed to equalise the number of companies in each bucket (Table 5.4). Similarly to the above analysis, we construct both equally-weighted and value-weighted portfolios of the buckets.

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<sup>12</sup>Criteria 1 used in the main regressions above is as follows: portfolio Star represents stocks with ESG scores of 70-100, portfolio Average ESG scores of 31-69 and portfolio Laggard ESG scores of 0-30.

**Table 5.4:** Number of Companies in Portfolios Each Month with New Thresholds.

Table 5.4 demonstrates the monthly minimum, maximum and average number of companies that constitute portfolios Star, Average and Laggard after changing the ESG score thresholds.

Number of Companies	Min	Max	Average
Portfolio Star	326	408	372
Portfolio Average	283	391	352
Portfolio Laggard	316	411	363

As specified in Table 5.1, in main regressions portfolio Laggard consists of 215 companies on average relative to portfolio Star with 462 stocks. In comparison, the average number of companies in portfolios in Table 5.4 does not deviate to the same degree as previously. Followingly, we apply the same three models used in Sub-section 5.3.2 for regressions.

**Table 5.5:** Regressions for Portfolios with New Thresholds.

The table depicts regression results for portfolios Star, Average and Laggard when using new thresholds. Panel A outlines regression results for equally-weighted portfolios, whereas Panel B outlines this information for value-weighted portfolios.

Similarly to the main regressions, the dependent variable in regression specifications 1 to 9 is the excess return on monthly basis. In specifications 10 to 12 the dependent variable is monthly return of portfolio Star minus monthly return of portfolio Laggard. The underlying assumption in the analyses is that portfolios are rebalanced on monthly basis.

	(1) Star	(2) Star	(3) Star	(4) Average	(5) Average	(6) Average	(7) Laggard	(8) Laggard	(9) Laggard	(10) Star-Laggard	(11) Star-Laggard	(12) Star-Laggard
Panel A: Equally-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.867*** (16.03)	0.875*** (16.50)	0.847*** (14.43)	0.884*** (24.32)	0.888*** (24.24)	0.858*** (21.50)	0.917*** (24.10)	0.909*** (24.34)	0.875*** (21.65)	-0.051 (-0.91)	-0.034 (-0.63)	-0.027 (-0.46)
$\beta_{\text{SMB}}$		-0.277** (-2.24)	-0.263** (-2.12)		-0.117 (-1.37)	-0.102 (-1.21)		0.048 (0.55)	0.065 (0.76)		-0.324** (-2.62)	-0.328** (-2.61)
$\beta_{\text{HML}}$		-0.031 (-0.35)	-0.118 (-0.98)		0.000 (0.00)	-0.092 (-1.13)		-0.136** (-2.14)	-0.243*** (-2.94)		0.105 (1.16)	0.125 (1.03)
$\beta_{\text{UMD}}$			-0.107 (-1.09)			-0.115* (-1.72)			-0.132* (-1.95)			0.025 (0.25)
$\alpha$	0.00297* (1.73)	0.00258 (1.52)	0.00278 (1.63)	0.00318*** (2.75)	0.00304** (2.60)	0.00326*** (2.81)	0.00319** (2.63)	0.00293** (2.45)	0.00317*** (2.71)	-0.000220 (-0.12)	-0.000348 (-0.20)	-0.000394 (-0.23)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.82	0.83	0.83	0.91	0.91	0.92	0.91	0.92	0.92	0.01	0.15	0.15
adj. $R^2$	0.81	0.82	0.82	0.91	0.91	0.91	0.91	0.91	0.92	-0.00	0.10	0.09
Panel B: Value-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.876*** (18.62)	0.885*** (23.23)	0.887*** (20.81)	0.870*** (21.30)	0.878*** (22.79)	0.865*** (20.15)	1.018*** (21.86)	1.010*** (26.10)	1.029*** (23.97)	-0.142** (-2.51)	-0.125** (-2.29)	-0.142** (-2.33)
$\beta_{\text{SMB}}$		-0.471*** (-5.31)	-0.472*** (-5.25)		-0.280*** (-3.13)	-0.274*** (-3.02)		-0.224** (-2.48)	-0.233** (-2.58)		-0.247* (-1.94)	-0.239* (-1.86)
$\beta_{\text{HML}}$		-0.176*** (-2.71)	-0.170* (-1.96)		-0.053 (-0.81)	-0.094 (-1.07)		-0.327*** (-4.95)	-0.269*** (-3.07)		0.151 (1.62)	0.099 (0.80)
$\beta_{\text{UMD}}$			0.007 (0.10)			-0.050 (-0.70)			0.071 (1.00)			-0.064 (-0.63)
$\alpha$	0.00614*** (4.10)	0.00518*** (4.25)	0.00517*** (4.18)	0.00491*** (3.77)	0.00446*** (3.61)	0.00455*** (3.65)	0.00783*** (5.28)	0.00681*** (5.49)	0.00667*** (5.35)	-0.00169 (-0.94)	-0.00162 (-0.93)	-0.00150 (-0.85)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.86	0.91	0.91	0.89	0.90	0.90	0.89	0.93	0.93	0.10	0.20	0.20
adj. $R^2$	0.85	0.91	0.90	0.88	0.90	0.90	0.89	0.93	0.93	0.08	0.15	0.14

$t$  statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Based on regression results in Table 5.5, we infer that the overall findings obtained from main analysis discussed above still hold. In short, there are no statistically significant differences in abnormal returns between high rated ESG and low rated ESG companies, when investigating the long-short strategy (denoted Star-Laggard). As it can be seen in both Panel A and B in Table 5.5, none of the alphas are significantly different from 0 in all respective regressions. In addition, big market cap companies with high ESG scores have a higher risk premium than big market cap companies with low ESG scores. However, when looking at value-weighted, we find that the long-short position is negatively exposed to the market with statistically significant betas. The reason is due to portfolio Laggard having higher exposure towards the market factor than portfolio Star. Having a short position in portfolio Laggard and long in portfolio Star in this strategy causes a negative risk premium from the market factor and if you assume a bullish market, this position gives a negative expected return.

Similarly to the findings obtained from main analysis discussed above, the three portfolios Star, Average and Laggard have abnormal returns that the risk factors are unable to explain when applying the new criteria for ESG score thresholds. This is evidenced with alphas that are significantly different from 0 after adjusting for the risk factors as shown in both Panel A and Panel B of Table 5.5. An exception from this is the equally-weighted portfolio Star as it can be seen in Panel A of Table 5.5, which we discuss further below. Furthermore, we also find that the exposure to the risk factors for respective portfolios follows similar pattern as discussed previously. For instance, equally-weighted portfolio Star is significantly negatively exposed to the SMB factor, whilst portfolio Laggard is significantly negatively exposed to the HML factor. This holds true for both equally- and value-weighted portfolios respectively. This confirms with previous results discussed in Sub-section 5.3, where we likewise find portfolio Star to be tilted towards big market cap companies and portfolio Laggard towards growth stocks.

However, a difference from main regression one can detect concerns the market factor betas for value-weighted portfolio Laggard which are higher than 1 as shown in Panel B of Table 5.5. This indicates that the value-weighted portfolio Laggard is not underexposed to the market portfolio as we find previously and its returns are more sensitive to the fluctuations in market returns.

Furthermore, as it can be seen in Panel A of Table 5.5, the portfolio Star has alphas that are not significantly different from 0 when applying both Fama-French and Carhart models. Based on these findings, portfolio Star does not yield any abnormal return. This contradicts with findings in Panel A of Table 5.3, where equally-weighted portfolio Star has abnormal return in both regressions. However, portfolio Star's exposure to the risk factors is similar with both criteria for ESG thresholds. When investigating the alphas more closely, they are of similar magnitude as previously in Panel A of Table 5.3. T statistics, however, is lower when comparing Panel A of Table 5.5 and Panel A of Table 5.3. This means that the change in ESG score thresholds has reduced the diversification of portfolio Star, where returns in the portfolio vary greatly, driving up the standard errors and makes the alphas statistically insignificant.

Furthermore, unlike the results from main analysis, in value-weighted portfolio Laggard, the SMB factor is significantly negative. When looking at the SMB factor betas overall, one can see that both high and low rated ESG companies are tilted towards big market cap companies, which indicates that this is a general trend in all portfolios. However, the previous finding that high ESG big market cap companies have a higher risk premium than low ESG big market cap companies still holds when looking at Panel B of Table 5.5 with statistically significant SMB factor beta in Star-Laggard strategy. This is due to receiving a higher risk premium from exposure to big market cap companies in portfolio Star.

Despite the differences outlined above, the overall results regarding performance do not change to a large degree with the new criteria. This holds particularly true for the long-short investment strategy, as the conclusion remains unchanged. Therefore, the robustness test indicates that the results found in Sub-section 5.3 are robust to a change in ESG score thresholds used for assigning companies into respective portfolios. We now turn to discussing limitations of this empirical analysis.

## 5.4 Limitations

Firstly, one potential limitation of the main analysis is concerned with the reliance on Sustainalytics' ESG framework and methodology in the empirical analysis of performance.

Doyle (2018) argues that there exist inconsistency between ESG rating agencies with regards to individual companies not receiving comparable scores across different rating agencies. Thus, there is a lack of agreement in the ESG frameworks. This has been attributed to a lack of uniformity of rating scales, criteria and objectives (Doyle, 2018). For instance, (Doyle, 2018) reports that there is a weak correlation between MSCI and Sustainalytics ratings for companies in the S&P Global 1200 Index. This implies that despite rating the same universe of stocks on their sustainability performance, the companies receive differing ESG ratings. Therefore, we postulate that if data from another ESG rating service provider for the same universe of companies (i.e. MSCI World Index) is used, the findings and conclusions inferred from the analysis could potentially be different. This is because the companies that are classified high or low ESG based on Sustainalytics ESG framework could be potentially different from those that are classified as high or low when relying on another ESG rating agency's ESG framework despite the same universe of companies. Given that we do not have access to data from other rating agencies such as MSCI for the period of 2014 to 2019, we are unable to test whether the results obtained from the main analysis are robust when relying on a different ESG rating service provider and their framework. However, it is worth noting that Sustainalytics is the most widely used ESG rating agency in the industry.

Furthermore, another potential limitation is concerned with not taking into account transaction costs in the analysis. The underlying assumption in the analysis is that the portfolios are rebalanced on monthly basis. In reality, this would entail frequent trading activity and hence high transaction costs. Potentially, in order to achieve these abnormal returns evidenced with nonzero statistically significant alphas, an investor would need to trade a lot. Therefore, if the positive alphas found in main analysis would be adjusted for transaction costs, they could potentially be lower. Doing this adjustment is outside the scope of this master thesis. However, as shown in Figure 5.3, on average basis the ESG scores are relatively stable over the period of 2014-2019. Thus, despite the assumption of monthly rebalancing, in reality companies' ESG scores do not change to a large magnitude and, therefore, they do not move frequently out from the portfolio. Furthermore, it is also worth mentioning that we find the statistically significant alphas on all of the portfolios throughout the regressions to be of concern. These findings are surprising as they indicate abnormal return that the risk factors are unable to explain. However, these statistically

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significant alphas should be taken with a grain of salt as the results may be due to the use of 1-month U.S. t-bill as the proxy for the risk-free rate in calculations of excess return for each portfolio.

Lastly, despite not being a limitation, it is important to note that the time-period the our empirical analysis is done (i.e. 2014-2019) represents a period of expansions in the financial markets. This means that high and low ESG companies may perform differently in the stock markets in other economic cycles. We followingly turn to study on investor motives.

## 6 Study on Investor Motives

In this section, we turn our focus on the study on investor motives to invest in RI. In order to conduct this study, we develop and conduct a survey for this master thesis. Therefore, we first outline details regarding how the survey is constructed. Followingly, statistical techniques used in the survey analysis as well as screening and cleaning of survey data is outlined. Thereafter, we present and discuss findings from survey study. This section ends with discussing limitations concerning this research study.

### 6.1 Survey Design

The survey developed for this master thesis is built upon prior research discussed in Section 3 as well as expert advice from Nordea. More specifically, the survey questionnaire is based on studies by Døskeland and Pedersen (2016, 2019), Riedl and Smeets (2017) and Webley et al. (2001). Inspiration has also been drawn from Nagy and Obenberger (1994) who study factors that influence investor decisions. The primary objective of the survey is to identify investors' motives to invest responsibly. We aim to explore whether there are any differences between those investors who invest in RI and those investors who do not. Similarly to Døskeland and Pedersen (2016), we utilise a model of utility devised by Levitt and List (2007) in the survey questionnaire. We aim to capture the variables specified in the model in responses from participants. Levitt and List (2007) outline that an individual  $i$  is faced with a choice of a single action  $a$  when maximising utility. The choice of action  $a$  affects the utility through two channels: the first effect is on the individual's wealth (denoted  $W_i$ ) and the second is on the non-pecuniary moral cost or benefit (denoted  $M_i$ ) that is associated with the action  $a$  (Levitt and List, 2007). Utility can, therefore, be separated into moral and wealth components (Equation 6.1, Levitt and List, 2007, p. 157).

$$U_i(a, v, n, s) = W_i(a, v) + M_i(a, v, n, s) \tag{6.1}$$

Where:

- $U_i$  stands for the utility of individual  $i$
- $W_i$  for wealth benefits that depend on the choice of action  $a$  and stakes  $v$
- $M_i$  for moral benefits and costs which are also dependent on the choice of action  $a$ , stakes  $v$  as well as on social norms (denoted  $n$ ) for or against the action
- $s$  is the extent to which the action is scrutinized that affects the moral benefits and costs (denoted  $M_i$ )

Wealth concerns in the context of RI refer to “the individual’s tendency to be motivated by the highest possible risk-adjusted financial return” (Døskeland and Pedersen, 2016, p. 1632). On the other hand, moral concerns are concerned with “the individual’s tendency to be motivated by attaining moral benefits or avoiding moral costs” (Døskeland and Pedersen, 2016, p. 1632). For instance, these could be status concerns, the ability to help others and the ability to act according to one’s beliefs and values. Given the dual nature of RI, Levitt and List (2007) model of utility is well-suited to study the motives of investors to invest responsibly as it combines both financial and moral objectives.

In terms of this master thesis, a flow chart outlining the overall logic of the constructed survey can be found in Appendix A3. Furthermore, the survey questionnaire can be found in the Appendix A4. Followingly, we briefly outline some of the most important questions and variables. Note that we do not elaborate on how each individual question of the survey is constructed.

The survey firstly investigates the importance of financial and non-financial factors in investment decisions, similarly to Nagy and Obenberger (1994) (Question 4 in Appendix A4). We take point of departure from ESG considerations with respect to non-financial factors. This means that we disband each of the ESG factors individually. The objective of this question is to examine whether responsible and conventional investors differ in terms of which factors are important in their investment decisions.

Furthermore, we study wealth and moral concerns of responsible investors through respondents’ answers to two different statements: "My decision to invest responsibly was mainly driven by perceived good financial performance of responsible investments" and

"My decision to invest responsibly was mainly driven by wanting to contribute positively to the society and environment" respectively (Question 7.2.2. in Appendix A4). The variables are named Financial Performance and Concern for Environment and Society accordingly. The objective is to examine which of these concerns drives investment decisions in RI. These and other survey variables are explained in more detail in Appendix A5.

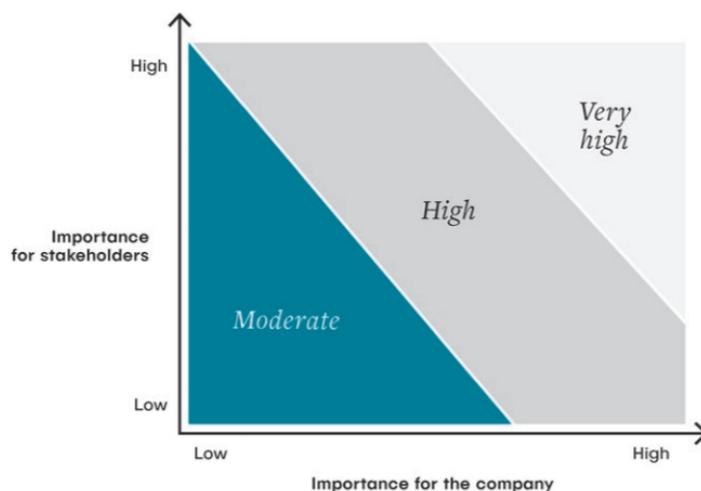
However, it is worth to mention that the survey specifically zooms into the morality component of Levitt and List (2007) model of utility. Here point of departure is taken from Døskeland and Pedersen (2016) recommended future research advice. Therefore, we disband moral concerns into descriptive and injunctive norms. The former refers to perceptions of others' behaviour and the latter is concerned with perceptions of which behaviours are typically approved by others or society in general (Burger, 2001). These two variables are further explained in Appendix A5.

Moreover, we utilise two questions from Riedl and Smeets (2017) study with respect to eliciting return expectations and risk perceptions on RI relative to conventional investments. The aim is to understand whether responsible investors hold, for instance, more positive performance expectations that could help to explain their investment behaviour (Riedl and Smeets, 2017). We also deploy two scenario questions from Webley et al. (2001) to investigate how responsible and conventional investors would respond to poor performance of RI and conventional investment respectively (Questions 7.1.4. and 7.2.3. in Appendix A4).

Additionally, the survey also aims to identify which ESG sub-categories are important to investors with respect to energy sector. The aim here is to capture the materiality concept that is shown in Figure 6.1. It outlines that companies should prioritise their sustainability efforts on those issues that are material, meaning important for the core business from a stakeholder perspective. The efforts on material ESG issues not only influences customer decisions (i.e. demand), but also investors' choices to invest in companies as sustainability performance is increasingly used as a proxy for potential risks (Unruh et al., 2016). The focus on energy sector is due to material issues being sector-specific. We initially aimed to compare what investors think is an important ESG issue (results from survey) with the scores companies in the energy sector have on that sub-category of ESG. Potentially, if there is discrepancy between the two, it can result in up- or downgrading of the company

with respect to ESG rating. However, we did not receive access to data that could allow us to study sub-categories of ESG. Despite, we report the findings from the survey in Appendix A6.

**Figure 6.1:** Materiality Matrix. (Jørgensen and Pedersen, 2018, p.142).



The survey developed for this master thesis is cross-sectional as we study investors' responses at a particular moment in time (Saunders et al., 2016). In terms of response format, we mainly employ 7-point Likert scales and items in the questionnaire. Likert scale is a psychometric scale intended to measure attitudes and opinions through respondents' responses on an ordinal scale to a series of statements (Corbetta, 2003).<sup>13</sup> The use of 7-point over 5-point scale is motivated by Finstad (2010) whose study shows that 7-point Likert items give a more accurate measure of a participant's true evaluation. Finstad (2010) argues that with 5-point scale participants are more prone to interpolate which refers to responding between two discrete values presented to them. Finstad (2010) also points out that the 7-point scale is more suitable for electronically distributed questionnaires. For all of the above reasons, we deem 7-point Likert scale to be appropriate response format to use. Furthermore, the survey also contains multiple response questions in which respondents can select more than one option.

The survey was conducted among Nordea Liv clients electronically via email. This means that the distribution of the survey to respondents, technical implementations and collection of results has been conducted by Nordea Liv. However, prior to the launch

<sup>13</sup>Likert item, however, refers to a single statement or a question (Uebersax, 2006). See Corbetta (2003) and Uebersax (2006) for further information on Likert scales and items.

of the survey, we conducted two pilot tests of the survey. In the first pilot test, English version of the survey was distributed electronically and a total of 48 people participated. Furthermore, we also solicited feedback on the questionnaire from three experts at Nordea. The combined aim of the first pilot testing and expert reviews is to reduce biases in the survey, to test whether the questions measure the variables they are aimed to measure (i.e. to ensure construct validity) as well as to optimise the wording. We follow Pallant (2010) guidelines in terms of wording of questions wherein we avoid, for instance, leading questions, emotionally loaded words, words with double meanings<sup>14</sup>. The final version of the survey consists of 16 main questions with additional filtering questions (Appendix A4). The latter entails that we deploy routing of respondents in the survey. This means that respondents receive relevant questions to them depending on whether or not they have invested in RI. Therefore, the routing is done based on answers in Question 7 in Appendix A4. Furthermore, the order of options within questions that do not require Likert scales is randomized to avoid biases in responses. Followingly, given that we conduct the survey among Nordea Liv customers in Norway, we deem it to be important to translate the survey into Norwegian. The Norwegian version of the survey can be found in Appendix A8. In order to reduce losses in the content that can result from the translation process, the Norwegian version of the questionnaire was proof-read as well as a second pilot test was conducted in which 21 people participated.

The survey was launched on 12th of April 2019. Given that this survey's objective is to explore the motives of individual investors, the population of the survey constitutes of individual investors that are clients of Nordea Liv. Therefore, we exclude institutional investors from the survey study. A total of 4100 Nordea Liv's clients and employees were randomly selected to receive an invitation via email to participate in the survey, constituting the total sample of the survey.<sup>15</sup> The sample includes both those individual investors who have invested in RI as well as those who have not invested. A 50% division was employed which means that 1940 clients who have invested responsibly as well as 1940 clients who have not comprise the total sample of the survey together with 220 Nordea's employees. This means that a stratified random sampling technique is deployed for the sample of this survey. Stratified random sampling is a method of random sampling in

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<sup>14</sup>See Pallant (2010) for further information on guidelines.

<sup>15</sup>See Appendices A7 and A9 for the email sent to potential respondents.

which the population is divided into two or more strata based on one attribute or more (Saunders et al., 2016). The reason for using this technique is that the main aim of this survey is to explore why investors invest in RI and, therefore, it is important to ensure that those customers who have invested responsibly participate in the survey. Thus, the total sample of this survey has been divided into two discrete subsets or strata of individual investors based on whether or not they have invested in RI. The latter is the stratification variable used for the survey. The aim of using this probability sampling technique is to select the sample without bias and, therefore, ensure the generalisability of findings (Saunders et al., 2016).

Lastly, participation in the survey was completely voluntary but incentivised with a gift card of 500 NOK. The survey was closed on 25th of April 2019. We received 551 responses with a response rate of 13%. The response rate is comparable to other electronically conducted surveys. For instance, Saunders et al. (2016) outline that web-based surveys typically have a 10% or even lower response rate. We now turn to discussing statistical techniques used in the survey study.

## 6.2 Statistical Techniques

In this master thesis, we employ both parametric and non-parametric statistical techniques to analyse survey data. The reason is that both of these statistical techniques have underlying assumptions that need to be borne in mind. The choice of statistical techniques depends on whether variables being analysed are categorical or continuous. Note that variables with 7-point Likert scales are treated as continuous (i.e. interval data) in the analysis.<sup>16</sup>

We adopt independent-samples t-test to compare the differences between conventional and responsible investors on questions with Likert scales or Likert-type scales. However, independent samples t-test is a parametric technique with several assumptions such as random sampling, independence of observations, normally distributed data, homogeneity of variance and level of measurement (Pallant, 2010).

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<sup>16</sup>We acknowledge that there is a debate in academia whether Likert scales can be treated as categorical (ordinal) or continuous (interval). We follow Carifio and Perla (2008) and Norman (2010) who outline that Likert response format produces empirically interval data and that parametric statistical techniques are robust to violations of assumptions when treating Likert scales as continuous.

With regards to the first assumption, random sampling is used in survey in terms of potential respondents. With respect to independence of observations, it refers to each observation not being influenced by any other observations (Pallant, 2010). The survey in question is not conducted in a group setting, where one respondent could interact with another. Therefore, we are confident that observations are independent from each other given the way the survey is administered. In terms of normal distribution, we test whether this assumption holds for the collected data via measuring skewness and kurtosis of continuous variables. If the scores for skewness and kurtosis lie between -2 and 2, the data may be considered normally distributed (Tabachnick and Fidell, 2014). We find that this holds true to a large degree except for variables Expected Stock Market Performance and Firm's Involvement in Governance Scandals that have higher than 2 kurtosis values (Appendix A10). However, given that this concerns two variables and that the sample size is relatively large ( $N=551$ ), the violation of this assumption is argued not to be problematic for analysis (Pallant, 2010). With respect to homogeneity of variance, it refers to variability of scores for each of the groups being similar (Pallant, 2010). With regards to this, all results reported from independent samples t-test in this master thesis take into considerations the results from Leven's test in SPSS programme. This means that if the p-value in Leven's test is higher than significance level of 5%, we report t-test p-values with equal variance assumed. Otherwise, we report p-values with equal variance not assumed.

We also employ non-parametric statistical techniques, namely chi-square test for independence and Mann-Whitney U tests. As Pallant (2010) outlines, non-parametric techniques are best-suited when this data is categorical. Chi-square test for independence is utilised to explore the relationship between gender and category of investors (responsible, conventional). Furthermore, we conduct Mann-Whitney U-tests to check whether the results from independent samples t-test are robust. The reason is that the dependent variable in t-tests is assumed to be continuous, which, however, is categorical in this survey. More specifically, we measure whether a respondent is responsible or conventional investor through "Yes" or "No" answer to the question "Have you invested in sustainable investment products such as Star funds or green funds in the past 5 years?" (Question 7 in Appendix A4). Based on this variable we divide the respondents into two independent groups (i.e. responsible and conventional investors) where each respondent only appears

in one of them. We followingly outline choices made in the cleaning of survey raw data.

### 6.3 Data Screening and Cleaning

Before conducting an analysis on the survey data, we check for potential errors in the raw data. The aim is to check the accuracy of input data for statistical analysis. We find that minimum and maximum values of respondents' answers are within possible range of values for questions. However, we also check for missing cases in the data and find that 1% of answers to gender question and around 6% of answers to age question are missing as it can be seen in Table 6.1.

**Table 6.1:** Case Processing Summary.

The table illustrates results from SPSS Case Summaries function. We only illustrate the variables with more than 1% of missing cases in the raw data.

	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Gender	545	98,9%	6	1,1%	551	100%
Age	517	93,8%	34	6,2%	551	100%

These missing values are due to respondents skipping to answer the aforementioned questions as they were not compulsory. Tabachnick and Fidell (2014) outline that if only few cases have missing data (around 5%) and they are missing at random, deletion is a good alternative. Therefore, we conduct a Missing Value Analysis to investigate the pattern of missing data. We find that the Little's Missing Completely At Random (MCAR) test gives a p-value of 0,257. Tabachnick and Fidell (2014) outline that MCAR may be inferred when the probability of the pattern of missing data diverges from randomness is greater than an alpha of 0,05 (Tabachnick and Fidell, 2014, p. 97). Given that the p-value is not significant at 5% level, the missing data may be assumed to be MCAR (Garson, 2015; Tabachnick and Fidell, 2014). Therefore, these missing cases have been listwise deleted. This deletion aids conducting the analyses on the differences between conventional and responsible investors as it results in a complete data set without distorted total numbers for age and gender. The final data set consists of 516 observations from 551 observations in raw data. Followingly, we turn to presenting results from the survey study.

## 6.4 Analysis

The primary objective of this analysis is to shed light on investor motives to invest in RI. This is particularly interesting in the light of findings discussed in Sub-section 5.3, where the evidence points to no significant difference in risk-adjusted historical performance between highly rated and low rated ESG companies. Therefore, given that investors do not lose money when investing responsibly, why do some investors invest in RI and others do not remains open for investigation. Thus, we investigate whether there are significant differences between conventional and responsible investors. In the following paragraphs, we first outline descriptive statistics of survey sample. Thereafter, we present further results from statistical comparative analyses between responsible and conventional investors. Note that we do not present all results from each individual question in the survey as the focus is on presenting findings most closely related to the research question.

### 6.4.1 Descriptive Statistics

Table 6.3 provides descriptive statistics of the sample as well as further separating responsible and conventional investors. The sample consists of respondents who took part in the survey. Note that we also outline available information with regards to the total population which represents all individual investors that are clients of Nordea. This aids to detect whether the survey sample is representative of the total population (Table 6.2).

**Table 6.2:** Survey Sample and Total Population.

	Percent of Females	Mean Age
Total Sample	35,50%	50
Total Population	35%	44

As Table 6.2 illustrates, there are 35,5% of females in the total sample of 516 respondents and the average respondent is 50 years old. When comparing the total sample with the characteristics of the total population, it appears that the survey sample is slightly older but the share of females is similar. Therefore, one can argue that the survey sample is fairly representative of the total population.

**Table 6.3:** Descriptive Statistics of Survey Sample.

The table presents descriptive statistics of the sample. We divide the respondents into responsible and conventional investors when they answer "Yes" or "No" respectively to the question "Have you invested in sustainable investment products such as Star funds or green funds in the past 5 years?" in the survey. We present the number of respondents in each group with respective percentage shares of total sample. We also report the percentage share of women and mean values for age.

Note that we report statistical results for the difference in the share of female between responsible and conventional investors based on chi-square test for independence. We also report statistical results for the difference in mean age based on independent samples t-test. These results are reported in parenthesis.

	N	Percent of Sample	Percent of Female	Mean Age
Responsible Investors	220	42,6%	36,8%	48,5
			(p=0,0645)	(p=0,011)
Conventional Investors	296	57,4%	34,5%	51
			(p=0,0645)	(p=0,011)
Total Sample	516	100%	35.5%	50

As it can be seen in Table 6.3, 42.6% of all respondents can be categorised as responsible investors based on their answer in the survey. When compared with conventional investors, responsible investors are slightly more likely to be women (36,8% versus 34,5%) and the average responsible investors is slightly younger (48,5 versus 51 years). However, as Table 6.3 depicts, only the difference between mean age scores is significant at 5% level ( $\alpha = 0,05$ ). Based on these statistical results, we conclude that responsible investors are slightly younger than conventional investors. In terms of other socio-demographic variables, Figure 6.2 below illustrates the distribution of field of occupation for all investors.

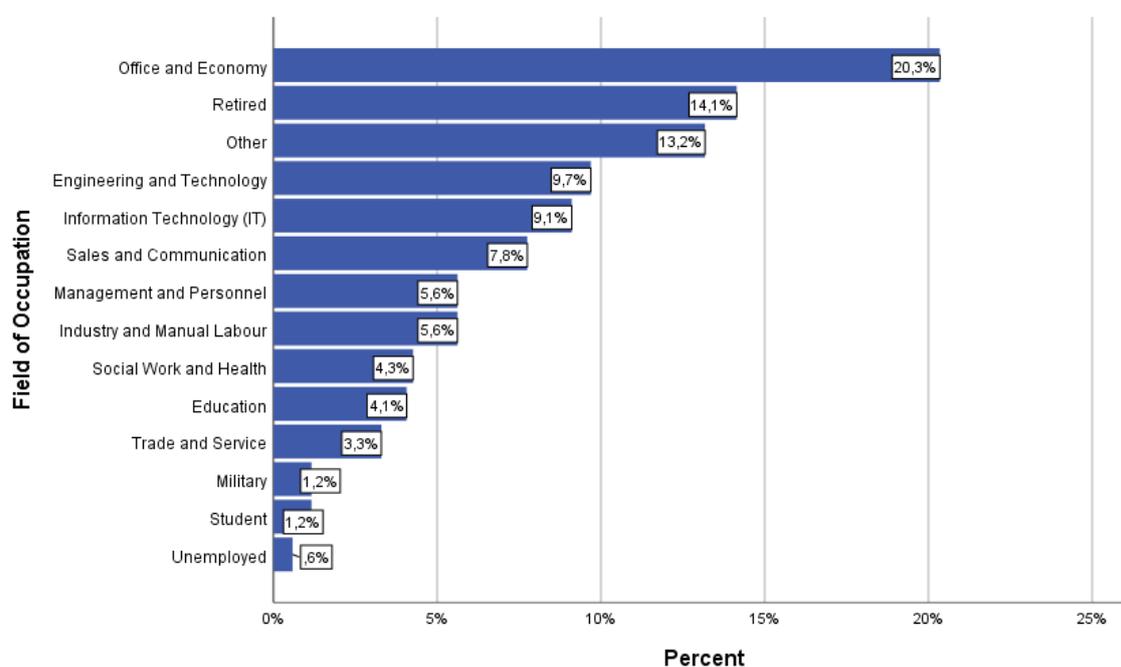
**Figure 6.2:** Field of Occupation (All Investors).

Figure 6.2 demonstrates that the most prominent field of occupation among the respondents is Office and Economy with 20.3% share. It is followed by retired individuals comprising 14.1% of all investors. In terms of differences between responsible and conventional investors with respect to a specific field of occupation, chi-square tests show not statistically significant results when comparing the two groups.<sup>17</sup> Therefore, these results will not be reported further. We now turn to analyse differences between responsible and conventional investors in more detail.

### 6.4.2 Comparative Analysis

To analyse financial and non-financial considerations in investment decisions, we ask respondents to rank factors based on importance to investment decisions (Question 4 in Appendix A4). This question was asked prior to giving any further information about responsible investments to respondents. It consists of both financial as well as ESG factors individually. The main objective is to examine if there are significant differences between what factors responsible investors and conventional investors consider important

<sup>17</sup>We conduct chi-square tests for independence on each individual field of occupation to compare the differences between conventional and responsible investors. Dummy variables were created where value 1 was assigned to respondents who hold the specific field of occupation and 0 otherwise.

in their investment decisions. Table 6.4 depicts results from independent samples t-tests to examine if there are significant differences in the mean scores for the two groups on each individual factor. Note that  $\bar{x}$  in Table 6.4 stands for mean score while  $\tilde{x}$  represents median score. Other abbreviations are explained in table notes of Table 6.4.

**Table 6.4:** Factors in Investment Decisions.

The table presents results from independent samples t-tests. We report mean and median scores for each individual factor separately for responsible and conventional investors (Question 4 in Appendix A8). The mean score is denoted with  $\bar{x}$  while median score with  $\tilde{x}$ . We also report Standard Deviations (SD), the number of observations (N) as well as two-tailed p-values (Sig. (2-tailed)). Note that the number of observation for each of the groups corresponds to the number of responsible and conventional investors in the sample as this question was compulsory to answer.

	Responsible Investors				Conventional Investors				Mean Difference	Sig. (2-tailed)	Std. Error Difference
	$\bar{x}$	$\tilde{x}$	SD	N	$\bar{x}$	$\tilde{x}$	SD	N			
Expected Return	5.90	6	0.767	220	5.78	6	0.818	296	0.128	0.070	0.070
Risk	5.30	5	1.029	220	5.30	5	0.939	296	-0.002	0.983	0.087
Diversification	4.97	5	1.130	220	4.69	5	1.050	296	0.284	0.003***	0.097
Historic Performance of a Stock/Portfolio	4.92	5	1.061	220	4.88	5	1.027	296	0.036	0.695	0.093
Expected Stock Market Performance	5.55	6	0.784	220	5.49	6	0.946	296	0.052	0.494	0.078
Firm's Carbon Emissions and Pollution	4.65	5	1.481	220	4.19	4	1.500	296	0.456	0.001***	0.133
Firm's Use of Natural Resources	4.98	5	1.390	220	4.51	5	1.440	296	0.464	0.000***	0.126
Firm's Involvement in Environmental Controversies	5.23	5	1.376	220	4.75	5	1.430	296	0.477	0.000***	0.125
Firm's Treatment of Stakeholders	5.45	6	1.073	220	5.30	5	1.167	296	0.148	0.141	0.100
Firm's Involvement in Social Scandals	5.95	6	1.074	220	5.72	6	1.224	296	0.230	0.024**	0.101
Firm's Governance Practices	4.96	5	1.304	220	4.85	5	1.418	296	0.108	0.376	0.122
Firm's Involvement in Governance Scandals	5.85	6	1.037	220	5.63	6	1.300	296	0.223	0.031**	0.103

*t* statistics in parentheses

\*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

As it can be seen in Table 6.4, expected return is the most important financial factor in investment decisions. This finding confirms with Nagy and Obenberger (1994), who find traditional wealth-maximisation criteria to rank as significantly influential in investment decisions. Both responsible ( $\bar{x}=5,9$ ) and conventional investors ( $\bar{x}=5,78$ ) have a relatively high mean score on a 7-point Likert scale, indicating high importance of expected return

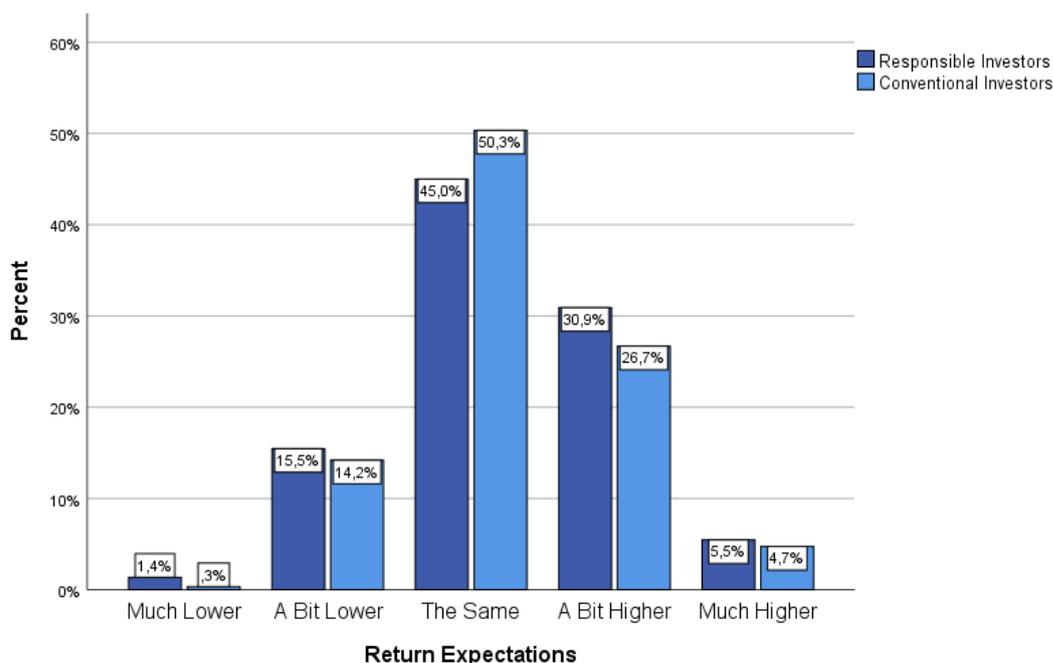
in investment decisions. Despite responsible investors having a slightly higher mean score, the difference between the mean scores for the two groups is not significant at 5% level. This indicates that responsible and conventional investors are not different with regards to importance of expected return in investment decisions. From other financial factors, there is a statistically significant difference ( $p < 0,01$ ) in the mean scores for conventional investors ( $\bar{x} = 4,69$ ) and responsible investors ( $\bar{x} = 4,97$ ) with respect to diversification. This demonstrates that diversification is a more important factor in investment decisions for responsible investors than for conventional investors. In terms of other factors, the mean score on the variable Firm's Carbon Emissions and Pollution is significantly greater ( $p < 0,01$ ) for responsible investors ( $\bar{x} = 4,65$ ) than the mean score for conventional investors ( $\bar{x} = 4,19$ ). Similar results also hold true for factors such as Firm's Use of Natural Resources and Firm's Involvement in Environmental Controversies ( $p < 0,01$ ).

Taken together, this indicates that environmental considerations are more important for responsible investors than for conventional investors in investment decisions. Responsible investors also consider Firm's Involvement in Social Scandals and Firm's Involvement in Governance Scandals more important than conventional investors. The differences in the mean scores for both of these variables are statistically significant between the two groups ( $p < 0,05$ ). Overall, as Table 6.4 illustrate, the most important factor for responsible investors in investment decisions based on mean scores is firm's involvement in social scandals such as child labour ( $\bar{x} = 5,95$ ). For conventional investors, the most important factor is expected return with a mean score of 5,78. However, with regards to the latter the difference in the mean scores for responsible and conventional investors is not statistically significant as discussed earlier. Therefore, we find that both groups of investors are not different in importance of expected return to investment decisions.

To further investigate the motives to invest in RI, we evoke return expectations and risk perceptions with respect to RI when compared to conventional investments, similarly to Riedl and Smeets (2017). The aim is to analyse whether responsible investors hold more positive beliefs regarding RI than do conventional investors which could help to explain their decisions to invest responsibly (Figure 6.3 and Figure 6.4).

**Figure 6.3:** Return Expectations on RI.

The figure depicts the distribution of return expectations on RI separately for responsible and conventional investors. The bars illustrate investor responses on to the statement "I expect that the returns of responsible investments compared to conventional investments are". Note that the item "Do Not Know" is excluded from the figure. 1.8% and 3.7% of responsible and conventional investors respectively selected this category.



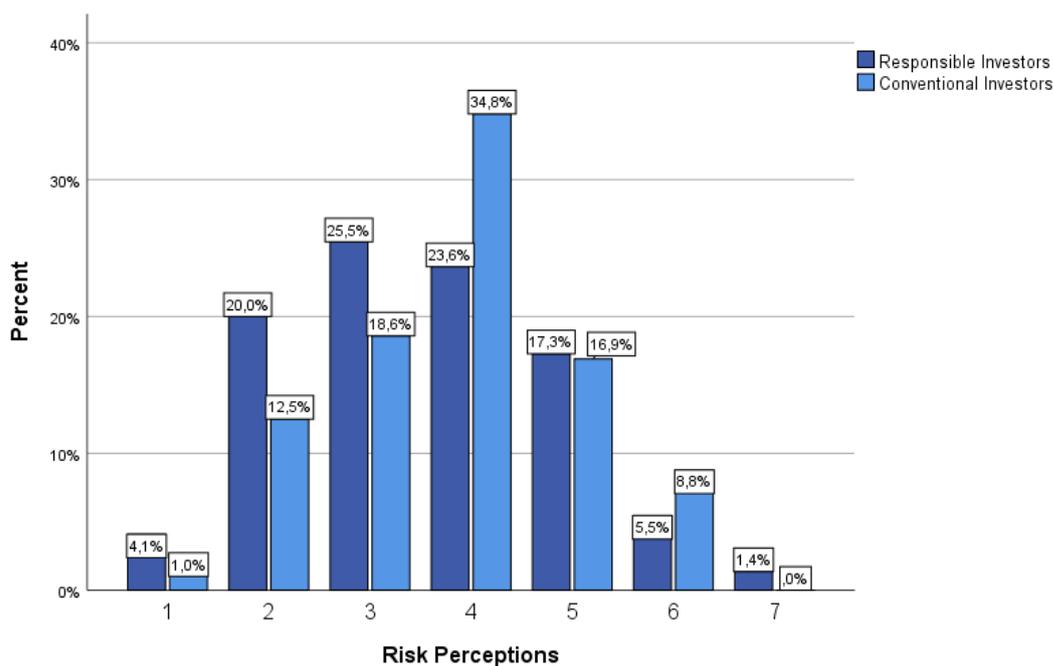
As it can be seen in Figure 6.3, around 50% of conventional and 45% of responsible investors expect the returns on RI to be the same as on conventional investments. This indicates that most investors have rather conservative return expectations on RI. Furthermore, Figure 6.3 also shows that investors in general are more optimistic than pessimistic in terms of performance of RI. Around 31% and 36% of conventional and responsible investors respectively expect a bit or much higher returns on RI than on conventional investments. In comparison, around 15% and 17% of conventional and responsible investors respectively expect lower returns on RI. Riedl and Smeets (2017), however, find investors to be somewhat pessimistic in terms of returns on RI. They report that only 16.5% of responsible and 14.5% of conventional investors expect higher returns on RI funds than on conventional funds (Riedl and Smeets, 2017, p. 22). Interestingly, as Figure 6.3 demonstrates responsible investors are somewhat more pessimistic in terms of returns on RI than conventional investors. Approximately 17% of responsible investors expect to earn lower returns on RI in contrast with 15% of conventional investors. This contradicts with

Riedl and Smeets (2017), who find that responsible investors are slight less pessimistic with regards to returns on RI than conventional investors. However, the difference in the distributions of return expectations between responsible and conventional investors is not significant (Kolmogorov-Smirnov test,  $p=1.00$ ). This means that both responsible and conventional investors have similar return expectations on RI. Riedl and Smeets (2017, p. 22), however, find the difference to be marginally significant (Kolmogorov-Smirnov test,  $p=0.054$ ). We followingly investigate risk perceptions on RI when compared to conventional investments (Figure 6.4).

**Figure 6.4:** Risk Perceptions on RI.

The figure depicts the distribution of risk perceptions on RI separately for responsible and conventional investors. The bars illustrate investor responses to the statement "Responsible investments are more risky than conventional investments".

X-axis depicts 7-point Likert scale where 1 corresponds to "Strongly Disagree", 2 to "Disagree", 3 to "Somewhat Disagree", 4 to "Neutral", 5 to "Somewhat Agree", 6 to "Agree" and 7 to "Strongly Agree". Note that the item "Do Not Know" has been excluded from the figure. 2.7% and 7.4% of responsible and conventional investors respectively selected this category.

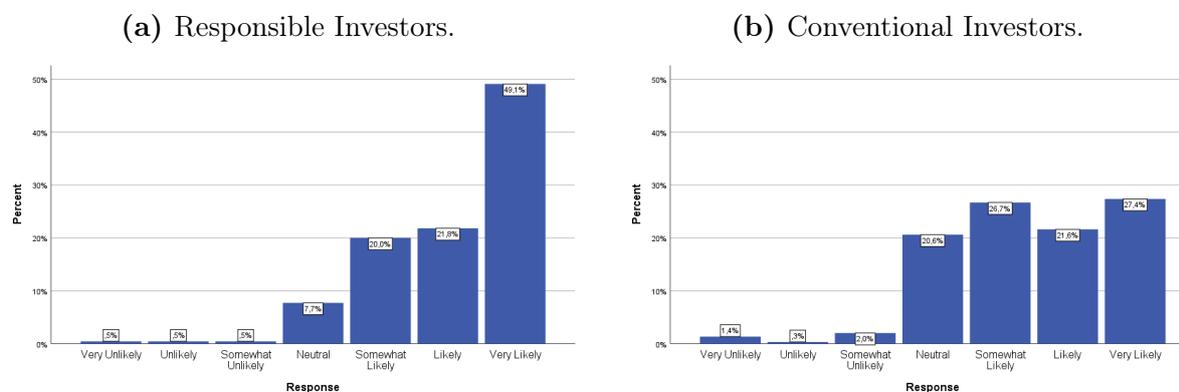


Findings in Figure 6.4 show that responsible and conventional investors have different risk perceptions on RI. Around 50% of responsible investors disagree with the statement that RI is more risky than conventional investments compared with 32% of conventional investors. This indicates that responsible investors perceive RI to be less risky than

conventional investments and could also explain the result in Table 6.4, where diversification is found to be more important factor in investment decisions for responsible than for conventional investors. Therefore, responsible investors may potentially invest responsibly for diversification purposes. At the same time, relatively significant proportion of responsible investors are somewhat conservative in terms of risk as around 35% of them believe the risk to be the same on RI as on conventional investments. Furthermore, as Figure 6.4 illustrates, around 24% and 26% of responsible and conventional investors respectively believe RI is more risky than conventional investments. This suggests that slightly more conventional investors perceive RI to be more risky than do responsible investors. The difference in the distributions of risk perceptions between responsible and conventional investors is significant (Kolmogorov-Smirnov test,  $p=0,01$ ). This contradicts with findings in Riedl and Smeets (2017, p. 23), where responsible and conventional investors were found to have similar risk perceptions (Kolmogorov-Smirnov test,  $p=0.186$ ). We now turn to investigate respondents' answers to a scenario that measures the likelihood of investing in RI, when responsible and non-responsible or conventional investments are depicted to have no significant difference in historical returns (Question 10 in Appendix A4).

**Figure 6.5:** Scenario of No Return Differential.

The sub-figures illustrate the distribution of responsible and conventional investors' responses separately to the question "Consider two different investment opportunities: one investment is classified as responsible and the other as non-responsible. Historically, the responsible investment has given a return that is not significantly different from the non-responsible investment. Given this information, how likely are you to invest in the responsible investment opportunity?".



As Figure 6.5 depicts, approximately 91% of responsible investors compared to 76% of

conventional investors are likely to invest in RI when there is no difference in return between responsible and non-responsible investments. As discussed earlier, investors in the sample in general have rather conservative return expectations on RI. Therefore, it is not surprising that a significant proportion of both investors are likely to invest in RI when RI is depicted to give the same return historically as conventional investments. Importantly, however, there is a statistically significant difference for responsible ( $\bar{x}=6,08$ ) and conventional investors ( $\bar{x}=5,45$ ) with respect to the likelihood of investing in RI in this scenario (Table 6.6,  $p<0,01$ ). This indicates that responsible investors are more likely to invest in RI than conventional investors. Given that both groups of investors are not different with respect to neither the importance of expected return in investment decision nor return expectations on RI, it appears that there are other underlying drivers of responsible investment behaviour than pure financial motivation. However, this does not eliminate that responsible investors invest in RI to diversify their portfolios. As discussed earlier, diversification is a more important factor in investment decisions for responsible investors than for conventional investors. Therefore, to investigate further the underlying motives to invest in RI, we followingly analyse the reasons for investing and not investing in RI.

**Table 6.5:** Reasons for Investing and Not Investing in RI.

The table illustrates results in terms of responsible investors' reasons for investing and conventional investors' reasons for not investing in RI. These reasons are elicited through multiple response questions "If you did invest in sustainable investment products, why did you do so?" and "If you did not invest in sustainable investment products, why not?" respectively. These multiple response questions allow both investors to choose more than one option as there might be multiple reasons that apply.

Reasons for Investing in RI	Count	% of Responsible Investors
Contribute Positively to Society and Environment	139	63,2%
Moral Values	123	55,9%
Perceived Good Financial Performance of RI	74	33,6%
Diversification	60	27,3%
Recommended by Investment Advisor	46	20,9%
Perceived Low Risk of RI	10	4,5%
Reputational Reasons	3	1,4%
Reasons for Not Investing in RI	Count	% of Conventional Investors
Lack of Information	196	66,0%
Low Variety of RI Products/Options	52	17,5%
Responsible Investing is Not Important	34	11,4%
Perceived Low Financial Performance of RI	30	10,1%
Do Not Invest My Money	29	9,8%
Expensive Fees	18	6,1%
Perceived High Risk of RI	8	2,7%

N=220 and N=297 respectively.

As it can be seen in Table 6.5, the main reason for investing in RI is the option of wanting to contribute positively to the society and environment as around 63% of responsible investors select it. It is followed by moral values option with around 56% of responsible investors. Therefore, it seems like responsible investors are mainly driven to invest in RI by their concern for the environment and society as well as because of their moral values. The option of perceived good financial performance was selected by 33,6% of all responsible investors only. Furthermore, despite the results discussed above in terms of the majority of responsible investors holding the perception that RI is less risky, diversification is selected by 27,3% of responsible investors as the reason for investing in RI. Therefore, one could argue that diversification alone does not explain responsible investment behaviour. In terms of reasons for not investing in RI, approximately 66% of conventional investors outline lack of information about sustainable investment products and options. The results show that this was the main reason for not investing in RI. It is followed by low variety

of sustainable investment products and options with 17,5% of conventional investors selecting it. Despite conventional investors perceiving the risk on RI to be higher than on conventional investors, only 2,7% of them outline this as the reason for not investing in RI. Given these reasons for both investing and not investing in RI, we now turn to investigate the difference in mean scores on variables in Table 6.6 that could help to explain these reasons discussed above.

**Table 6.6:** Results from Independent Samples T-Tests.

The table presents results from independent samples t-tests. We report mean and median scores for different continuous variables separately for responsible and conventional investors. Note that the mean score is denoted with  $\bar{x}$  while median score with  $\tilde{x}$ . Furthermore, SD stands for Standard Deviation, N for the number of observations and Sig. (2-tailed) for two-tailed p-values. Note also that the differences in the number of observations stem from participants not answering all survey questions as well as from the exclusion "Do Not Know" item from the analysis.

	Responsible Investors				Conventional Investors				Mean Difference	Sig. (2-tailed)	Std. Error Difference
	$\bar{x}$	$\tilde{x}$	SD	N	$\bar{x}$	$\tilde{x}$	SD	N			
Concern for Sustainability in Investing	5.42	6	1.146	220	4.61	5	1.182	296	0.811	0.000***	0.104
Knowledge of RI	4.73	5	1.264	220	4.21	4	1.344	296	0.518	0.000***	0.117
Descriptive Norm	4.67	4	1.176	220	4.34	4	1.100	296	0.324	0.002***	0.102
Injunctive Norm	4.32	4	1.238	220	4.06	4	1.342	296	0.257	0.026**	0.116
Perceived Impact	5.49	6	1.551	220	5.04	5	1.466	296	0.447	0.001***	0.134
Trust in ESG Frameworks	4.83	5	1.109	220	4.49	4	1.080	296	0.337	0.001***	0.097
Return Expectations	3.24	3	0.834	216	3.22	3	0.767	285	0.020	0.784	0.072
Risk Perceptions	3.53	3	1.334	214	3.87	4	1.118	274	-0.336	0.004***	0.116
Scenario	6.08	6	1.107	220	5.45	5	1.283	296	0.629	0.000***	0.106

*t* statistics in parentheses

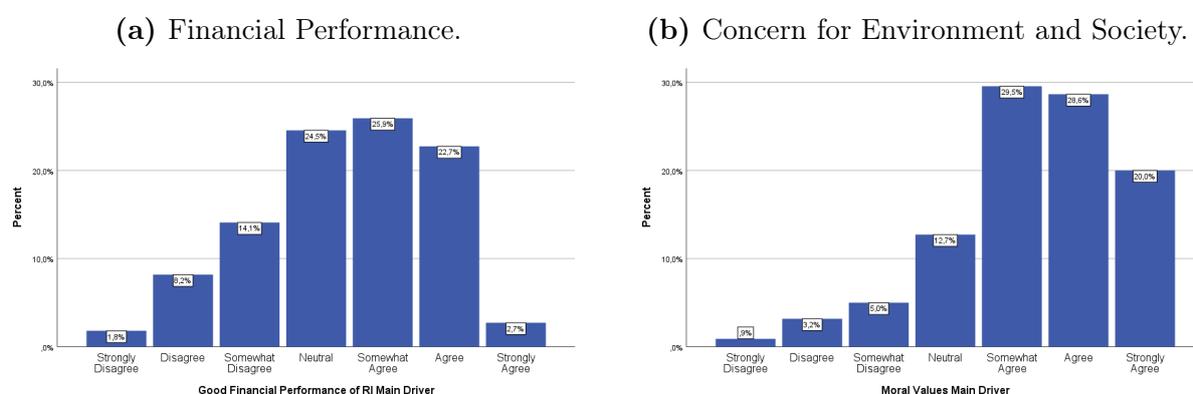
\*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

As discussed above, responsible investors appear to be driven to invest in RI for their concern for the environment and society and because of their moral values. Therefore, it is also unsurprising that there is a significant difference ( $p < 0.01$ ) in the mean score for responsible investors ( $\bar{x} = 5,42$ ) and conventional investors ( $\bar{x} = 4,61$ ) with respect to concern for sustainability in investing (Table 6.6). Moreover, we elicit investors' trust in ESG frameworks through a statement "I believe that frameworks, developed by financial institutions, which classify companies as sustainable or not are correct in terms of their evaluation of companies' business practices". As Table 6.6 shows, there is a statistically significant difference ( $p < 0.01$ ) in the mean scores for responsible ( $\bar{x} = 4,83$ ) and conventional investors ( $\bar{x} = 4,49$ ). Similar results hold true for the variable of Perceived Impact of RI

with regards to RI helping to reach the Paris Agreement (Question 13 in Appendix A4). The mean scores are 5,49 and 5,04 respectively for responsible and conventional investors ( $p < 0,01$ ). Therefore, one could argue that responsible investors' decisions to invest in RI could be moderated by both higher trust in ESG frameworks and positive beliefs in terms of the impact of RI. With respect to reasons for not investing in RI, the main reason is conventional investors' lack of information about sustainable investment products and options. This connects well with the results in terms of knowledge of RI that measures to what extent respondents agree with the statement "I have good knowledge of responsible investments". With regards to this variable, the results from statistical analysis show that there is a significant difference ( $p < 0.01$ ) in the mean scores for responsible ( $\bar{x} = 4,73$ ) and conventional investors ( $\bar{x} = 4,21$ ). Responsible investors rate their knowledge of RI higher than conventional investors. Therefore, there appears to be a knowledge gap for conventional investors that explains the reason for not investing in RI. However, to thoroughly investigate what drives responsible investors, we ask them to rate their agreement or disagreement with two statements aimed at more specifically evoking what drives their decisions to invest in RI (Figure 6.6).

**Figure 6.6:** Main Drivers of RI Investment Decisions.

The figure depicts the responsible investors' agreement and disagreement with two statements. Sub-figure 6.6a outlines distribution of responsible investors' responses to the statement "My decision to invest responsibly was mainly driven by perceived good financial performance of responsible investments". Sub-figure 6.6b outlines their responses to the statement "My decision to invest responsible was mainly driven by wanting to contribute positively to the society and environment". Question 7.2.2. in Appendix A4.



Sub-figure 6.6a illustrate that the around 51% of responsible investors agree and 24%

of disagree with the statement that perceived good financial performance was the main driver to invest in RI. The overall mean score ( $\bar{x}$ ) is 4,44. In comparison, around 71% of responsible investors agree and 9% of them disagree with the statement that concern for the environment and society was the main driver of investing in RI (Sub-figure 6.6b). The overall mean score ( $\bar{x}$ ) is 5,33. These results on these two statements indicate that responsible investors decision to invest in RI is mainly driven by moral values in terms of wanting to contribute positively to the society and environment. These results, however, should be taken with a grain of salt as around 25% of responsible investors select neutral category for the statement about financial performance being the main driver (Sub-figure 6.6a). Therefore, the lower mean score is driven by relatively significant proportion of responsible investors selecting the neutral category, making it difficult to infer what stance they have about financial motivation. However, these results do follow similar line with results discussed above such as the differences in the importance of factors that influence investment decisions. For instance, Firm's Use of Natural Resources is more important factor for responsible investors than is for conventional investors. This follows with the results discussed above that more than the majority of investors consider wanting to contribute positively to the society and environment as the main driver for investing in RI. Therefore, the moral element of responsible investing seems to drive these investment decisions. To compare the responsible investors' responses to these two different dimensions of Levitt and List (2007) model of utility (e.g. wealth and morality), we conduct paired samples t-test (Table 6.7).

**Table 6.7:** Results from Paired-Samples T-test.

The table illustrates results from paired-samples t-test. The paired-samples t-test is conducted to compare responsible investors' responses to two different statements that deploy the same 7-point Likert scale (Question 7.2.2. in Appendix A4). Note that mean represents mean difference, SD stands for Standard Deviation, t for test statistic, df for degrees of freedom and Sig. (2-tailed) for two-tailed p-values.

	Paired Differences							
	Mean	SD	Std. Error Mean	Lower Limit	Upper Limit	t	df	Sig. (2-tailed)
Concern for Environment and Society - Good Financial Performance of RI	0,891	2,062	0,139	0,617	1,165	6,408	219	0,000***

*t* statistics in parentheses

\*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

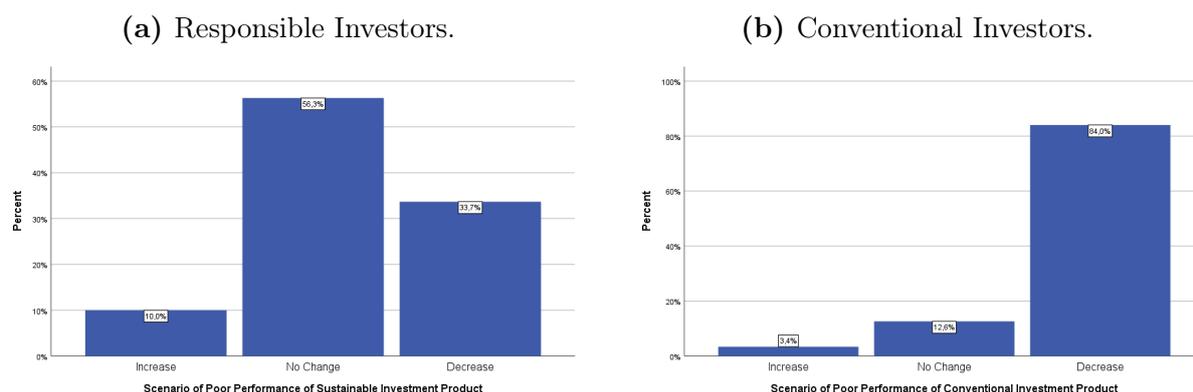
As it can be seen in Table 6.7, there is a significant difference ( $p < 0,01$ ) between responsible investor mean score ( $\bar{x} = 5,33$ ) for concern for environment and society as the main driver and mean score ( $\bar{x} = 4,44$ ) for financial performance being the main driver. The mean difference between these variables is 0,891. This means that responsible investors consider concern for environment and society higher than financial performance as the main driver for responsible investment behaviour. In order to further zoom in to the morality component in Levitt and List (2007) model of utility, we elicit responses to descriptive and injunctive norms.<sup>18</sup> The former investigates respondents' perception of others' behaviour and the latter captures respondents' perception of which behaviours are typically approved. As it can be seen in Table 6.6, there are statistically significant differences between responsible and conventional investors with respect to both of these variables ( $p < 0,01$  and  $p < 0,05$ ). Responsible investors perceive sustainability to be important among family and friends higher (i.e. descriptive norm,  $\bar{x} = 4,67$ ) as well as consider that their family and friends think better of them if they invest responsibly (i.e. injunctive norm,  $\bar{x} = 4,32$ ) than do conventional investors ( $\bar{x} = 4,34$  and  $\bar{x} = 4,06$  respectively). Taking these results together, there is evidence that there is a strong moral component to responsible investment decisions that is also evident in the higher scores for descriptive and injunctive norm for responsible investors. An interesting finding that supports moral values being the main driver concerns investors' responses to two different scenarios (Figure 6.7).

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<sup>18</sup>See Appendix A5 for the variable explanations.

**Figure 6.7:** Scenarios of Poor Performance.

The figure depicts distribution of respondents' answers to two scenarios. Sub-figure 6.7a outlines distribution of responsible investors' responses to the question "Consider a scenario: your sustainable investment product (e.g. green fund) is performing worse in terms of financial return relative to the other conventional investment product (e.g. index fund). Given this information, what kind of action would you take?" (Question 7.2.3 in Appendix A4). Sub-figure 6.7b outlines conventional investors' responses to a similar statement, but where conventional investment product is depicted to perform worse than sustainable investment product (Question 7.1.4. in Appendix A4).



We ask conventional investors to outline their choice of action in a scenario, where conventional investment product is depicted to perform worse in terms of financial return relative to sustainable investment product, similarly to Webley et al. (2001). The results from survey show that 84% of conventional investors select to decrease their investments in conventional investment product in the aforementioned scenario (Sub-figure 6.7b). Only 12,6% and 3,4% of conventional investors select no change and increase investments respectively. In comparison, a similar scenario was presented to responsible investors but here sustainable investment product was depicted to perform poorly relative to conventional investment product, similarly to Webley et al. (2001). As it can be seen in Sub-figure 6.7a, 56,3% of responsible investors choose not to change their investments in sustainable investment product with 10% selecting to increase their investments. 33,7% of responsible investments choose to decrease their investments. Taking the results from these two scenarios together, a significantly higher proportion of conventional investors choose to decrease their investments when compared to the proportion of responsible investors (84% vs 33,7% respectively). Also, a significantly higher proportion of responsible investors (56,3%) choose no change relative to 12,6% of conventional investors. This indicates that

ethical investors are more committed to their investments and choose to keep them despite the poor performance. These results confirm with Webley et al. (2001) who also find ethical investors to be devoted to their investments.

Overall, the findings from the survey study show no significant difference between responsible and conventional investors with respect to neither the importance of expected return in investment decisions nor return expectations on RI. However, there was a statistically significant difference between responsible and conventional investors with respect to the likelihood of investing in RI when RI is depicted to give the same historical return as conventional investments. Responsible investors are more likely than conventional investors to invest in RI when there is no return differential. Therefore, it appears that there are other underlying drivers of responsible investment behaviour than pure financial motivation. Furthermore, we find significant difference between mean scores for drivers of responsible investment behaviour. Close to three quarters of responsible investors agree with the statement that concern for the environment and society was the main driver of their responsible investment decision. We also find that responsible investors are committed to their responsible investments when they are performing poorly. Thus, one could argue that responsible investing is driven by moral concerns rather than financial considerations and that responsible investors derive utility from moral aspects of RI. We now turn to outlining limitations concerning the survey study on investor motives.

## 6.5 Limitations

To begin with, one potential limitation of the survey is concerned with the fact that it involves to a large degree self-assessment which can result in problems in terms of response biases (Meier, 2006). For instance, the respondents in the survey self-assess which factors influence their investment decisions. However, in reality investors can make their decisions based on other factors than those they noted as important in the survey. Thus, the survey relies on self-reported answers from respondents and not on real-life financial decisions such as study by Døskeland and Pedersen (2016). This makes the survey sensitive to a difference between what respondents say they do and what they actually do.

Furthermore, respondents' answers may also depend on the way in which questions are

framed (Riedl and Smeets, 2017). To eliminate framing effects, two pilot tests of the survey were conducted in which we aimed to detect whether the way the question was framed influenced responses due to, for instance, the use of particular words. To eliminate potential framing effects, all questions are written in neutral language. Furthermore, for the majority of the survey, potential respondents receive the same questions and, therefore, any other potential framing effects present in the survey should be similar for both groups. In terms of filtering questions, there are some differences with regards to what questions are asked depending on whether or not respondent has invested in RI. Nevertheless, the filtering questions do not deviate from each other to a significant degree as we aimed to keep the filtering questions for both groups consistent with each other.

Lastly, given that there were relatively many variables with statistically significant results, we conduct Mann-Whitney U tests for robustness check as t-tests have an assumption that the dependent variable is continuous. Given that we do not have access to administrative data regarding investments made by each individual investors based on which we could categorise investors into respective groups, the dependent variable in the survey is categorical as discussed in Sub-section 6.2. Therefore, to test that the violation of the assumption is not driving the statistical results from independent samples t-tests, we conduct Mann-Whitney U tests (see Appendix A11). The results are robust except with regards to Firm's Involvement in Governance Scandals which does not achieve statistically significant difference in Mann-Whitney U test.

However, a strength of this survey study is that the sample consists of real-life individual investors that are clients of Nordea. Furthermore, the sample also comprises of both responsible and conventional investors, allowing to draw comparisons between them two. Prior studies on investor motives often rely on samples that mainly constitute of students or uniquely of responsible investors (Barreda-Tarrazona et al., 2011; Glac, 2009). These samples are likely to be different from broader population of investors, especially in terms of students who typically do not invest their money. We now turn to conclude our findings from both of the studies.

## 7 Conclusion

The main objectives of our thesis are twofold: firstly, to study the stock market performance of responsible investments and, secondly, to explore the responsible investment behaviour. To full-fill the aforementioned objectives, we conduct two studies on ESG stock market performance and on investor motives to invest responsibly. In the ESG stock market performance study, we specifically analyse the performance differences between high and low rated ESG companies over the period of 2014-2019. In the investor motives study, we conduct a survey to research the drivers of responsible investment behaviour.

To conclude from the study on ESG stock market performance, we find the following. Firstly, despite low rated ESG companies having a higher average historical monthly return and CAGR over the period of 2014-2019 than high rated ESG companies, there are no differences in risk-adjusted historical performance between them when controlling for risk factors. This is evidenced with statistically insignificant alphas when applying both the CAPM, Fama-French and Carhart model. Moreover, findings also indicate that big market cap companies with high ESG scores give a significantly higher risk premium than low ESG big market cap companies. Furthermore, the conclusions drawn from the main analysis hold true in the robustness test. Therefore, the main inference from this empirical analysis is that responsible investing does not lead to inferior or superior returns and investors do not lose money when investing in high rated ESG companies relative to low rated ESG companies. Secondly, we find slightly different risk factor exposures patterns for high and low rated ESG companies. Therefore, the evidence in the empirical analysis points to that investors investing in a portfolio consisting of high rated ESG companies are likely to buy big market cap companies, whereas when investing in a portfolio comprising of low rated ESG companies investors are likely to bet on growth stocks.

To conclude from the study on investor motives, we find the following. Firstly, findings show that responsible and conventional investors are not different with respect to neither the importance of expected return in investment decisions nor return expectations on responsible investments. Secondly, we find that responsible investors are more likely to invest responsibly when there is no difference in return between responsible and conventional investments, indicating that there are other drivers of responsible investment

behaviour than pure financial motivation. Third and most importantly, findings indicate that responsible investment behaviour is driven by moral objectives. Close to three quarters of responsible investors indicate that they invest responsibly because of their concern for the environment and society. Furthermore, investors who have not invested in sustainable investment products outline the lack of information as the main reason. The implication of this finding is that increased attention should be paid for educating investors about responsible investments. Fourth, we find that responsible investors are committed to their investments and keep them despite poor performance. The main inference from this study is that responsible investment behaviour appears to be driven by moral than financial considerations. However, despite moral objectives being of main concern for responsible investors, one should keep in mind the investment context within which this study is conducted. Therefore, we do not postulate that financial objectives are not important at all, but rather that responsible investors emphasise moral concerns for their decisions to invest responsibly.

In terms of future research, this master thesis looked at the relationship between an overall ESG score and performance of companies but it would be interesting to analyse stock market performance based on a break-down of ESG score. Companies are rated on each component of ESG and this analysis could potentially look at whether some sub-categories of ESG scores are more important for explaining stock market performance of companies. Moreover, it would also be useful to deploy ESG ratings from different rating agencies for an comparative analysis between them. With regards to investors motives, future research could benefit from controlling for trust in ESG frameworks and perceived impact of RI as they could potentially mediate the decisions to invest in RI.

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# Appendix

## A1 Definitions of SRI Strategies

**Table A1.1:** Definitions of SRI Strategies.

Note that the definitions outlined in this table are based on GSIA (2019) and Eurosif (2018b).

SRI Strategy	Definition
Negative / Exclusionary Screening	"An exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria.
Positive / Best-in-Class Screening	A selection of companies or projects that have the best ESG score in a particular sector.
Norms-based Screening	A screening of investments against international norms of minimum standards of business practices.
ESG Integration	An explicit and systematic inclusion of ESG factors into traditional financial analysis and investment decisions.
Sustainability-Themed Investments	A selection of assets that are specifically related to sustainability in single- or multi-themed funds.
Impact / Community Investing	Targeted investments aimed at solving social or environmental problems.
Corporate Engagement and Shareholder Action	A use of shareholder power to influence corporate behaviour on ESG matters.

## A2 Regressions - Alternative Market Benchmark.

**Table A2.1:** Regressions for portfolios with MSCI World Index as the market factor.

The table below depicts results from the regressions for the portfolios Star, Average and Laggard. Panel A provides this information for equally-weighted portfolios. Panel B outlines regression results for value-weighted portfolios.

The dependent variable in regression specifications 1 to 9 is the excess return on monthly basis. In specifications 10 to 12 the dependent variable is monthly return of portfolio Star minus monthly return of portfolio Laggard. The underlying assumption in the analyses is that portfolios are rebalanced on monthly basis.

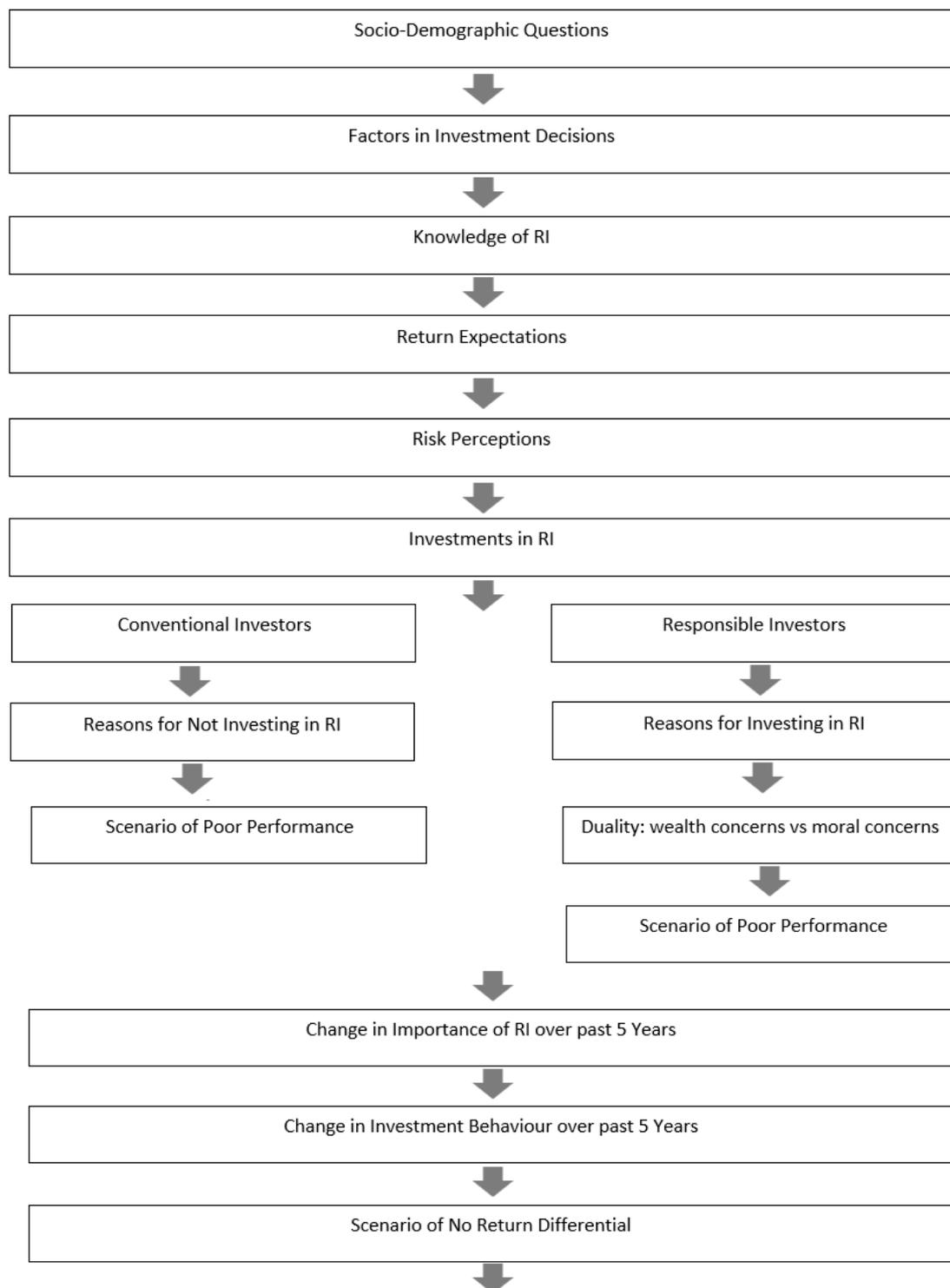
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Star	Star	Star	Average	Average	Average	Laggard	Laggard	Laggard	Star-Laggard	Star-Laggard	Star-Laggard
Panel A: Equally-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.877*** (17.94)	0.877*** (17.64)	0.851*** (15.52)	0.891*** (25.61)	0.889*** (25.59)	0.852*** (23.06)	0.927*** (22.15)	0.920*** (23.84)	0.883*** (21.31)	-0.0507 (-0.89)	-0.0431 (-0.81)	-0.0324 (-0.55)
$\beta_{\text{SMB}}$		-0.0861 (-0.75)	-0.0778 (-0.67)		0.119 (1.47)	0.131* (1.68)		0.247*** (2.76)	0.259*** (2.96)		-0.333*** (-2.69)	-0.337*** (-2.70)
$\beta_{\text{HML}}$		-0.00166 (-0.02)	-0.0836 (-0.74)		-0.0336 (-0.57)	-0.151* (-1.99)		-0.138** (-2.09)	-0.254*** (-2.98)		0.136 (1.49)	0.170 (1.40)
$\beta_{\text{UMD}}$			-0.101 (-1.10)			-0.145** (-2.35)			-0.143** (-2.07)			0.0419 (0.42)
$\alpha$	0.00450*** (2.91)	0.00441*** (2.79)	0.00455*** (2.87)	0.00451*** (4.10)	0.00454*** (4.10)	0.00474*** (4.44)	0.00444*** (3.36)	0.00435*** (3.54)	0.00455*** (3.80)	0.0000532 (0.03)	0.0000590 (0.03)	-6.57e-08 (-0.00)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.85	0.85	0.85	0.92	0.92	0.93	0.89	0.91	0.92	0.01	0.16	0.17
adj. $R^2$	0.84	0.84	0.84	0.92	0.92	0.92	0.89	0.91	0.91	-0.00	0.12	0.11
Panel B: Value-Weighted Portfolios												
$\beta_{\text{Mkt-Rf}}$	0.898*** (23.65)	0.891*** (25.70)	0.891*** (23.04)	0.930*** (25.58)	0.922*** (26.76)	0.917*** (23.87)	0.999*** (21.09)	0.986*** (22.32)	0.995*** (20.21)	-0.101 (-1.59)	-0.0948 (-1.56)	-0.104 (-1.53)
$\beta_{\text{SMB}}$		-0.261*** (-3.24)	-0.261*** (-3.20)		-0.137* (-1.71)	-0.135 (-1.67)		0.0931 (0.91)	0.0904 (0.87)		-0.354** (-2.50)	-0.351** (-2.45)
$\beta_{\text{HML}}$		-0.126** (-2.12)	-0.126 (-1.59)		-0.154** (-2.61)	-0.171** (-2.16)		-0.237*** (-3.14)	-0.210** (-2.07)		0.111 (1.07)	0.0834 (0.60)
$\beta_{\text{UMD}}$			-0.000636 (-0.01)			-0.0211 (-0.33)			0.0336 (0.41)			-0.0342 (-0.30)
$\alpha$	0.00729*** (6.08)	0.00673*** (6.10)	0.00673*** (6.03)	0.00766*** (6.67)	0.00716*** (6.53)	0.00719*** (6.48)	0.00794*** (5.31)	0.00746*** (5.31)	0.00741*** (5.21)	-0.000650 (-0.32)	-0.000725 (-0.37)	-0.000677 (-0.34)
$N$	60	60	60	60	60	60	60	60	60	60	60	60
$R^2$	0.91	0.92	0.92	0.92	0.93	0.93	0.88	0.90	0.90	0.04	0.16	0.16
adj. $R^2$	0.90	0.92	0.92	0.92	0.93	0.93	0.88	0.90	0.90	0.03	0.11	0.10

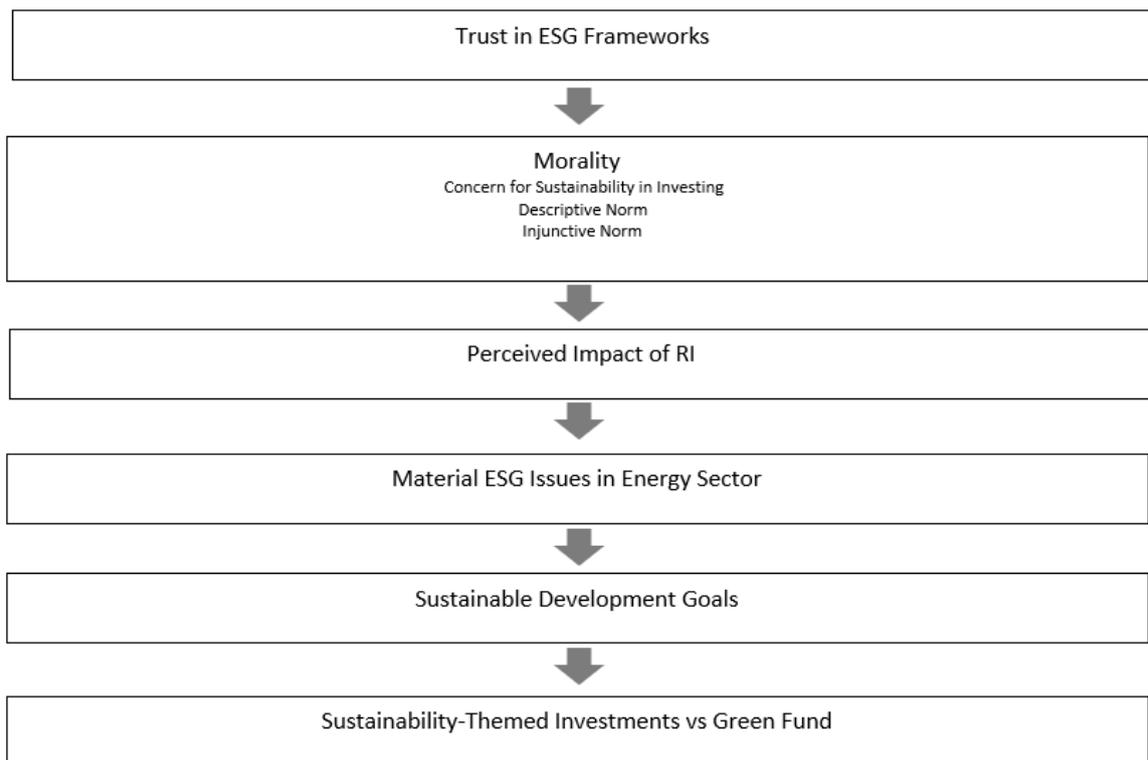
$t$  statistics in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## A3 Survey Flow Chart

Figure A3.1: Survey Flow Chart.





## A4 Survey in English

### Contribute to a More Sustainable Future Through Responsible Investments

#### Nordea Customer Survey 2019

This survey is conducted on the behalf of two master students from the Norwegian School of Economics (NHH) with whom Nordea is collaborating on their master thesis. The master students are currently writing a master thesis on the topic of responsible investments and how sustainable companies perform on the stock market.

Your responses are highly valuable for gaining insights into how customers think about responsible investments. Furthermore, findings from this study would aid other students in their future academic work. The survey takes approximately 5 minutes to complete.

No prior knowledge of responsible investments is required to take this survey but having a little knowledge of investing can be advantageous. The survey will close on the 29th of April 2019.

We hope you find the survey interesting and thank you for your time!

#### 1. Gender

- a. Male
- b. Female

#### 2. Age

Respondent enters numeric value.

#### 3. Field of Occupation

- a. Information Technology (IT)
- b. Engineering and Technology
- c. Management and Personnel
- d. Trade and Service
- e. Industry and Manual Labour
- f. Sales and Communication

- g. Education
- h. Office and Economy
- i. Social Work and Health
- j. Military
- k. Student
- l. Retired
- m. Unemployed
- n. Other

4. Rank the following factors that influence your investment decisions based on importance.

	Not at All Important	Low Importance	Slightly Unimportant	Neutral	Moderately Important	Very Important	Extremely Important
Expected Return	1	2	3	4	5	6	7
Risk	1	2	3	4	5	6	7
Diversification	1	2	3	4	5	6	7
Historic performance of a stock/portfolio	1	2	3	4	5	6	7
Expected stock market performance	1	2	3	4	5	6	7
Firm's carbon emissions and pollution	1	2	3	4	5	6	7
Firm's use of natural resources	1	2	3	4	5	6	7
Firm's involvement in environmental controversies	1	2	3	4	5	6	7
Firm's treatment of stakeholders (e.g. employees, customers, shareholders)	1	2	3	4	5	6	7
Firm's involvement in social scandals (e.g. child labour)	1	2	3	4	5	6	7
Firm's governance practices (e.g. board diversity, executive pay)	1	2	3	4	5	6	7
Firm's involvement in governance scandals (e.g. tax fraud)	1	2	3	4	5	6	7

5. To what extent do you agree with the following statement? I have good knowledge of responsible investments.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

6. Please answer to the following statements.

I expect that the returns of responsible investments compared to conventional investments are:

Much Lower	A Bit Lower	The Same	A Bit Higher	Much Higher	Do Not Know
1	2	3	4	5	6

Responsible investments are more risky than conventional investments.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Do Not Know
1	2	3	4	5	6	7	8

7. Have you invested in sustainable investment products such as Star funds or green funds in the past 5 years?

*If you are unsure, choose one of the options to your best knowledge. By sustainable investment products we mean products such as Star funds, climate fund, green stocks, green mutual funds and green exchange-traded funds (ETFs).*

- a. Yes
- b. No

7.1.1. If you did not invest in sustainable investment products, why not?

- a. Perceived low financial performance of responsible investments
- b. Perceived high risk of responsible investments
- c. Low variety of sustainable investment products and options
- d. Lack of information about sustainable investment products and options
- e. Expensive fees (brokerage fees, commission)
- f. Responsible investing is not important to me
- g. Do not invest my money

7.1.2. Would you switch from non-responsible investments to responsible investments if you found out that they contribute harm to the environment and society?

*By non-responsible investments we mean investments that do not consider environmental, social and/or governance factors.*

Very Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Very Likely
1	2	3	4	5	6	7

7.1.3. If you were to invest in sustainable investment products, which of these factors would you consider to be most influential in your decision to invest responsibly?

- a. Perceived good financial performance of responsible investments
- b. Want to contribute positively to the society and environment
- c. Perceived low risk of responsible investments
- d. Because of my moral values
- e. Diversification needs
- f. Reputational reasons
- g. Recommended by investment advisor

7.1.4 Consider a scenario: your conventional investment product (e.g. index fund) is performing worse in terms of financial return relative to sustainable investment product (e.g. green fund). Given this information, what kind of action would you take?

- a. Increase investments in conventional investment product
- b. No change
- c. Decrease investments in conventional investment product
- d. Do not know

7.2.1. If you did invest in sustainable investment products, why did you do so?

- a. Perceived good financial performance of responsible investments
- b. Want to contribute positively to the society and environment
- c. Perceived low risk of responsible investments
- d. Because of my moral values
- e. Diversification needs
- f. Reputational reasons
- g. Recommended by investment advisor

7.2.2. To what extent do you agree with the following statements?

My decision to invest responsibly was mainly driven by perceived good financial performance of responsible investments.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

My decision to invest responsibly was mainly driven by wanting to contribute positively to the society and environment.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

7.2.3 Consider a scenario: your sustainable investment product (e.g. green fund) is performing worse in terms of financial return relative to other conventional investment product (e.g. index fund). Given this information, what kind of action would you take?

- a. Increase investments in sustainable investment product
- b. No change
- c. Decrease investments in sustainable investment product
- d. Do not know

8. Compared to 5 years ago, how important has responsible investing become to you?

Very Unimportant	Less Important	Somewhat Less Important	Neutral	Somewhat More Important	More Important	Very Important
1	2	3	4	5	6	7

9. Compared to 5 years ago, how have your investments in sustainable investment products changed?

Decreased	Somewhat Decreased	No Change	Somewhat Increased	Increased	Significantly Increased	Have Never Invested or Do Not Invest Anymore
1	2	3	4	5	6	7

10. Consider two different investment opportunities: one investment is classified as responsible and the other as non-responsible. Historically, the responsible investment has given a return that is not significantly different from the non-responsible investment. Given this information, how likely are you to invest in the responsible investment opportunity?

Very Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Very Likely
1	2	3	4	5	6	7

11. To what extent do you agree with the following statement?

I believe that frameworks, developed by financial institutions, which classify companies as sustainable or not are correct in terms of their evaluation of companies' business practices (e.g. environmentally-friendly production, good employment conditions)

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

12. To what extent do you agree with the following statements?

12.1. I am concerned about sustainability when investing my money.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

12.2. My family and friends consider sustainability to be important when investing their money.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

12.3. I think my family and friends would think better of me if I invested more sustainably (responsibly).

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

13. Do you agree that responsible investments will help to reach the Paris Agreement of keeping the global temperature rise below 2°C.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

14. If you were to invest in a company in the energy sector, which of the following key environmental, social and governance (ESG) issues would you consider being most important for the company from you as an investor perspective? Select three.

*ESG is an abbreviation for Environmental, Social and Governance standards. They are a set of standards for a company's operations. ESG is used to assess companies on environmental, social and governance standards as an addition to financial analysis. Environmental standards are concerned with a company's impact on the environment. Social standards refer to how a company manages its relationships with employees, suppliers, customers and communities. Governance standards deal with a company's leadership, executive pay, audits, shareholder rights.*

- a. Carbon emissions
- b. Biodiversity and land use
- c. Toxic emissions and waste
- d. Labour management (e.g. working conditions)
- e. Health and safety
- f. Controversial sourcing
- g. Board diversity
- h. Corruption
- i. Tax transparency

15. United Nations has developed 17 sustainable development goals (SDGs) to address the global challenges we are faced with and to help to achieve the Paris Agreement of limiting global warming to below 2°C. Which of the following sustainable development goals (SDGs) are the most important to you personally? Select 3 most important to you.

- a. No poverty
- b. Zero hunger
- c. Good health and well-being
- d. Quality education
- e. Gender equality
- f. Clean water and sanitation
- g. Affordable and clean energy
- h. Decent work and economic growth
- i. Industry, innovation and infrastructure
- j. Reduced inequalities
- k. Sustainable cities and communities
- l. Responsible consumption and production
- m. Climate action
- n. Life below water
- o. Life on land

- p. Peace, justice and strong institutions
- q. Partnerships for the goals

16. Would you invest in a sustainability-themed investment product that has one of the sustainable development goals that is important to you as a specific issue it aims to help to solve, or would you invest in a green fund that is concerned with making positive difference specifically for the environment?

*Sustainability-themed investment product is typically directly concerned with one of the SDGs. An example of this could be a portfolio directed to gender equality or renewable energy. Thus, these types of portfolios can have specific problems within social, environmental or governance issues that they aim to help to solve. Green funds, however, are concerned with making a positive difference specifically for the environment. SDG – sustainable development goal.*

- a. I would invest in a sustainability-themed investment product that has one of the SDGs that is important to me as a specific issue it aims to help to solve
- b. I would invest in a green fund that is concerned with making a positive difference specifically to the environment
- c. I would not invest in neither of them
- d. I would invest in both of them

## A5 Survey Variables

**Table A5.1:** Survey Variable Definitions.

The table outlines continuous variables that are investigated in the survey. Note that we outline the name of the variable and the question measuring the variable. These continuous variables deploy 7-point Likert scales and items as the response format.

Variable	Measure
Return Expectations	Respondent's response to the statement "I expect that the returns of responsible investments compared to conventional investment products are: "
Risk Perceptions	Respondent's response to the statement "Responsible investments are more risky than conventional investments."
Scenario	Respondent's response to the statement "Consider two different investment opportunities: one investment is classified as responsible and the other as non-responsible. Historically, the responsible investment has given a return that is not significantly different from the non-responsible investment. Given this information, how likely are you to invest in the responsible investment opportunity?"
Concern for Sustainability in Investing	Respondent's response to the statement "I am concerned about sustainability when I invest my money".
Knowledge of RI	Respondent's response to the statement "I have good knowledge of responsible investments".
Descriptive Norm	Respondent's response to the statement "My family and friends consider sustainability to be important when investing money".
Injunctive Norm	Respondent's response to the statement "My family and friends would think better of me when I invest my money more sustainably (responsibly)."

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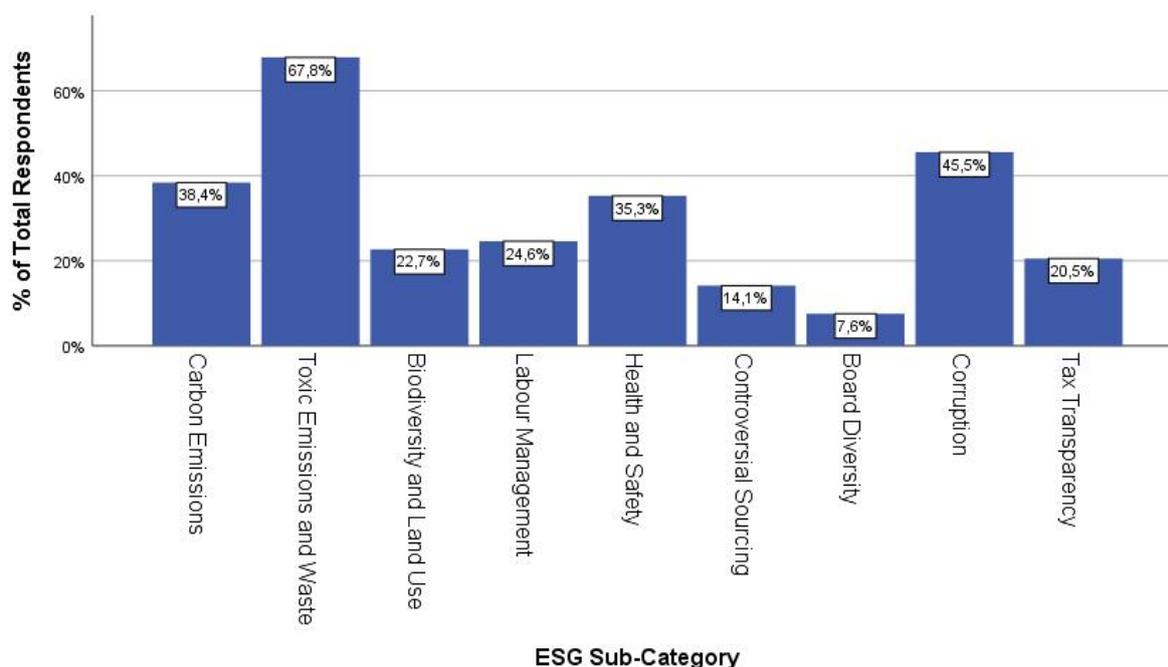
Variable	Measure
Perceived Impact of RI	Respondent's response to the statement "Do you agree that responsible investments will help to reach the Paris Agreement of keeping the global temperature rise below 2°C?"
Trust in ESG Frameworks	Respondent's response to the statement "I believe that frameworks developed by financial institutions that classify companies as sustainable and not sustainable are correct in their classification in terms of company's practices (e.g. environmentally friendly production, good working conditions)".
Financial Performance	Respondent's responses to the statement "My decision to invest responsibly was mainly driven by perceived good financial performance of responsible investments."
Concern for Environment and Society	Respondent's responses to the statement "My decision to invest responsibly was mainly driven by wanting to contribute positively to the society and environment."

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## A6 Material ESG Issues

**Figure A6.1:** Material ESG Issues.

The figure depicts the distribution of ESG sub-categories from investors' perspective. The bars illustrate survey respondents' answers to the multiple-response question "If you were to invest in a company in the energy sector, which of the following key environmental, social and governance (ESG) issues would you consider being most important for the company from your as an investor perspective? Select three." (Question 14 in Appendix A4). As it can be seen in the figure, the three most material ESG issues from investors' perspective for companies in the energy sector are Toxic Emissions and Waste, Corruption, and Carbon Emissions. Note that the total number of respondents (N) equals to 516.



## A7 Email in English

Dear customer,

At Nordea we are concerned with issues around human rights, working conditions, environment and business ethics of our investments. In connection with this, we would like to gain insights into your opinions about responsible investments and we, therefore, invite you to participate in a survey. This survey has been prepared in collaboration with two master students from the Norwegian School of Economics (NHH) who, through their master thesis, will investigate investors' opinions on responsible investments more closely.

It takes approximately 5 minutes to complete the survey. Every participant of this survey will get a chance to win a gift card worth 500 NOK!

No prior knowledge of responsible investments is required to take this survey, but a little knowledge of investments can be advantageous. We would also like to note that all responses will be anonymised, and all information will be treated confidentially.

We thank you for taking the time to complete this survey!

Kind Regards,

Nordea Liv

## A8 Survey in Norwegian

### Bidra til en mer bærekraftig fremtid gjennom ansvarlig sparing

#### Nordea kundeundersøkelse 2019

Denne undersøkelsen gjennomføres på vegne av to masterstudenter ved Norges Handelshøyskole (NHH) hvor Nordea er samarbeidspartner. Temaet for masteroppgaven er ansvarlige investeringer og hvordan bærekraftige selskaper presterer i aksjemarkedet.

Dine tilbakemeldinger er verdifulle da dette er med på å gi innsikt i kunders meninger rundt ansvarlige investeringer. I tillegg vil undersøkelsens resultater hjelpe andre studenter i deres fremtidige akademiske arbeid. Undersøkelsen tar ca. 5 minutter å gjennomføre.

Det kreves ingen forkunnskaper om ansvarlige investeringer for å gjennomføre denne undersøkelsen, men litt kjennskap til investeringer kan være en fordel. Undersøkelsen avsluttes 25. april 2019.

Vi håper du finner undersøkelsen interessant og vi takker for at du tar deg tid til å gjennomføre den!

#### 1. Hvilket kjønn er du?

- a. Mann
- b. Kvinne

#### 2. Hvor gammel er du?

Deltaker skriver inn numerisk verdi.

#### 3. Hvilken sektor jobber du innen?

- a. Handel og service
- b. Industri og håndverk
- c. Informasjonsteknologi (IT)
- d. Ingeniør og teknikk
- e. Kontor og økonomi
- f. Ledelse og personale
- g. Militært

- h. Salg og kommunikasjon
- i. Sosialarbeider og helse
- j. Student
- k. Undervisning
- l. Pensjonert
- m. Arbeidsledig
- n. Annet

4. Ranger i hvilken grad følgende faktorer er av betydning når du skal gjøre investeringer.

	Ikke viktig i det hele tatt	Uviktig	Litt uviktig	Nøytral	Ganske viktig	Veldig viktig	Ekstremt viktig
Forventet avkastning	1	2	3	4	5	6	7
Risiko	1	2	3	4	5	6	7
Diversifisering	1	2	3	4	5	6	7
Historisk avkastning til aksjen/porteføljen	1	2	3	4	5	6	7
Forventet fremtidig avkastning i aksjemarkedet	1	2	3	4	5	6	7
Selskapets karbonutslipp	1	2	3	4	5	6	7
Selskapets bruk av naturressurser	1	2	3	4	5	6	7
Selskapets involvering i miljøkontroverser	1	2	3	4	5	6	7
Selskapets behandling av interessenter (eks. ansatte, kunder og aksjonærer)	1	2	3	4	5	6	7
Selskapets involvering i sosiale skandaler (eks. barnearbeid)	1	2	3	4	5	6	7
Selskapets forretningssetiske forhold (mangfold i styret, lederlønninger)	1	2	3	4	5	6	7
Selskapets involvering i forretningssetiske skandaler (eks. skatteunndragelse)	1	2	3	4	5	6	7

5. I hvilken grad er du enig i følgende påstand?

Jeg har god kunnskap om ansvarlige investeringer.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

*Ansvarlige investeringer er ofte kjent som etiske investeringer, bærekraftige investeringer eller grønne investeringer. Ansvarlige investeringer omhandler investeringer som tar hensyn til miljø, sosiale og forretningssetiske forhold (ESG) i tillegg til finansielle faktorer.*

*Merk at grønne investeringer er en del av ansvarlige investeringer med vektet fokus på miljø.*

6. Jeg forventer at avkastningen på ansvarlige investeringer sammenlignet med tradisjonelle investeringer er:

Mye lavere	Litt lavere	Den samme	Litt høyere	Mye høyere	Vet ikke
1	2	3	4	5	6

Ansvarlige investeringer har høyere risiko enn tradisjonelle investeringer.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig	Vet Ikke
1	2	3	4	5	6	7	8

7. Har du investert i bærekraftige investeringsprodukter som for eksempel «Star fondene» eller grønne fond de siste 5 årene?

*Hvis du er usikker, velg et alternativ etter beste evne. Ved bærekraftige investeringsprodukter mener vi produkter som «Star fondene», klimafond, grønne aksjer, grønne fond og grønne børshandlede fond (ETFer).*

- a. Ja
- b. Nei

7.1.1. Hvis du ikke har investert i bærekraftige investeringsprodukter, hva var årsaken?

- a. Inntrykk av at ansvarlige investeringer gir dårlig avkastning
- b. Inntrykk av at det er knyttet høy risiko til ansvarlige investeringer
- c. Lite utvalg av bærekraftige investeringsprodukt og alternativer
- d. Har for lite informasjon om bærekraftige investeringsprodukter og alternativer
- e. Høye kostnader (forvaltningshonorar, kurtasje, løpende kostnader)
- f. Ansvarlige investeringer er ikke viktig for meg
- g. Investerer ikke pengene mine

7.1.2. Ville du ha byttet ut ikke-bærekraftige investeringer til bærekraftige investeringer hvis du fikk opplysninger om at dine ikke-bærekraftige investeringer hadde negativ innflytelse på miljø og samfunn?

*Ved ikke-bærekraftige investeringer mener vi investeringer som ikke tar hensyn til miljø, sosiale eller forretningsetiske faktorer.*

Veldig usannsynlig	Usannsynlig	Litt usannsynlig	Nøytral	Ganske sannsynlig	Sannsynlig	Svært sannsynlig
1	2	3	4	5	6	7

7.1.3. Hvis du skulle ha investert i bærekraftige investeringsprodukter, hvilke av disse faktorene vil du betegne som viktigst for deg når du tar valget om å investere ansvarlig?

- a. Inntrykk av at ansvarlige investeringer gir god avkastning
- b. Ønsker å bidra positivt til samfunn og miljø
- c. Inntrykk av at det er knyttet lav risiko til ansvarlige investeringer
- d. I tråd med mine personlige verdier
- e. Diversifisering
- f. Ryktet mitt
- g. Anbefalt av investeringsrådgiver

7.1.4 Se for deg følgende scenario: ditt tradisjonelle investeringsprodukt (eks. indeksfond) gir dårligere finansielle resultater sammenlignet med et bærekraftig investeringsprodukt (eks. grønt fond). Gitt denne informasjonen, hvilken handling ville du foretatt deg?

- a. Øke min investering i det tradisjonelle investeringsproduktet
- b. Ikke gjøre noe
- c. Redusere min investering i det tradisjonelle investeringsproduktet
- d. Vet ikke

7.2.1. Hvis du investerte i bærekraftige investeringsprodukter, hva var årsaken?

- a. Inntrykk av at ansvarlige investeringer gir god avkastning
- b. Ønsker å bidra positivt til samfunn og miljø
- c. Inntrykk av at det er knyttet lav risiko til ansvarlige investeringer
- d. I tråd med mine personlige verdier
- e. Diversifisering
- f. Ryktet mitt
- g. Anbefaling av investeringsrådgiver

7.2.2. I hvilken grad er du enig i følgende påstander?

Min avgjørelse ved å investere ansvarlig var hovedsakelig basert på inntrykk av at ansvarlige investeringer gir god avkastning.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

Min avgjørelse ved å investere ansvarlig var hovedsakelig basert på et ønske om å bidra positivt til samfunn og miljø.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

7.2.3 Se for deg følgende scenario: ditt bærekraftige investeringsprodukt (eks. grønt fond) gir dårligere finansielle resultater sammenlignet med et tradisjonelt investeringsprodukt (eks. indeksfond). Gitt denne informasjonen, hvilken handling ville du foretatt deg?

- Øke min investering i det bærekraftige investeringsproduktet
- Ikke gjøre noe
- Redusere min investering i det bærekraftige investeringsproduktet
- Jeg vet ikke

8. Sammenlignet med 5 år siden, hvor viktig har ansvarlige investeringer blitt for deg?

Ikke viktigere	Mindre viktigere	Litt viktigere	Nøytral	Viktigere	Mye viktigere	Svært viktigere
1	2	3	4	5	6	7

9. Sammenlignet ved 5 år siden, hvordan har dine investeringer i bærekraftige investeringsprodukt endret seg?

Blitt redusert	Blitt litt redusert	Ingen endring	Liten økning	Økt	Økt betydelig	Har aldri investert eller investerer ikke lenger
1	2	3	4	5	6	7

10. Ta utgangspunkt i to forskjellige investeringsmuligheter: En investeringsmulighet er kategorisert som bærekraftig, mens den andre er kategorisert som ikke-bærekraftig. Historisk har den bærekraftige investeringen gitt samme avkastning enn den ikke-bærekraftige. Gitt denne informasjonen, hvor sannsynlig er det at du ville valgt å investere i den bærekraftige investeringsmuligheten?

Veldig usannsynlig	Usannsynlig	Litt usannsynlig	Nøytral	Ganske sannsynlig	Sannsynlig	Svært sannsynlig
1	2	3	4	5	6	7

11. I hvilken grad er du enig i følgende påstand?

Jeg tror at rammeverkene utviklet av finansielle institusjoner som klassifiserer selskaper som bærekraftige eller ikke er korrekt i sin klassifisering når det gjelder hvordan selskapene praktiserer sin virksomhet (eks. miljøvennlig produksjon, gode arbeidsvilkår for ansatte).

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

12. I hvilken grad er du enig i følgende påstander?

12.1. Jeg er opptatt av bærekraft når jeg investerer mine penger.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

12.2. Min familie og venner mener at bærekraft er et viktig element når de velger å investere sine penger.

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

12.3. Jeg tror min familie og venner vil tenke bedre om meg om jeg investerte mer bærekraftig (ansvarlig).

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

13. Er du enig i at ansvarlige investeringer er en viktig faktor til at verden når målet fra Parisavtalen om å holde den globale temperaturøkningen under 2°C?

Veldig uenig	Uenig	Litt uenig	Nøytral	Litt enig	Enig	Veldig enig
1	2	3	4	5	6	7

14. Hvis du skulle investert i et selskap innenfor energisektoren, hvilke følgende miljø, sosiale og forretningsetiske (ESG) nøkkelfaktorer ville du tenkt var viktigst for selskapet sett fra en investors perspektiv? Velg tre.

*ESG er en forkortelse for Environmental, Social and Governance (miljø, sosiale og forretningsetiske forhold). ESG benyttes for å bedømme selskaper på miljø, sosiale, og forretningsetiske kriterier i tillegg til finansiell analyse. Miljøfaktorer kan være selskapets*

*påvirkning på miljøet. Sosiale faktorer omhandler hvordan selskapets forhold er til sine ansatte, leverandører, kunder og samfunn. Forretningssetiske faktorer omhandler hvordan selskapet styres, lederlønninger, regnskapsføring og interessenters rettigheter.*

- a. Karbonutslipp
- b. Biologisk mangfold og arealbruk
- c. Giftig utslipp og avfall
- d. Arbeidsledelse (eks. arbeidsvilkår)
- e. Helse og sikkerhet
- f. Kontroversiell anskaffelse av produksjonsfaktorer (eks. olje og gass)
- g. Mangfold i selskapets styre
- h. Korrupsjon
- i. Transparent skatterapportering

15. De forente nasjoner (FN) har utviklet 17 ulike bærekraftighetsmål for å adressere de globale utfordringene vi står ovenfor for å kunne imøtekomme kravet fra Parisavtalen om å begrense global oppvarming til under 2°C. Hvilke av følgende bærekraftighetsmål er viktigst for deg personlig? Velg de tre viktigste for deg.

- a. Utrydde fattigdom
- b. Utrydde sult
- c. God helse
- d. God utdanning
- e. Likestilling mellom kjønnene
- f. Rent vann og gode sanitærforhold
- g. Ren energi for alle
- h. Anstendig arbeid og økonomisk vekst
- i. Innovasjon og infrastruktur
- j. Mindre ulikhet
- k. Bærekraftige byer og samfunn
- l. Ansvarlig forbruk og produksjon
- m. Stoppe klimaendringene
- n. Liv under vann
- o. Liv på land
- p. Fred og rettferdighet
- q. Samarbeid for å nå målene

16. Ville du investert i et investeringsprodukt med fokus på bærekraft som direkte følger opp et av bærekraftighetsmålene som er viktig for deg, eller ville du investert i et grønt fond som har et overordnet mål om å utgjøre en positiv forskjell spesielt for miljøet?

*Et investeringsprodukt med fokus på bærekraft er ofte direkte tilknyttet et av bærekraftighetsmålene. For eksempel kan det være en portefølje som har fokus på likestilling mellom kjønnene eller har fokus på fornybar energi. Slike porteføljer kan ha som mål å forsøke å løse spesifikke problemstillinger knyttet til miljø, sosiale og forretningsetiske (ESG) utfordringer. Grønne fond derimot, har som mål å skape en positiv forskjell spesielt for miljøet.*

- a. Jeg ville investert i et investeringsprodukt med fokus på bærekraft som direkte følger opp 1 av bærekraftighetsmålene som er viktig for meg
- b. Jeg ville investert i et grønt fond som har et overordnet mål om å utgjøre en positiv forskjell spesielt for miljøet
- c. Jeg ville ikke investert i noen av dem
- d. Jeg ville investert i begge

## A9 Email in Norwegian

Kjære kunde

I Nordea Liv er vi opptatte av spørsmål rundt menneskerettigheter, arbeidsvilkår, miljø og forretningsetikk i våre investeringer. I den forbindelse ønsker vi å få innblikk i dine meninger rundt ansvarlige investeringer, og vi sender deg derfor en undersøkelse. Denne er utarbeidet i samarbeid med to masterstudenter fra Norges Handelshøyskole (NHH), som gjennom sin masteroppgave skal undersøke nærmere kunders meninger om ansvarlige investeringer.

Det tar om lag 5 minutter å fylle ut undersøkelsen. Alle som velger å delta i undersøkelsen er med i trekningen av et gavekort på en verdi av kr. 500.

Det kreves ingen forkunnskaper om ansvarlige investeringer for å kunne gjennomføre denne undersøkelsen, men litt kjennskap til investeringer kan være en fordel. Vi gjør også oppmerksom på at alle svar vil bli anonymisert og all informasjon vil bli behandlet konfidensielt.

Vi takker for at du tar deg tid til å gjennomføre undersøkelsen!

Mvh  
Nordea Liv

[Klikk her for å delta](#)

[Klikk her om du ønsker å melde deg av.](#)

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## A10 Skewness and Kurtosis of Continuous Variables

**Table A10.1:** Skewness and Kurtosis of Continuous Variables.

The table illustrates skewness and kurtosis values and respective standard errors for each of the continuous variables.

	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis
Expected Return	-0.262	0.108	-0.058	0.215
Risk	-0.572	0.108	1.118	0.215
Diversification	-0.343	0.108	1.046	0.215
Historic Performance of a Stock/Portfolio	-0.780	0.108	1.478	0.215
Expected Stock Market Performance	-0.862	0.108	2.816	0.215
Firm's Carbon Emissions and Pollution	-0.414	0.108	-0.027	0.215
Firm's Use of Natural Resources	-0.574	0.108	0.317	0.215
Firm's Involvement in Environmental Controversies	-0.753	0.108	0.656	0.215
Firm's Treatment of Stakeholders	-0.791	0.108	1.519	0.215
Firm's Involvement in Social Scandals	-1.395	0.108	3.056	0.215
Firm's Governance Practices	-0.677	0.108	0.598	0.215
Firm's Involvement in Governance Scandals	-1.354	0.108	2.695	0.215
Concern for Sustainability in Investing	-0.605	0.108	0.575	0.215
Knowledge of RI	-0.448	0.108	-0.127	0.215
Descriptive Norm	-0.059	0.108	0.541	0.215
Injunctive Norm	-0.483	0.108	0.425	0.215
Perceived Impact	-0.997	0.108	0.598	0.215
Trust in ESG Frameworks	-0.142	0.108	-0.174	0.215
Return Expectations	0.091	0.109	-0.088	0.218
Risk Perceptions	0.048	0.111	-0.532	0.221
Scenario	-0.816	0.108	0.519	0.215

## A11 Results from Mann-Whitney U Test

**Table A11.1:** Results from Mann-Whitney U Test.

The table presents results from Mann-Whitney U Test. Note that the Mann-Whitney U test is a non-parametric alternative to t-test for independent samples (Pallant, 2010). However, instead of comparing means of the two groups on a continuous variable, it compares medians (Pallant, 2010). We report median scores (denoted  $\tilde{x}$ ) for different variables separately for responsible and conventional investors. Variables in bold do not achieve statistically significant difference when compared with independent samples t-test. Note that the differences in the number of observations stem from participants not answering all survey questions as well as from the exclusion "Do Not Know" category from the analysis.

	Responsible Investors		Conventional Investors		Z	Sig. (2-tailed)
	$\tilde{x}$	N	$\tilde{x}$	N		
Expected Return	6	220	6	296	-1.734	0.083
Risk	5	220	5	296	-0.199	0.842
Diversification	5	220	5	296	-2.968	0.003***
Historic Performance of a Stock/Portfolio	5	220	5	296	-0.223	0.823
Expected Stock Market Performance	6	220	6	296	-0.294	0.768
Firm's Carbon Emissions and Pollution	5	220	4	296	-3.813	0.000***
Firm's Use of Natural Resources	5	220	5	296	-4.090	0.000***
Firm's Involvement in Environmental Controversies	5	220	5	296	-4.295	0.000***
Firm's Treatment of Stakeholders	6	220	5	296	-1.323	0.186
Firm's Involvement in Social Scandals	6	220	6	296	-2.137	0.033**
Firm's Governance Practices	5	220	5	296	-0.856	0.392
<b>Firm's Involvement in Governance Scandals</b>	6	220	6	296	-1.487	<b>0.137</b>
Concern for Sustainability in Investing	6	220	5	296	-7.915	0.000***
Knowledge of RI	5	220	4	296	-4.533	0.000***
Descriptive Norm	4	220	4	296	-2.969	0.003***
Injunctive Norm	4	220	4	296	-2.166	0.030**
Perceived Impact	6	220	5	296	-4.277	0.000***

*t* statistics in parentheses

\*\* $p < 0.05$ , \*\*\* $p < 0.01$

	Responsible Investors		Conventional Investors		Z	Sig. (2-tailed)
	$\tilde{x}$	N	$\tilde{x}$	N		
Trust in ESG Frameworks	5	220	4	296	-3.321	0.001***
Return Expectations	3	216	3	285	-0.460	0.646
Risk Perceptions	3	214	4	274	-3.016	0.003***
Scenario	6	220	5	296	-5.867	0.000***
Change in Importance of RI over 5 Years	5	220	4	296	-4.508	0.000***
Change in Investments in RI	5	219	3	294	-10.110	0.000***

*t* statistics in parentheses

\*\* $p < 0.05$ , \*\*\* $p < 0.01$