

This thesis provides insights into the relative importance of ESG dimensions. The factorial survey method was employed which required students from Radboud University to rate several excerpts containing information about hypothetical firms regarding their environmental, financial, social and governance performance. Results show that the environmental dimension is most important for investors in determining their likelihood to invest in a firm. It is followed by the governance and social dimensions respectively. Interestingly, the environmental dimension is relatively more important than financial performance in this sample.

The Relative Importance of ESG Dimensions in Investor Decision-making

Ingo Dirkx, s4293827
Supervisor: Daniel Reimsbach
Radboud University
August 6th, 2018

Table of Contents

1 – Introduction.....	2
2 – Theoretical Background.....	5
2.1 – A holistic approach to firm performance	5
2.2 – The heterogeneity of investors.....	6
2.3 – Socially responsible investment and its underlying drivers	7
2.4 – The relative importance of ESG dimensions for investors	8
3 – Methodology	10
3.1 – The vignette universe	10
3.2 – Data, respondents and multilevel regression analysis.....	13
4 – Results.....	17
4.1 – Multi-level Regression.....	17
4.2 – Investor type differentiation.....	19
4.3 – Robustness checks	22
5 – Conclusion and discussion.....	23
References.....	26
Appendix A – Vignette Universe.....	29
Appendix B – PRESOR Factor Loadings	31
Appendix C – Hausman Test	32

1 – Introduction

Corporate social responsibility (CSR) is a field that has slowly gained importance over time. Its conceptualization is still complex (Isa & Reast, 2014), with terms such as environmental, social and governance (ESG) criteria, sustainability, and CSR used often interchangeably. Dahlsrud (2008) found that definitions of CSR incorporate five dimensions: (i) a stakeholder dimension, (ii) a social dimension, (iii) an economic dimension, (iv) a voluntariness dimension and (v) an environmental dimension. This seems to holistically incorporate all aspects of doing business. Research regarding CSR has primarily tried to link CSR performance with financial performance such as that superior CSR performers have lower costs of capital (Goss & Roberts, 2011; Dhaliwal, et al, 2011) and that superior CSR performers have a higher financial performance than inferior CSR performers (Khan, et al, 2016). A sub-stream of literature is focused on the non-financial dimensions of CSR, namely the environmental, social and governance (ESG) dimensions. The first dimension includes aspects such as CO2 emissions and ground pollution. The second dimension is focused on taking stakeholder considerations into account and includes aspects such as gender diversity and participating in community initiatives. The third is focused on the corporate governance mechanisms a firm employs to curb opportunistic behaviour.

A stream in the literature that deals with the phenomenon of basing investment decisions on non-financial performance is called socially responsible investment (SRI). Sandberg, et al. (2009) argue that there is consensus on the definition of SRI and that it is defined as “the integration of certain non-financial concerns in the investment process” (Sandberg, et al., 2009, p. 521). Renneboog, et al. (2008) explain why firms should be socially responsible; this is evaluated from two different viewpoints: the maximisation of social value versus the maximisation of shareholder value. Maximisation of social value, also called the stakeholder view, implies that there is a discrepancy between social and shareholder value. This discrepancy is the result of externalities (Renneboog, et al., 2008) that ought to be internalised from the perspective of stakeholders. The SRI literature also describes why firms might undertake CSR activities: (i) CSR is consistent with shareholder value maximisation, (ii) it can be used as a signalling tool to reduce information asymmetries and (iii) it may be a result of “pressure from social and environmental lobbyists” (Renneboog, et al., 2008, p. 1731).

Current literature shows a gap regarding the importance of CSR dimensions. Capelle-Blancard and Petit (2015) acknowledge that CSR is a multidimensional concept and that CSR performance (alternatively called corporate social performance (CSP)) is often shown as an overall score, without looking at what composes this score in-depth. They developed a model for determining the weights of the different CSR dimensions in calculating composite scores of CSP. They take different industries into account and base their composite-scores approach on the amount of scrutiny received by NGOs and the general media. This thesis is focused on the behaviour of investors regarding CSR and, as opposed to Capelle-Blancard and Petit (2015), evaluates the importance of the performance on CSR

dimensions from the perspective of the investor. What this thesis aims to achieve is to give insight into the behaviour of investors and the relative importance of CSR dimensions they base their investment decision on. In doing so it answers the question:

“When investors determine their likelihood to invest in a firm, what is the relative importance of the environmental, social and corporate governance related performance of firms?”

The scientific relevance of answering this question is twofold. Firstly, it contributes to scientific literature regarding the disentanglement of CSR dimensions that affect the decision-making processes of investors. It is useful for future research to evaluate the importance of CSR dimensions so that investor behaviour can be more accurately theorised. Secondly, it provides insights into the decision usefulness of separate CSR dimensions over the other dimensions. This allows researchers to better capture the materiality of information in financial and non-financial reports. The practical relevance of answering this question is found in the implications it can have for, for example, prospectuses that investors receive when making investor decisions. By determining which information weighs more heavily for investors in determining their likelihood to invest in a firm, prospectuses could be tailored towards the inclusion of such information. Furthermore, it could help firms to decrease their cost of capital by providing a concrete evaluation of the decision-usefulness of CSR dimensions. Firms could present suppliers of capital with information that is seen as useful for investors, increasing transparency and decreasing screening costs for investors. This, in turn, could lead to a lower cost of capital. Lastly, it could show policymakers that CSR reporting is sufficiently important to warrant further regulatory attention and could guide policymakers in their quest for an improved regulatory framework.

This study is partly explorative in nature. Insights from neighbouring fields have been required to ground it in literature. The research question is novel, and to the best of the author’s knowledge, there is hardly any research done on the importance of separate ESG dimensions. Even though hypotheses are tested in this study, this research can best be classified as interpretive. Chua (1986) argues that interpretive studies are studies that acknowledge that reality is constructed “through (a) process of continuous social interaction” (Chua, 1986, p.614). In other words, there is not one reality that is measurable and true, but there are multiple realities that become real as people interact and share thoughts and ideas. This definition is applicable to this study because CSR is only an important concept if enough people believe that it is. The adoption of this perspective has resulted in the inclusion of a comparison between investor types in this study.

This study employs a quantitative approach where the factorial survey method (FSm) is used to capture investor preferences. Oll, et al. (2016) argue that the FSm is a method that allows both the collection of data from many sources, as well as offers researchers a way to create a controlled setting in their surveys, which essentially combines the survey and experimental methods into a single method. A series of vignettes was constructed describing a hypothetical firm wherein certain words or

word groups were manipulated to reflect the different dimensions of CSR. Respondents were students from the Radboud University in the Netherlands. They were asked to provide their likelihood to invest in a firm sequentially in five randomised text excerpts.

This thesis is structured as follows. Chapter two provides a theoretical framework in which CSR and its components are delineated, investor behaviour is described, and hypotheses are developed. Chapter three describes the factorial survey method in more detail and provides insights into how the vignette universe was created. Chapter four provides analyses and hypothesis testing and chapter five concludes. The results show that the environmental dimension is the most important ESG dimension for respondents in the sample in determining their likelihood to invest in a firm, followed by the governance and social dimensions. The importance of the environmental dimension over the other dimensions was driven by the nature of the core operations of a firm and thus seems to be industry specific. Investor type did not significantly influence these results.

2 – Theoretical Background

This thesis aims to offer insights into the relative importance of the dimensions of CSR for investors. This section delineates these dimensions, investor behaviour and socially responsible investments (SRI), and provides hypotheses.

2.1 – A holistic approach to firm performance

Corporate social responsibility (CSR) is a concept the literature has not unequivocally been able to define yet (Isa & Reast, 2014). This study adopts the insights provided by Dahlsrud (2008) and recognises that CSR consists of environmental, social, stakeholder, economic and voluntariness dimensions. Academic literature has supported the notion that engaging in CSR activities generates significant benefits for firms under certain conditions. Illustrative of the importance of CSR activities, firms that perform well “on *material* sustainability issues significantly outperform firms with poor ratings on these issues” (Khan, et al., 2016, pp.1697). Furthermore, firms that disclose non-financial information, of which CSR information is a part, enjoy a lower cost of capital (Dhaliwal, et al., 2011; Goss & Roberts, 2010), and many financial analysts incorporate CSR information about firms in their “buy or sell” decisions. These analysts thereby act as the catalyst for the incorporation of CSR information in stock prices (Luo, et al., 2015). Since CSR appears to be important, it is paramount that CSR dimensions are expressed clearly in this thesis.

The non-financial dimensions of CSR are captured in environmental, social and governance pillars (ESG pillars), and these pillars are a “tool to evaluate companies” (Syed, 2017, p.2). When firms disclose ESG information, they report their performance on the environment, on social issues, and on how well their governance mechanisms function. The environmental pillar entails activities that influence the ecological environment within which firms operate (as not to confuse it with the business environment of a firm). This includes carbon emissions, water pollution, energy usage, et cetera. This dimension is not to be confused with the term sustainability. Sustainability covers environmental, social, and economic dimensions (Kuhlman & Farrington, 2010), and excludes governance. Within the ESG framework, economic performance is not included.

The social pillar entails activities that influence the people or parties the firm interacts with, such as its employees, the government, and local communities. Where the financial aspect of a firm pertains mostly to the view of shareholder value maximisation, the social pillar pertains to stakeholders that also have demands and concerns. Issues such as gender diversity and local community initiatives are examples of variables in this pillar.

Corporate governance can be defined in different ways (Gillan, 2006), but what is key in its definition is that it is “the system of laws, rules, and factors that control operations at a company” (Gillan, 2006, pp.382). This controlling function of corporate governance refers to the classical

principal-agent theorem first brought forward by Jensen and Meckling (1976). Principals, who are the suppliers of capital in a firm setting, hire agents (such as the board of directors or the CEO) to perform activities on their behalf. Since these agents are closer to the process they are hired for, they have more information about it than principals do; this is called information asymmetry. Agents are assumed to be self-interested and will try to exploit this asymmetry by engaging in activities that are beneficial for them, but not necessarily for the principal. In other words, agents are expected to behave opportunistically. This opportunistic behaviour must be curtailed, which is what corporate governance attempts to achieve. Corporate governance has been linked to the financial performance of a firm. Bolton, et al. (2015), for example, argue that current executive compensation contracts encourage excess risk taking. Similarly, Larcker, et al. (2007) found that corporate governance indices have “some ability to explain future operating performance and future excess stock returns” (Larcker, et al., 2007, p.963).

2.2 – The heterogeneity of investors

Recently, the neoclassical view of the rational investor has fallen in popularity in favour of a more realistic behavioural model that acknowledges the failure of the expected-utility hypothesis for explaining riskiness and uncertainty in decision-making. It instead draws prospect theory to the fore (Camerer, et al., 2004). According to Camerer, et al. (2004), prospect theory “consists of two main components: a probability weighting function and a “value” function.” (Camerer, et al., 2004, p.20). According to the authors, “the value function reflects the insight (...) that the utility of an outcome depends not on the absolute level of wealth that results, but on whether the outcome is a gain or a loss.” (Camerer, et al., 2004, p.20). Extending this idea to CSR, the value of CSR activities and a firm’s CSR performance depends on the “value” an investor gives to these activities and levels of performance, which is independent of their underlying reason “why” they find it important. This extension opens the possibility for a rationale for heterogeneity in investor beliefs and thus types of investors. What is perceived as a gain and a loss and the value of that gain or loss differs per investor. The idea allows for a differentiation of the value of performance and is in line with the interpretive nature of this study. Firms that have low scores on multiple ESG dimensions can be disproportionately unattractive to invest in.

Camerer et al. (2004) also posit the idea that actors have social preferences, in which is embedded the idea that non-financial information affects behaviour. They provide the example where sellers do not increase prices of a Harry Potter book to exploit excess demand because sellers care about customer goodwill. Following this analogy, investors can care about ESG dimensions. Indeed, studies show that governance mechanisms influence the value of a firm. Bruynseels and Cardinaels (2014) show that audit committees with ties to the CEO have a negative influence on financial reporting quality, which in turn makes it less likely for an investor to invest. Similarly, Larcker et al. (2007) show that corporate governance can explain future performance and returns (Larcker, et al., 2007). Similarly, Al-

Tuwaijri et al. (2004) report evidence that suggests that “good” environmental performance is positively associated with “good” economic performance...” (Al-Tuwaijri, et al., 2004, p.449). Social performance also has a positive association with financial performance. Orlitzky, et al. (2003) report that corporate social performance (CSP), which is a combination of environmental and social performance, “is positively correlated with CFP” (Orlitzky, et al., 2003, p.427), where CFP is corporate financial performance. Furthermore, they report that the environmental performance component of CSP has the smallest relationship with CFP of all CSP measures (Orlitzky, et al., 2003, p.415). This indicates that the purely social component of CSP could have a significant effect on financial performance. If investors recognise these potential effects, ESG dimensions should have significant effects on their likelihood to invest in a firm. However, since investors are heterogenous, not all investors necessarily believe that ESG items translate into superior investment returns. Therefore, socially responsible (SR) investors can believe that such items translate into superior investment returns or simply extract direct value from engaging in these investments (Riedl & Smeets, 2017), whereas more traditional investors might not put the same weight on these performance indicators. The idea that investors are boundedly rational is a concept whereby the strict assumption of full information and transparency is loosened to allow for investors that have access to differing sets of information and levels of informational processing (Gintis, 2007). It strengthens the notion that investors can exhibit different investment patterns. For example, they might not be able to process the effect CSR information has on financial performance, leading to a different decision whether to invest in a firm or not.

2.3 – Socially responsible investment and its underlying drivers

According to Starr (2008), “socially responsible investment (SRI) generally refers to the selection of investments based both on traditional financial criteria and on key dimensions of firms’ social performance.” (p.51). It encompasses both financial and CSR criteria and deviates from the neoclassical assumption of wealth maximisation. Riedl and Smeets (2017) studied the reasons why investors might invest in socially responsible equity funds in the Netherlands. They found that “investors’ intrinsic social preferences and, to a lesser extent, social signalling are major factors determining the likelihood of holding SRI equity funds” (Riedl & Smeets, 2017, p.2533). Social signalling means that investors want to create “a positive image” (Riedl & Smeets, 2017, p.2506) through showing that they are investing socially responsibly. Furthermore, the traditional financial dimension plays a role as well. The authors found that investors that believe SRI funds underperform traditional ones, are less likely to invest in SRI funds. These findings are in line with the notions that investors have heterogenous beliefs, delineated in the previous section. Starr (2008) suggests that the latter finding requires some nuance:

“When asked hypothetically whether [investors] would be willing to allocate some part of their portfolio to “investments that may result in lower returns but that can do some good in this world,” willingness among SRI investors is much higher than among others...” (Starr, 2008, p.58).

This suggests that the effect of financial performance and CSR performance together differs the more investors are socially responsible. Given that investors have differing beliefs regarding the (excess) profitability of SRI funds, it is interesting that SRI funds do not seem to over- or underperform traditional funds (Hamilton, et al., 1993). Similarly, Lee, et al. (2010) report that increased screening on non-financial performance does not lead to different returns. These findings indicate that investment choices are largely based on personal belief and on what Riedl and Smeets (2017) call social preferences.

2.4 – The relative importance of ESG dimensions for investors

The previous sections established the overall importance of CSR and its ESG dimensions and how investors might deal with this information. This section provides hypotheses for the research question, namely what the relative importance of the environmental, social and governance pillars is expected to be for investors and under which conditions these expectations might hold. Since the value of ESG dimensions is dependent on the type of investor, a distinction between professional and non-professional investors must be made when evaluating the expected relative importance of ESG dimensions. Hypotheses below pertain to non-professional investors.

Following the shareholder profit maximisation argument, firms that perform well financially should attract more investments. This is a baseline hypothesis that has been generally accepted. Its purpose is to determine whether responses from the respondents in the sample are sensible. Hypothesis one therefore is:

H1: Investors are more likely to invest in firms with a higher financial performance.

Similarly, firms with higher CSR performance should attract more investments. However, the decision whether to invest in a firm when looking at CSR performance is dependent on whether an investor is socially responsible or not. Hypothesis two is therefore twofold:

H2a: Investors are more likely to invest in firms with a higher ESG performance.

H2b: The magnitude of the effect of ESG performance on this likelihood depends on whether an investor is socially responsible.

The trade-off between financial and CSR performance is more complicated. As Riedl and Smeets (2017) found, SR investors care about financial performance. They also found that SR investors expect lower returns on their funds than conventional investors do, as well as pay higher fees (Riedl & Smeets, 2017). Bollen (2007) found that the volatility of fund flows is lower for SRI funds than for conventional funds. Similarly, Benson and Humphrey (2008) report that “SRI fund flows are less sensitive to past fund performance than conventional fund flows” (Benson, et al., 2008, p.1851). This suggests that SR

investors give the financial performance of a firm a lower weight than conventional investors. Nevertheless, SR investors still care about financial performance. Hypothesis three therefore is:

H3: ESG performance is relatively more important for SR investors than for conventional investors.

Like the idea that investors are heterogeneous, the ESG dimensions within CSR can have different degrees of importance. Since studies of this type have not been conducted before, it is difficult to offer a well-founded hypothesis based on prior literature. However, there are insights that aid in the construction of at least one directional hypothesis. Words and types of news can have certain loadings for certain groups of individuals and can be perceived differently. Since this study focuses on the non-professional investor, it is hypothesised that the environmental and social dimensions of ESG are more important for investors that are socially responsible because these dimensions are closer to their moral values and beliefs than the governance dimension. Hilowitz (1997), for example, suggests that social labels on products concerning child labour have reduced the employment of children through customer awareness. Similarly, Steinrücken and Jaenichen (2007) find that fair-trade labels help increase the quality of life in third world countries. There is no indication in literature that governance mechanisms have such labels, other than statements mandated by the Sarbanes-Oxley act in the United States. Hypothesis four therefore is:

H4: For the likelihood to invest, the environmental and social dimensions of ESG are relatively more important than the governance dimension.

Scientific literature is unable to provide a clear picture regarding the relative importance of ESG dimensions, this study takes an explorative approach to discovering whether there is a difference in importance of ESG dimensions relative to one another. Therefore, the null hypothesis regarding the relative importance of the environmental and social dimensions is that both dimensions are equally important. This is stated as follows:

H5: There is no difference in the relative importance of the environmental and social dimensions on the likelihood to invest in a firm.

3 – Methodology

This study employs a factorial survey approach. This method allows “researchers to collect data from a large number of respondents in a controlled setting” (Oll, et al., 2016, p.2), essentially combining the survey and experimental methods. It allows the complexity of the business world to be captured by constructing a series of vignettes: “carefully designed descriptions of hypothetical people, social situations, or scenarios” (Oll, et al., 2016, p.2). Respondents are then asked to make a decision: a rating. The experimental component of FSm is the manipulation of words and word groups and presenting them to the respondent in a randomised manner. The hypothetical firm in the vignette has made its decision to operate the way it does, represented through the manipulations, and the respondent is asked to make a decision conditional upon those made by the hypothetical firm. The FSm is a suitable approach for answering the research question because the question itself deals with the complex minds of investors that make investment decisions based on numerous factors, such as financial performance, risk, and CSR information. Factorial surveys allow “individual judgments and evaluation processes (to be) directly related to the societal and organizational levels through a single method” (Oll, et al., 2016, p.3). Concretely, the FSm allows an answer to the research question to be specific to certain groups of individuals (such as males versus females, age groups, ethical views) and can combine these individual characteristics with the types of firms they prefer to invest in. The heterogeneity of investors is acknowledged, giving the results a higher degree of validity.

3.1 – The vignette universe

Oll, et al. (2016) provide a general template of a vignette universe that is very suitable for this study in terms of set-up. The vignette used in this study therefore closely follows Oll, et al. (2016). Appendix A provides an adapted vignette that is used for this study. It includes several manipulations that randomly take pre-defined values. The column named “topic” would not be shown to participants.

The vignette contains several topics on different levels. These are the initial investment portfolio, firm-level manipulations, the rating task, and individual characteristics. Every aspect of business delineated previously (financial; governance; social; environmental) is presented in two manipulations. This choice was made because of the explorative nature of this study. One manipulation is presented as a context variable, whereas the other presents “hard” performance. This allows for a richer model and offers more insights into how to operationalise ESG in future research. The choice to include only two manipulations was made because the required sample size increases the more manipulations are present in the vignette. Oll, et al. (2016) state that there is no consensus regarding the minimum required sample size and suggest that twenty respondents per independent variable could be an adequate rule of thumb. This same reasoning goes for the other two pillars, and the included manipulations reflect this. Why these topics are included and what they contain are described here in their respective order. The choice for broad manipulations rather than very specific ones is made

because there are many aspects of, for example, the environmental pillar (but also of the other pillars), such as carbon emissions, power usage, etc., but choosing one of these aspects might bias the results towards a perception of the relative importance of aspects *within* the pillar. It is crucial that this does not happen, since the object of interest is the relative importance *between* pillars, instead of *within*.

The investment budget: It is important to specify the amount of funds available for investment because of the decreasing returns property of money for individuals. A €100 increase in wealth means more to an average individual than it does to a rich individual. In experiments, researchers struggle with the size of the stakes (Falk & Heckman, 2009). Riedl and Smeets (2017) seem to suggest that including stake sizes is at least relevant, regardless of the size of the stakes. To control for a possible effect between the background of respondents and the importance of financial firm-performance, the amount of funds available (the stake) needs to be explicitly included as a variable in the analysis to properly assess the relative importance of CSR information. The investment budget is an individual-level manipulation since it pertains to the individual respondent. It was presented as the investor having either a small (€100.000), medium (€1 million) or large (€10 million) budget which he or she could invest.

Financial manipulations: The financial dimension is included in the vignette to provide a holistic approach to evaluating the relative importance of ESG dimensions. It is a firm-level manipulation which was presented in two separate manipulations: a context and a performance manipulation. The first manipulation was firm size. Firm size can give investors an idea about the longevity of the firm. Large firms took time to develop and become large, which means that those firms are also less likely to fail in the long run. Small firms are still in their starting phase where volatile cash flows and a volatile economic environment could easily destabilise them, leading to a loss of investment funds. Furthermore, firms of different sizes could be expected to devote different degrees of attention to ESG. For example, a large firm could be expected to devote more attention to it, because it has more resources available. A small firm, on the other hand, could be judged less harshly because investors might understand that it has no such excess resources available. This manipulation is presented as a firm being either small (revenues €100 million), medium-sized (revenues €1 billion) or large (revenues €10 billion). These numbers are based on the idea that diversified investors can only invest in publicly traded firms, and it is reasonable to assume that firms with revenues below €100 million would not be traded at a stock exchange. The second financial manipulation is firm performance compared to the industry. It is included because financial performance is a main driver for investment decisions. A relative framing of performance is chosen because absolute numbers are less meaningful if they cannot be compared to other firms when evaluating the return on an investment. *Ceteris paribus*, an investor would invest in the firm that performs relatively better than others. This manipulation is presented as a firm performing either inferior, on-par or superior compared to the industry.

Environmental manipulations: The first ESG dimension presented to respondents is another firm-level manipulation. The context manipulation presented is the nature of the core activities of the firm. A firm operating in the oil industry, for example, would be highly scrutinised by socially responsible investors, whereas a firm operating in the software industry would not be as highly scrutinised due to different core businesses. It is presented as a firm having core operations that are either harmful, neutral or beneficial to the environment. The second manipulation within the environmental dimension is the environmental performance compared to the industry. The manipulation provides information that is easy to understand and thus mitigates a potential bias generated by different perceptions of respondents. The choice of presenting the manipulation compared to the industry follows the same reasoning as the financial performance manipulation. The environmental performance is inferior, equal or superior to that of the industry.

Social manipulations: This dimension is presented as another firm-level manipulation. The context manipulation presented is the degree of stakeholder inclusion. A firm can be considered “doing well” in the social pillar when it incorporates feedback from stakeholders into the firm, as it shows that they are engaged with non-shareholder parties. It is presented as firms either rarely, occasionally or often taking initiatives brought forward by stakeholders into account. The second manipulation within the social dimension is presented as performance regarding societal concerns, reflecting that there are external stakeholders that have certain demands (concerns) regarding the firm’s activities, which is exactly what the social pillar entails. A firm’s ability to deal with these demands is analogous to its performance. The manipulation is presented as firms performing either inferior, equal or superior with respect to societal concerns compared to other firms in the industry.

Governance manipulations: This dimension is presented as another firm-level manipulation. The context manipulation presented is the degree of investor protection. Even though this is generally a country-level manipulation in archival-based research since it is determined by the legal system, it pertains to the specific firm in the vignette since it is not framed within specific countries and is thus presented as a firm-level manipulation. La Porta, et al. (2000) argue that the degree of investor protection determines “how well investors, both shareholders and creditors, are protected by law from expropriation by the managers and controlling shareholders of firms” (La Porta, et al., 2000, p.3). When managers behave opportunistically, their behaviour is analogous to expropriation (extracting benefits of control). The degree of importance given to the performance of governance mechanisms depends on how well investors are protected. If they are well-protected, governance structures could become less important, and vice versa. It is presented as investor protection being either low, medium or high for the firm. The second manipulation is presented in a context of the core goal of governance mechanisms: whether management is adequately monitored. It is presented as governance mechanisms being either ineffective, somewhat effective or very effective in monitoring management.

The rating task: Respondents are asked to state the likelihood that they would invest in the hypothetical firm, since a survey can only measure preferences and not actions. It is presented as a Likert-scale varying from 1 (not likely) to 5 (very likely).

After the vignettes were rated, the following statements and questions were presented as part of the post-experimental phase. They are measured variables, not part of any vignette.

Investor types: In order to disentangle respondents, it is important that they are characterised as having heterogeneous preferences. The “perceived role of ethics and social responsibility” (PRESOR) method developed by Singhapakdi, et al. (1996) was initially developed as a valid way to determine “marketers’ perceptions regarding the importance of ethics and social responsibility as components of business decisions” (Singhapakdi, et al., 1996, p.1131). Although Etheredge (1999) contests the use of the PRESOR method, the author acknowledges that this might be due to cultural differences in the sample. Singhapakdi, et al. (1996) base their findings on a US sample, whereas Etheredge (1999) bases it on a Hong Kong sample. Since the Netherlands is closer to the US than to Hong Kong in terms of culture, the PRESOR method is used in favour of Etheredge’s method. This study uses the questions of the PRESOR method to determine the type of investor a respondent is. These questions pertain to “social responsibility and profitability”, “long-term gains”, and “short-term gains” (Singhapakdi, et al., 1996). The questions have factor loadings that are used to compute a score per respondent. The factor loadings are somewhat adjusted in this study to make more sense¹ and the questions with the adjusted factor loadings can be found in appendix B. In total, four adjustments are made. Firstly, the last three statements are given a negative sign for their factor. The statements are counterintuitive to the other questions, and if the factor loadings would be positive, ratings that fit a traditional investor would count towards a higher SR score. Secondly, statement six was given a positive sign, because making employee morale a firm’s first priority is clearly a statement that fits SR investors and should thus contribute to a higher SR score. The statements make it possible to infer conclusions regarding investor *types*, instead of merely about an entire population. Respondents were asked to indicate to what extent they agreed or disagreed with a statement on a scale from 1 to 7.

Individual characteristics: Next to asking the typical demographic information such as sex, age and occupation, respondents were asked to rate control statements². One key statement is asked per category, and they are included to increase the validity of the survey.

3.2 – Data, respondents and multilevel regression analysis

The factorial surveys were administered through Qualtrics, an online survey platform that allows the randomised manipulations needed for this study. Respondents were asked to provide rating decisions

¹ The factor loadings are logically inconsistent in their signs (positive or negative). Their signs were thus altered.

² The rating of these statements provides personal characteristics for the analysis which are used to control for individual-specific characteristics in the regression analysis.

for five vignettes. Respondents were students from Radboud University in the Netherlands from all studies. These respondents can be classified as non-professional investors, that is, investors without professional knowledge of the industry. Participation in the survey was accommodated by a chance to win a gift card. Providing personal contact information was voluntary.

Since the survey provides data that is nonmetric and on different levels (firm-specific and individual levels), multilevel regression analysis had to be employed (Oll, et al., 2016). Table 3 provides a list of variables used in the regression and the regression formula; these are in line with the vignette dimensions outlined earlier, and their reason for inclusion is therefore already apparent.

Dependent variable	Likelihood to invest (<i>invdec</i>)
Independent variables	Investment budget (<i>budget</i>)
	Firm Size (<i>size</i>)
	Firm financial performance (<i>finper</i>)
	Nature of the firm's core operations (<i>coreop</i>)
	Firm environmental performance (<i>envper</i>)
	Firm social performance (<i>socper</i>)
	Firm stance on non-shareholder inputs (<i>stance</i>)
	Degree of investor protection (<i>invprot</i>)
	Effectiveness of governance mechanisms (<i>govmech</i>)
Controls	Importance of wealth (<i>wealth</i>)
	Importance of environment (<i>environment</i>)
	Importance of shareholders vs stakeholders (<i>social</i>)
	Importance of governance (<i>governance</i>)
	Importance of CSR (<i>csr</i>)
	Sex (<i>sex2</i>)
Regression formula	$lscore = \alpha + \beta_1 bmed + \beta_2 blarge + \beta_3 smed + \beta_4 slarge + \beta_5 fo$ $+ \beta_6 fs + \beta_7 cn + \beta_8 cb + \beta_9 ee + \beta_{10} es + \beta_{11} soc$ $+ \beta_{12} sof + \beta_{13} soce + \beta_{14} socs + \beta_{15} im + \beta_{16} ih$ $+ \beta_{17} gs + \beta_{18} gv + c_1 wealth + c_2 environment$ $+ c_3 social + c_4 governance + c_5 csr + c_6 sex2$ <p>*for an overview of the acronyms, see table 5.</p>

Table 1: List of variables

Table 2 provides descriptive statistics of the variables used in this study and table 3 provides labels for these variables. All variables have been measured. The total amount of respondents was 179. Each respondent was asked to rate five vignettes, resulting in a total number of observations of 895. The columns “min” and “max” display the minimum and maximum recorded values of the responses given

and do not correspond with the possible range of values that the response could have taken (e.g.: the minimum value of the variable “environment” is “2”, whereas the range of possible responses varied from 1 to 7. The possible values for numerous variables can take either 0 or 1. This is due to the nature of factorial survey data. Each variable represents a dummy which indicates which characteristic a vignette generated for the respondent. Using a multilevel regression approach, statistical software can determine the effects of each vignette manipulation on the respondent’s likelihood to invest. As such, these dummies must be included as separate variables in the regression equation.

Variable	Obs	Mean	Std. Dev.	Min	Max
lscore	895	2.863687	1.302798	1	5
bmed	895	.3307263	.4707377	0	1
blarge	895	.3363128	.4727115	0	1
smed	895	.3363128	.4727115	0	1
slarge	895	.347486	.4764379	0	1
fo	895	.347486	.4764379	0	1
fs	895	.3284916	.4699272	0	1
cn	895	.3351955	.4723227	0	1
cb	895	.3251397	.4686889	0	1
ee	895	.326257	.4691047	0	1
es	895	.3396648	.4738602	0	1
soc	895	.326257	.4691047	0	1
sof	895	.3385475	.4734803	0	1
soce	895	.3251397	.4686889	0	1
socs	895	.3441341	.4753507	0	1
im	895	.3351955	.4723227	0	1
ih	895	.3340782	.4719309	0	1
gs	895	.3329609	.4715362	0	1
gv	895	.3284916	.4699272	0	1
wealth	895	4.787.709	1.402.963	1	7
environment	895	5.972.067	.9425925	2	7
social	895	3.743.017	1.089.349	1	7
governance	895	4.899.441	1.063.398	2	7
csr	895	5.100.559	1.251.822	1	7
sex2	895	.5865922	.4927201	0	1
occup	895	0	0	0	0

Table 2: Descriptive Statistics

Variable name	Variable label
lscore	likelihood to invest
bsmall	small budget
bmed	medium budget
blarge	large budget
ssmall	small firm
smed	medium firm
slarge	large firm
fi	inferior financial performance
fo	on-par financial performance
fs	superior financial performance
ch	core operations are harmful to the environment
cn	core operations are neutral to the environment
cb	core operations are beneficial to the environment
ei	inferior environmental performance
ee	equal environmental performance
es	superior environmental performance
sr	rarely considers stakeholder initiatives
soc	occasionally considers stakeholder initiatives
sof	often considers stakeholder initiatives
soci	inferior social performance
soce	equal social performance
socs	superior social performance
il	low investor protection
im	medium investor protection
ih	high investor protection
gi	ineffective governance
gs	somewhat effective governance
gv	very effective governance
wealth	importance of wealth to respondent
environment	importance of the environment to respondent
social	importance of stakeholders versus equity holders to respondent
governance	importance of governance mechanisms to respondent
csr	importance of CSR to respondent
sex2	sex
occup	occupation

Table 3: Variable labels

4 – Results

This study aims to determine the relative importance of ESG dimensions in investment decisions. It does so by taking the likelihood to invest as a proxy for actual decisions, since surveys can only measure intent, as opposed to action. The first section of this chapter provides an analysis based on the entire sample, excluding the possible differences caused by the type of investor a respondent is. The second section provides analyses for hypotheses that are dependent on the differentiation between investor types and possible corroboration with the first section. In all cases, a random effects model with all responses is used. A random effects model is applicable, because the starting points of the “value” of each of the manipulations is different per respondent. A random effects model allows these starting constants to be different across investors. It still assumes that all respondents are equal in terms of the beta coefficients.

4.1 – Multi-level Regression

Table 4 provides results for the pooled responses of the entire sample (i.e.: without interactions included for the differentiation of groups). The lowest category is taken as reference category, hence only the middle and high categories are regressed. Table 5 provides the fit of the model. *R-sq within* indicates “how well differences among the ratings given by one participant can be explained by the features of the vignettes” (Oll, et al., 2016, p.18). *R-sq between* and *R-sq overall* show “how well the variation between participants can be explained by personal features used” and the overall fit of the model (Oll, et al., 2016, p.18). Given that investment preferences are complex in nature, a value of *R-sq within* of 0.3202 is not per definition low and shows promise for the method in future studies. The overall model, without investor type differences, explains 27.92% of the variation.

The categories measuring the effect of budget sizes are insignificant and thus do not provide support for the rationale that budget size could affect investment preferences. Even though firm size is insignificant, the financial performance of the firm is significant at the 5% significance level. The coefficient for superior financial performance is higher than for on-par financial performance, providing support for hypothesis 1: investors are more likely to invest in firms with a higher financial performance.

ESG performance is captured in environmental, social and governance performance. The variable *core operations* is significant with an increasing coefficient going from one category to the other. This means that the nature of the sector with respect to the environment in which a firm operates is important in determining investment preferences. *Environmental performance* is only significant when a firm performs superior to its peer-firms. Surprisingly, stakeholder inclusion is insignificant in the investment decision. Social performance, however, is significant with increasing coefficients across categories. Investor protection and the effectiveness of governance mechanisms follow a similar pattern. These results provide (limited) support for hypothesis 2a: investors are more likely to invest in firms

with higher ESG performance. Even though some categories show insignificant effects on the likelihood to invest, at least one variable per ESG dimension is significant.

Multi-level Regression	Likelihood to Invest
	Beta/Stdev
medium budget	-0.0914
	(0.091)
large budget	-0.0872
	(0.091)
medium firm	0.101
	(0.093)
large firm	0.152
	(0.093)
on-par financial performance	0.341***
	(0.091)
superior financial performance	0.708***
	(0.092)
core operations are neutral to the environment	0.774***
	(0.091)
core operations are beneficial to the environment	1.150***
	(0.091)
equal environmental performance	0.136
	(0.092)
superior environmental performance	0.391***
	(0.092)
occasionally considers stakeholder initiatives	0.146
	(0.092)
often considers stakeholder initiatives	0.155
	(0.091)
equal social performance	0.195*
	(0.092)
superior social performance	0.446***
	(0.090)
medium investor protection	0.357***
	(0.094)
high investor protection	0.446***
	(0.095)
somewhat effective governance	0.286**
	(0.090)
very effective governance	0.377***
	(0.091)
importance of wealth to respondent	0.0642
	(0.034)
importance of the environment to respondent	-0.0223
	(0.053)
importance of stakeholders vs equity holders to respondent	0.0271
	(0.043)
importance of governance mechanisms to respondent	-0.00439
	(0.046)
importance of CSR to respondent	-0.00853
	(0.041)
sex	0.0175
	(0.095)
Constant	0.649

	(0.440)
Observations	895
Command used: lscore bmed blarge smed slarge fo fs cn cb ee es soc sof soce socs im ih gs gv wealth environment social governance csr sex2 , re i(newid)	
dependent variable: Likelihood to invest in a firm	

Table 4: Multi-level Random Effects Regression – No Interactions

Random-effects GLS regression	Number of obs	=	895
Group variable: newid	Number of groups	=	179
R-sq:	Obs per group:		
within = 0.3202	min	=	5
between = 0.1612	avg	=	5
overall = 0.2792	max	=	5

Table 5: Fit of the Model

The regression results for the entire sample show that all three ESG dimensions have a significant effect on the likelihood to invest. The variables *investor protection* and *effectiveness of governance* show coefficients of 0.357-0.446 and 0.286-0.377 respectively. The variables *core operations* and *environmental performance* show coefficients 0.774-1.150 and 0.391 respectively (excluding insignificant results). *Stakeholder inclusion* is insignificant, and *social performance* shows coefficients of 0.195-0.446. These coefficients show that the environmental dimension of ESG has been an important determinant for respondents in determining their likelihood to invest. Surprisingly the social dimension is considered as being less important than the governance dimension (made apparent by insignificant coefficients on *stakeholder inclusion*). These results provide partial support for hypothesis 4. The environmental dimension is more important than the governance dimension, but the social dimension is not. The results also provide insights into hypothesis 5. The environmental dimension is relatively more important than the social dimension in stating investment intentions.

4.2 – Investor type differentiation

Table 6 shows the previous regression, as well as a panel regression in which all responses are pooled, but interaction effects are included for all investors based on the group they were assigned (0 or 1 being conventional and socially responsible investors respectively; this was based on the evaluation of PRESOR statements by respondents, post-experimentally). Model 1 refers to the initial regression without interactions and model 2 refers to the regression including interactions between vignette variables and the group variable. Table 7 provides the fit of the model. Adding interactions between the investor group type and dummy variables for the vignette manipulations barely increases the fit of the model. This is also apparent from the discovery that only one of the interactions is significant, indicating that, in a two-group split, different types of investors do not have different preferences in this sample other than for the sector in which a firm operates. The results thus do not support hypothesis 2b. They

also do not support hypothesis 3: ESG performance is not relatively more important for SR investors than for conventional investors.

Multi-level Regression	Model 1	Model 2
Likelihood to Invest	Beta/Stdev	Beta/Stdev
medium budget	-0.0914 (0.091)	-0.103 (0.126)
large budget	-0.0872 (0.091)	-0.190 (0.130)
medium firm	0.101 (0.093)	0.222 (0.129)
large firm	0.152 (0.093)	0.154 (0.130)
on-par financial performance	0.341*** (0.091)	0.330** (0.127)
superior financial performance	0.708*** (0.092)	0.688*** (0.131)
core operations are neutral to the environment	0.774*** (0.091)	0.793*** (0.130)
core operations are beneficial to the environment	1.150*** (0.091)	0.974*** (0.127)
equal environmental performance	0.136 (0.092)	0.178 (0.129)
superior environmental performance	0.391*** (0.092)	0.545*** (0.127)
occasionally considers stakeholder initiatives	0.146 (0.092)	0.219 (0.132)
often considers stakeholder initiatives	0.155 (0.091)	0.121 (0.126)
equal social performance	0.195* (0.092)	0.284* (0.130)
superior social performance	0.446*** (0.090)	0.485*** (0.127)
medium investor protection	0.357*** (0.094)	0.398** (0.128)
high investor protection	0.446*** (0.095)	0.412** (0.136)
somewhat effective governance	0.286** (0.090)	0.203 (0.125)
very effective governance	0.377*** (0.091)	0.396** (0.127)
importance of wealth to respondent	0.0642 (0.034)	0.0576 (0.034)
importance of the environment to respondent	-0.0223 (0.053)	-0.00451 (0.055)
importance of stakeholders vs equity holders to respondent	0.0271 (0.043)	0.0245 (0.043)
importance of governance mechanisms to respondent	-0.00439 (0.046)	-0.00408 (0.046)
importance of CSR to respondent	-0.00853 (0.041)	-0.00203 (0.041)
sex	0.0175	0.0232

	(0.095)	(0.095)
medium budget x group		-0.00305
		(0.175)
large budget x group		0.163
		(0.176)
medium firm x group		-0.284
		(0.182)
large firm x group		-0.0416
		(0.181)
on-par financial performance x group		0.0776
		(0.179)
superior financial performance x group		0.0361
		(0.179)
core operations are neutral to the environment x group		-0.0279
		(0.179)
core operations are beneficial to the environment x group		0.414*
		(0.178)
equal environmental performance x group		-0.104
		(0.177)
superior environmental performance x group		-0.349
		(0.181)
occasionally considers stakeholder initiatives x group		-0.121
		(0.179)
often considers stakeholder initiatives x group		0.0723
		(0.175)
equal social performance x group		-0.223
		(0.177)
superior social performance x group		-0.117
		(0.175)
medium investor protection x group		-0.109
		(0.184)
high investor protection x group		0.0571
		(0.185)
somewhat effective governance x group		0.174
		(0.175)
very effective governance x group		0.0186
		(0.178)
Constant	0.649	0.561
	(0.440)	(0.458)
Observations	895	895

Command Used: xtreg lscore bmed blarge smed slarge fo fs cn cb ee
es soc sof soce socs im ih gs gv wealth environment social
governance csr sex2 xbmed xblarge xsmed xslarge xfo xfs xcn xcb
xee xes xsoc xsof xsoce xsocs xim xih xgs xgv , re i(newid)
dependent variable: Likelihood to invest in a firm

Table 6: Multi-level Random Effects Regression with and without Interactions

Random-effects GLS regression			
	Number of obs	=	895
Group variable: newid	Number of groups	=	179
R-sq:	Obs per group:		
within = 0.3408	min	=	5
between = 0.1652	avg	=	5
overall = 0.2948	max	=	5

Table 7: Fit of Model 2

Striking, however, is that the importance of the environmental dimension, operationalised through core operations, *is* different for socially responsible investors than it is for conventional investors, as specified through the method employed in this study, but *only* if they are beneficial to the environment. Even though the data does not show support for the other dimensions of ESG, the importance of the environmental dimension is interesting. Furthermore, the inclusion of interaction effects does change the coefficients for all variables but does not change the underlying intuition. Environmental performance is the most important ESG dimension in the investment decision, governance and social performance are somewhat equally important and both higher financial performance and CSR performance increase the likelihood investors invest in a firm.

4.3 – Robustness checks

Random effects models can only be used when there is no significant correlation between the explanatory variables and the error term. This is tested using the Hausman test. Appendix C shows the results of the Hausman test. It shows that the null hypothesis is not refuted (there is no correlation) and that a random effects model can be used. To ascertain whether a multiple group split would increase the explanatory power of the model, regressions were run with three groups as well. The groups were split into even categories. Splitting the sample into multiple groups does not yield significant results regarding investor type, corroborating the results presented on the previous pages.

5 – Conclusion and discussion

This study aims to answer the question “*When investors determine their likelihood to invest in a firm, what is the relative importance of the environmental, social and corporate governance related performance of firms?*” The results show that the environmental dimension is by far the most important ESG dimension that influences investment likelihood. In this sample, it was even more important than the financial performance of a firm when its core operations were beneficial to the environment. The governance dimension is slightly more important for the investment decision than the social dimension, but all three dimensions carry a significant value for the respondents in the survey. Surprisingly, the results did not show that different types of investors differ in which performance measures they find more important, except for when the core operations of a firm are beneficial to the environment. This could have three explanations: (i) there is no actual relationship, (ii) the PRESOR-method applied in this study is an unsuitable method for measuring investor types, or (iii) the sample is skewed due to the selection of respondents.

This study shows that the non-financial performance has become important for both conventional and more socially responsible investors. It implies that studies that are compartmentalised (i.e. focus on one or just a few dimensions) when evaluating investment behaviour may yield inaccurate results. This thesis also adds to the literature of composite scores of CSR performance such as Cappelletti-Blanchard and Petit (2015) by providing coefficients for the different dimensions and a method of measurement. These coefficients are, in essence, weights with which composite scores could be computed. This thesis furthermore adds to studies regarding materiality. Stakeholder inclusion, arguably a part of the social dimension, was insignificant in the analysis, whereas social performance was significant. This assertion is in line with previous research regarding materiality, such as Khan, et al. (2016) who determined that firms with superior performance on material issues outperform other firms, but firms with superior performance on immaterial issues do not. It is furthermore illustrative of the ambiguity surrounding the operationalisation of ESG dimensions that Isa and Reast (2014) have argued. It might be that stakeholder inclusion was not seen as being part of the social dimension by respondents. It would be interesting to see further studies on stakeholder inclusion and its perceived importance by firms as seen through stakeholder materiality analyses in annual reports. Furthermore, the fact that the social and environmental dimensions are significantly associated with investment likelihood strengthens the idea of efficient markets, considering that Orlitzky, et al. (2003) report that the social dimension has a significant positive effect on the economic performance of a firm and Al-Tuwaijri et al. (2004) report that this same relationship is found for the environmental dimension. This means that respondents are reasonably able to incorporate this information into their investment decisions, resulting in more efficient markets. Respondents in the sample seemed to recognise that it yields value and are more likely to invest in firms that perform well socially and environmentally. This study also strengthens the idea that the concept of *homo economicus* (the fully rational economic man)

has become an inaccurate depiction of human individuals in the economy, at least in the traditional utilitarian sense. The finding that the environmental dimension is more important than the financial dimension in this sample shows that other behavioural concepts (such as utility functions based on non-financial criteria) and ideas could be more accurate at depicting actual human behaviour in the economy.

Regarding its practical relevance, this thesis provides insights for regulators to assess, for example, the decision usefulness of prospectuses and adjust their regulations accordingly. Environmental, social and governance dimensions are significant information that could be deemed as mandatory information for a fully informed investment decision. Furthermore, firms could use the findings of this study as insights into how to better attract investment through non-financial performance indicators.

The implications above must be seen in the light of certain quality indicators: validity, reliability and generalisability. These quality indicators offer insights into how the results of this study should be interpreted. Validity refers “to the integrity and application of methods undertaken and the precision in which findings accurately reflect the data” (Noble & Smith, 2015, p. 34). Reliability “describes consistency within the employed analytical procedures” (Noble & Smith, 2015, p. 34). In other words, validity indicates whether the study measured what it aimed to measure, and reliability is a measure used to show “replicability or repeatability of results or observations” (Golafshani, 2003, p. 598). The validity of this study is increased by the direct link between the results and the data. Data has been collected from respondents directly, mitigating interpretation bias between data and the researcher. The validity of this study is questioned by design. The factorial survey method requires a specification of vignette manipulations beforehand. Since a pre-study for the interpretation of the manipulations was not conducted due to time constraints, interpretation bias may exist between the respondents and the researcher. The reliability of the study, however, is high. When researchers choose the same manipulations as this study has done, the study is fully replicable. Naturally, choosing samples from different geographical or institutional areas may result in different responses. Another criterion for quantitative studies is generalisability. This study is not generalisable to actual investment decisions. The survey only accurately captures intent instead of actions. Furthermore, the sample consists of a particular group of individuals: students. Students have different preferences than other individuals in society, making a generalisation to a larger population (e.g. a population on country-level) impossible.

This study deliberately set-up two manipulations per ESG dimension. They may, however, not always accurately present the essence of a dimension, such as stakeholder inclusion. Future research could be aimed at a more thorough operationalisation of ESG dimensions that is even more understandable for respondents. The study also showed the applicability of the factorial survey method in determining relative importance. ESG dimensions do not carry the same weight, and future studies could focus on explaining why investors give a higher weight to the environmental dimension,

compared to the societal and governance dimensions. Furthermore, future studies should be conducted that focus on investor type differentiation. Even though the results of this study do not indicate a significant difference between conventional and socially responsible investors, this can have multiple reasons, delineated at the beginning of this chapter. The significant difference found between conventional and socially responsible investors regarding the core operations of a firm could be tied to recent news regarding the environment and the acknowledgement of and widespread concern about climate change. It would be interesting to see how environmental news would influence investor intent in, for example, an experiment to find out whether these effects hold for all investors. In addition, future studies should try to replicate this study in order to ascertain whether these results are generalisable to larger populations. Finally, the core operations of a firm largely drive the conclusion that the environmental dimension is relatively more important than the other dimensions. This seems to indicate that many investors largely base their likelihood to invest on the type of industry a firm is part of. In the future, it would be interesting to see qualitative studies that try to discover the rationales of SRI fund managers and their screening mechanisms to figure out whether core operations are indeed important for professional SR investors.

This study has certain limitations. Firstly, the sample consists solely of students from one university. Students from Radboud University could be more socially engaged than other individuals and this could skew the results of this study. Furthermore, it was assumed that the three categories are an equal distance from each other in the dummy analysis. The study did not account for differences in step-size from neutral to beneficial core operations, for example, since a pre-study to determine these value differences was impossible due to time constraints. Some concern exists regarding the classification of investors as being conventional or socially responsible. The PRESOR method might not be suitable as a tool for this purpose or its factor loadings might be inaccurate. The study also only takes the social preferences rationale posited by Riedl and Smeets (2017) into account, as the survey was anonymous and social signalling could thus not be captured. Due to this, the results cannot be perceived as what investors would do when asked to make an actual investment decision. This is both a limitation as well as an opportunity, since the method used in this study could be used to determine the social preferences of investors in countries, for example, and could adequately eliminate noise in the data resulting from social signalling while still being able to reach many respondents, as opposed to experiments in a laboratory.

References

- Al-Tuwaijri, S., Christensen, T.E., Hughes II, K.E. (2004). "The relations among environmental disclosure, environmental, performance, and economic performance: a simultaneous equations approach", *Accounting, Organizations and Society*, 29, pp.447-471.
- Benson, K.L., Humphrey, J.E. (2008). "Socially responsible investment funds: Investor reaction to current and past returns", *Journal of Banking & Finance*, 32, pp.1850-1859.
- Bollen, N.P.B. (2007). "Mutual Fund Attributes and Investor Behavior", *Journal of Financial and Quantitative Analysis*, 42(3), pp.683-708.
- Bolton, P., Mehran, H., Shapiro, J. (2015). "Executive Compensation and Risk Taking", *Review of Finance*, 19(6), pp.2139-2181.
- Bruynseels, L., Cardinaels, E. (2014). "The Audit Committee: Management Watchdog of Personal Friend of the CEO?", *The Accounting Review*, 89(1), pp.113-145.
- Camerer, C.F., Loewenstein, G. "Behavioral Economics: Past, Present, Future," in Camerer, C.F., Loewenstein, G., Rabin, M. (2004). *Advances in Behavioral Economics*, Princeton: Princeton University Press, pp.3-51.
- Capelle-Blancard, G., Petit, A. (2015). "The Weighting of CSR Dimensions: One Size Does Not Fit All", *Business & Society*, 56-6, pp.919-943.
- Chua, W.F. (1986). "Radical Developments in Accounting Thought", *The Accounting Review*, 81:4, pp.601-632.
- Dahlsrud, A. (2008). "How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions", *Corporate Social Responsibility and Environmental Management*, 15, pp.1-13.
- Dhaliwal, D.S., Li, O.Z., Tsang, A., Yang, Y.G. (2011). "Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting", *The Accounting Review*, 86-1, pp.59-100.
- Etheredge, J.M. (1999). "The Perceived Role of Ethics and Social Responsibility: An Alternative Scale Structure", *Journal of Business Ethics*, 18, pp.51-64.
- Falk, A., Heckman, J. (2009). "Lab Experiments Are a Major Source of Knowledge in the Social Sciences", *Science*, 326, pp.535-538.
- Gillan, S.L. (2006). "Recent Developments in Corporate Governance: An Overview", *Journal of Corporate Finance*, 12, pp.381-402.
- Gintis, H. (2007). "A Framework for the Unification of the Behavioral Sciences", *Behavioral and Brain Sciences*, 30, pp.1-61.

Golafshani, N. (2003), Understanding Reliability and Validity in Qualitative Research, The Qualitative Report, Vol. 8, No. 4, pp. 597-607

Goss, A., Roberts, G.S. (2011). "The impact of corporate social responsibility on the cost of bank loans", *Journal of Banking & Finance*, 35, pp.1794-1810.

Hamilton, S., Jo, H., Statman, M. (1993). "Doing Well While Doing Good? The investment Performance of Socially Responsible Mutual Funds", *Financial Analyst Journal*, 49(6), pp.62-66.

Hilowitz, J. (1997). "Social labelling to combat child labour: Some considerations", *International Labour Review*, 136 (2), pp. 215-232.

Isa, S.M., Reast, J. (2014). "Operationalising Corporate Social Responsibility (CSR) and the Development Debate", *Asian Academy of Management Journal*, 19-1, pp.169-197.

Jensen, M.C., Meckling, W.H. (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, 3 (4), pp.305-360.

Khan, M., Serafeim, G., Yoon, A. (2016). "Corporate sustainability - First evidence on materiality", *The Accounting Review*, 91-6, pp.1697-1724.

Kuhlman, T., Farrington, J. (2010). "What is Sustainability?", *Sustainability*, 2, pp.3436-3448.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. (2000). "Investor protection and corporate governance", *Journal of Financial Economics*, 58, pp.3-27.

Larcker, D.F., Richardson, S.A., Tuna, I. (2007). "Corporate Governance, Accounting Outcomes, and Organizational Performance", *The Accounting Review*, 82(4), pp.963-1008.

Lee, D.D., Humphrey, J.E., Benson, K.L., Ahn, J.Y.K. (2010). "Socially responsible investment fund performance: the impact of screening intensity", *Accounting and Finance*, 50(2), pp.351-370.

Luo, X., Wang, H., Raithel, S., Zheng, Q. (2015). "Corporate Social Performance, Analyst Stock Recommendations, and Firm Future Returns", *Strategic Management Journal*, 36, pp.123-136.

Noble, H., Smith, J. (2015), Issues of validity and reliability in qualitative research, *Evidence-Based Nursing*, 2015, 18, pp. 34-35

Oll, J., Hahn, R., Reimsbach, D., Kotzian P. (2016). "Tackling Complexity in Business and Society Research: The Methodological and Thematic Potential of Factorial Surveys", *Business & Society*, pp.1-34.

Orlitzky, M., Schmidt, F.K., Rynes, S.L. (2003). "Corporate Social and Financial Performance: A Meta-analysis", *Organization Studies*, 24(3), pp.403-441.

Renneboog, L., Horst, J. ter, Zhang, C. (2008). "Socially responsible investments: Institutional aspects, performance, and investor behavior", *Journal of Banking & Finance*, 32, pp.1723-1742.

Riedl, A., Smeets, P. (2017). “Why Do Investors Hold Socially Responsible Mutual Funds?”, *The Journal of Finance*, 72(6), pp.2505-2550.

Sandberg, J., Juravle, C., Hedesström, T.M., Hamilton, I. (2009). “The Heterogeneity of Socially Responsible Investment”, *Journal of Business Ethics*, 87, pp.519-533.

Singhapakdi, a., Vitell, S.J., Rallapalli, K.C., Kraft, K.L. (1996). “The Perceived Role of Ethics and Social Responsibility: A Scale Development”, *Journal of Business Ethics*, 15, pp.1131-1140.

Starr, M. (2008). “Socially Responsible Investment and Pro-Social Change”, *Journal of Economic Issues*, 42(1), pp.51-73.

Steinrücken, T., Jaenichen, S. (2007). “The Fair Trade Idea: Towards an Economics of Social Labels”, *Journal of Consumer Policy*, 30 (3), pp. 201-217.

Syed, A.M. (2017). “Environment, social, and governance (ESG) criteria and preference of managers”, *Cogent Business & Management*, 4, pp.1-13.

Appendix A – Vignette Universe

Topic	Vignette universe (randomised)
Investment budget	You are an investor with a small (€100.000)/medium (€1 million)/large (€10 million) amount of funds at your disposal and come across the following potential investment opportunity:
Firm-level manipulations	It is a small (revenues €100 million)/medium-sized (revenues €1 billion)/large (revenues €10 billion) firm. Its financial performance is inferior/on-par/superior compared to the industry. It is operating in an industry in which core operations are harmful/neutral/beneficial to the environment. The environmental performance of the firm is inferior/equal/superior to that of the industry. It rarely/occasionally/often takes initiatives brought forward by stakeholders into account. The firm performs inferior/equal/superior with respect to societal concerns compared with other firms in the industry. Investor protection for shareholders of this firm is low/medium/high . The governance mechanisms of the firm are ineffective/somewhat effective/ very effective in monitoring management.
Rating task	How likely are you to invest in this firm? (<i>1=not likely, 5=very likely</i>).
Investor type	<p><i>(Respondents are asked to rate the following statements on a 7-point scale)</i></p> <ul style="list-style-type: none"> - Social responsibility and profitability can be compatible. - To remain competitive in a global environment, business firms will have to disregard ethics and social responsibility. - Good ethics is often good business. - If survival of business enterprise is at stake, then ethics and social responsibility must be ignored. - Being ethical and socially responsible is the most important thing a firm can do. - A firm's first priority should be employee morale. - The overall effectiveness of a business can be determined to a great extent by the degree to which it is ethical and socially responsible. - The ethics and social responsibility of a firm is essential to its long term profitability. - Business has a social responsibility beyond making a profit.

Individual characteristics	<ul style="list-style-type: none"> - Business ethics and social responsibility are critical to the survival of a business enterprise. - If the stockholders are unhappy, nothing else matters. - The most important concern for a firm is making profit, even if it means bending or breaking the rules. - Efficiency is much more important to a firm than whether or not the firm is seen as ethical or socially responsible. <p>Financial wealth is important to me. (<i>1=strongly disagree, 7=strongly agree</i>).</p> <p>It is important that firms care for the environment (<i>1=strongly disagree, 7=strongly agree</i>).</p> <p>I believe that firms should care more for (<i>1=shareholders, 7= stakeholders</i>).</p> <p>The effectiveness of governance structures is important for my investment decisions (<i>1=strongly disagree, 7= strongly agree</i>).</p> <p>I pay attention to corporate social responsibility performance in my investment decisions (<i>1=strongly disagree, 7=strongly agree</i>).</p> <p>What is your age?</p> <p>What is your occupation?</p> <p>What is your field of study? (E.g.: Economics, Psychology, Biology, etc.)</p> <p>At what university do you study?</p> <p>I am a sex (m/f/o/rather not say).</p>
----------------------------	--

Appendix B – PRESOR Factor Loadings

Social responsibility and profitability can be compatible.	0.84
To remain competitive in a global environment, business firms will have to disregard ethics and social responsibility.	-0.63
Good ethics is often good business.	0.6
If survival of business enterprise is at stake, then ethics and social responsibility must be ignored.	0.54
Being ethical and socially responsible is the most important thing a firm can do.	0.74
A firm's first priority should be employee morale.	0.73 (adj.)
The overall effectiveness of a business can be determined to a great extent by the degree to which it is ethical and socially responsible.	0.61
The ethics and social responsibility of a firm is essential to its long term profitability.	0.57
Business has a social responsibility beyond making a profit.	0.48
Business ethics and social responsibility are critical to the survival of a business enterprise.	0.48
If the stockholders are unhappy, nothing else matters.	-0.74 (adj.)
The most important concern for a firm is making profit, even if it means bending or breaking the rules.	-0.71 (adj.)
Efficiency is much more important to a firm than whether or not the firm is seen as ethical or socially responsible.	-0.68 (adj.)

Appendix C – Hausman Test

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe2	(B) re2		
bmed	-.0962194	-.0760289	-.0201905	.033996
blarge	-.0791706	-.07423	-.0049406	.0343008
smed	.1527191	.1246641	.0280549	.0375721
slarge	.1821212	.1626394	.0194818	.0351031
fo	.3704825	.3607372	.0097453	.0341942
fs	.7280906	.7089475	.0191431	.0326302
cn	.7651115	.7481149	.0169966	.0311761
cb	1.203953	1.138141	.0658123	.0319148
ee	.0968798	.1353764	-.0384966	.032913
es	.3480329	.392875	-.0448421	.0356839
soc	.1224473	.1538541	-.0314068	.0387104
sof	.1601743	.1745377	-.0143634	.0354102
soce	.1443832	.1921582	-.0477751	.0347448
socs	.4151882	.4337	-.0185117	.0328037
im	.3447226	.3463852	-.0016625	.0517275
ih	.4278879	.4348882	-.0070003	.0514533
gs	.3235302	.3080716	.0154587	.0318074
gv	.3633177	.362287	.0010307	.0333054

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```
chi2(18) = (b-B)'[(V_b-V_B)^(-1)](b-B)
          = 9.91
Prob>chi2 = 0.9348
```