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What colour is your performance?

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Abstract

This paper explores the relationship between corporate social responsibility (CSR) and firm performance. The findings are based on the analysis of 126 firms from the Nordic region over the period of 2010-2014. We do not find conclusive empirical evidence on the relationship between CSR and financial performance measured at the same year based on the correlation analysis. When performing regression analysis and lagging social performance measure, we overall find mixed proof of CSR and financial performance relationship, when measuring the latter with accounting- and market-based measures. We provide evidence that CSR performance and financial performance have a negative interrelation of negligible magnitude, with the effect mostly coming from environmental and corporate governance domains. Additional analysis reveals a non-linear relationship between ownership by institutional investors and financial performance. We come to the conclusion that financial performance and employer inclusion in the Employer Attractiveness Ranking are positively interrelated. Contrary to our conjecture, we find no conclusive evidence on CSR affecting inclusion in the ranking.

Keywords: Corporate Social Responsibility (CSR); economic, environmental, social and corporate governance score; ESG score; corporate financial performance; ownership structure

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List of Abbreviations

CAPEX	Capital expenditure
CSR	Corporate social responsibility
D/A	The debt to assets ratio
EBITDA	Earnings before interest, taxes, depreciation and amortization
EPS	Earnings per share
ESG	Economic, environmental, social and corporate governance score
$\ln(X)$	Natural logarithm of X
OECD	Organisation for Economic Co-operation and Development
P/E	The price to earnings ratio
R&D	Research and development
ROA	Return on assets
ROE	Return on equity
SD	Standard deviation
#firms	Number of firms
#obs	Number of observations

1 Introduction

Although the basic belief of corporate social responsibility is that society and businesses are tightly interconnected, scholars are still striving to specify exact linking mechanisms. In recent years, CSR has become increasingly important and companies see it as an impactful criterion in the investment decision-making process. Within this notion, a central issue has been the economic impact of CSR performance, i.e. if sustainable development pays off or as we put it “What colour is your performance?”. In this study, we seek to obtain empirical evidence that adaptation of sustainability strategies may affect corporate financial performance.

According to World Commission on Environment and Development, sustainable development is defined as follows: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (1987). In the centre of sustainable development definition is the trade-off between costs and benefits of CSR. On the one hand, it is argued that CSR enhances financial performance through improvement of processes. Presumably, talented people will be attracted to corporations that value their capabilities and invest in their ideas (Wright et al., 1995). On the other hand, sustainable development leads to costs and financial diversions from other investments (Palmer et al., 1995). As a result, number of empirical studies performed in this area find opposite conclusions regarding the link between CSR and corporate financial performance.

Overall it is accepted that CSR is a broad concept including various factors such as environmental, economic, social, cultural, political and many other factors (Sage, 1999; López, Garcia and Rodriguez, 2007). These elements are interrelated and, therefore, depending on their choice as proxies for CSR, research conclusions might differ raising a new debate about the topic. To evaluate CSR we use an industry-established measure provided by Thomson Reuters database ESG score, which includes the economic, environmental, social and corporate governance domains, and thus covers the main factors measuring CSR. In particular, we determine the link between the ESG score and its domains and several financial performance indicators, including a developed Profitability Index, in order to analyse the impact of CSR on corporate financial performance. In contrast to the majority of the previous studies, we find evidence that corporate financial performance and the CSR score are negatively related, however, only to a negligible extent, with the effect mostly coming from environmental and corporate governance performance.

The fact that we arrive at no evidence on proving a positive relationship between CSR and firm performance may be explained by discrepancy in national regulations of the

analysed countries. Moreover, Sweden, Denmark, Norway and Finland form a so-called “Nordic Model” with shared similarities in their cultural, ideological, political and economic values. Therefore, there is a reason to assume that in the Nordics the CSR concept is transformed and adapted to the Nordic market-specifics (Gjølberg, 2010).

There is a common perception that firms use CSR as a tool to increase public awareness of the company and to attract talented employees. By using an annual Employer Attractiveness Ranking, a dummy variable constructed to measure attractiveness of each firm from current and potential employees’ point of view, we examine the potential impact on corporate financial performance. We find that being recognized by professionals and students as an attractive employer, in fact, has a positive relation with financial performance.

Recent studies provide empirical support that different types of owners may have heterogeneous objectives and preferences in a company. Specifically, ownership by institutional investors might lead to a more focused view on CSR and therefore a significant positive relationship between CSR ratings and ownership by some institutional investors (Connelly et al., 2010). We present empirical evidence on positive relationship between some types of institutional ownership and firm CSR score that supports the view about heterogeneous investor preferences.

Overall, the importance of powerful companies promoting sustainability is crucial for the overall economy and society. Thus, it is significant to quantify the CSR concept, its impact and materiality. Therefore, our study aims to contribute to the growing body of academic research papers that investigate the relationship between corporate CSR and financial performance focusing on the Nordic market.

The remainder of the paper is structured as follows. Section 2 provides an overview of the previous research on the relationship between CSR and firm performance and other related studies. In Section 3, we present theories and hypotheses that the analysis in this paper is based on. Section 4 introduces the methodology employed and provides a detailed description of the dataset and the variables in our research. In Sections 5 and 6 our results are explained and interpreted, robustness tests, as well as limitations of our research are discussed. Section 7 contains conclusions of our most relevant findings.

2 Literature Review

Previous academic literature attempts to examine relationship between CSR objectives and corporate financial performance. This section provides an overview of previous findings with the focus on the variables central for this study: firm performance measured by accounting

ratios and Tobin's Q, and ownership. Many academic papers report a positive relationship between CSR and firm performance; the results of those studies are presented in the Subsection 1. However, a group of studies finds a negative or U-shaped relationship between CSR and firm performance and the review of those is provided in the Subsection 2. Subsection 3 presents findings with conflicting evidence or no evidence between CSR and financial performance. Subsection 4 provides a brief overview of a relationship between CSR and firm ownership. In Subsection 5 we discuss comparability of results among different CSR studies. Section 6 discusses some unique characteristics of Nordic countries. In addition to this, in Subsection 7 we outline the scope in which this study adds value to the previous research literature.

2.1 Literature on Positive Relationship

During the last decade considerable attention has been focused on CSR and, particularly, on investigating the existence of a positive relationship between CSR-related activities and financial performance of firms. One of the early papers by Waddock and Graves (1997) examines the relationship between an aggregated CSR score and firm performance from objective (accounting) perspective measured by return on equity, return on assets and return on sales. The central premise of their work is the recognition of the "slack resources theory" and the "good management hypothesis". More specifically, they show that CSR is positively associated with past financial performance and firms with strong performance may more likely spend funding on CSR activities in the future. At the same time, future financial performance also depends on good CSR: the idea that firms may also "do well by doing good". The empirical work of Ruf et al. (2001) provides another evidence of a positive link. They find that changes in CSR are positively associated with growth in sales for the current and subsequent years. Hence, there are short-term benefits from improving CSR. According to McWilliams and Siegel (2000), a positive relationship between an aggregated CSR measure and corporate financial performance is driven by R&D expenditures, however, their binary measure of CSR differs slightly from other traditional measures of CSR performance.

From the subjective (market) perspective, several studies on aggregate measure of CSR and corporate financial performance have proven a significant and positive effect, indicating the creation of long-term value by CSR, which is positively evaluated by the market (Clark and Viehs, 2014). For example, Hawn and Ioannou (2012) show that an increase in a composite CSR assets index, based on the ASSET4 database, leads to an increase in Tobin's Q. Moreover, they argue that the firm's past CSR reputation matters for

future corporate financial performance. As a downside to the aggregate CSR measurement approach it is argued that the aggregation might lead to ambiguous results due to the offsetting features between different dimensions of CSR (Clark and Viehs, 2014). Therefore, below we present evidence on the most important dimensions of CSR separately.

When analysing CSR from the environmental dimension, Derwall et al. (2011) provide evidence in favour of a positive relationship between environmental and financial performance. Using the portfolio approach method they analyse the returns of highly eco-efficient and eco-inefficient companies. They show the positive relationship between eco-efficiency and corporate performance. Similarly, Russo and Fouts (1997) find a positive and significant relationship between environmental and corporate operational performance measured by ROA when evaluating the effect of environmental domain on corporate performance. Moreover, they provide evidence that the relationship is strengthened as the growth of the firm's industry rises. From a subjective (market-based) point of view, Konar and Cohen (2001), King and Lenox (2002) and Cheung et al. (2010) arrive at a positive and significant relation between CSR and Tobin's Q as a proxy for firm value. Recent work by Guenster et al. (2011) analyses the valuation differential between eco-efficient firms and non eco-efficient firms. In particular, in eco-efficient firms the shares experience an upward price correction after the time of undervaluation, relative to the least eco-efficient firms.

Another massive body of studies investigates the effect of social dimension in CSR and its effect on financial performance of firms. In an interesting study by Edmans (2011) the author investigates whether there is a positive link between employee satisfaction and stock returns of respective companies. He approaches this question by constructing a portfolio of "100 best companies to work for in America" and traces their returns during the period between 1984 and 2009. The portfolio earned an annual four-factor alpha of 3.5% per annum in excess of the risk-free rate and 2.1% above the industry benchmark. He argues that the market does not price intangible assets into firm valuations. The research provides evidence that proper corporate social behaviour of companies causes better corporate financial performance. Turban and Greening (1996) analyse the relationship between firm's CSR and its reputation and employer attractiveness. The evidence suggests that firms with higher CSR score have more positive reputation and are assumed to be more attractive employers than firms with lower CSR score. Another interesting research performed by Wright et al. (1995) shows that firms receiving awards for voluntary affirmative action programs experience a positive stock price change, in contrast to the firms with discriminatory practices. The authors

also suggest that award-winning firms may attract talented human resources and that announcements of awards may be associated with competitive advantage.

It is often claimed that corporate governance as a proxy for CSR is easier to quantify than, for instance, environmental or social and its consequences are easier to measure. In research publications it is found that proper governance quality leads to better financial performance, because shareholders value good corporate governance. Gompers et al. (2003) investigate performance implications of firm exposure towards stronger shareholder rights and find that well-governed firms significantly outperform poorly-governed firms. Likewise, Cremers and Farrell (2009) prove that investing strategy, which involves taking long positions in companies with better corporate governance and short positions with poor governance, leads to consistently higher returns over the investigated period. Ammann et al. (2011) provide further evidence of a statistically significant positive relationship between measures of corporate governance and Tobin's Q. Orlitzky et al. (2003) arrive at a general conclusion that both social and environmental dimensions of CSR have a positive association with corporate financial performance. Moreover, they stress that CSR is strongly related to objective (accounting) rather than subjective (market) performance proxies.

To sum up, according to Clark and Viehs (2014), in the recent years positive relationship between CSR measures and corporate financial performance is stressed in many research publications. However, while environmental and corporate governance perspectives are mostly analysed, there is a clear scarcity of evidence in the existing literature when measuring the social dimension, for example, from the worker safety or human rights perspective.

2.2 Literature on Negative Relationship and U-shaped Relationship

A second group of studies finds a negative relationship between corporate social responsibility and financial performance. Baron et al. (2011) suggest that social pressure, measured by the CSR score from KLD database, is negatively correlated with firm value, which could reflect the effects of social pressure of firm reputation, brand equities or productivities. A further study that examines the relationship is that by Wagner et al. (2002), who employ the data from European paper industry. They show a negative relationship, thus suggest that there is a trade-off between return on capital employed and environmental performance. Similarly, Brammer et al. (2006) find a negative relationship between CSR and financial performance, measured using stock returns. They argue that firms with good CSR ratings tend to underperform in relation to their poor CSR counterparts. They take the analysis

one step further and look at different domains of the CSR score. They find that environmental and employment indicators are mostly driving the results.

Gorton and Schmid (2004) analyse the impact of labour participation in corporate decision-making. In particular, they compare corporations where the fraction of board seats held by labour is equal to the fraction of other non-union representatives with the firms that are subject to less extensive union participation. The results indicate that German companies with a greater fraction of union representatives trade at a 31% stock market discount in comparison to the corporations, where the fraction is one-third of the board seats. The authors suggest that this discrepancy may be due to differences in objectives between interest groups. The negative impact on the market value of the firm is also supported by another study. Abowd (1989) finds evidence of a dollar-for-dollar trade-off between the market value and the wage increase.

From a strategic management point of view, there are certain costs from the CSR activities. The so called U-relationship, discovered by Bowman and Haire (1975), between CSR expenditures and effect on financial performance indicates the necessity to balance these two elements, since the positive effect on performance might be observable only to a certain extent. Then it reverses and the costs from CSR outweigh the benefits. Important contribution to this debate is made by Schaltegger and Synnestvedt (2002), who argue that an inversely U-shaped curve should be chosen for the relationship between environmental and economic performance, since it allows capturing the desired level of environmental performance that reflects social responsibility.

2.3 Literature with Conflicting Evidence or No Evidence

The results of a recent meta-analysis conducted by Margolis et al. (2007) provide an ambiguous conclusion on whether or not there is a relationship between CSR and firm performance. The results reveal that the absolute size for the relationship between CSR and financial performance is positive, but small. In fact, they find that 58% of studies show a non-significant relationship, while only 27% indicate a positive relationship and 2% a negative relationship. Moore (2001), using U.K. Supermarket industry data, documents negative correlation between CSR and simultaneous financial performance, however, lagged financial performance exhibits a positive link with subsequent social performance. In the empirical analysis by Hillman and Kleim (2001) corporate social performance is separated into stakeholder management and social issue participation and thereby individual effect on the market value of the firm is investigated. The results indicate that social issue participation is

negatively related to firm value, in contrast to stakeholder management quality, which is positively related to shareholder value. The study by Seifer et al. (2003) aims to investigate the relationship between availability of cash resource and corporate donation, as well as the link between a firm's giving to charity and financial performance. The authors find a weak positive relationship between availability of cash and donations, however, no significant relationship between corporate philanthropy and financial performance. Related is another early paper by Cohen et al. (1997) that relies on comparison of financial performance of the "low polluter" versus "high polluter" portfolios within each industry. The result of this study indicates that there is no difference in performance between "low pollution" group and the environmental laggards in each industry. Similar results are documented by McWilliams and Siegel (2000) by investigating over 500 firms during the period between 1991 and 1996. They conclude that CSR has a neutral impact on financial performance.

2.4 Literature on Relationship between CSR and Firm Ownership Structure

Studies on corporate governance issues have generally accepted the difference in interests between shareholders and debt holders, based on the agency theory (Jensen and Meckling, 1976). One of the underlying assumptions is that shareholders as a group have homogeneous objectives. However, recent studies provide empirical support that different types of owners may have heterogeneous objectives and preferences (Connelly et al., 2010). Therefore, the focus on ownership and CSR explains that different types of shareholders have distinct motivations towards the CSR engagement (Soliman et al., 2012).

The overall goal of investing is to generate financial return, that is, to maximize shareholder value; however, it matters how this return is generated. Investors have the responsibility to ensure that returns are created in a sustainable and responsible manner. When looking at sustainable investment, there are identified three ways of investing: application of exclusion criteria, application of screens to evaluate firms and direct engagement (Clark and Viehs, 2014). The first approach results in exclusion of firms operating in predefined industries such as tobacco, alcohol, etc. This investment approach is not viable, since the expected rates of return on the excluded stocks are driven up and the firms with low CSR scores are disregarded without any changes in their CSR standards. The second approach is used to evaluate firms based on their CSR performance. As a result, investment is made only in top-performing companies from the CSR perspective, neglecting their inferior counterparts. This approach suggests the optimal investment strategy of going long in top-performing stocks and going short in lower-ranked firms. The third and the most optimal investment

approach supports engagement in firms with inferior CSR. It is argued that through an active ownership culture, sustainable business practices are advanced. As the owners of firms, institutional investors, for instance, by implementing active ownership do not only have power, but also have an incentive to promote better CSR standards (Clark and Viehs, 2014).

Hoskisson et al. (2002) argue that differences in preferences for investment strategies are based on owners' time horizons and distinct incentives. As a result, a growing body of recent studies examines relationship between owners and firm attributes such as performance, strategy and governance processes (Connelly et al., 2010). Previous studies find that ownership structure influences board independence (Bushee et al., 2004), executive compensation (Hartzell and Starks, 2003, and Gomez-Mejia et al., 2003) and the market for corporate control (Wright et al., 1996, and Hitt et al., 1996). In addition, George et al. (2005) elaborate that all types of institutional owners support international diversification; however, it turns out that they do it for different reasons (Tihanyi et al., 2003).

While existing literature provides useful information regarding the relationship between ownership structure and corporate governance, relatively little is known about the impact of ownership structure on CSR strategies (Oh et al., 2011). Some support the view that different owners may have different preferences, as discussed by Johnson and Greening (1999). They find that pension funds are positively related to both people and product quality dimension of corporate social performance. In contrast, mutual and investment banks do not have a direct effect on neither dimension of corporate social performance. In addition, Oh et al. (2011) examine how ownership influences company's CSR score. In particular, they find that there is a significant positive relationship between CSR ratings and ownership by institutional and foreign investors. In contrast to the two aforementioned studies, Barnea and Rubin (2010), show that the coefficients of institutional ownership are mostly insignificant with inconsistent sign. On the contrary, insider ownership is negatively associated with the firm rating. In addition, Dam and Scholtens (2012) analyse the relationship between the CSR score and ownership type in 600 European multinational enterprises. They show that lower CSR score is associated with the ownership by employees, individuals, and firms, whereas ownership by banks and institutional investors exhibits a neutral relationship. They argue that divergence occurs due to differences in financial and non-financial motives and interests, as well as different roles that shareholders play in society.

2.5 Comparability of Results

Over the last decades researchers have been investigating the meaning of sustainable and

responsible investing and its impact on company performance, investors, corporate managers, and other stakeholders. Different relationships have been studied, such as corporate environmental performance and financial performance, corporate social performance and financial performance, and corporate governance quality and financial performance (Clark and Viehs, 2014). Prior work raises concerns about CSR measurement by putting forward the following arguments (Waddock and Graves, 1997): 1) CSR is a multidimensional construct, and 2) measuring specific issue areas while ignoring the rest provides a limited explanation of the relationship between CSR and firm performance in the more general sense (Hawn and Ioannou, 2012). For this reason, theoretical literature provides a wide variety of CSR measures: forced-choice survey instruments (Aupperle, 1991), the Fortune Reputational and Social Responsibility Index or Moskowitz Reputational Scales (O'Bannon and Preston, 1993), content analysis of corporate documents (Wolfe, 1991), behavioural and perceptual measures (Wokutch and McKinney, 1991), and case study methodology (Clarkson, 1991). Therefore, the results obtained in the previous studies are not directly comparable among each other and with our research, because across time and studies the definition of CSR was inconsistent. For example, various researchers defined CSR as environmental performance only and excluded some other relevant aspects of CSR. Moreover, according to Clark and Viehs (2014), the effects of different CSR domains may offset each other implying the results to be less significant or even neutral. Therefore, it is important to look at all CSR domains separately in order to capture more precise effects on corporate financial performance.

In addition, it is argued that there are differences in introduction of CSR depending on the geographical region analysed. Gjørlberg (2010) argues, for example, that implementation of CSR in the Nordics is substantially different from the American origin CSR. Furthermore, even across Europe different CSR origins vary considerably from country to country. It is stressed that Sweden links CSR to long-term profitability and invests in CSR initiatives even in a decreasing economic environment and increasing competition, whereas Spain, for example, is only in the initial stage of applying CSR concepts to the smaller and less transparent companies that constitute the majority of the economy (Mullerat, 2013).

2.6 “Nordic Model”

Research in comparative political economy has demonstrated that the differentiation pattern of modern capitalism can be explained by variations of institutional, environment, agency such as the state, capital and labour markets, and public perceptions about trust, loyalty, and authority (Gjørlberg, 2009; Amable, 2003 and Whitley 1999). It is not surprising that most

authors describe economies of Nordic countries as the economies where bargaining among social partners plays an important role, in contrast to the Anglo-Saxon countries. Free market capitalism and competition are particularly strong in the coordination of economic activity (Amable, 2003).

According to the composition of the “Nordic Model” by Gjørberg (2010), the following countries share similarities in their governments, cultural-ideological values and political-economic institutions: Sweden, Denmark, Norway and Finland. One of the main features of the “Nordic Model” is a high degree of state intervention in all aspects of national life, including economy. Successful regulation of issues related to environment, safety work and competition provision in the past explains why companies prefer regulation and control model in contrast to the deregulation model (Mullerat, 2013). As a consequence of this knowledge, Gjørberg (2010) has analysed the relationship between welfare state and CSR performance. The results indicate a strong correlation between the variables. The interpretation of this is that strong welfare states have stricter policies and more stringent enforcement settings in the areas related to CSR, such as policies related to environmental protection, labour standards, discrimination and corruption.

In general, CSR activities aim to align stakeholder expectations and perceptions with company profit maximization goal. Consequently, the socio-political model implied by CSR may contradict with established models in the society where CSR is introduced. Therefore, there is a reason to assume that CSR concept has been transformed and adapted to the “Nordic Model”. Moreover, comparative analysis between those countries reveals several differences in justification and framing of CSR. In particular, interpretation of CSR can be divided into two groups: Danish-Finnish interpretation and Swedish-Norwegian interpretation. The similarities between markets are based on the governance and the views about the role of business in modern society, gives a reason to assume that Nordic governments exhibit similarities in forming the fundamental conceptualization of CSR (Gjørberg, 2010).

During the last decade, many OECD countries have encountered a sizable rise in institutional ownership of public companies. Institutional investors have been the main source of financial market assets and have been considered as “intermediary investors” that make investment decisions on behalf of investors (Çelik and Isaksson, 2013). The key role of intermediary activity is to facilitate risk transfer. Therefore, they are predominantly interested in the interaction between risk and returns in the best interest of their clients (Allen and Santomero, 1997; Scholtens and van Wensveen, 2000). In addition, the evolution of investment industry gave a rise to the development of responsible investment and thus

incorporating CSR criteria into investment analysis and portfolio construction (UK PRI, 2015). Most recently Denmark has proposed legislation on mandatory CSR reporting for the state owned companies and institutional investors to disclose in their annual reports their policies on the CSR work and how those policies are translated into action (Danish Government, 2008, and Danish Commerce and Companies Agency, 2009). Moreover, since 2001, the Swedish national pension funds (the AP funds) are required to incorporate ethical and environmental considerations into their investment decisions (Hamilton and Eriksson, 2011; and Renneboog, Horst, and Zhang, 2008).

2.7 Contribution to Existing Literature

This paper is not the first study that investigates the relationship between CSR and firm performance. However, our study contributes to the previous literature on CSR and its economic consequences in several ways. Firstly, this is the first study to our knowledge to use a panel of listed companies from the Nordic countries to examine the effect of CSR on firm performance. Secondly, our study extends prior research by constructing a Profitability Index that measures the overall performance of firms. Unlike many previous studies we do not rely only on one measure of performance, instead, we seek comprehensive evidence by measuring corporate financial performance from various perspectives. Thirdly, we use an Employer Attractiveness Ranking, where the firm's attractiveness is estimated by professionals and students, and analyse relationship between this variable and financial performance. Finally, we offer new evidence on the effect of different ownership types on CSR and individual domains of the CSR score.

3 Theories and Hypotheses

The following section presents a summary of relevant theories for a better understanding of the relationship between CSR and the variables of interest. Thereafter, we state our basic hypotheses regarding the nature of relationship between our dependent and independent variables. In forming our hypotheses, we consider two issues 1) the direction of the relationship and 2) the causal relationship between the variables. The sign and significance of direction entail positive, negative or neutral relationship between CSR and financial performance. Causality refers to the explanation if the changes in the CSR influence financial performance or the change in financial performance influences the CSR.

3.1 Theories

Chester Barnard is recognized as being among the firsts to use the concept “morality” and “sense of responsibility” in the organisational context. In his work, *The Function of the Executive* (1938), he says: "The imputation of moral responsibility [of the corporate entity] ... can be realized only in the concrete action of trustees, officers, and employees. The moral decisions they must make, however, are not of the order of personal morality, nor of official organizational morality, but of a fictitious entity where responsibility and obligations are in many respects outside the possibility of relevance either to individual or to organizational morality" (Dubnick and Justice, 2014). Freeman, in his influential book *Strategic Management: A Stakeholder Approach* (1984), builds further on this idea using the principles of stakeholder theory. He defines a stakeholder as “any group or individual who can affect or is affected by the achievement of the firm’s objectives” (Roberts, 1992). According to this view, one of the goals of the corporate management is to meet those demands thought engaging in different CSR activities. From the social perspective that would include issues related to human rights, environmental and economic elements (Donaldson and Person, 1995; McWilliams, Siegel and Wright, 2006; Servaes and Tamayo, 2013). Firms that do not meet those demands may face negative confrontation from non-shareholders group, potentially leading to negative impact on firm financials. At some level firms must satisfy demands and see those costs as unavoidable in order to continue business as usual (Ruf et al., 2001). Sustainability philosophy presumes abolition of literal interpretation of classical economic theory and that management develops corporate strategies by taking into account the interest of a wider group of stakeholders (Lourenco et al., 2012, and Lopez, Garcia and Rodriguez, 2007).

From an institutional theory perspective, firms meet social and cultural pressures that influence organizational practices and structure (Delmas and Toffel, 2004, Scott, 1992). DiMaggio and Powell (1983) argue that structural changes in organizations occur through institutional isomorphic. They have identified three mechanisms: coercive isomorphic that takes place due to political influence and the problem of legitimacy; mimetic isomorphic that stems from the uncertainty in the environment; and normative isomorphic that is linked to professionalization. As a result of this, organizations tend to become similar to the organizations that they perceive to be more legitimate or successful in their organizational field. Institutional theory has been further extended to the sustainability questions in the organizational field. Using this theory, Jeannings and Zanbergen (1995) explain why institutional forces may have an impact on the differences in the definition of the term

“sustainability” and the divergence in generation and adaptation of sustainable practices across organizational fields.

Wernefelt in his article from 1984 laid ground for the development of the resource-based view of the firm. The theory presumes the firms attain and sustain a competitive advantage if they possess and exploit resources and capabilities that are valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991). Research papers in the field of the resource-based view have ignored CSR as a source of competitive advantage. Hart (1995) fills the gap and develops a natural-resourced-based view of the firm. Sharma and Vredenburg (1998) test the resource-based view framework empirically. The results of the study suggest that firms undertaking proactive environmental strategy may gain a competitive advantage.

Firm involvement in CSR activities can be examined through the lens of organizational legitimacy. According to the legitimacy theory, a firm is a part of a broader social system and therefore is not considered to have any inherent right to resources. The firm may exist only if the particular society considers that it is legitimate. It is considered that a firm’s survival will be threatened if the firm breached its social contract and does not archive society’s approval (Deegan, 2002). Legitimacy is a condition or status that comes from the harmony between a firm’s value system and the value system of the larger social system of which the firm is a part (Lindblom, 1994). Organizational legitimacy can be interpreted as the acceptance of the organization by its environment (Kostova and Zaheer, 1999). According to Hawn et al. (2011) organizational legitimacy can be divided into two types: social legitimacy or market legitimacy. The authors suggest that the firm may gain its social legitimacy from two main sources: institutional and strategic. The first one refers to the activities that firms undertake in connection with the factors that are beyond their control. In contrary, strategic activities are the response to the factors that the firm can control, such as choosing charity organizations to contribute to. The second type, market legitimacy, arises from a variety of sources of judgement that together form market perceptions of the future financial viability of the organization. As a result, social legitimacy assesses the actions of firms and judges if those actions are desirable, proper, and appropriate within social systems of norms, values and beliefs. On the other hand, market legitimacy, assesses and judges the action within the market actors’ system of norms, values and beliefs.

3.2 Hypotheses

According to Hamilton et al. (1993) and Guenster et al. (2011) financial markets may respond to CSR performance in three different ways. The first scenario is that firm’s CSR performance

is not priced, which is closely related to the general framework of finance, where investors will be compensated only for the factors that are proxies for risk. Consequently, all else equal, firm value is independent of the underlying CSR performance. Moreover, according to stakeholder theory, stakeholders may have different expectations regarding the firm's CSR actions and vary in how they assess the relevance of those actions. This is particularly pronounced when stakeholders play dual roles, in case of pension funds, those shareholders concern with company performance in the short-run, as well as take a longer prospective regarding corporate governance and employee welfare (Jayachandran et al., 2013). Hence, it is expected that the relationship between CSR and firm performance is not statistically significant. Thus, the hypothesis is as follows:

Hypothesis 1a: There is no relationship between a firm's CSR score and a firm's accounting-based and market-based financial performance.

The CSR sceptics argue that there is a negative relationship between CSR and firm performance. According to their view, which is fundamental to Friedman's (1970) and other neoclassical economists' arguments, the cost associated with the actions regarding CSR improvement outweigh extra financial benefits. While an improved firm's CSR may improve corporate reputation of being seen as a "good citizen", the cost of such improvement may adversely affect the bottom line and thus reduce shareholder value. In this scenario, the market prices CSR efficiency. The socially responsible investors enhance the value of socially responsible firms comparing to the value of ordinary companies by plunging the expected returns and the cost of capital of socially responsible firms (Hamilton et al., 1993, and Guenster et al., 2011). The hypothesis, consistent with this scenario, is:

Hypothesis 1b: There is a negative relationship between a firm's CSR score and a firm's accounting-based and market-based financial performance.

On the contrary to the second scenario, the third scenario empirically supports the relationship between CSR and financial performance. Under this scenario, investor assesses the firms with higher CSR score as less risky investment, thus demands a lower return on the firm's stock. This also implies, that investors use lower discount rate for socially responsible firms and thereby firm value increases (Hamilton et al., 1993, and Guenster et al., 2011). According to the resource-based theory, financial performance of a firm highly depends on the unique interplay of human, organizational, and physical resources (Hillman and Kleim,

2001). Environmental, social and governance aspects of firm may create a competitive advantage that is unique and difficult to replicate by its competitors. A majority of the recent studies supports the perspective that CSR has a positive impact on financial performance. Therefore, the following hypothesis explores this relationship:

Hypothesis 1c: There is a positive relationship between a firm's CSR score and a firm's accounting-based and market-based financial performance.

Various CSR interpretations among the Nordic countries have developed Danish-Finnish and Swedish-Norwegian approaches. According to Gjølborg, 2010, there are four factors that may have an impact on the governments' transformation of CSR in the Nordic context: industrial structures, current political processes, formal structure, and institutionalized norms. Both Denmark and Finland see CSR as a basis of nation's economic competitive advantage and it is supported by the fact that Denmark has the strongest and most ambitious CSR policy. In contrast, the Swedish-Norwegian approach interprets CSR as a tool for promoting human rights, sustainable development and other goals of foreign policy. The concept is more normatively and ideologically driven and characterised by the tradition of internationalism in these countries and is weakly linked to political-economic processes in countries in comparison to Denmark and Finland. Based on the literature, we assume that Danish-Finnish interpretation puts pressure on companies to improve their CSR performance, which may negatively influence their financial performance. Therefore, we hypothesize:

Hypothesis 2: There is a negative relationship between a firm's CSR score and a firm's accounting-based and market-based financial performance in Denmark and Finland.

According to the stakeholder theory, firms should take into consideration the views of other groups rather than merely undertake actions with a pure purpose to maximize shareholders wealth. Servaes and Tamayo (2013) develop some predictions regarding CSR activities and firm value. In particular, they investigate whether CSR activities have a positive impact on firm value, if firms carry on activities with more customer awareness, as proxied by advertising expenditures. The authors suggest that through advertising information asymmetry is reduced between a firm and its customers, and that the customers will learn about the firm's CSR activities and reward it by increasing its value. Our goal is to examine the Employer Attractiveness Ranking, as a proxy for measuring quality of employer as seen by professionals and students, and its impact on firm value. Firms that have high public

awareness, i.e. firms that are ranked as attractive companies to work for, may perform better than their competitors. They may find it easier to attract and hire quality employees, their employees may be more productive, efficient or may be willing to accept lower wages because they value social activities of a firm (Baron et al, 2011; Waddock and Graves, 1997; Wright et al, 1995). Therefore, the following hypothesis is:

Hypothesis 3: There is a positive relationship between employer attractiveness, as perceived by professionals and students, and a firm's accounting-based and market-based financial performance.

Previous research suggests that CSR may influence potential applicants in forming corporate image and thus organization's attractiveness. Bauer and Aiman-Smith (1996) find a positive relationship between pro-environment stance and corporate attractiveness. According to William and Bauer (1994), employees' attitude to managing diversity may signal about working conditions in the organization and hence may influence the ratings of organizational attractiveness. Moreover, Turban and Greening (1996) show that firms with higher CSR score have more positive reputation and employer attractiveness. Therefore, our next hypothesis tests if the proxy for CSR affects an organization's attractiveness:

Hypothesis 4: There is a positive relationship between the CSR score and employer attractiveness as perceived by professionals and students.

Firms are likely to behave in socially responsible ways, if there are effective state regulation, collective industrial self-regulation and other independent organisations that monitor behaviour of corporations and normative institutional environment that promotes socially responsible behaviour (Campbel, 2007). This view is based on institutional theory. Graves and Waddock (1994) note a positive relationship between high CSR score and the level of institutional ownership. Sethi (2005) concludes that institutional investors undertake strategies that encourage companies to take into account long-term aspects of their operations in terms of their impact on CSR. Given the current regulation in the Nordic countries, we predict that institutional ownership is positively related to a CSR score of a firm. Thus, our hypothesis is as follows:

Hypothesis 5: Firm ownership by institutional investors positively affects a CSR score of a firm.

4 Methodology and Data

In this section, we firstly describe the methodology employed in our research. Then, we present the data and outline construction of our sample. After that, we introduce the variable Profitability Index and describe in details its composition. Finally, we explain and discuss other independent and control variables used in the study.

4.1 Regression Specification

Following the prior literature in using several measures of firm performance to test the hypotheses concerning the relationship between the CSR score and financial performance, we outline a number of panel data regressions. We test both subjective (market) and objective (accounting) measures of financial performance of the firm (Hawn and Ioannou, 2012).

The study performed by O'Bannon and Preston (1997) raises the issue regarding the causal relationship between examined variables. Subsequent studies have sought to test whether prior good (bad) performance leads to good (bad) financial performance and vice-versa (Roberts, 1992, Pava and Krausz, 1996, and Moore, 2001). The results of those studies indicate that a lead-lag approach is important in helping to understand the relationship between social and financial performance. Therefore, we delay our measures of CSR performance and employer attractiveness by one year after they were observed. By using this approach with lagged explanatory variables, we assume that CSR or attractiveness must have caused performance because they preceded it, partially solving the issue of reverse causality (O'Bannon and Preston, 1997, Waddock and Graves, 1997, and Edmans, 2012). Moreover, by delaying CSR and employer attractiveness measures, we account for the time that is necessary for performance of the company in those measures to be calculated and published.

Firstly, according to the relationships described in Hypotheses 1(a-c), we regress individual firm performance measured by the Profitability Index on the ESG score (1). ESG score is a measure of CSR consisting either of an equally-weighted score or individual domains (economic, environmental, social and corporate governance). Secondly, we analyse this model from the country-specific perspective in order to provide evidence to substantiate Hypothesis 2.

$$Profitability\ Index_{j,t} = \alpha + \beta_1 * ESG_{j,t-1} + \sum_{k=1}^K \delta_k * Z_{k,j,t} + \epsilon_{j,t} \quad (1)$$

Thirdly, according to Hypothesis 3, we regress individual firm performance measured by the Profitability Index on the Employer Attractiveness Ranking (2) as follows:

$$Profitability\ Index_{j,t} = \alpha + \beta_1 * Employer\ Attractiveness\ Ranking_{t-1} + \sum_{k=1}^K \delta_k * Z_{k,j,t} + \epsilon_{j,t} \quad (2)$$

Following a similar empirical model as in (1) and (2), we use alternative measures of firm performance. In line with the previous research studies, we use measures of subjective or market performance estimated by Tobin's Q and objective or accounting performance estimated by $\ln(EBITDA)$. Therefore, dependent variables in the regressions (1) and (2) are as follows: *Profitability Index* is a score constructed to measure firm financial performance; $\ln(EBITDA)$ is a logarithm of earnings before interest, tax, depreciation and amortization used in an industry and year adjusted form; and *Tobin's Q* used in an industry and year in the adjusted form. The adjustment is performed through subtracting a mean value for the given industry and year for every observation to account for the differences among various industries and years used in the dataset. Other notation: α is a constant; *ESG* is an equally-weighted score and its individual domains measured in the end of the previous period comparing to other variables; *Employer Attractiveness Ranking* is a dummy variable constructed to measure attractiveness of each firm from current and potential employees' point of view; *Z*'s are control variables; *k* is a set of firm-specific control variables; *j* indicates a firm and ϵ is an error term.

Besides, according to Hypothesis 4, we test how an ESG equally-weighted score and individual domains separately affect employer attractiveness:

$$Employer\ Attractiveness\ Ranking_{j,t} = \alpha + \beta_1 * ESG_{j,t-1} + \sum_{k=1}^K \delta_k * Z_{k,j,t} + \epsilon_{j,t} \quad (3)$$

Additionally, we investigate the relationship between an ESG equally-weighted score and its domains with the ownership structure of the company. In particular, according to Hypothesis 5, we regress ESG factors on different types of ownership:

$$ESG\ factor_{j,t} = \alpha + \beta_1 * Ownership\ type_{j,t} + \sum_{k=1}^K \delta_k * Z_{k,j,t} + \epsilon_{j,t} \quad (4)$$

To ensure that results are reliable and do not suffer from endogeneity problem a number of tests are performed based on the previous research and the guidelines on panel data post-estimation methods. A choice between fixed-effect and random-effects regression models is based on the Hausman specification test, which evaluates consistency of fixed

effects estimators comparing to the random effects. Statistically, in panel data model fixed effects method gives consistent results if it is estimated to be the optimal method, whereas random effects method provides better p-values and more efficient estimators if it is statistically justifiable to choose random effects specification (Torres-Reyna, 2007). The fixed effects model is used to explain within company variation over time and, therefore, unobservable factors of the regression are assumed to be time-invariant. By including fixed effects, we are controlling for the average differences across companies in any observable or unobservable predictors. Thus, the fixed effect coefficients absorb all the across-firm action leaving the within-firm action, which is searched for. As a result, the threat of omitted variable bias is greatly reduced, since we control for unobservable and unmeasured variables and the time-invariant differences such as industry and country are accounted for. On the other hand, random effects specification is useful in case there is found a limited variation in dependent variable in the sample.

The decision between the two specifications is made due to the fact that there is a substantial variation in the main independent variable – ESG score. In 24% of the sample the score changes more than by 10% per annum. In line with previous studies, we try overcoming endogeneity problem by using a lagged CSR measure and extensive controls. Also, such variables that change over time but not across entities (e.g. international regulations and policies) are controlled for, i.e. individual heterogeneity is accounted for. Since fixed effect model assumes homoscedasticity, to control for heteroscedasticity Huber/White estimators, i.e. the robust version of regressions is applied. F-test results are used to see if the coefficients in the model are different from zero.

4.2 Robustness Tests

By looking at different perspectives of performance estimation: subjective (market) and objective (accounting), and several ways of measuring those, we arrive to robust results in order to ensure the validity of inferences. To examine the relation between objective performance measures and ESG score, we use ROA, which measures return on assets in an industry and year adjusted form. Similarly, robustness of results regarding subjective performance is assessed using the industry and year adjusted Market-to-Book ratio. Regression specifications used in robustness checks are similar to the equation (1). Additionally, we present results of the rest regressions using random effects specification.

4.3 Sample and Data Collection

For the data analysis we use a balanced panel data with variables from different sources. Firstly, we select listed companies on NASDAQ in Sweden, Denmark, Norway and Finland and gather their financial performance data from DataStream for the period 2010-2014 measured in Swedish Krona. By choosing to analyse similar countries we overcome the problem of single country studies with limited sample sizes and lack of generalizability and the problem of multi-country studies with differences among countries leading to difficulties in proving credible inferences. Therefore, the Nordic countries that are relatively similar in terms of geographic location, culture and level of development are chosen for the analysis. The chosen time period is justified by the following arguments: (1) it is the most recent data available, (2) four years is a reasonably long period to assess the relationship between CSR and firm performance and (3) this is the post-financial crisis period and thus financial performance of firms is already less impacted by the previous turmoil in the market. Secondly, we specify our proxy for CSR being the ESG factor, which is provided by Thomson Reuters ESG ASSET4 database. The methodology used by Thomson Reuters is presented in Appendix A. Furthermore, the description of independent variables and detailed descriptive statistics table of ESG factors are provided in Appendix B. Thirdly, we gather firm ownership data (investor type and ownership percentage) from Orbis database. A detailed description of ownership structure is provided in Appendix C. Moreover, we include a variable Employer Attractiveness Ranking drawn up by Universum on annual basis. Using available rankings for the period 2012-2014 we assess whether the company was recognized as an attractive employer by professionals, employees and students or not. The detailed statistics of the Employer Attractiveness Ranking are presented in Appendix D.

We omit the companies lacking ESG variables in the analysis and end up with the sample based on total of 126 unique firms in 4 countries over 5 years (2010-2014). The final sample is equally distributed among countries and industries and is indicated in Appendix B.

4.4 Dependent Variables and Summary Statistics

In this subsection we present dependent variables used in the analysis and their summary statistics. Firstly, we describe a Profitability Index, summarized in Appendix E. Then we elaborate on other measures of corporate financial performance used in the study introduced in Appendix F. For representation purposes we present descriptive statistics of unadjusted variables divided into industries and countries as they are reported according to the financial statements and adjusted forms used in the analysis.

4.4.1 Profitability Index

To accomplish our aim of investigating the relationship between CSR and accounting measure of firm performance we construct a Profitability Index. Our primary interest is to capture the most important measure of company's profitability. The subsequent measurements are included into the index: activity, liquidity, leverage, profitability, valuation and investment intensity. The following procedure is followed: firstly, we take financial variables and ratios from DataStream or construct them based on the data available as shown in Table 1; secondly, we normalize variables by industry and year to reduce the influence of outliers following the procedure outlined in the expression (5); thirdly, we summarize normalized variables in the final index for each company and year.

$$\text{Normalized variable } X = \frac{X - X_{\min}}{X_{\max} - X_{\min}} \quad (5)$$

Industry adjustment is motivated by the fact that there might be significant differences among firms and their CSR performance across industries, justified by uniqueness of internal competences or external pressures (Cottrill, 1990). Similarly, year adjustment accounts for the overall development in the economic conditions. This functional form of the variable helps us overcoming large variability in the sample.

As a result, each company has its own annual Profitability Index normalized by year and industry valuing its financial performance. Summary statistics for the Profitability Index are reported in Appendix E (a and b). The mean value of the index across all industries, years and countries is 5.01 with standard deviation of 1.46. According to the Profitability Index, Sweden on average has the most financially successful companies from the sample (5.24) and Denmark the least (4.69).

4.4.2 EBITDA

Following previous studies (e.g. Boesso et al., 2015, and Michelon, et al., 2013) we choose EBITDA as an objective (accounting-based) measure of firm performance. Orlitzky et al., (2003) point out that EBITDA is less subject to managers' discretionary choices regarding firm's resources than many other measures of financial performance from accounting perspective and therefore, provides a better evidence on a company's actual financial performance. The variable is used in a form of an industry and year adjusted logarithm. The adjustment is performed through subtracting a mean value for the given industry and year for every observation.

A typical firm from the sample has an unadjusted EBITDA of 10 258 MSEK. The highest performing industries in the sample are oil and gas (47 446 MSEK) and banking services (28 776 MSEK).

4.4.3 Tobin's Q

Compared to accounting-based measures of firm performance, Tobin's Q is a forward-looking measure that reflects future profitability. Moreover, this measure reflects intangible value that investors assign to a company. The difference in the relationship between CSR and accounting- or market-based measures might occur, because CSR is related to tangible and intangible value of a firm (Guenster et al., 2011). Additionally, Tobin's Q is less subject to accounting manipulation. The measure has been extensively used in the previous studies to evaluate firm performance (e.g. Kaplan and Zingales, 1997 and Gompers et al., 2003). Following the prior literature we measure Tobin's Q as follows:

$$\text{Tobin's } Q = \frac{\text{Market value of assets}}{\text{Book value of assets}} \quad (6)$$

Although there are other more complex measures of Tobin's Q, in our study due to the availability of the data for our sample we use the above-mentioned approximation. Moreover, the research conducted by Chung and Pruitt (1994), shows that Tobin's Q is highly correlated with estimates that are more complex, indicating that the effect shall be spotted disregarding the complexity of the measure.

Tobin's Q is used in regressions in the functional form of industry and year adjusted value. Adjustment is performed through subtracting a mean value for the given industry and year for every observation. The summary statistics for Tobin's Q variable is presented in Appendix F. On average the companies have the mean Tobin's Q of 1.05 and the standard deviation of 1.23. The largest value of Tobin's Q is in the other speciality retailers industry (3.23) and the smallest value is in the banking industry (0.24). This is consistent with the industry difference explanation mentioned by Lindenberg and Ross (1981), where low Tobin's Q values are associated with competitive and regulated industries and higher Tobin's Q values are typical for industries with unique products and firms that contribute to earnings in excess of the minimum necessary level, which is consistent with our results.

4.5 Explanatory Variables and Summary Statistics

4.5.1 Measure of Corporate Social Responsibility

To measure CSR we use the ESG factor from the Thomson Reuters ESG ASSET4 database. Thomson Reuters specializes in providing “objective, relevant, auditable and systematic ESG information and investment analysis tools to professional investors”. The analysts systematically collect ESG data from firms, news sources, stock exchange filings, and non-government organizations, which ensures that the content is consistent and comparable among companies. Its model allows comparing firms against approximately 750 individual data points that are combined into over 280 KPIs. These KPI scores are aggregated into a framework of 18 categories grouped within 4 domains (economic, environmental, social and corporate governance) that are integrated into a single overall score which is calculated by equally weighting and z-scoring all underlying data points and comparing them against all companies in the ASSET4 universe (Appendix A). The resulting percentage is therefore a relative measure of performance, z-scored and normalized to better distinguish values and position the score between 0 and 100% (Thomson Reuters, 2015). We look at the equally-weighted ESG factor and each of its domains separately. According to Chatterji et al., (2014), the downside of the ESG measure provided by ASSET4 is the lack of adjustment to the industry performance. To account for this, we adjust corporate financial performance measures to the industry and year in the form described in the respective sections presenting the measures.

ESG summary statistics across countries and industries are presented in Appendix B. From the total of 630 observations across all countries and years, one can observe the variability among the industries. The average company has an equally-weighted ESG score of 71.24%, economic score of 66.62%, environmental 71.13%, social 69.52% and corporate governance score of 58.76% (out of 100%). This result is rather high comparing to an average value close to 50% found by Hawn and Ionnou (2012), who examine the ESG score for 43 countries from 2002 to 2008. Thus, we can conclude, that the Nordic market overall is better performing in ESG comparing to companies in other regions in the given time period and sample. Across all sample countries the highest equally-weighted ESG score of 82.23% is in Finland and the lowest 63.28% is in Denmark. Similarly, Finland is outperforming other countries across all domains of ESG by being the best in the economic score (78.08%), the environmental (74.67%), the social (81.67%) and the corporate governance (67.73%). Respectively, the weakest performers are in Denmark the economic (55.91%) and the

corporate governance (52.38%) and in Norway the environmental (65.41%) and the social (58.18%) scores. Among the highest scoring industries across countries are telecommunication services, communication and networking companies. Among the lowest are logistics (Norway) and food and tobacco (Finland).

4.5.2 Employer Attractiveness Ranking

A variable Employer Attractiveness Ranking is used as an explanatory variable. Using available rankings for the period 2012-2014 drawn up by Universum we construct a dummy variable representing whether the company was recognized as an attractive employer by professionals and students or not. According to the methodology specification outlined by Universum, Employer Attractiveness Ranking is conducted using surveys of more than 700,000 students and professionals around the world. The companies are being ranked based on their attractiveness as employers with the high ranking position determining a large number of potential employees ranking the employer as being attractive to work for. The most attractive employers are not only the ones that are the most well-known, but are also the ones that excel in talent attraction. Creators of the ranking emphasize that the rating is based on the principles of validity, relevance and independence.

The summary statistics for the Employer Attractiveness Ranking are provided in Appendix D. From 378 observations on average the companies are included in the Employer Attractiveness Ranking in 64% of the cases. The industries such as communications and networking, construction and engineering are the most attractive for respondents. Companies from Denmark have the highest share of firms included in the ranking, whereas firms from Norway have the lowest.

4.5.3 Ownership Structure

This study seeks to examine the effects of equity ownership structure on the CSR score. The data on ownership concentration is collected from the Orbis database. According to the specification in the current database, the following ownership types are defined: insurance company, bank, industrial company, mutual and pension fund, one or more named individuals or family, self-ownership, financial company, foundation and research institution, private equity company, public authority and state government, venture capital and other unnamed shareholders. It is important to note, that due to data presentation limitations, we have the data for the voting rights, therefore, divergence between cash rights and voting rights is neglected. Moreover, the combination of direct and indirect ownership interest is used to calculate total

ownership. Appendix C provides summary statistics for ownership variables taken from the Orbis database. The largest average owner by ownership type in our sample is represented by industrial companies (18.81%).

We use a united variable of institutional ownership as a control variable when we examine the relationship between CSR and firm performance. In this case, the united effect of institutional ownership is more important than the individual effect of every type of investors (e.g., Cella et al., 2013, Bushee, 1999, and Anderson and Reeb, 2003). We define institutional owners using the classification of 13F investors and the previous literature (e.g., Cella, Ellul, and Giannetti, 2013) as follows: mutual and pension fund, foundation and research institution, public authority and state government, insurance company and bank. Studies on ownership structure and firm performance suggest that relationship between those variables may be nonlinear, hence, we include the square of institutional ownership as independent variable to control for the potential non-linearity effects (e.g., McConnell and Servaes, 1990, and Anderson and Reeb, 2003).

4.6 Other Control Variables

Our regressions include a number of control variables to account for industry and firm characteristics. In line with the previous research (e.g., Shin and Stulz, 2000, and Black et al., 2014), we include the logarithm of the age of the firm, logarithm of assets, number of employees, measure of annual logged sales and debt-to-assets. The age of the firm needs to be accounted for since younger companies are likely to be faster-growing and more intangible-asset-intensive, which, in turn, can affect our dependent variables. Similarly, the size needs to be accounted for, since larger firms have different strategies compared to the smaller ones. Additionally, we include R&D intensity scaled by sales, consistent with McWilliams and Siegel (2000), and CAPEX scaled by assets (e.g., Bebchuk and Cohen, 2005; and Bebchuk, Cohen, and Ferrell, 2009).

5 Empirical Findings and Analysis

In this section, we present empirical results and analyse our findings. Firstly, we present correlation analysis. Then, the results analysing relationship between CSR and firm performance from accounting and market perspectives are summarized and discussed. Additionally, we present country-specific evidence of this relationship. Later, we present results from regressions between employer attractiveness, as perceived by professionals and students, and financial performance. After that we discuss our findings regarding the

relationship between CSR and firm attractiveness as well as ownership structure and CSR. Finally, we analyse the robustness of our models.

5.1 Correlation Analysis

Table 2 shows correlation matrixes for the variables in the study in the initial form obtained from databases and in the adjusted form used in the analysis. It comes as no surprise that in most cases the ESG scores are highly correlated among dimensions. ROA and Tobin's Q are highly positively correlated, with the correlation coefficient of 0.48 in unadjusted forms and 0.58 in adjusted forms. A possible explanation is that both variables measure financial performance of the company only from various perspectives (accounting and market). When analysing the ESG score correlation with the performance of the same year, the results are rather varied. Overall, it can be observed that the correlation is rather weak in magnitude. In unadjusted forms ROA, EBITDA and the Profitability Index show positive correlation with the equally-weighted ESG score of the same period (0.14, 0.22 and 0.09 respectively). However, Tobin's Q and Market-to-Book show slightly negative correlation with the same years ESG estimate (-0.06 and -0.01 respectively). These negative correlations strengthen, when analysing adjusted forms and the lagged ESG score (-0.13 and -0.21).

When looking at ESG dimensions separately and accounting-based performance measures, it can be concluded that the unadjusted EBITDA has a slightly positive correlation around 0.2 in each of dimensions of the same period except from the corporate governance dimension. When looking at the adjusted logarithm of EBITDA and the lagged ESG score, social and environmental scores are correlated even more (0.33 and 0.39 respectively). Correlation between another accounting measure, unadjusted ROA, and the economic score of the same period is moderate (0.31), however, ROA exhibits a weak positive correlation with other dimensions. This pattern is consistent when analysing the adjusted ROA and the lagged ESG score, with the economic score correlation weakening to 0.05. In contrast, Tobin's Q and Market-to-Book that represent market perception of the performance, have a weak and negative correlation with some dimensions; the correlation coefficient between the economic score, the corporate governance score and the unadjusted Tobin's Q is -0.05 and -0.16 respectively. We can spot a similar pattern to the one above, when looking at market-based performance and lagged ESG scores, correlations increase. This indicates that corporate financial performance and ESG scores have higher correlation when the CSR measure is lagged and financial performance measure is adjusted.

In the Table 2(b) we present correlation coefficients for the components of the Profitability Index. It is worth highlighting that the current ratio and net profit margin have a positive correlation of 0.92 and the P/E ratio and the EPS ratio have a positive correlation of 0.96. Regarding the first relation, even though empirically current ratio and net profit are correlated, conceptually they represent two different types of measures and therefore are used simultaneously in the analysis. Regarding the later, in the previous studies (e.g. Balatbat, Siew, and Carmichael, 2012) these variables are used simultaneously as performance indicators in a united index without causing empirical complications. Moreover, in our research the EPS ratio is used as one of the profitability proxies and the P/E ratio is used as a valuation proxy thus cannot be omitted or substituted.

5.2 Relationship between CSR and Financial Performance

5.2.1 Pooled Evidence

In order to test Hypotheses 1a to 1c we examine the relationship between the ESG score and financial performance of firms from accounting and market perspectives. To determine the source of relationship, we perform regressions for the equally-weighted ESG score and its domains separately. The results of the regression analysis are presented in Table 3. There is no significant relationship between the Profitability Index and $\ln(\text{EBITDA})$ and the ESG score, lending support to Hypothesis 1a. The fact that we do not find any statistically significant empirical evidence for the relationship between our proxy of CSR and financial performance is consistent with the findings of Hillman and Kleim (2001), McWilliams and Siegel (2000) and Cohen et al. (1997).

However, regression results for the equally-weighted ESG score on Tobin's Q indicate a significant negative relationship, supporting Hypothesis 1b. These results suggest that the ESG score in the previous period and financial performance are negatively interrelated. From the regression with separate domains and Tobin's Q, we can observe that environmental performance is significantly negatively related to firm financial performance. The result is consistent with findings of Brammer et al. (2006). They show that firms with good CSR ratings tend to underperform in relation to their poor CSR counterparts and attribute those results to environmental drivers. We also observe a significantly negative relationship (-0.005 ; $p < 0.05$) between the corporate governance domain of the ESG score and financial performance measured by $\ln(\text{EBITDA})$, accounting perspective. These results

suggest that good corporate governance in the previous period has negative interrelation with financial performance.

The results from our study show that both the equally-weighted ESG score and its environmental domain have a slightly negative effect on Tobin's Q (-0.007; $p < 0.05$). We believe that the coefficient for the equally-weighted ESG should not be interpreted as a strong evidence that the market penalizes firms who invest in CSR, since the result is not economically significant.¹ Similarly to the environmental domain, relationship between corporate governance and $\ln(\text{EBITDA})$ is statistically significant but not economically significant. One possible explanation for the divergence in results is that the Profitability Index evaluates performance from different perspectives instead of focusing on single-variable of interest as Tobin's Q or $\ln(\text{EBITDA})$.

Furthermore, our analysis indicates that there is strong evidence of a nonlinear relationship between ownership of insurance companies and firm performance when measured by the Profitability Index. The ownership of insurance companies has an U-shaped (convex) relationship with firm performance. In other words, when the ownership concentration is smaller, there is a negative effect on performance, however, when the concentration gets larger, the effect is positive. Based on these results, a firm with an insurance company as a shareholder is associated with better performance, when ownership concentration exceeds 23% and 26.2%.² The results are consistent with the evidence we observe in our descriptive analysis, in particular, household goods industry has on average the Profitability Index equals to 6.08 in comparison to the sample mean of 5.01 and insurance companies are the largest shareholders with an average of 25.52% ownership concentration in the industry (Appendix E and C). A possible explanation to this finding could be that when an insurance company concentrates its ownership in a firm, the managers of the firms are encouraged to focus on a long-term value creation rather than a short-term. Moreover, they monitor the activities of management and limit opportunistic behaviour that create agency costs. This can be done only in case of sufficient control over the firms they own, therefore, this positive effect is not present when ownership is small.

The results of our study provide a mixed evidence about the relationship between CSR and financial performance. Statistically, but not economically significant results regarding the link between social and financial performance, suggest that companies are not

¹ We calculate this as the coefficient estimate of ESG equally-weighted (-0.007) divided by the average Tobin's Q for the sample (0.0). The industry and year adjusted Tobin's Q is close to zero.

² We calculate this as the coefficient estimate of Insurance company (-0.138) and (-0.131) divided by the coefficient estimate of Insurance company² (0.006) and (0.005).

rewarded, or at least not punished for engaging in a CSR-based strategy. The results appear to contradict the stakeholder theory, which applies CSR in order to sustain and enhance firm performance.

5.2.2 Country-Specific Evidence

We then extend the analysis to an individual country level to explore whether there is a difference in the relationship between the ESG score and firm performance among the countries in our sample. The country-specific results are summarized in Tables 3a for the equally-weighted ESG score and 3b for the ESG domains. According to Table 3a, the equally-weighted ESG score exhibits a negative coefficient (-0.036; $p < 0.01$) in Finland when $\ln(\text{EBITDA})$ is used as a proxy for financial performance. The estimation result confirms Hypothesis 2 about the negative relationship in Denmark and Finland. When testing various domains of the ESG score (Table 3b) in Finland, we observe that this relationship is driven by economic and corporate governance scores (-0.012; $p < 0.05$ and -0.018; $p < 0.1$ respectively). A similar relationship holds for Denmark, the economic score is negatively related to the Profitability Index (-0.026; $p < 0.1$) and the corporate governance score to $\ln(\text{EBITDA})$ (-0.006; $p < 0.1$). On the other hand, in Norway, when we look at the equally-weighted ESG score and the Profitability Index, we observe a significant positive relationship (0.049; $p < 0.1$).

In line with Gjøølberg (2010), we argue that there are differences in interpretation of CSR among countries, even though they exhibit a greater degree of similarities between regulation and political-economic institutions. The ambition of Danish and Finnish governments to see CSR as a competitive advantage puts pressure on companies and can be described as coercive isomorphism. Since CSR activities are closely linked to political-economic issues, the adaptation of new practices is necessary every time the new regulation occurs. In practise, the cost for individual firms associated with the adaptation may be higher than the benefits from undertaking CSR activities. In contrast, Sweden and Norway aim to create normative and ideological environment which stimulates independent decision making concerning investments in CSR activities and give an impression of a business-oriented approach, i.e. a win-win proposition for the companies and the government based on normative isomorphic. Another possible explanation for the divergence in the results between countries is the ownership structure. Ownership concentration by various types of investors has a greater effect on the choice of governance form, social and environmental activities as well as how the agency conflicts between equity holders are resolved.

As we have previously discussed, the relationship between insurance companies and firm performance measured by the Profitability Index is U-shaped. In this context the link is present when separate ESG domains are analysed. Thus, we can assume that our results from the full sample indicating this convex relationship are mostly driven by the ownership type in Denmark. Furthermore, in Finland public authority, state and government, as well as banks exhibit a nonlinear relationship with firm performance measured by the Profitability Index and $\ln(\text{EBITDA})$. Based on these results, those institutions are associated with better performance when ownership increases to above 33% and 44% respectively. The ownership percentage exceeds the levels we observe in our sample for Finland, in particular, for public authority, state and governments the mean is 9.27% and for banks the mean is 13.06%. Using the equally-weighted ESG score we have discovered the similar relationship.

To sum up, country-specific evidence suggest that there is a negative effect from higher CSR score on corporate financial performance, proven by the equally-weighted ESG score and its domains in Finland and thus support the Danish-Finnish interpretation of CSR.

5.3 Relationship between CSR and Employer Attractiveness Ranking

Hypothesis 3 predicts a positive relationship between the Employer Attractiveness Ranking, measures firm attractiveness from professionals' and students' views, and corporate financial performance. The regression analysis is presented in Table 4. We find that the Profitability Index and an employer attractiveness dummy are positively and significantly related (0.784; $p < 0.01$). This means that the companies that were recognized as attractive employers in the previous period experience a positive economic impact. Since the presence on the list among top-employers may enhance awareness of the company, it may be more attractive to high-quality professionals, which in turn leads to better performance. Moreover, due to the information asymmetry between firms and potential employees, the Employer Attractiveness Ranking may mitigate this problem and signal about the quality of the firm. Additionally, consistent with the stakeholder theory, the ranking may improve employee motivation and retention in the company, which results in higher effort and, thus, profits, better products and efficient processes. The result implies that corporate attractiveness can improve financial performance, thus, supports Hypothesis 3.

On the other hand, the results of the relationship between corporate attractiveness and financial performance, using the alternative financial measures, lead to opposite conclusions. Overall, the evidence suggests that the employer attractiveness dummy is negatively and significantly related to $\ln(\text{EBITDA})$ (-1.089; $p < 0.01$) and Tobin's Q (-0.218;

$p < 0.01$). Thus, the results do not support the positive relationship and reject our hypothesis. One of the possible explanations to the difference in the effect between the Profitability Index and $\ln(\text{EBITDA})$ or Tobin's Q is that the index is a comprehensive measure of performance and assesses financial performance from various areas, whereas $\ln(\text{EBITDA})$ and Tobin's Q are single measures of profitability focusing on one determinant. Taken together, these results provide support for Hypothesis 3 when measuring financial performance by the Profitability Index and reject the hypothesis in case with $\ln(\text{EBITDA})$ and Tobin's Q.

Finally, we investigate the relationship between CSR and firm attractiveness from professionals' and students' views. The results are presented in Table 5. In contrast to the previous study (Turban & Greening, 1997), our results indicate no significant link between the equally-weighted ESG score or its domains and the ranking. Thus, these results reject Hypothesis 4. We have expected positive relationship arguing that firms undertake strategic activities that positively affect individual perception of attractiveness of a firm. Specifically, a firm acquires organizational legitimacy and gets a match between employment interest and firm's value system and characteristics. However, rejection of our hypothesis does not support this view.

To sum up, we find evidences to both accepting and rejecting hypothesis measuring the effect from inclusion in the Employer Attractiveness Ranking on corporate financial performance, depending on the type of performance measurement. Additionally, we find no evidence that CSR performance affects perception of the company measured by the Employer Attractiveness Ranking.

5.4 Relationship between CSR and Firm Ownership Structure

Our primary Hypothesis 5 states that, all else equal, institutional ownership has a positive effect on the firm's CSR performance. The results are presented in Table 6. The coefficient estimate for ownership by insurance companies is 0.225 ($p < 0.05$), indicating that every percentage increase in ownership by an insurance company leads to a 0.225 increase in the equally-weighted ESG score. Therefore, the results in Table 6 support Hypothesis 5. We also found that ownership by private equity companies is positively and significantly (0.271; $p < 0.05$) related to the CSR performance proxy. On the contrary, ownership by banks, financial companies and venture capital companies is negatively associated with the ESG score (-0.103; $p < 0.1$, -0.071; $p < 0.1$ and -0.132; $p < 0.05$ respectively). With this evidence, we can make two important conclusions.

Firstly, the short-horizon investors, such as venture capital and financial companies, profit from short-run improvement in firm performance and, thus, are reluctant to incentivise management to undertake CSR activities that may negatively affect short-term financial performance. These findings are consistent with the organizational legitimacy and indicate that institutional investors, such as insurance companies, put pressure on firms and force those to engage in CSR activities. Thus, long-horizon investors may be more willing to support corporate CSR activities. The actions aim to mitigate the risk associated with investments, as well as meet external expectations. As discussed in the Subsection 2.6, implication of the regulation in some of the Nordic countries is that institutional investors are required to incorporate ethical and environmental considerations into their investment decisions. As a consequence, the pattern we uncovered provides the evidence that regulation regarding investment policies may be one of the instruments to force firms to implement and improve CSR practices.

Secondly, our results show that ownership by insurance companies has a positive and significant effect, whereas ownership by banks has a significantly negative effect on the CSR measure. This may indicate the existence of differences in preferences not only among debt holders and equity holders, but even within a single group such as institutional owners. In general, investors have two possibilities to increase profitability of a firm: they can either actively participate in forming firm strategies or they can sell shares and thus indicate dissatisfaction with corporate activities. However, selling a large amount of stocks may adversely affect the total return and, therefore, larger investors may still prefer participation in forming a strategy or governance structure to improve effectiveness of business operations. Moreover, there is a risk that those investors will suffer substantial losses if firms engage in activities with undesirable ex post impact. Presumably, insurance companies have larger shareholdings and thus can incentivise management to emphasize good CSR practices over short-term profitability.

To sum up, we find evidence that institutional ownership has a positive relation to the CSR measure. Additionally, we discover differences in preferences of various investor types, also within the institutional investor group.

6 Robustness of Model Specifications and Possible Limitations

In this section, we present results from robustness checks, as well as compare and contrast some of our results from the main regressions to those from robustness tests. Subsequently, some possible limitations are highlighted that may explain the obtained results.

6.1 Robustness Checks

As mentioned previously, many of preceding studies have used different measures of financial performance. In order to place our study within the context of existing literature and to examine whether our results are driven by the choice of financial ratios, we reestimate our regressions using financial measures from those studies. Specifically, we use ROA as an alternative measure of accounting performance and Market-to-Book as an alternative measure of market performance. Additionally, in this section we present results from random effects regressions from the analysed models.

The results are summarized in Table 7. Regression coefficients on the ESG equally-weighted, the environment and corporate governance score are similar in magnitude and statistical significance to those from our pooled evidence. We validate a significant and negative effect from the ESG equally-weighted score on financial performance, measured by Tobin's Q, supporting Hypothesis 1b. Similarly, we find evidence of corporate governance and environmental domains contributing to this relation.

Additionally to our main results, robustness tests show that variables representing ownership by banks, foundations and research institutions and public authority, state and governments also have a non-linear relationship with firm financial performance. Therefore, robustness tests provide further evidence of a U-shaped relationship between institutional owners and firm performance. As a result, robustness results remain qualitatively similar to our main regressions.

We reestimate regressions that investigate the relationship between the Employer Attractiveness Ranking dummy and firm performance. The results are presented in Table 8. Similarly to the results from the main regressions, we obtain significantly positive coefficients showing that inclusion in the Employer Attractiveness Ranking in the previous period is positively related to corporate financial performance, when financial performance is measured by the Profitability Index and Tobin's Q. Results from the main model indicate that there is also a negative effect on market performance from being recognized as an attractive employer. However, robustness check does not support this negative relationship. Therefore, based on the main specification results and robustness checks, we can conclude that being recognized by professionals and students as an attractive employer leads to an increase in financial performance, supporting Hypothesis 2.

Furthermore, social score has a minor positive effect on perception of the company by professionals and students, indicating that corporate efforts relating to such issues as employment quality, diversity, training and development have a positive impact on company

evaluation (Table 9). Therefore, the evidence suggests that only strategic activities that are directly related to employees create organizational legitimacy in the eyes of stakeholders and that potential employees pay more attention to the issues of social organisation of a firm and working conditions rather than economic and corporate governance dimensions. Overall, the divergence from our main results can be explained by the choice of using fixed effects in our main regressions and random effects when we reestimate the regressions.

Finally, we reestimate regressions that investigate the relationship between ownership types and CSR performance. Table 10 presents the estimates of random effects regressions. Robustness analysis supports the main results indicating that different types of ownership have various effects on firm social performance.

To sum up, robustness tests validate the findings that were obtained and discussed in the main empirical analysis section. We can conclude that the main results hold when we reestimate the regressions models and use alternative measures.

6.2 Possible Limitations

There are several factors that limit the research conducted in this paper that could only be resolved to an extent. First of all, the ESG score is used in the current study as a measure of CSR; however, it is only a proxy attempting to measure the magnitude of corporate CSR activity. Even though this measure is multidimensional and attempts to capture CSR-related activities to a larger extent, it still does not cover the full effect. Due to the measurement difficulty, the quality and quantity of performed CSR actions cannot be verified fully, based on the reported information.

Furthermore, both the concept of CSR and the ESG measurement approach develop over time, therefore, inferences regarding the studied effects might also vary depending on the measurement period and consistency, and the CSR definition as such. Since we focus on the time period from 2010-2014 and the Nordic market, we can only deduce from the evidence from a certain period of time, location and CSR definition incorporated in the ESG score, which restricts us from generalizing the findings to other time periods and locations.

Moreover, since the ESG score is a relatively new measure of CSR, information about some firms is not available to analysts creating the entries, thus leading to selection bias. We acknowledge the risk of including not full population of listed firms in the Nordic region and having a not large enough sample to arrive to vigorous conclusions as a result of the limited ESG score availability in the Nordics market. This limitation can be addressed by expanding the sample of ESG scores for other listed companies in the region, as well as for

smaller non-listed companies, since their contribution towards the whole economy is also substantial. By doing so the obtained sample will arrive to a larger variation among the scores, mitigating the above-mentioned concern by analysing different ESG performances and making conclusions regarding the overall pool of businesses in the region.

Furthermore, by including different industries in the sample, only a general conclusion can be observed, not the industry-specific. Different industries might be differently exposed to various CSR factors. For example, chemicals industry might be much more exposed to environmental issues, financial institution might be more exposed to corporate governance issues. Due to the limited number of firms in every industry we cannot make sound industry-based conclusions, therefore, we provide general conclusions related to the geographical region.

Besides, endogeneity is a major concern in the CSR literature. In general endogeneity is brought by omitted variable bias and reverse causality: a firm's financial resources may determine its CSR decisions. Endogeneity can be further addressed to a greater extent in future research papers by reducing data limitations and expanding the analyzed sample.

Apart from that, as we have argued in the beginning of the paper, comparability of CSR concepts and measures across various studies and databases is different. According to Chatterji et al., (2014), there is a little overlap and low correlations among major six CSR rating companies - KLD, Asset4, Calvert, FTSE4Good, DJSI, and Innovest – due to varying definitions of concepts, and ways of measurement. Therefore, even when replicating an established model on different database one should not be surprised by inconsistent results. It is also argued that four out of six rating companies normalize their rating by industries, whereas KLD and ASEET4 do not. Therefore, in order to make generalized inferences it would be advisable to analyse CSR measures from different sources and compare the results. Due to the information availability, we base this research on the ASSSET4 database.

Also, according to Mullerat (2013), the Nordic countries are among the top performers in their efforts to promote responsible business practices. However, this excellent performance needs to be treated with caution, since advanced economies often achieve the high ranking in CSR performance due to the moving their poorly-performing in terms of CSR industries or parts of business abroad where there are less stringent environmental and social standards. As a result, other countries might be polluting and violating CSR standards on their behalf, while keeping their scores biased and unreasonably good. In our study we cannot

address this issue, however, the knowledge of existence of these practices might be useful when deducing about the CSR concept in the region analysed.

7 Conclusion

We study the effect of past corporate CSR performance on corporate financial performance from objective (accounting-based) and subjective (market-based) perspectives using panel data from 126 firms in the Nordics region for the period from 2010-2014. Our substantive goal was to assess this interrelation through constructing the Profitability Index measuring corporate financial performance and using single measures of financial performance analysed in previous studies. By obtaining robust results we show that the proxy for CSR is significantly negatively related to subjective corporate financial performance of minor magnitude, and is not related to objective financial performance. Although not hypothesized, we also find evidence of non-linear relationship in ownership concentration by some institutional investors, indicating a long-term preference for long-run value.

By using the Employer Attractiveness Ranking constructed annually by Universum, which measures corporate attractiveness estimated by professionals and students, we analyse the relationship between perception of being an attractive employer and corporate financial performance. We find evidence that being recognized by professionals and students as an attractive employer, in fact, has a positive relation to financial performance. Therefore, the ESG score and inclusion in the ranking have opposite impacts on corporate financial performance.

Additionally, we study how CSR performance affects attractiveness of the company, measured by the Employer Attractiveness Ranking, and find no evidence of this effect. However, we do find evidence that the social domain of the ESG measure has impact on the inclusion in the ranking. We discover that potential employees pay more attention to the issues of social organisation of a firm and working conditions rather than, for instance, economic and corporate governance dimensions.

We offer new evidence on the effect of different ownership types and the CSR measure. We discover a positive relationship between these variables. The results indicate that different types of owners have diverse effect on firms' CSR strategy. In addition, by distinguishing between different types of investors within a broader group of institutional investors we reveal the divergence in institutional preferences. The evidence supports the view that various types of owners are heterogeneous in their preferences for CSR strategy.

The results support the fact that government regulation regarding investment strategies for institutional investors may be an effective instrument for improving the CSR profile of a firm.

Empirically we arrive to several mixed results between the CSR measure and various estimates of corporate financial performance. This dispersion can be explained by the fact that the Profitability Index is a complex measure of performance, whereas $\ln(\text{EBITDA})$ and Tobin's Q are single-item measures of performance. This reveals that the relationship between CSR and firm performance is difficult to measure and the assessment of the link is based on what measures of financial performance are used, which in turn confirms our findings on variability and incomparability of results across studies.

Methodological shortcomings of this paper might challenge the results obtained and are responsible for an equivocal relationship between corporate CSR and financial performance. Therefore, various robustness tests are performed in the study in order to investigate the examined impact as precisely as possible and arrive to robust results.

8 Tables

Table 1. Construction of Profitability Index

Measurement	Name	Ratio
Activity	Working capital turnover	$\frac{\text{Sales}}{\text{Working Capital}}$
	Capital employed turnover	$\frac{\text{Sales}}{\text{Capital Employed}}$
Liquidity	Current ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
Leverage	Leverage ratio	$\frac{\text{Debt}}{\text{Total Assets}}$
Profitability	Net profit margin	$\frac{\text{Net Profit}}{\text{Sales}}$
	Return on equity	ROE
	Return on assets	ROA
	Earnings per share	EPS
Valuation	Market-to-Book ratio	$\frac{\text{Firm Market Value}}{\text{Net Asset Value}}$
	Price to earnings ratio	P/E
Investment intensity	CAPEX to sales ratio	$\frac{\text{CAPEX}}{\text{Sales}}$

Table 2. Correlation matrix

a) Main variables

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)
1) ESG equally-weighted score	1.00										
2) ESG economic score	0.76	1.00									
3) ESG social score	0.89	0.53	1.00								
4) ESG environmental score	0.84	0.51	0.75	1.00							
5) ESG corporate governance score	0.67	0.39	0.49	0.41	1.00						
6) Tobin's Q	-0.06	0.03	-0.04	-0.05	-0.16	1.00					
7) ROA	0.14	0.31	0.07	0.10	-0.09	0.48	1.00				
8) EBITDA	0.22	0.25	0.20	0.20	0.11	-0.06	0.10	1.00			
9) Market-to-Book	-0.01	0.02	0.00	-0.01	-0.06	0.22	0.09	-0.01	1.00		
10) Profitability Index	0.09	0.15	0.10	0.07	-0.09	0.30	0.40	0.01	0.13	1.00	
11) Employer Attractiveness Ranking	0.33	0.27	0.32	0.23	0.26	0.12	0.10	0.14	0.07	0.14	1.00

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)
1) ESG equally-weighted score (t-1)	1.00										
2) ESG economic score (t-1)	0.68	1.00									
3) ESG social score (t-1)	0.87	0.43	1.00								
4) ESG environmental score (t-1)	0.80	0.36	0.77	1.00							
5) ESG corporate governance score (t-1)	0.61	0.35	0.34	0.25	1.00						
6) Tobin's Q (industry and year adjusted)	-0.13	-0.02	-0.10	-0.07	-0.17	1.00					
7) ROA (industry and year adjusted)	0.05	0.08	0.07	0.16	-0.12	0.58	1.00				
8) ln(EBITDA) (industry and year adjusted)	0.24	0.16	0.33	0.39	-0.14	0.05	0.36	1.00			
9) Market-to-Book (industry and year adjusted)	-0.21	-0.08	-0.12	-0.16	-0.23	0.40	0.25	0.04	1.00		
10) Profitability Index	0.05	0.01	0.06	0.09	0.01	0.38	0.50	0.26	0.25	1.00	
11) Employer Attractiveness Ranking (t-1)	0.30	0.20	0.29	0.21	0.23	0.26	0.16	0.14	0.12	0.18	1.00

b) Extended table

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)
1) ESG equally-weighted score	1.00															
2) ESG economic score	0.76	1.00														
3) ESG social score	0.89	0.53	1.00													
4) ESG environmental score	0.84	0.51	0.75	1.00												
5) ESG corporate governance score	0.67	0.39	0.49	0.41	1.00											
6) Working capital turnover	0.06	0.01	0.07	0.10	0.01	1.00										
7) Capital employed turnover	0.16	0.15	0.19	0.18	-0.02	0.05	1.00									
8) Current ratio	-0.04	0.05	-0.08	-0.04	-0.04	0.00	-0.05	1.00								
9) Leverage ratio (D/A)	-0.09	-0.22	-0.07	-0.05	0.02	-0.06	-0.29	-0.07	1.00							
10) Net profit margin	-0.12	0.01	-0.16	-0.11	-0.13	-0.01	-0.14	0.92	-0.06	1.00						
11) ROE	0.11	0.16	0.08	0.08	0.00	0.00	0.00	0.01	-0.11	0.06	1.00					
12) ROA	0.14	0.31	0.07	0.10	-0.09	0.00	0.05	0.11	-0.26	0.23	0.47	1.00				
13) Earnings per share	0.02	0.01	0.02	0.03	0.00	0.04	0.09	-0.01	-0.03	-0.03	-0.01	-0.07	1.00			
14) Market-to-Book	-0.01	0.02	0.00	-0.01	-0.06	0.00	0.04	-0.01	-0.12	-0.01	-0.34	0.09	0.00	1.00		
15) Price to earnings ratio	0.03	0.02	0.04	0.04	-0.01	0.03	0.08	-0.01	-0.03	-0.02	0.00	-0.02	0.96	0.01	1.00	
16) CAPEX to sales ratio	-0.05	-0.02	-0.14	-0.02	-0.05	0.01	-0.26	0.01	0.27	0.08	-0.02	-0.03	0.03	0.05	0.00	1.00

Table 3. Regression analysis

Regressions on relationship between CSR proxies and financial performance on the full sample

Independent variables	Dependent variables					
	Profitability Index (t)		ln(EBITDA) (t)		Tobin's Q (t)	
	FE	FE	FE	FE	FE	FE
ESG equally-weighted (t-1)	-0.010 (-0.95)		-0.005 (-1.33)		-0.007** (-2.21)	
ESG economic score (t-1)		-0.003 (-0.44)		-0.002 (-1.10)		-0.002 (-1.10)
ESG social score (t-1)		-0.004 (-0.35)		0.00 (0.10)		-0.002 (-0.66)
ESG environmental score (t-1)		-0.017 (-1.60)		0.001 (0.24)		-0.007** (-2.25)
ESG corporate governance score (t-1)		0.006 (0.93)		-0.005** (-2.02)		0.002 (0.84)
Control variables						
Insurance company	-0.138** (-2.41)	-0.131** (-2.28)	0.003 (0.17)	0.001 (0.06)	-0.007 (-0.69)	-0.005 (-0.56)
Bank	-0.013 (-0.64)	-0.010 (-0.48)	-0.007 (-0.80)	-0.008 (-1.00)	0.00 (0.02)	0.002 (0.26)
Mutual, pension fund	-0.011 (-0.64)	-0.012 (-0.60)	0.007 (1.08)	0.007 (1.22)	0.00 (0.67)	0.005 (0.73)
Foundation, research institution	-0.024 (-0.68)	-0.022 (-0.63)	-0.011 (-1.44)	-0.013* (-1.68)	-0.009** (-1.99)	-0.008** (-1.81)
Public authority, state, governments	0.092** (2.15)	0.086** (2.02)	-0.004 (-0.22)	-0.003 (-0.17)	0.004 (0.38)	0.002 (0.21)
Insurance company^2	0.006* (2.68)	0.005** (2.57)	0.00 (0.57)	0.00 (0.51)	0.00 (0.59)	0.00 (0.64)
Bank^2	0.00 (0.94)	0.00 (0.88)	0.00 (1.63)	0.00* (1.78)	0.00 (0.17)	0.00 (0.01)
Mutual, pension fund^2	0.00 (-0.05)	0.00 (-0.11)	0.00 (-1.45)	0.00 (-1.64)	0.00 (-0.25)	0.00 (-0.36)
Foundation, research institution^2	0.00 (0.26)	0.00 (0.23)	0.00 (1.63)	0.00* (1.90)	0.00* (1.93)	0.00* (1.71)
Public authority, state, governments^2	0.00** (-1.66)	-0.002 (-1.58)	0.00 (0.12)	0.00 (0.08)	0.00 (-0.48)	0.00 (-0.34)
ln(age)	1.022* (1.82)	0.948** (1.73)	-0.208 (-0.53)	-0.201 (-0.51)	-0.064 (0.32)	-0.083 (-0.41)
ln(assets)	-1.672*** (-2.93)	-1.476*** (2.67)	0.090 (0.39)	0.025 (0.11)	-0.625*** (-4.18)	-0.590*** (-4.11)
Number of employees	0.00 (-1.59)	0.00 (-1.44)	0.00** (-2.04)	0.00** (-2.13)	0.00 (-0.13)	0.00 (-0.11)
D/A	2.136* (1.71)	1.835 (1.48)	-0.209 (-0.35)	-0.102 (-0.18)	-1.182** (2.13)	-1.295** (-2.29)
ln(sales)	1.248** (2.32)	1.136** (2.01)	0.657** (2.54)	0.710*** (2.74)	0.419*** (3.26)	0.382*** (2.96)
R&D-to-Sales	14.160 (1.20)	14.146 (1.16)	-3.972*** (-4.18)	-4.02*** (-4.22)	-3.478*** (-5.56)	-3.584*** (-5.68)
CAPEX-to-Assets	8.383*** (2.67)	8.791*** (2.81)	-2.392* (-1.74)	-2.391* (-1.75)	1.892* (1.87)	2.057** (2.01)
Other						
Constant	11.969 (1.00)	10.739 (0.89)	-16.362** (-2.57)	-16.054** (-2.51)	6.382** (1.99)	6.640** (2.04)
# obs	287	287	397	397	423	423
# firms	99	99	123	123	124	124
R-squared within	0.2264	0.243	0.134	0.1483	0.2471	0.2578
F-test (Prob>F)	4.06 (0.00)	3.60 (0.00)	5.15 (0.00)	4.90 (0.00)	3.94 (0.00)	3.41 (0.00)
Hausman test (Prob>F)	9.66 (0.6458)	20.90 (0.1043)	n.a.	35.90 (0.0018)	4.98 (0.9587)	1.21 (1.00)

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year fixed effects (FE) using xtreg function. t-statistics are indicated in parentheses below the estimated coefficients of FE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: p < 0.05). Hausman test is used to check the correctness of regression specification choice (fixed effects if p < 0.05). Tobin's Q and ln(EBITDA) are used in the functional form of industry and year adjusted variables.

Table 3a. Regression analysis

Regressions on country-specific relationship between ESG equally-weighted score and financial performance

	Dependent variables											
	Sweden			Denmark			Finland			Norway		
	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)
Independent variables	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE
ESG equally-weighted (t-1)	0.0174 (1.16)	0.00 (0.14)	0.00 (-0.10)	-0.055 (-1.64)	-0.005 (-0.57)	-0.020 (-1.37)	-0.028 (-0.91)	-0.036*** (-2.98)	-0.003 (-0.63)	0.049* (1.96)	0.003 (0.30)	-0.011 (-1.62)
Control variables												
Insurance company	-0.020 (-0.16)	-0.045 (-1.38)	0.013 (0.71)	-0.293* (-1.94)	0.002 (0.06)	-0.037 (-0.67)	-0.013 (-0.13)	-0.092 (-1.63)	0.001 (0.02)	-0.202 (-0.80)	-0.107 (-1.43)	0.024 (0.71)
Bank	0.092 (0.96)	-0.005 (-0.21)	0.008 (0.76)	0.064 (1.01)	-0.013 (-0.64)	-0.003 (-0.07)	-0.092 (-1.59)	0.132** (2.72)	-0.024 (-1.13)	0.016 (0.17)	-0.018 (-0.62)	-0.015 (-0.99)
Mutual, pension fund	-0.001 (-0.01)	0.014 (1.35)	-0.004 (-0.72)	0.00 (0.00)	0.029 (1.64)	0.023 (0.60)	-0.037 (-0.80)	0.008 (0.55)	-0.001 (-0.15)	0.044 (0.67)	-0.011 (-0.27)	-0.015 (-0.91)
Foundation, research institution	-0.059 (-0.53)	-0.011 (-1.37)	-0.011* (-1.67)	0.912 (0.62)	1.321** (2.55)	1.937 (1.04)	-0.072 (-0.77)	0.090* (1.95)	-0.009 (-0.24)	-1.230 (-0.30)	-13.547 (-0.62)	-2.466 (-0.37)
Public authority, state, governments	-0.086 (-0.80)	-0.002 (-0.07)	-0.001 (-0.05)	0.124 (0.29)	-0.149 (-1.68)	-0.080 (-0.42)	0.100*** (4.42)	-0.012 (-0.56)	-0.003 (-0.23)	-0.168 (-1.01)	-0.027 (-0.23)	-0.031 (-0.98)
Insurance company^2	0.00 (-0.01)	0.001 (0.92)	0.00 (-1.10)	0.018 (2.58)	0.00 (-0.05)	0.00 (0.39)	0.00 (0.12)	0.002 (0.86)	0.00 (-0.21)	0.015 (1.87)	0.003 (1.21)	-0.001 (-1.21)
Bank^2	-0.002 (-0.83)	0.00 (0.60)	0.00 (-0.25)	0.00** (-1.08)	0.00 (0.88)	0.00 (0.29)	0.001 (1.12)	-0.003** (-2.36)	0.00 (1.28)	-0.001* (-0.66)	0.00 (0.84)	0.00 (0.92)
Mutual, pension fund^2	0.00 (-0.15)	0.00 (-0.90)	0.00 (1.57)	0.00 (-0.09)	0.00* (-1.73)	0.00 (-0.41)	0.00 (0.58)	0.00 (-0.89)	0.00 (0.38)	-0.001 (-1.07)	0.00 (-0.26)	0.00 (0.67)
Foundation, research institution^2	0.00 (0.35)	0.00 (1.55)	0.00 (1.64)	-1.059 (-1.48)	-0.754** (-2.71)	-0.602 (-0.58)	0.004 (1.25)	-0.010** (-2.31)	0.00 (0.53)	0.00 (0.00)	38.489 (0.37)	13.369 (0.41)
Public authority, state, governments^2	0.002 (1.05)	0.00 (-0.12)	0.00 (0.02)	0.012 (0.50)	0.011* (1.74)	0.008 (0.90)	-0.003*** (-5.71)	0.00 (0.81)	0.00 (-0.19)	0.009* (1.82)	0.00 (0.28)	0.00 (1.12)
ln(age)	-1.052 (-0.30)	-0.930 (-1.09)	-0.128 (-0.38)	2.913 (1.05)	0.199 (0.45)	0.718 (1.24)	-1.466 (-0.64)	-2.937** (-2.13)	-0.145 (-0.32)	1.671 (1.67)	-0.254 (-0.30)	-0.844** (-2.13)
ln(assets)	-2.969** (-2.61)	0.003 (0.01)	-0.820*** (-3.47)	-3.471 (-1.54)	-0.115 (-0.17)	-1.316** (-2.14)	-2.361 (-1.19)	-1.071 (-1.10)	-0.589** (-2.05)	0.637 (0.48)	1.202 (1.33)	0.116 (0.38)
Number of employees	0.00 (1.30)	0.00 (-0.29)	0.00** (2.27)	0.00 (-1.47)	0.00 (-1.27)	0.00 (-0.34)	0.00 (-1.42)	0.00 (-1.24)	0.00 (1.38)	0.00 (-0.07)	0.00 (0.72)	0.00** (2.11)
D/A	7.325** (2.58)	-0.127 (-0.18)	0.154 (0.25)	0.664 (0.17)	-0.296 (-0.26)	-3.586 (-1.59)	3.353 (1.30)	1.501 (0.82)	-0.395 (-0.63)	10.826** (2.20)	-2.965 (-0.69)	-1.229 (-1.13)
ln(sales)	2.120** (2.41)	0.790** (2.20)	0.404** (2.62)	0.363 (0.27)	0.810 (0.93)	1.162* (1.79)	3.714 (1.63)	1.527 (1.25)	0.213 (0.87)	0.973 (0.56)	0.841 (0.80)	-0.149 (-0.46)

R&D-to-Sales	4.191 (0.14)	-8.116 (-0.98)	-9.579 (-1.36)	-14.613 (-0.43)	-5.162*** (-2.89)	-3.054*** (-3.78)	52.685** (2.66)	-9.734 (-0.71)	15.703 (1.56)	-367.895 (-1.74)	52.022 (1.36)	24.981 (1.35)
CAPEX-to-Assets	8.858 (1.24)	-3.966 (-1.39)	-0.971 (-0.72)	22.915* (1.87)	-0.460 (-0.15)	5.473 (1.07)	-0.435 (-0.06)	1.279 (0.36)	-0.485 (-0.27)	22.920*** (3.39)	-4.244 (-1.24)	2.889** (2.26)
Other												
Constant	26.415 (1.30)	-14.813* (-1.85)	10.920* (1.86)	70.704 (1.39)	-15.947 (-0.72)	4.347 (0.32)	-20.238 (-0.69)	2.362 (0.15)	9.472 (1.62)	-44.464 (-1.53)	-47.035 (-1.68)	4.490 (0.78)
# obs	107	168	172	62	85	94	70	78	85	48	66	72
# firms	39	51	51	20	25	26	24	26	26	16	21	21
R-squared within	0.2752	0.1885	0.3735	0.6219	0.4932	0.4756	0.6865	0.4628	0.3073	0.7323	0.377	0.4454
F-test (Prob>F)	2.72 (0.0027)	2.21 (0.0070)	2.75 (0.0007)	5.56 (0.001)	7.78 (0.00)	39.77 (0.00)	115.79 (0.00)	3.63 (0.0006)	2.61 (0.0056)	17.45 (0.00)	3.68 (0.0011)	2.74 (0.0058)
Hausman test (Prob>F)	9.10 (0.6945)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1.03 (1.00)	n.a.	n.a.	17.39 (0.0969)	n.a.

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year fixed effects (FE) using xtreg function. t-statistics are indicated in parentheses below the estimated coefficients of FE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choice (fixed effects if $p < 0.05$). Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments. Tobin's Q and $\ln(\text{EBITDA})$ are used in the functional form of industry and year adjusted variables.

Table 3b. Regression analysis

Regressions on country-specific relationship between ESG scores and financial performance

	Dependent variables											
	Sweden			Denmark			Finland			Norway		
	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)
Independent variables	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE
ESG economic score (t-1)	0.012 (1.28)	0.001 (0.45)	0.001 (0.37)	-0.026* (-2.01)	-0.004 (-1.03)	-0.016 (-1.67)	-0.017 (-0.91)	-0.012** (-2.39)	0.005 (1.62)	0.012 (0.61)	-0.004 (-0.40)	0.002 (0.39)
ESG social score (t-1)	-0.031** (-2.19)	0.004 (0.60)	-0.003 (-0.77)	-0.070 (-1.41)	0.005 (0.50)	-0.008 (-0.58)	0.017 (0.43)	-0.002 (0.41)	-0.001 (-0.17)	-0.004 (-0.09)	0.017 (1.03)	-0.014 (-1.48)
ESG environmental score (t-1)	0.036 (1.48)	-0.004 (-0.31)	-0.001 (-0.44)	-0.027 (-0.87)	0.008 (1.09)	-0.004 (-0.38)	0.005 (0.26)	-0.001 (0.16)	-0.009** (-2.25)	0.074 (1.45)	-0.002 (-0.09)	0.007 (0.84)
ESG corporate governance score (t-1)	0.021 (1.60)	-0.006 (-1.03)	0.002 (0.98)	0.021* (1.81)	-0.006* (-1.70)	0.010 (1.33)	-0.017 (-1.12)	-0.018* (-1.84)	-0.004 (-1.01)	0.007 (0.22)	-0.013 (-0.82)	-0.010* (-1.75)
Control variables												
Insurance company	0.020 (0.16)	-0.049 (-1.51)	0.017 (0.84)	-0.324** (-2.63)	0.011 (0.36)	-0.033 (-0.59)	0.025 (0.24)	-0.073 (-1.12)	-0.013 (-0.44)	-0.145 (-0.58)	-0.105 (-1.39)	0.034 (0.95)
Bank	0.082 (0.87)	-0.009 (-0.36)	0.009 (0.93)	0.027 (0.49)	-0.007 (-0.31)	-0.020 (-0.40)	-0.090 (-1.34)	0.118** (2.14)	-0.016 (-0.82)	-0.050 (-0.44)	-0.003 (-0.10)	-0.013 (-0.72)
Mutual, pension fund	-0.015 (-0.38)	0.015 (1.35)	-0.005 (-0.90)	0.021 (0.25)	0.026 (1.41)	0.028 (0.67)	-0.052 (-1.24)	0.005 (0.35)	0.00 (0.12)	0.086 (0.93)	-0.021 (-0.52)	-0.009 (-0.57)
Foundation, research institution	-0.040 (-0.39)	-0.016 (-1.66)	-0.009 (-1.30)	-0.359 (-0.27)	1.456*** (3.09)	1.429 (0.91)	-0.093 (-0.85)	0.024 (0.37)	-0.010 (-0.32)	-0.364 (-0.08)	-5.210 (-0.19)	-0.843 (-0.10)
Public authority, state, governments	-0.079 (-0.75)	-0.003 (-0.10)	0.00 (0.04)	-0.032 (-0.07)	-0.137 (-1.42)	-0.179 (-0.80)	0.116*** (3.68)	-0.007 (-0.30)	-0.008 (-0.62)	0.035 (0.15)	0.00 (0.01)	-0.015 (-0.48)
Insurance company^2	0.00 (-0.03)	0.001 (0.82)	0.00 (-1.01)	0.017*** (3.04)	0.00 (-0.64)	0.00 (0.55)	-0.001 (-0.27)	0.001 (0.47)	0.00 (0.30)	0.011 (1.28)	0.002 (0.78)	-0.002 (-1.33)
Bank^2	-0.001 (-0.55)	0.00 (0.61)	0.00 (-0.30)	0.00 (-0.25)	0.00 (0.61)	0.00 (0.64)	0.001 (0.84)	-0.003* (-1.98)	0.00 (1.11)	0.00 (0.00)	0.00 (0.25)	0.00 (0.95)
Mutual, pension fund^2	0.00 (-0.05)	0.00 (-0.59)	0.00 (1.64)	0.00 (-0.37)	0.00 (-1.36)	0.00 (-0.44)	0.001 (0.93)	0.00 (-0.59)	0.00 (0.23)	-0.002 (-1.06)	0.00 (0.16)	0.00 (0.31)
Foundation, research institution^2	0.00 (0.24)	0.00* (1.67)	0.00 (1.19)	-0.632 (-0.94)	-0.790*** (-3.19)	-0.422 (-0.49)	0.005 (1.27)	-0.004 (-0.81)	0.00 (0.56)	0.00 (0.00)	5.091 (0.04)	7.577 (0.18)
Public authority, state, governments^2	0.002 (1.02)	0.00 (-0.15)	0.00 (-0.08)	0.016 (0.64)	0.013* (1.85)	0.013 (1.11)	-0.002*** (-4.68)	0.00 (0.57)	0.00 (0.17)	0.005 (0.75)	0.00 (0.10)	0.00 (0.77)
ln(age)	-0.409 (-0.12)	-0.962 (-1.12)	-0.056 (-0.16)	0.314 (0.10)	0.598 (1.13)	0.200 (0.27)	-3.414 (-1.26)	-3.583** (-2.69)	-0.261 (-0.69)	0.999 (0.79)	0.175 (0.18)	-0.901* (-2.01)
ln(assets)	-2.684** (-2.55)	-0.082 (-0.24)	-0.785*** (-3.46)	-2.500 (-1.27)	-0.204 (-0.29)	-1.395** (-2.34)	-3.159 (-1.71)	-1.514 (-1.37)	-0.387 (-1.40)	1.624 (1.08)	1.492 (1.42)	0.151 (0.45)

Number of employees	0.00 (0.60)	0.00 (0.11)	0.00** (2.44)	0.00 (-1.07)	0.00 (-1.44)	0.00 (-0.54)	0.00 (-1.26)	0.00 (-0.79)	0.00 (0.77)	0.00 (0.18)	0.00 (0.69)	0.00 (1.70)
D/A	5.745** (2.06)	0.265 (0.37)	0.022 (0.03)	-0.361 (-0.08)	-0.096 (-0.08)	-4.320* (-1.98)	4.726* (1.88)	2.477 (1.51)	-0.568 (-1.12)	15.587* (2.09)	-2.859 (-0.52)	-0.901 (-0.77)
ln(sales)	1.934** (2.32)	0.871** (2.35)	0.383** (2.29)	-0.080 (-0.05)	0.906 (0.93)	1.327* (1.96)	4.613** (2.25)	1.985 (1.61)	0.041 (0.19)	-0.144 (-0.07)	0.391 (0.23)	-0.419 (-1.01)
R&D-to-Sales	10.385 (0.35)	-13.172 (-1.27)	-8.425 (-1.22)	-44.22 (-1.10)	-4.971** (2.66)	-3.056*** (-3.67)	66.557*** (2.89)	5.927 (0.38)	7.289 (0.82)	-210.445 (-0.75)	42.307 (0.68)	49.990 (1.54)
CAPEX-to-Assets	9.977 (1.41)	-3.923 (-1.31)	-0.958 (-0.68)	22.368*** (2.02)	-1.107 (-0.36)	4.667 (0.98)	0.317 (0.04)	-0.221 (-0.06)	1.07 (0.52)	22.242** (2.77)	-5.897 (-1.60)	3.163* (2.00)
Other												
Constant	20.397 (1.00)	-14.097** (-1.75)	10.421* (1.85)	74.318* (1.80)	-18.246 (-0.73)	4.697 (0.34)	-18.008 (-0.67)	3.396 (0.23)	9.793* (1.76)	-45.511 (-1.35)	-44.694 (-1.41)	9.711 (1.44)
# obs	107	168	172	62	85	94	70	78	85	48	66	72
# firms	39	51	51	20	25	26	24	26	26	16	21	21
R-squared within	0.3353	0.2138	0.392	0.7183	0.5485	0.5449	0.7188	0.5236	0.4475	0.7531	0.3944	0.4961
F-test (Prob>F)	2.72 (0.0022)	2.21 (0.0051)	2.53 (0.0011)	8.24 (0.00)	9.76 (0.00)	34.70 (0.00)	32.62 (0.00)	3.07 (0.0023)	3.31 (0.0007)	18.90 (0.00)	3.81 (0.0011)	1.68 (0.0951)
Hausman test (Prob>F)	17.56 (0.2278)	n.a.	n.a.	27.17 (0.0397)	n.a.	11.57 (0.8256)	14.29 (0.5037)	n.a.	2.50 (0.9997)	5.51 (0.8547)	30.39 (0.0014)	2.88 (0.9963)

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year fixed effects (FE) using xtreg function. t-statistics are indicated in parentheses below the estimated coefficients of FE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choice (fixed effects if $p < 0.05$). Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments. Tobin's Q and ln(EBITDA) are used in the functional form of industry and year adjusted variables.

Table 4. Regression analysis

Regressions on relationship between firm attractiveness and financial performance on the full sample

	Dependent variables		
	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)
Independent variables	FE	FE	FE
Attractiveness dummy (t-1)	0.784*** (4.23)	-1.089*** (-13.01)	-0.218*** (-10.84)
Control variables			
ESG equally-weighted (t-1)	0.016 (0.39)	-0.021 (-1.50)	-0.006 (-1.55)
Institutional investors	-0.012 (0.5)	-0.002 (-0.24)	-0.004 (-1.36)
Institutional investors^2	0.00 (1.07)	0.00 (0.09)	0.00 (1.36)
ln(age)	0.229 (0.32)	0.478 (0.78)	-0.436*** (-3.51)
ln(assets)	-2.095 (-1.24)	0.029 (0.04)	-0.429*** (-3.09)
Number of employees	0.00 (0.83)	0.00 (0.67)	0.00 (0.66)
D/A	4.012 (0.88)	0.822 (0.71)	-0.132 (0.21)
ln(sales)	-0.069 (-0.03)	0.092 (0.08)	0.479* (1.94)
R&D-to-Sales	23.509 (0.52)	-4.972*** (-3.02)	2.964*** (4.62)
CAPEX-to-Assets	9.207*** (2.85)	-5.011** (-2.48)	1.806 (1.53)
Other			
Constant	54.934 (1.27)	-2.343 (-0.12)	1.179 (0.20)
# obs	127	192	202
# firms	79	105	107
R-squared within	0.2924	0.1446	0.1111
F-test (Prob>F)	4594.67 (0.00)	2740.00 (0.00)	6400.00 (0.00)
Hausman test (Prob>F)	1.70 (0.9954)	n.a	n.a

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year fixed effects (FE) using xtreg function. t-statistics are indicated in parentheses below the estimated coefficients of FE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choice (fixed effects if $p < 0.05$). Tobin's Q and ln(EBITDA) are used in the functional form of industry and year adjusted variables. Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments.

Table 5. Regression analysis

Regressions on relationship between CSR proxies and firm attractiveness

Independent variables	Dependent variables	
	Attractiveness dummy (t)	
	FE	FE
ESG equally-weighted (t-1)	-0.001 (-1.04)	
ESG economic score (t-1)		0.00 (0.21)
ESG social score (t-1)		0.001 (0.86)
ESG environmental score (t-1)		0.001 (-0.65)
ESG corporate governance score (t-1)		0.001 (-0.71)
Control variables		
Institutional investors	-0.002 (-1.41)	-0.002 (-1.42)
Institutional investors^2	0.00 (1.52)	0.00 (1.49)
ln(age)	0.062 (0.64)	0.062 (0.66)
ln(assets)	0.032 (0.33)	0.038 (0.40)
Number of employees	0.00 (0.19)	0.00 (1.24)
D/A	0.253 (1.26)	0.250 (1.16)
ln(sales)	-0.197 (-1.52)	-0.199 (-1.54)
R&D-to-Sales	-0.211* (-1.74)	-0.232 (-1.61)
CAPEX-to-Assets	-0.153 (-0.55)	-0.162 (-0.59)
Other		
Constant	4.386* (1.93)	4.306* (1.93)
# obs	308	308
# firms	115	115
R-squared within	0.1102	0.1194
F-test (Prob>F)	0.38 (0.952)	0.30 (0.9913)
Hausman test (Prob>F)	n.a	n.a.

Table 6. Regression analysis

Regressions on relationship between firm ownership structure and ESG equally-weighted score

Independent variables	Dependent variable
	ESG equally-weighted (t)
	FE
	0.225** (0.02)
Insurance company	-0.103* (-1.73)
Bank	0.009 (0.47)
Industrial company	-0.077 (-1.59)
Mutual, pension fund	0.032 (0.42)
One or more individuals or family	-0.351 (-1.58)
Self-ownership	-0.071* (-1.89)
Financial company	-0.022 (0.42)
Foundation, research institution	0.271** (2.06)
Private equity company	-0.046 (-0.87)
Public authority state governments	-0.027 (-0.68)
Other unnamed shareholders aggregated	-0.132** (-2.32)
Control variables	
ROE (t-1)	0.013 (1.21)
ROA (t-1)	-0.269*** (-3.12)
ln(age)	-15.131*** (-3.62)
D/A	-5.503 (-0.75)
ln(sales)	6.075** (2.43)
Other	
Constant	-15.102 (0.25)
# obs	452
# firms	125
R-squared within	0.1312
F-test (Prob>F)	3.20 (0.0)
Hausman test (Prob>F)	16.04 (0.521)

*** p<0.01, ** p<0.05, * p<0.1

The tables show results of panel data regressions with firm and year fixed effects (FE) using xtreg function. t-statistics are indicated in parentheses below the estimated coefficients of FE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choice (fixed effects if $p < 0.05$). Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments. ROE and ROA are used in the functional form of industry and year adjusted variables.

Table 7. Robustness analysis

Regressions on relationship between CSR proxies and financial performance on the full sample

Independent variables	Dependent variables													
	ROA(t)				Market-to-Book(t)				Profitability Index (t)		ln(EBITDA) (t)		Tobin's Q (t)	
	FE	RE	FE	RE	FE	RE	FE	RE	RE	RE	RE	RE	RE	RE
ESG equally-weighted (t-1)	0.039 (0.82)	0.039 (1.54)			-0.105 (1.57)	0.004 (0.23)			0.00 (0.01)		0.001 (0.42)		-0.005** (-2.17)	
ESG economic score (t-1)			-0.005 (-0.20)	0.035* (1.89)			-0.032 (-1.18)	0.004 (0.30)		0.003 (0.73)		0.00 (0.24)		-0.002 (-0.91)
ESG social score (t-1)			0.103* (2.37)	0.018 (0.71)			-0.006 (-0.10)	0.019 (1.09)		-0.002 (0.34)		0.00 (-0.18)		-0.001 (-0.40)
ESG environmental score (t-1)			-0.067 (-1.39)	0.008 (0.29)			-0.02 (-0.31)	0.004 (0.28)		-0.005 (-0.87)		0.006** (2.27)		-0.005** (-2.18)
ESG corporate governance score (t-1)			0.013 (0.43)	-0.020 (-0.98)			-0.096* (-1.67)	-0.026* (-1.82)		0.003 (0.57)		-0.005** (-2.18)		0.002 (0.79)
Control variables														
Insurance company	0.047 (0.35)	0.044 (0.37)	0.013 (0.10)	0.019 (0.16)	0.191 (0.60)	0.028 (0.26)	0.167 (0.52)	0.013 (0.11)	-0.035 (-1.25)	-0.033 (-1.20)	0.006 (0.51)	0.005 (0.37)	-0.004 (-0.40)	-0.003 (0.28)
Bank	-0.159* (-1.76)	-0.198** (-2.45)	-0.160* (-1.74)	-0.200** (2.32)	-0.059 (0.61)	0.008 (0.10)	-0.085 (-0.80)	0.017 (0.22)	-0.029* (-1.67)	-0.028 (-1.59)	-0.003 (-0.36)	-0.005 (-0.68)	-0.001 (-0.18)	0.00 (0.06)
Mutual, pension fund	-0.112 (-1.00)	0.036 (0.40)	-0.099 (-0.90)	0.048 (0.52)	-0.159 (-1.04)	0.004 (0.05)	-0.150 (-0.98)	-0.004 (-0.05)	-0.023 (-1.42)	-0.023 (-1.40)	0.006 (0.91)	0.006 (0.94)	0.007 (1.14)	0.008 (1.15)
Foundation, research institution	-0.248*** (-4.15)	-0.114** (-1.96)	-0.255*** (-4.33)	-0.101 (1.57)	0.510 (1.04)	0.146 (0.69)	0.479 (1.00)	0.151 (0.71)	-0.017 (-0.54)	-0.017 (-0.54)	-0.007 (-0.83)	-0.007 (-0.73)	-0.005 (-1.22)	-0.004 (-1.13)
Public authority, state, governments	0.175 (1.19)	0.213 (1.79)	0.167 (1.17)	0.212* (1.79)	0.324 (1.14)	-0.033 (-0.26)	0.350 (1.17)	-0.024 (0.19)	0.091*** (3.12)	0.087*** (2.98)	-0.005 (-0.37)	-0.003 (-0.20)	0.003 (0.37)	0.002 (0.23)
Insurance company^2	0.002 (0.60)	-0.001 (-0.25)	0.003 (0.86)	0.00 (-0.08)	0.002 (0.63)	0.00 (-0.30)	0.002 (0.58)	0.00 (-0.15)	0.00 (0.83)	0.00 (0.86)	0.00 (-0.25)	0.00 (-0.19)	0.00 (0.28)	0.00 (0.20)
Bank^2	0.004** (2.10)	0.004*** (3.67)	0.004** (2.06)	0.004*** (3.48)	0.001 (0.43)	0.001 (0.96)	0.001 (0.60)	0.00 (0.78)	0.00*** (2.78)	0.00*** (2.80)	0.00 (1.43)	0.00 (1.61)	0.00 (0.16)	0.00 (-0.02)
Mutual, pension fund^2	0.002 (0.95)	-0.001 (-0.65)	0.001 (0.80)	-0.001 (-0.81)	0.002 (0.88)	0.00 (-0.09)	0.001 (0.76)	0.00 (0.00)	0.00 (0.64)	0.00 (0.62)	0.00 (-1.43)	0.00 (-1.50)	0.00 (-0.95)	0.00 (-0.97)
Foundation, research institution^2	0.001*** (3.92)	0.001** (2.02)	0.001*** (4.45)	0.001 (1.55)	-0.002 (-1.07)	-0.001 (-0.72)	0.002 (-1.02)	-0.001 (-0.73)	0.00 (-0.01)	0.00 (0.02)	0.00 (1.02)	0.00 (0.88)	0.00 (1.01)	0.00 (0.87)
Public authority, state, governments^2	-0.002 (-0.86)	-0.004** (-2.15)	-0.002 (-0.93)	-0.004** (-2.23)	-0.006 (-1.12)	0.00 (0.13)	-0.006 (-1.15)	0.00 (0.08)	-0.002** (-2.32)	-0.002** (2.25)	0.00 (0.15)	0.00 (0.04)	0.00 (-0.65)	0.00 (-0.55)
ln(age)	-0.768 (-0.22)	0.871 (1.62)	-1.069 (-0.30)	0.812 (1.60)	-9.230** (2.20)	0.144 (0.38)	-9.43** (-2.20)	0.050 (0.14)	0.123 (0.87)	0.156 (1.08)	0.111 (1.47)	0.096 (1.26)	0.002 (0.03)	0.011 (0.17)

ln(assets)	-3.517 (-0.77)	-0.469 (-0.83)	-3.173 (-0.69)	-0.458 (0.84)	10.399** (2.03)	0.242 (0.36)	9.986 (2.01)	0.296 (0.45)	-0.703 (-2.95)	-0.713*** (-2.95)	0.225*** (2.61)	0.226*** (2.74)	-0.146*** (-2.68)	-0.138** (-2.53)
Number of employees	0.00** (-1.98)	0.00 (0.43)	0.00* (-1.97)	0.00 (0.48)	0.00** (-2.01)	0.00 (0.25)	0.00 (-2.00)	0.00 (0.19)	0.00 (-0.58)	0.00 (-0.75)	0.00** (1.84)	0.00** (2.05)	0.00 (1.42)	0.00 (1.38)
D/A	-11.999 (-1.01)	-13.129** (-1.96)	-11.934 (1.01)	-11.954* (-1.84)	-34.641 (-1.44)	-5.500 (-0.91)	-33.533** (-1.41)	-5.103 (-0.81)	0.443 (0.66)	0.434 (0.64)	-0.541 (-0.94)	-0.490 (-0.84)	-1.280*** (-3.00)	-1.350*** (-3.08)
ln(sales)	9.030* (1.73)	0.370 (0.33)	9.087* (1.76)	0.342 (0.30)	-1.555 (-0.40)	-0.292 (-0.53)	-1.264 (-0.33)	-0.429 (-0.75)	0.739 (3.36)	0.791*** (3.52)	0.310** (2.53)	0.284** (2.43)	0.031 (0.39)	0.029 (0.36)
R&D-to-Sales	-41.28*** (-4.23)	29.952*** (4.87)	-42.69*** (-4.39)	-27.73*** (4.52)	-4.159 (-0.48)	3.364 (1.42)	-4.121 (-0.46)	4.363* (1.68)	1.632 (0.94)	1.751 (0.97)	-1.105 (-1.21)	-0.949 (-1.12)	-2.545*** (-7.56)	-2.593*** (-7.74)
CAPEX-to-Assets	-39.099* (-1.74)	-16.469 (-1.19)	-40.217* (-1.81)	-14.520 (-1.07)	20.419 (0.76)	14.623** (2.05)	20.673 (0.75)	14.80** (2.01)	7.724 (3.66)	7.722*** (3.63)	-0.699 (-0.55)	-0.546 (-0.45)	1.710** (2.11)	1.788** (2.18)
Other														
Constant	-118.987 (-1.31)	2.049 (0.11)	-127.294 (-1.39)	2.334 (0.13)	-167.256 (-1.63)	0.321 (0.05)	-160.96 (-1.61)	2.551 (0.34)	3.698 (1.29)	2.684 (0.94)	-13.396*** (-6.38)	-12.84*** (-6.43)	3.467** (2.27)	3.326** (2.08)
# obs	410		410		423		423		287	287	397	397	423	423
# firms	124		124		124		124		99	99	123	123	124	124
R-squared within	0.2826	0.2126	0.2947	0.1919	0.0764	0.0132	0.0825	0.0177	0.1602	0.1728	0.0812	0.0877	0.2165	0.2286
F-test (Prob>F)	4.14 (0.00)	78.45 (0.00)	4.11 (0.00)	78.85 (0.00)	0.62 (0.8811)	32.77 (0.0178)	0.56 (0.9419)	37.95 (0.0131)	72.35 (0.00)	83.18 (0.00)	135.30 (0.00)	167.48 (0.00)	126.51 (0.00)	121.48 (0.00)
Hausman test (Prob>F)	n.a		n.a		20.72 (0.0546)		16.70 (0.3368)		9.66 (0.6458)	20.90 (0.1043)	n.a	35.90 (0.0018)	4.98 (0.9587)	1.21 (1.00)

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year fixed effects (FE) and random effects (RE) using xtreg function. t-statistic and z-statistic are indicated in pharantases below the estimated coefficients of FE and RE regressions respectively. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choise (fixed effects if $p < 0.05$). Tobin's Q, ROA, Market-to-Book and ln(EBITDA) are used in the functional form of industry and year adjusted variables.

Table 8. Robustness analysis

Regressions on relationship between firm attractiveness and financial performance on the full sample

	Dependent variables						
	Profitability Index (t)	ln(EBITDA) (t)	Tobin's Q (t)	ROA(t)		Market-to-Book (t)	
Independent variables	RE	RE	RE	FE	RE	FE	RE
Attractiveness dummy (t-1)	0.829** (2.32)	-0.178 (-0.77)	0.477** (2.35)	-1.00 (-1.31)	0.634 (0.30)	4.847 (1.32)	3.045 (1.60)
Control variables							
ESG equally-weighted (t-1)	-0.001 (-0.14)	0.006 (1.12)	-0.003 (-0.94)	0.343** (2.16)	0.040 (0.91)	-0.223 (-0.84)	0.013 (0.33)
Institutional investors	0.00 (-0.27)	0.002 (0.43)	-0.001 (-0.57)	-0.028 (-0.30)	-0.010 (-0.22)	0.053 (0.29)	0.084 (1.30)
Institutional investors^2	0.00 (0.53)	0.00 (0.10)	0.00 (0.11)	0.00 (0.48)	0.00 (0.72)	0.00 (0.46)	0.00 (-1.46)
ln(age)	-0.149 (-0.85)	0.1929 (1.44)	-0.042 (-0.43)	2.986 (0.53)	0.855 (0.88)	-24.188** (-2.05)	0.680 (0.60)
ln(assets)	-0.422 (1.29)	0.322*** (2.94)	-0.087 (-1.52)	-14.798* (-1.88)	-0.342 (-0.46)	27.786 (1.64)	0.270 (0.25)
Number of employees	0.00 (-0.11)	0.00*** (3.88)	0.00** (2.28)	0.00 (0.68)	0.00 (-0.17)	0.00 (-0.65)	0.00 (-0.03)
D/A	-0.103 (-0.10)	-1.198 (-1.42)	-0.835 (-1.53)	6.559 (0.33)	-9.102 (-1.24)	-156.878 (-1.34)	-3.771 (-0.34)
ln(sales)	0.591** (1.98)	0.098 (0.54)	-0.086 (-0.86)	18.366* (1.78)	1.119 (0.68)	-16.002 (-0.68)	-0.313 (-0.35)
R&D-to-Sales	0.040 (0.02)	-1.266 (-1.25)	2.642*** (2.28)	-41.258** (-2.19)	1.410 (0.15)	64.551** (2.50)	8.600** (1.97)
CAPEX-to-Assets	11.009*** (4.25)	0.246 (0.12)	2.551** (2.51)	-25.250 (-0.62)	6.916 (0.34)	49.182 (0.89)	25.339* (1.78)
Other							
Constant	0.694 (0.13)	-11.312*** (-4.32)	4.299** (2.34)	-115.591 (-0.54)	-22.656 (-0.81)	-156.410 (-0.48)	-7.943 (-0.57)
# obs	127	192	202	191		202	
# firms	79	105	107	106		107	
R-squared within	0.1377	0.0081	0.039	0.2726	0.0417	0.1789	0.0062
F-test (Prob>F)	31.73 (0.00)	101.36 (0.00)	59.28 (0.00)	341.11 (0.00)	17.80 (0.0863)	15.55 (0.00)	21.91 (0.0251)
Hausman test (Prob>F)	1.70 (0.9954)	n.a	n.a	56.92 (0.00)		17.96 (0.0356)	

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year random effects (RE) using xtreg function. z-statistics are indicated in parentheses below the estimated coefficients of RE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: $p < 0.05$). Hausman test is used to check the correctness of regression specification choice (fixed effects if $p < 0.05$). Tobin's Q, ROA, Market-to-Book and ln(EBITDA) are used in the functional form of industry and year adjusted variables. Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments.

Table 9. Robustness analysis

Regressions on relationship between CSR proxies and firm attractiveness

	Dependent variables	
	Attractiveness dummy (t)	
Independent variables	RE	RE
ESG equally-weighted (t-1)	0.001 (0.88)	
ESG economic score (t-1)		0.00 (0.56)
ESG social score (t-1)		0.002* (1.74)
ESG environmental score (t-1)		0.00 (-0.37)
ESG corporate governance score (t-1)		0.00 (-0.02)
Control variables		
Institutional investors	-0.001 (-1.35)	-0.002 (-1.48)
Institutional investors^2	0.00 (1.47)	0.00* (1.69)
ln(age)	-0.003 (0.07)	-0.007 (-0.19)
ln(assets)	0.043 (1.14)	0.043 (1.16)
Number of employees	0.00 (0.97)	0.00 (-0.91)
D/A	0.150 (1.07)	0.177 (1.19)
ln(sales)	0.024 (0.43)	0.018 (0.32)
R&D-to-Sales	0.252** (2.42)	0.238** (2.09)
CAPEX-to-Assets	-0.417 (-1.33)	-0.436 (1.43)
Other		
Constant	-1.003 (1.39)	-0.905 (-1.21)
# obs	308	308
# firms	115	115
R-squared within	0.0015	0.0107
F-test (Prob>F)	24.12 (0.01)	29.58 (0.0054)
Hausman test (Prob>F)	n.a	n.a.

Table 10. Robustness analysis

Regressions on relationship between firm ownership structure and ESG equally-weighted score

	Dependent variable
	ESG equally-weighted (t)
Independent variables	RE
	0.262*** (2.62)
Insurance company	-0.115* (-1.92)
Bank	-0.001 (-0.05)
Industrial company	-0.095** (-2.01)
Mutual, pension fund	0.011 (0.14)
One or more individuals or family	-0.277 (-1.50)
Self-ownership	-0.030 (-0.74)
Financial company	-0.046 (-0.87)
Foundation, research institution	0.158 (1.09)
Private equity company	-0.011 (-0.21)
Public authority state governments	-0.033 (-0.68)
Other unnamed shareholders aggregated	-0.149*** (-4.35)
Control variables	
ROE (t-1)	0.013 (1.22)
ROA (t-1)	-0.254*** (-2.95)
ln(age)	-2.190 (-1.39)
D/A	-6.513 (-1.03)
ln(sales)	9.097*** (7.83)
Other	
Constant	-134.629*** (-4.76)
# obs	452
# firms	125
R-squared within	0.0962
F-test (Prob>F)	144.27 (0.00)
Hausman test (Prob>F)	16.04 (0.521)

*** p<0.01, ** p<0.05, * p<0.1

The table shows results of panel data regressions with firm and year random effects (RE) using xtreg function. z-statistics are indicated in parentheses below the estimated coefficients of RE regressions. Robust function was used to control for heteroscedasticity. F-test shows if all the coefficients in the model are different than zero (acceptable value: p < 0.05). Hausman test is used to check the correctness of regression specification choice (fixed effects if p < 0.05). Institutional investors are defined by insurance companies, banks, mutual, pension funds, foundations, research institutions, public authorities and state governments. ROE and ROA are used in the functional form of industry and year adjusted variables.

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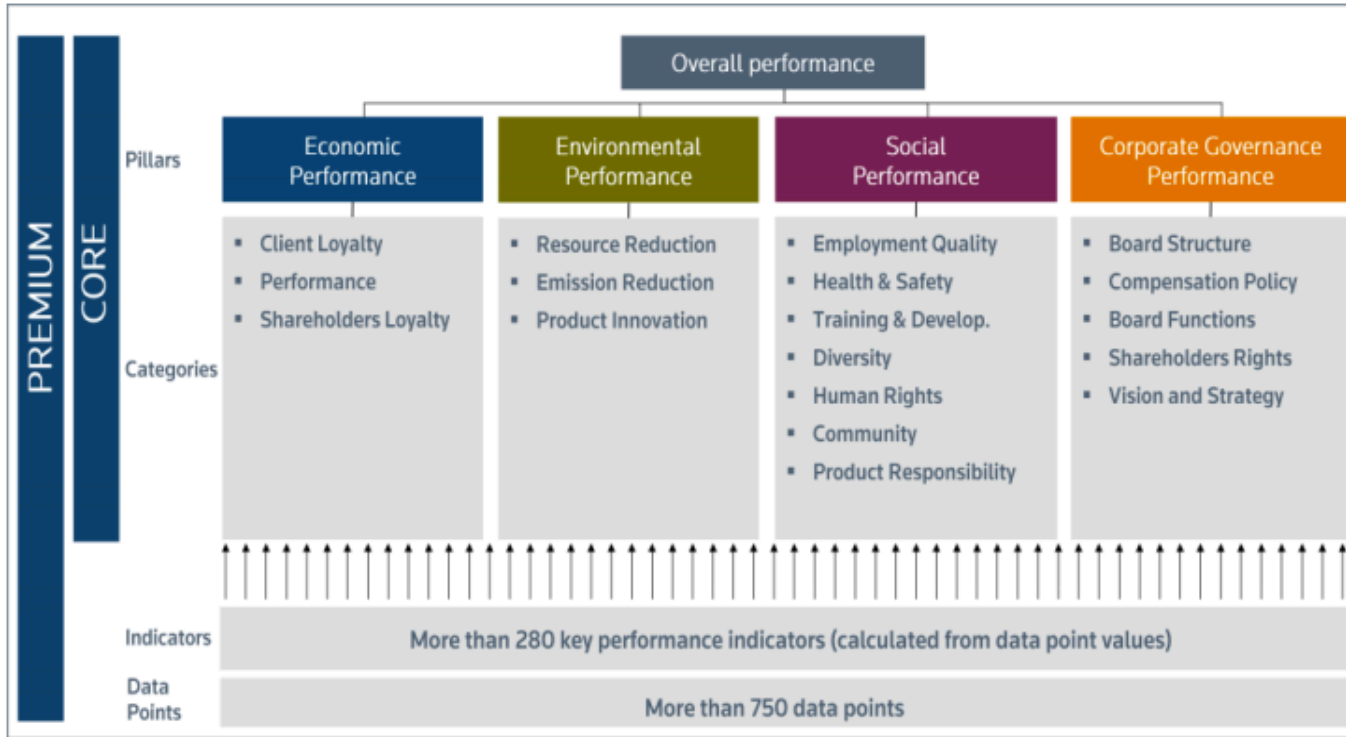
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Appendix A. ESG methodology



Source: Thomson Reuters

Appendix B. ESG score descriptive statistics (in %)

	ESG equally-weighted				Economic		Environmental		Social		Corporate Governance	
	# obs	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sweden	260	41%	72.08	23.51	66.30	23.91	74.58	24.55	69.85	25.49	56.89	22.03
Banking Services	20	3%	89.75	5.78	82.78	13.41	87.32	6.46	84.87	6.33	74.55	13.87
Chemicals	5	1%	61.48	9.24	39.66	20.67	59.66	9.50	58.43	9.91	73.17	10.60
Collective Investments	25	4%	28.49	24.32	47.21	31.33	27.19	27.44	24.00	17.08	32.05	20.47
Construction & Engineering	15	2%	75.47	16.52	70.11	21.19	85.27	8.04	71.65	16.72	48.91	22.84
Food & Drug Retailing	10	2%	78.09	8.84	71.88	10.68	83.64	11.20	76.97	8.30	46.51	15.22
Food & Tobacco	5	1%	87.16	4.54	64.40	4.66	80.31	7.86	91.87	1.42	76.68	12.55
Freight & Logistics Services	5	1%	76.67	11.23	72.15	9.85	74.66	12.78	74.82	7.79	53.23	23.43
Healthcare Equipment & Supplies	10	2%	71.81	12.12	61.37	27.19	77.45	13.06	65.87	17.94	55.22	12.48
Household Goods	10	2%	73.45	22.02	62.53	32.05	89.11	6.02	71.45	22.66	53.98	19.69
Machinery, Equipment & Components	50	8%	83.05	13.30	71.18	19.05	87.53	12.61	86.28	10.78	57.95	20.70
Media & Publishing	10	2%	62.18	28.33	55.05	33.18	72.16	18.20	53.89	32.28	58.76	16.32
Metals & Mining	15	2%	77.48	10.81	61.61	23.50	72.97	20.08	87.89	4.94	57.16	19.02
Oil & Gas	10	2%	64.63	22.36	61.93	28.57	54.56	21.32	47.33	29.70	76.74	18.51
Other Specialty Retailers	5	1%	74.69	10.35	60.69	22.75	89.95	3.73	81.45	7.13	36.91	11.00
Paper & Forest Products	10	2%	83.55	7.00	67.29	15.90	90.13	3.14	82.34	10.68	59.49	23.47
Personal, Household Products & Services	5	1%	91.41	1.66	75.51	8.73	92.35	1.16	91.33	1.65	74.98	14.52
Professional & Commercial Services	10	2%	33.50	19.15	48.15	25.93	28.72	9.61	37.76	16.67	38.88	15.31
Real Estate Operations	25	4%	68.99	14.91	66.02	18.81	76.74	15.57	57.38	22.61	53.32	21.25
Telecommunications Services	15	2%	87.72	10.35	87.85	11.82	81.71	16.51	80.27	17.99	74.97	11.69
Denmark	130	21%	63.28	28.91	55.91	30.85	65.59	26.49	66.40	29.76	52.38	25.17
Banking Services	15	2%	37.61	43.32	38.16	36.77	42.68	39.76	43.62	38.89	33.45	36.12
Chemicals	30	5%	69.34	23.74	55.35	32.76	71.33	24.52	76.04	26.70	55.51	18.77
Communications & Networking	10	2%	64.13	19.38	72.94	9.57	48.14	27.35	47.79	29.06	74.23	7.84
Electric services	5	1%	92.52	0.93	77.61	5.45	86.68	1.55	93.71	0.35	83.00	7.47
Food & Tobacco	15	2%	69.43	32.69	60.21	35.59	78.16	23.31	70.57	27.04	54.71	23.67
Freight & Logistics Services	20	3%	62.55	19.64	44.62	33.00	75.40	12.61	69.98	18.85	45.96	20.36
Healthcare Equipment & Supplies	10	2%	47.75	32.78	49.90	23.20	60.54	28.04	59.37	33.09	23.33	12.96
Household Goods	5	1%	74.53	7.80	57.72	19.08	57.40	4.82	82.95	3.70	68.53	19.78
Insurance company	10	2%	67.59	24.50	77.44	11.30	62.32	21.15	60.89	31.56	55.57	12.85
Machinery, Equipment & Components	10	2%	65.43	23.98	57.73	30.79	61.10	19.61	64.08	32.87	64.20	23.45
Finland	130	21%	82.23	16.16	78.08	21.30	74.67	20.89	81.67	17.71	67.73	18.56
Chemicals	20	3%	82.18	7.66	82.89	13.15	68.95	20.39	85.90	5.74	56.40	14.21

Communications & Networking	10	2%	89.86	4.92	91.78	8.25	80.15	11.13	78.70	6.84	77.26	11.37
Construction & Engineering	5	1%	85.18	2.82	65.21	9.09	75.72	3.55	83.56	4.73	78.82	6.55
Electric services	5	1%	92.66	1.25	93.94	2.45	90.91	1.77	80.49	3.71	76.73	10.52
Food & Tobacco	10	2%	44.80	27.31	66.40	13.63	55.97	16.98	33.79	36.25	32.12	19.26
Freight & Logistics Services	5	1%	81.10	10.38	74.38	16.89	70.72	10.82	86.44	2.34	60.71	13.98
Insurance	5	1%	44.36	12.82	52.64	15.45	10.30	1.76	67.95	26.79	55.35	12.07
Machinery, Equipment & Components	35	6%	89.99	6.57	87.45	10.06	84.08	17.33	88.45	8.71	71.35	17.87
Media & Publishing	5	1%	74.58	10.85	70.70	24.01	66.50	4.58	63.55	10.30	68.11	18.74
Metals & Mining	10	2%	76.38	14.57	43.07	31.52	73.31	15.79	84.35	11.07	77.75	11.16
Oil & Gas	5	1%	92.45	2.87	87.32	7.19	94.23	3.43	93.52	0.36	67.35	10.48
Other Specialty Retailers	5	1%	83.86	3.16	85.65	4.95	58.59	10.59	79.56	4.65	73.64	2.77
Paper & Forest Products	10	2%	87.69	10.26	67.75	33.26	85.01	3.66	92.51	1.10	80.65	15.57
Norway	110	17%	65.78	29.45	66.60	26.56	65.41	28.71	58.18	30.45	60.22	23.53
Banking Services	15	2%	59.61	30.39	69.26	30.15	62.32	27.58	47.93	34.76	58.25	19.82
Chemicals	5	1%	88.60	3.35	91.83	6.85	83.88	3.14	75.19	6.61	68.34	10.92
Communications & Networking	5	1%	93.25	2.28	90.69	7.83	81.55	10.38	89.16	1.28	86.57	9.18
Electric services	5	1%	69.51	15.81	61.12	29.46	64.63	7.37	72.29	15.81	55.42	12.90
Food & Tobacco	5	1%	80.43	8.05	81.93	10.38	89.77	2.13	53.69	11.81	61.94	15.56
Freight & Logistics Services	10	2%	10.02	5.00	30.34	20.39	12.01	6.57	11.63	3.39	17.60	5.47
Machinery, Equipment & Components	15	2%	87.38	9.12	74.41	15.12	82.87	19.90	87.93	5.63	75.30	12.50
Media & Publishing	5	1%	44.84	18.52	56.68	20.83	48.89	3.36	36.16	14.70	46.08	15.26
Metals & Mining	5	1%	93.94	2.36	94.94	3.39	95.13	2.37	91.06	2.13	72.53	15.32
Oil & Gas	10	2%	79.10	16.10	66.82	30.33	74.11	13.81	67.99	19.04	82.00	11.51
Oil & Gas Related Equipment and Services	25	4%	54.48	27.54	64.70	21.18	57.43	31.61	40.50	24.03	48.80	19.97
Paper & Forest Products	5	1%	73.79	7.51	30.99	7.77	68.95	6.90	86.24	3.27	77.82	12.26
Grand Total	630	100%	71.24	25.43	66.62	26.40	71.13	25.38	69.52	27.01	58.76	22.87

Source: ASSET4 Thomson Reuters

Appendix C. Ownership data descriptive statistics (in %)

	# obs	Insurance company		Bank		Industrial company		Mutual, pension fund		One or more individuals or family		Self-ownership		Financial company		Foundation, research institution		Private equity company		Public authority, state, governments		Other unnamed shareholders aggregated		Venture Capital	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Banking Services	50	10.86	9.77	17.54	13.88	16.96	21.59	12.74	8.02	0.29	0.65	1.49	2.03	7.47	9.59	2.34	4.35	0.47	1.00	7.03	8.28	0.02	0.10	0.00	0.00
Chemicals	60	8.91	7.16	11.79	6.52	12.45	20.30	9.23	8.99	0.22	0.73	0.45	0.97	6.24	12.10	0.44	0.83	1.01	4.87	11.01	18.87	0.92	3.58	8.83	21.92
Collective Investments	25	7.19	6.39	12.16	9.91	10.80	15.63	12.28	12.25	2.55	5.12	0.00	0.00	4.01	5.41	20.24	46.96	3.17	8.16	5.23	4.00	3.60	17.98	0.00	0.00
Communications & Networking	25	4.35	3.68	8.89	4.99	6.81	7.15	4.15	2.35	4.25	10.69	1.36	2.14	19.92	24.89	0.40	0.74	0.25	0.31	3.69	1.86	3.28	9.64	0.00	0.00
Construction & Engineering	20	10.26	6.82	22.47	13.15	14.28	12.36	19.05	14.80	0.47	1.01	0.48	1.19	9.13	10.94	1.08	1.37	16.05	27.89	4.82	2.30	5.58	11.45	0.00	0.00
Electric services	10	8.19	3.59	9.84	2.28	12.77	23.81	5.36	4.11	0.00	0.00	1.10	2.34	6.82	5.41	0.19	0.31	0.42	0.33	6.63	6.02	0.00	0.00	0.00	0.00
Food & Drug Retailing	10	1.60	1.14	6.31	4.33	53.22	41.12	3.61	2.62	10.32	21.13	0.00	0.00	0.30	0.18	0.06	0.13	0.21	0.23	2.08	1.31	13.64	28.28	0.00	0.00
Food & Tobacco	35	6.73	5.69	10.12	7.79	30.67	42.19	23.71	26.09	5.90	11.53	0.14	0.39	6.10	9.71	2.64	4.75	0.36	0.42	4.92	4.69	0.77	3.18	0.00	0.00
Freight & Logistics Services	40	6.66	9.15	16.90	13.82	25.38	26.83	13.39	12.33	1.12	2.51	0.94	1.84	6.68	11.87	0.41	1.67	0.29	0.40	8.25	9.34	0.39	2.43	0.00	0.00
Healthcare Equipment & Supplies	20	7.37	2.53	19.62	5.58	14.25	20.57	12.85	8.30	0.04	0.10	0.51	1.32	6.52	5.39	0.11	0.37	0.21	0.23	7.73	2.37	6.84	18.72	0.00	0.00
Household Goods	15	25.51	28.43	14.37	11.89	3.65	3.37	10.05	11.79	0.02	0.06	1.14	2.25	10.43	14.95	0.05	0.10	5.27	8.41	4.82	4.19	0.00	0.00	0.00	0.00
Insurance	5	6.92	1.25	5.92	2.07	1.37	0.58	2.41	1.10	0.03	0.06	0.00	0.00	0.89	0.17	0.12	0.38	0.36	13.98	21.86	0.18	0.39	0.00	0.00	0.00
Insurance company	10	14.78	15.91	16.23	11.12	25.49	30.71	4.99	4.89	0.53	1.67	4.50	4.83	2.29	1.38	0.00	0.00	0.74	0.60	4.33	2.47	0.00	0.00	0.00	0.00
Machinery, Equipment & Components	110	8.55	5.07	14.66	6.47	24.99	36.36	14.63	14.75	1.42	3.09	1.25	3.33	8.43	8.26	2.95	10.98	0.96	2.13	9.10	9.99	6.42	16.53	0.00	0.00
Media & Publishing	20	7.31	5.59	17.76	8.43	4.62	3.65	13.51	11.60	1.76	2.76	0.14	0.38	14.71	16.72	0.17	0.25	0.55	0.91	16.26	22.91	1.27	5.66	0.00	0.00
Metals & Mining	30	8.96	7.42	20.59	11.74	17.33	21.94	14.40	12.99	0.64	1.69	0.46	1.74	5.49	5.31	0.13	0.34	0.43	0.99	7.36	3.97	0.00	0.00	0.00	0.00
Oil & Gas	25	7.20	5.76	11.41	4.61	34.05	37.71	8.54	6.65	0.96	2.18	0.67	2.33	4.26	3.76	0.16	0.32	0.98	1.25	5.15	5.19	1.08	3.74	0.00	0.00
Oil & Gas Related Equipment and Services	25	9.82	5.76	39.28	21.13	25.03	15.21	15.94	9.70	1.94	4.44	0.75	1.50	5.74	4.84	0.01	0.07	1.82	3.25	9.40	2.93	2.02	10.11	0.00	0.00
Other Specialty Retailers	10	6.11	1.36	8.05	3.25	42.76	30.16	7.38	4.21	93.83	77.37	0.00	0.00	1.94	2.35	1.77	3.16	0.15	0.23	3.53	1.46	1.07	3.38	0.00	0.00
Paper & Forest Products	25	3.94	2.90	11.33	6.92	14.17	16.24	12.12	14.44	1.42	3.60	0.49	1.34	18.13	19.58	7.43	10.82	0.50	0.51	8.79	6.37	4.99	13.80	0.03	0.09
Personal, Household Products & Services	5	7.08	0.94	26.59	10.94	21.84	10.29	1.79	0.90	0.00	0.00	1.39	3.10	1.79	0.90	0.19	0.35	0.36	0.15	10.10	2.16	0.00	0.00	0.00	0.00
Professional & Commercial Services	10	1.74	2.01	17.02	8.12	5.39	6.71	21.64	20.84	1.18	3.72	0.00	0.00	1.76	2.39	0.02	0.05	0.29	0.51	3.13	3.14	10.06	14.10	0.00	0.00
Real Estate Operations	25	6.87	4.07	21.59	7.77	6.98	17.91	8.02	7.53	2.55	3.00	0.10	0.20	23.62	30.75	0.15	0.60	0.31	0.32	5.58	1.63	1.09	4.16	0.00	0.00
Telecommunications Services	15	8.26	3.41	15.40	4.04	8.40	8.03	9.92	4.99	0.05	0.09	0.03	0.13	24.85	16.58	1.29	1.87	0.25	0.26	12.83	16.02	8.74	18.10	0.00	0.00
Grand Total	625	8.28	8.30	15.75	11.41	18.81	27.32	12.45	13.13	3.04	15.73	0.77	2.10	8.79	13.56	2.18	11.41	1.35	6.29	7.74	10.13	2.98	11.21	0.85	7.22

	# obs	Insurance company		Bank		Industrial company		Mutual, pension fund		One or more individuals or family		Self-ownership		Financial company		Foundation, research institution		Private equity company		Public authority, state, governments		Other unnamed shareholders aggregated		Venture Capital	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sweden	260	7.38	5.30	16.31	8.58	16.06	24.56	12.73	11.74	4.66	23.19	0.53	1.81	9.68	15.82	4.11	17.10	2.23	9.31	6.51	5.90	3.27	12.36	0.00	0.00
Denmark	130	8.27	13.14	11.81	11.25	22.65	38.23	11.33	14.39	1.49	5.45	1.46	3.06	6.13	11.08	0.05	0.27	0.68	3.37	4.41	3.74	0.31	3.54	4.08	15.47
Finland	130	11.75	6.18	13.06	9.09	15.76	22.55	12.22	15.77	2.15	6.20	0.65	1.77	8.42	9.58	2.19	5.12	0.57	0.71	9.27	11.43	5.74	14.84	0.00	0.00
Norway	105	6.20	7.80	22.55	16.20	24.62	21.23	13.43	11.10	2.06	7.10	0.67	1.46	10.33	14.16	0.01	0.05	0.97	1.87	13.04	17.33	2.12	8.06	0.01	0.05
Grand Total	625	8.28	8.30	15.75	11.41	18.81	27.32	12.45	13.13	3.04	15.73	0.77	2.10	8.79	13.56	2.18	11.41	1.35	6.29	7.74	10.13	2.98	11.21	0.85	7.22

Source: Osiris

Appendix D. Attractiveness Ranking descriptive statistics

	Professionals			Employees		Students		Overall	
	# obs	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Banking Services	30	0.87	0.35	0.07	0.25	0.80	0.41	0.90	0.31
Chemicals	36	0.69	0.47	0.00	0.00	0.75	0.44	0.75	0.44
Collective Investments	15	0.27	0.46	0.00	0.00	0.13	0.35	0.40	0.51
Communications & Networking	15	0.93	0.26	0.00	0.00	1.00	0.00	1.00	0.00
Construction & Engineering	12	1.00	0.00	0.25	0.45	1.00	0.00	1.00	0.00
Electric services	9	0.67	0.50	0.00	0.00	0.89	0.33	0.89	0.33
Food & Drug Retailing	6	1.00	0.00	0.17	0.41	1.00	0.00	1.00	0.00
Food & Tobacco	21	0.43	0.51	0.00	0.00	0.48	0.51	0.48	0.51
Freight & Logistics Services	24	0.25	0.44	0.00	0.00	0.38	0.49	0.38	0.49
Healthcare Equipment & Supplies	12	0.25	0.45	0.00	0.00	0.25	0.45	0.25	0.45
Household Goods	9	0.67	0.50	0.00	0.00	0.67	0.50	0.67	0.50
Insurance	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance company	6	0.50	0.55	0.00	0.00	1.00	0.00	1.00	0.00
Machinery, Equipment & Components	66	0.67	0.48	0.11	0.31	0.85	0.36	0.76	0.43
Media & Publishing	12	0.92	0.29	0.00	0.00	0.92	0.29	1.00	0.00
Metals & Mining	18	0.56	0.51	0.06	0.24	0.83	0.38	0.83	0.38
Oil & Gas	15	0.13	0.35	0.00	0.00	0.20	0.41	0.20	0.41
Oil & Gas Related Equipment and Services	15	0.27	0.46	0.00	0.00	0.40	0.51	0.40	0.51
Other Specialty Retailers	6	1.00	0.00	0.33	0.52	1.00	0.00	1.00	0.00
Paper & Forest Products	15	0.40	0.51	0.00	0.00	0.47	0.52	0.47	0.52
Personal, Household Products & Services	3	1.00	0.00	0.67	0.58	1.00	0.00	1.00	0.00
Professional & Commercial Services	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Real Estate Operations	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Telecommunications Services	9	0.89	0.33	0.11	0.33	1.00	0.00	0.67	0.50
Grand Total	378	0.57	0.50	0.05	0.22	0.65	0.48	0.64	0.48

	Professionals			Employees		Students		Overall	
	# obs	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sweden	260	0.56	0.50	0.12	0.33	0.55	0.50	0.56	0.50
Denmark	130	0.64	0.48	0.00	0.00	0.76	0.43	0.79	0.41
Finland	130	0.73	0.45	0.00	0.00	0.78	0.42	0.78	0.42
Norway	110	0.30	0.46	0.00	0.00	0.58	0.50	0.48	0.50
Grand Total	630	0.57	0.50	0.05	0.22	0.65	0.48	0.64	0.48

Source: Universum

Appendix E. Profitability Index descriptive statistics

a) Industry overview

	Profitability Index				
	# obs	Mean	SD	Min	Max
Banking Services	0	0.00	0.00	0.00	0.00
Chemicals	48	5.43	1.28	2.55	7.99
Collective Investments	14	5.21	1.54	1.98	7.95
Communications & Networking	24	4.78	1.26	2.82	6.64
Construction & Engineering	20	4.84	1.14	2.62	7.61
Electric services	6	5.81	0.60	4.91	6.54
Food & Drug Retailing	8	5.50	1.60	3.00	8.00
Food & Tobacco	28	4.75	1.03	2.86	6.71
Freight & Logistics Services	27	5.50	1.30	2.46	7.47
Healthcare Equipment & Supplies	18	5.59	1.93	2.56	8.50
Household Goods	6	6.08	2.15	3.12	9.15
Insurance	0	0.00	0.00	0.00	0.00
Insurance company	0	0.00	0.00	0.00	0.00
Machinery, Equipment & Components	95	4.18	0.98	2.26	7.04
Media & Publishing	13	5.37	1.66	1.89	7.27
Metals & Mining	20	5.87	1.81	2.54	8.29
Oil & Gas	21	4.62	0.86	2.69	6.54
Oil & Gas Related Equipment and Services	25	4.65	1.14	2.54	6.93
Other Specialty Retailers	8	5.50	2.98	2.00	9.00
Paper & Forest Products	23	5.60	1.98	2.24	8.27
Personal, Household Products & Services	0	0.00	0.00	0.00	0.00
Professional & Commercial Services	2	5.50	0.71	5.00	6.00
Real Estate Operations	0	0.00	0.00	0.00	0.00
Telecommunications Services	14	5.72	1.30	4.12	8.17
Grand Total	420	5.01	1.46	1.89	9.15

	Profitability Index				
	# obs	Mean	SD	Min	Max
Sweden	170	5.24	1.53	1.89	9.15
Denmark	96	4.69	1.41	1.98	7.99
Finland	70	5.10	1.25	2.54	8.03
Norway	84	4.83	1.46	2.46	8.50
Grand Total	420	5.01	1.46	1.89	9.15

b) Normalized construction variable descriptive statistics

Ratio	Measure	# obs	Mean	SD
Working capital turnover	Activity	515	0.51	0.40
Capital employed turnover		595	0.40	0.37
Current ratio	Liquidity	550	0.41	0.37
Leverage ratio (D/A)	Leverage	615	0.48	0.37
Net profit margin	Profitability	615	0.53	0.38
Return on equity		593	0.52	0.38
Return on assets		595	0.48	0.38
Earnings per share		536	0.32	0.38
Market to Book ratio	Valuation	613	0.41	0.39
Price to earnings ratio		536	0.37	0.38
Capex to sales ratio	Investment intensity	610	0.41	0.37

Appendix F. Main dependent variable descriptive statistics

	Tobin's Q			ROA			EBITDA, MSEK			Market-to-Book		
	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD
Banking Services	49	0.24	0.50	45	1.58	4.36	50	28776	23733	49	1.36	0.83
Chemicals	60	1.73	1.69	59	9.38	12.87	60	5730	10099	60	3.25	2.95
Collective Investments	25	0.52	0.36	24	10.16	10.47	23	10810	16509	25	1.06	1.34
Communications & Networking	25	1.12	0.52	25	7.85	4.18	25	11063	12763	25	2.40	0.87
Construction & Engineering	20	0.62	0.32	20	6.61	2.78	20	3158	2002	20	2.08	0.70
Electric services	15	0.60	0.25	15	-1.18	14.50	15	10126	14051	15	1.39	0.69
Food & Drug Retailing	10	1.12	0.55	10	8.87	7.76	10	2764	3615	10	2.44	1.60
Food & Tobacco	35	1.14	1.17	35	7.26	9.99	35	4319	5603	35	0.62	34.68
Freight & Logistics Services	40	0.88	0.96	39	0.31	8.11	40	13122	32954	40	0.74	12.35
Healthcare Equipment & Supplies	20	2.99	2.13	18	15.03	6.76	20	3484	1470	20	6.25	3.13
Household Goods	15	0.83	0.25	15	1.22	3.57	15	2700	3269	15	2.11	0.84
Insurance	5	0.46	0.11	5	4.52	0.47	5	15216	1931	5	1.60	0.38
Insurance company	10	0.38	0.16	10	3.13	1.28	10	2997	1017	10	2.78	0.59
Machinery, Equipment & Components	109	1.05	0.68	105	7.73	6.15	110	7664	7934	109	2.49	1.42
Media & Publishing	20	0.91	0.70	19	2.43	13.36	20	1736	2119	20	2.22	1.66
Metals & Mining	27	0.65	0.39	27	2.03	15.93	27	4376	6051	27	1.26	0.86
Oil & Gas	23	0.77	0.49	23	5.41	5.34	22	47446	95145	23	2.20	2.37
Oil & Gas Related Equipment and Services	25	2.82	2.33	25	10.92	5.32	25	2624	1536	25	6.37	5.67
Other Specialty Retailers	10	3.23	2.63	9	15.92	12.86	10	14367	13661	10	4.79	3.22
Paper & Forest Products	25	0.32	0.19	25	1.88	5.98	25	5328	6023	25	0.71	0.39
Personal, Household Products & Services	5	0.55	0.15	5	4.05	1.52	5	13154	3147	5	1.19	0.32
Professional & Commercial Services	10	0.58	0.12	9	4.42	4.11	10	2085	2180	10	1.77	0.69
Real Estate Operations	25	0.41	0.14	25	5.74	2.20	24	2090	560	25	1.07	0.22
Telecommunications Services	15	0.96	0.22	15	9.84	8.38	15	27229	14861	15	1.82	0.34
Grand Total	623	1.05	1.23	607	6.14	9.23	621	10258	24106	623	2.22	8.99

	Tobin's Q			ROA			EBITDA, MSEK			Market-to-Book		
	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD
Sweden	255	1.09	1.20	260	7.07	7.66	253	10900	15300	255	2.15	5.26
Denmark	129	1.11	1.31	130	6.37	11.70	130	10100	21400	129	2.39	2.24
Finland	130	1.08	1.52	130	5.42	9.54	129	5130	46200	130	2.24	18.12
Norway	109	0.86	0.69	110	4.61	8.70	109	15000	46200	109	2.14	1.43
Grand Total	623	1.05	1.23	630	6.14	9.23	621	10258	24106	623	2.22	8.99

	Tobin's Q (industry and year adjusted)			ROA (industry and year adjusted)			ln(EBITDA) (industry and year adjusted)			Market-to-Book (industry and year adjusted)		
	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD	# obs	Mean	SD
Sweden	255	-0.02	1.00	248	0.35	7.76	240	0.01	1.22	255	-0.02	5.69
Denmark	129	0.11	1.07	127	0.35	9.17	120	-0.19	1.11	129	0.23	3.99
Finland	130	0.05	1.18	124	-0.19	6.53	123	0.28	1.23	130	0.00	15.66
Norway	109	-0.15	0.45	108	-1.00	7.43	101	-0.14	1.21	109	-0.23	1.49
Grand Total	623	0.00	0.99	607	0.00	7.79	584	0.00	1.21	623	0.00	8.23

Source: DataStream