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Does it pay to do good?

A Swedish study on the relationship between corporate social performance, stock market return, and the role of gender diversity on the Board of Directors

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Abstract

This study investigates the relationship between corporate social performance (CSP) and stock market return, and how gender diversity on the Board of Directors (BoD) moderate this relationship. We use two different models based on data for the years 2007-2021 and 2007-2019 respectively, with datasets consisting of firms listed on the Swedish Stock Exchange. Our results indicate a weak relationship between CSP and stock market return, with the exception of companies with excellent CSP, where a significant negative correlation was observed. Furthermore, gender diversity appeared to have a moderating effect on the relationship between CSP and stock market return, enhancing the negative effect of CSP on stock market return. This is in line with a small collection of previous literature but opposes the majority of literature on the effect of CSP on corporate financial performance (CFP). Our study contributes with further insights into the contentious relationship between CSP and CFP and the mechanisms affecting it.

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Tutor: Irina Gazizova
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1. Introduction

1.1 Background

In recent years, increasing attention has been directed toward the issue of corporate social responsibility (CSR). In 2020, 93% of the S&P 500 companies issued a standalone ESG report compared to just below 20% in 2011. Simultaneously, sustainable investments have surged across the globe. The global value of sustainable investments grew by 15% in the last two years alone, and almost 40% of all assets managed by EU-domiciled funds are now considered sustainable assets (Refinitiv, 2022; Reuters, 2022).

However, as the topic of investing in CSR has become increasingly relevant, the question of what effect these investments have on firm performance arises. Can firms successfully satisfy a broad range of stakeholders including firm shareholders through corporate social performance (CSP)? The research regarding the relationship between CSP and corporate financial performance (CFP) has yet to reach a clear conclusion. Some studies argue that CSR investments are value-destroying (e.g. Friedman, 1970; Di Giuli and Kostovetsky, 2014; Krüger, 2015), whereas others mean that CSP is essential for long-term CFP (e.g. Freeman, 1984; Orlitzky, Schmidt et al., 2003; Baron, 2008). The ambiguous results of past research suggest that this question is very complex, possibly with many factors affecting the relationship between CSP and CFP. One of which might be the degree of gender diversity present in firms.

1.2 Purpose

The purpose of our paper is to examine the relationship between CSP and stock market return in Swedish-listed companies during the years 2007-2021. We aim to contribute with a new perspective to the debate regarding the relationship between CSP and CFP by also examining if this relationship changes depending on the share of women on the Board of Directors (BoD). The effect of governance structure, and in particular gender diversity, on the relationship between CSP and CFP is not thoroughly examined in previous literature. This paper will therefore attempt to answer the following research question: *What is the relationship between corporate social performance and stock market return, and how is it affected by the share of women on the Board of Directors?*

1.3 Contribution

Through our thesis, we contribute to the stream of research on the relationship between CSP and CFP. Despite a vast amount of previous research, a clear conclusion regarding there being a positive, negative, or lack of correlation cannot be determined with certainty. Largely due to new directives by the European Commission, there has been a recent escalation of requirements on corporate sustainability reporting and the performance of CSR due diligences (European Commission, 2022). We argue that it is particularly important to add new research with recent data amidst the rapidly changing environment of CSR. Our study also provides additional nuance to the debate regarding CSP and CFP by focusing on market-based indicators and the reaction of investors to CSP which is an important stakeholder to consider.

Further, we investigate the moderating effect of gender diversity on the relationship between CSP and CFP, which there is very little previous research on. Thereby, we potentially contribute to uncovering knowledge about a mechanism affecting the relationship between CSP and CFP which is not yet well understood. Not only does this contribute to the understanding of the effect on firms of gender diversity on the BoD, but it also has the potential to uncover some of the underlying reasons for the ambiguous relationship observed in previous research between CSP and CFP.

Lastly, our study is focused on Swedish firms, which adds to the relatively small collection of Swedish empirics on the relationship between CSP and CFP. For example, Sweden has been named the number one country in terms of CSR performance and is considered a world leader in CSR (Schieler, 2021). Additionally, Sweden has one of the highest Gender Diversity Index scores among European countries (EWOB, 2021). We argue that this makes Sweden a particularly interesting geography to study, both in terms of the effects of CSP and gender diversity on firm value.

1.4 Delimitation

This paper is delimited to publicly traded companies on the Swedish Stock Exchange for the years 2007-2021. The companies included are based mainly on the availability of data, especially CSR performance data and gender diversity data. We only use publicly traded companies since our dependent variable is stock market performance; hence, a stock market listing is necessary to obtain the relevant data for financial performance. Disclosure of CSR data has been continuously improving, resulting in a disproportional loss of data in the earlier years of the examined time period. The dataset will therefore be unbalanced.

1.5 Disposition

This paper is divided into seven sections. Section two provides a summary of previous literature and theories on the relationship between CSR and CFP, as well as the effect gender diversity has on firms and CSP. The literature review and theory serves as the basis for the following hypothesis development and the two hypotheses on which this paper bases its empirical part. Section three details the methodology for the paper. We begin by presenting our variables and continue with showing the two models used for the regressions. After the models, we explain the data collection and sample construction process. Section four begins with the descriptive statistics of our variables, including the mean value, standard deviation, min, and max. Further, correlations, multicollinearity, and heteroskedasticity are discussed, and tests are run to ensure the data is robust enough to base our regressions on. Section five includes the results from all regressions in Model 1 and Model 2, as well as an analysis of each regression. In the end, an additional analysis is included. In section six, we discuss the implications of our findings, as well as some issues related to endogeneity. Finally, section seven includes a discussion about the potential contributions of this paper, as well as suggestions for future research.

2. Literature Review and Theory

2.1 Definitions

2.1.1 CSR and corporate social performance

The idea that firms have a certain responsibility towards society and other stakeholders than their shareholders is not new. In 1991, Archie Carroll presented the first unified definition of corporate social responsibility (CSR):

"Corporate social responsibility encompasses the economic, legal, ethical, and discretionary (philanthropic) expectations that society has of organizations at a given point in time"

(Carroll, 1979; Carroll, 1991)

This definition is widely accepted within the literature on CSR and will be used in this thesis.

Environmental, Social, and Governance (ESG) refer to how these three aspects are incorporated into a firm's business model. This terminology is sometimes considered slightly broader than CSR as it explicitly includes governance issues, but the two terms are otherwise very similar and will be used interchangeably in this thesis (Gillan, Koch et al., 2021). From here on, a firm's performance in terms of CSR or ESG will be referred to as corporate social performance (CSP).

2.1.2 Corporate financial performance

Measurements of corporate financial performance (CFP) may refer to either market-based or accounting-based measures. Both types of CFP are commonly used in studies between CSP and CFP, and we will be discussing literature containing both (Cochran and Wood, 1984). In our regression, we will focus on market-based indicators in the form of stock market return.

2.2 The Relationship Between Corporate Social Performance and Corporate Financial Performance

2.2.1 Positive relationship between Corporate Social Performance and Corporate Financial Performance

There is an ongoing debate regarding the relationship between CSP and CFP and decades of research have yielded varying results.

According to the instrumental stakeholder theory, satisfying various stakeholders is essential in improving firm and, therefore, shareholder value (Freeman, 1984). In accordance with this theory, much research in the area suggests a positive relationship between CSP and CFP (e.g. Orlitzky, Schmidt et al., 2003; Baron, 2008; Bénabou and Tirole, 2010; Fatemi, Fooladi et al., 2015; Albuquerque, Koskinen et al., 2019). One explanation for this positive relationship is rooted in legitimacy theory which proposes that firms are able to build positive reputations through CSP in the eyes of stakeholders such as customers, investors, bankers, and suppliers, thereby increasing the likelihood of higher revenues and access to capital (Fombrun and Shanley, 1990; Suchman, 1995; Orlitzky, Schmidt et al., 2003; Doh, Howton et al., 2010).

An alternative explanation relates to theories on firm risk and the perception that engaging in CSR activities may lessen exposure to certain systematic risks or contribute to higher resilience during periods of crisis (Bénabou and Tirole, 2010). The cost of capital is based on the riskiness of the investment, and studies have shown that firms with high CSP, so-called green firms, have lower capital costs (Gillan, Koch et al., 2021). According to the literature, the positive relationship between CSP and CFP can be explained through lowered discount rates as well as increased cash flows, both of which, according to conventional finance theories, contribute to a positive CFP (Lundholm and O'Keefe, 2001; Gregory and Whittaker, 2013).

2.2.2 Negative relationship between corporate social performance and corporate financial performance

On the other side of the debate, the neo-classical shareholder view based largely on Milton Friedman's (1970) article "The Social Responsibility of Business is to Increase Its Profits" argues that businesses should solely focus on maximizing shareholder profits. These arguments are often based on the agency theory and the agency-principal problem, which depicts managers' tendency to act outside of the shareholders' best interests, instead using firm resources to further their own interests (Harrell and Harrison, 1994; Booth and Schulz, 2004). Di Giuli and Kostovetsky (2014) find a direct link between improvements in CSR rating and future stock underperformance as well as declining return on assets (ROA). They conclude, in accordance with Friedman (1970) and agency-problem theory, that "any benefits to stakeholders from social responsibility come at the direct expense of firm value". Further, Krüger (2015) finds that investors respond negatively to positive CSR activities, and Hassel et al. (2005) find evidence that high environmental performance negatively correlates with a company's market price. This is motivated both by the fact that investing in CSR can be costly, decreasing cash flows during a shorter period of time without simultaneously decreasing risk, and that investors often adopt a short-term perspective, not considering the potential positive long-term effects of these investments. This result is shared by Brammer et al. (2006), who additionally conclude that the negative correlation of CSP with stock market return is stronger for environmental performance than for social community aspects. They also see a subtle positive correlation between stock market performance and sustainable employment.

2.2.3 No relationship between corporate social performance and corporate financial performance

There is also a stream of research which supports neither the neo-classical shareholder perspective nor the stakeholder theory. Alexander and Buchholz (1978) find no significant effect on the stock market return by CSP when adjusting for risk. Fama (1970) explains this through the efficient market hypothesis, which states that stock prices are instantaneously adjusted by the market to reflect any new information, including news of increased or decreased CSP. Gregory and Whittaker (2013), instead, point to the fact that CSR improvements are made slowly and infrequently over a long period of time as an explanation as to why a link between stock performance and CSR performance can not be confirmed.

2.2.4 Aspects affecting corporate social performance and corporate financial performance

The mixed results found throughout the literature demonstrate a great complexity of the relationship between CSP and CFP, and suggest that it may be affected by several environmental and moderating factors. Barnett and Salomon (2012) observe a curvilinear relationship between CSP and CFP and introduce the concept of Stakeholder Influence Capacity (SIC), or "the ability of a firm to identify, act on, and profit from opportunities to improve stakeholder relationships through CSR", suggesting that the relationship between CSP and CFP depends on the strength of SIC (Barnett, 2007; Barnett and Salomon, 2012). Wang and Qian (2011) conclude that the main driver of CFP through CSP is the positive relationships firms are able to build with stakeholders, enabling them to obtain more positive stakeholder responses. This strengthens the theory of SIC as a moderator in the relationship between CSP and CFP (Barnett, 2007).

Other studies have shown that the relationship between CSP and CFP is determined by the type of CSR a firm engages in. The concept of CSP may include a broad range of CSR activities. Some researchers suggest that the market dismisses CSR actions lacking a theoretical connection to CFP, the so-called mismatching theory (Wood and Jones, 1995; Orlitzky, Schmidt et al., 2003). Several researchers conclude an overall positive relationship but note that philanthropic actions such as donations have no positive effect on CFP and that environmental CSP negatively affects CFP, particularly market-based measures of CFP (e.g. Orlitzky, Schmidt et al., 2003; Bird, Hall et al., 2007).

2.3 Gender Composition of the Board of Directors

2.3.1 Corporate financial performance

The fact that increasing the number of women on the Board of Directors (BoD) increases CFP is well documented and has been shown in e.g. the US, China, Spain, and Malaysia by looking at a mixture of market- and accounting-based metrics for CFP (Erhardt, Werbel et al., 2003; Campbell and Mínguez-Vera, 2008; Liu, Wei et al., 2014; Abdullah and Ismail, 2016). Interestingly, a French study found that women on the BoD had a positive impact on financial performance measured through accounting metrics but a negative impact on market-based indicators (Bennouri, Chtioui et al., 2018). One suggested explanation is that the positive effect on CFP is an indirect effect of women's influence on CSR (Galbreath, 2018).

2.3.2 Women director's effect on corporate social performance

Research by Rao and Tilt (2016) concluded that a gender-diverse BoD has a significant influence on the company's CSR actions as the likelihood that women directors influence the degree of a firm's CSR engagement is greater than for men (Boulouta, 2013; Harjoto, Laksmana et al., 2015; Jain and Jamali, 2016). Further, women directors have a stronger stakeholder focus, both taking a greater interest in stakeholder interests and considering a broader range of stakeholders, compared to a stronger focus on shareholders and economic concerns by men (Rosener, 1995; Dawson, 1997; Wood and Eagly, 2009; Adams, Licht et al., 2011). This can be connected to gender socialization theory, and the reason for this behavior has been attributed to women tending to possess stronger communal traits such as being friendly, unselfish, concerned with others, and expressive (Eagly, 1987; Mason and Mudrack 1996; Eagly, Johannesen-Schmidt et al., 2003).

Further, researchers have found a positive relationship between increasing the number of women on the BoD and CSR ratings. Connecting to legitimacy theory, this, in turn, can improve firm reputation and legitimacy in the eyes of stakeholders, including investors (Suchman, 1995; Bear, Rahman et al., 2010). Interestingly, women directors were shown to increase a firm's institutional strength but not its technical strength. This means that firms were better able to meet the expectations of the surrounding community and diversity stakeholders but not those of consumers, stockholders, and employees.

Women on the BoD choose to make other CSR investments than men, e.g., engaging more in philanthropy, especially in areas of arts and community service (Williams, 2003). At the same time, an increased number of women directors have been linked to a higher degree of voluntary CSR disclosure, e.g. regarding greenhouse gas emissions (Liao, Luo et al., 2015; Ben-Amar, Chang et al., 2017). The fact that female and male directors invest differently in CSR could have different effects on how the market evaluates the CSP.

2.4 Hypothesis Development

2.4.1 First hypothesis

The relationship between CSP and CFP has proven to be immensely complex. Different streams of research have found that CSP has a positive, negative, or insignificant effect on CFP, and on factors such as stakeholders. On one hand, there is the instrumental stakeholder theory, legitimacy theory, and the concept of firm risk. These theories argue that CSP increases cash flows by improving a firm's reputation and that CSP reduces risk and the

discount rates by which cash flows are discounted (Freeman, 1984; Fombrun and Shanley, 1990; Suchman, 1995; Orlitzky, Schmidt et al., 2003; Bénabou and Tirole, 2010; Doh, Howton et al. 2010; Gillan, Koch et al., 2021). On the other hand, the neo-classical shareholder view supported by the agency-problem theory claims that any improvements in CSP come at the expense of firm value. It is argued that the market punishes CSR investments, especially regarding philanthropy and the environment (Friedman, 1970; Harrell and Harrison, 1994; Booth and Schulz, 2004; Brammer, Brooks et al., 2006; Di Giuli and Kostovetsky, 2014). Despite the still ongoing debate, the majority of the literature supports the theory of a positive relationship between CSP and CFP, and our first hypothesis is thus:

H1: There is a positive relationship between corporate social performance and firm stock market performance.

2.4.2 Second hypothesis

The presence of female directors majorly affects factors related to firm behavior and performance, many of which can be connected to theories regarding the relationship between CSP and CFP. Gender diversity in the BoD has, for example, been linked to improved financial accounting and market performance (e.g. Liu, Wei et al., 2014; Abdullah and Ismail, 2016). Additionally, women directors both increase CSR engagement and CSR ratings through the legitimacy theory. They have a considerable effect on the extent and type of CSP a firm engages in, both of which have been shown to affect the relationship between CSP and CFP (Williams, 2003; Adams, Licht et al., 2011; Boulouta, 2013). Based on gender socialization theory, women directors also consider the expectations of a broader range of stakeholders and successfully build stakeholder relationships. This can be interpreted as a demonstration of strong SIC which may influence the strength of the effect CSP has on CFP (Mason and Mudrack, 1996; Bear, Rahman et al., 2010; Barnett and Salomon, 2012). Thus we expect women to have a positive moderating effect and reinforce the mechanisms driving a positive relationship between CSP and CFP. Our second hypothesis is, therefore:

H2: There is a more positive relationship between corporate social performance and corporate financial performance in companies with higher gender diversity on the Board of Directors

3. Methodology

3.1 Variables

3.1.1 Dependent variable

Stock Market Return: In accordance with previous literature (e.g. Brammer, Brooks et al., 2006; Di Giuli and Kostovetsky, 2014), stock market return is used as the variable for market effect. The stock market return is measured by the relative change in the stock price of a firm over a specified time period, for example a year, also taking into account dividends. This is calculated by subtracting the closing price from the opening price, and dividing the difference by the opening price of a stock for a particular year.

The financial data of the stock market was collected from FinBas provided by the Swedish House of Finance. The data downloaded was the opening and closing prices for all stocks in the OMX Stockholm Stock Exchange between 2007 and 2021. We use annual data, which means that the opening price used to calculate the stock market return comes from the first trading day of the year, and the closing price from the last trading day of the year.

Several adjustments were made to the original raw data. Firstly, companies with missing data points for either opening or closing prices were removed for that specific year as it made us unable to calculate annual returns. Secondly, data points without corresponding CSP data or board gender composition data were excluded due to the inability to perform a regression without a complete dataset.

In the dataset downloaded from FinBas, the data had been adjusted for dividends. Therefore, stock market performance calculations are based solely on opening and closing prices without the addition of dividends.

3.1.2 Main independent variable

ESG Performance ("ESG"): There are many different approaches to measuring CSP, and we chose to use the Refinitiv ESG score that can be found in the Refinitiv EIKON database. This is due to the score including more European, and hence Swedish companies, than, for example, the MSCI KLD score that is also widely used. The Refinitiv ESG score is based on the three dimensions of ESG (environment, social, and governance). They consider environmental factors such as resource use, emissions, and innovation, social factors such as workforce, human rights, community, and product responsibility, and governance factors such as management, shareholders, and CSR strategy. Refinitiv does not assume what a good performance is and is not, but rather bases the scores relative to the market. The three pillars have different weights to build up the score. The governance pillar has a constant weight in

all sectors, whereas the environment and social pillars differ in relative weight depending on the industry. The score is then normalized to percentages between 1-100 (meaning a score between 0-1) which is the final score used as the normative numbers for our independent variable (Refinitiv, 2022).

The data for ESG performance was collected through the Refinitiv EIKON database for companies listed on the OMX Stockholm Stock Exchange. Annual data was collected for the years 2007-2021. Adjustments have been made to this raw dataset as well. Companies have been excluded for specific time periods if stock market performance data or board gender composition data was missing for that particular company and time period. Some companies were entirely removed.

3.1.3 Moderating variable

ESG Performance x Gender Diversity in Board of Directors ("ESGxGender"): To gain a broader understanding of the relationship between CSP and stock market return and what affects it, a moderating variable will be introduced in the form of the gender composition of the BoD.

The data for board gender composition was collected through the Refinitiv EIKON database for companies listed on the OMX Stockholm Stock Exchange. Data was collected for the years 2007-2021 on a yearly basis.

The adjustments made to the raw data were based on the same principles as for the ESG performance score data. Companies were either excluded entirely or for certain time periods if either stock market performance data or ESG performance data was missing.

3.1.3 Control variables

To ensure the credibility of the correlations found between the independent variable, the moderating variable, and the dependent variable in the regression, control variables are included that also have a significant effect on the dependent variable, here, stock market return. The following financial control variables are chosen based on research by Lins (2017), and Fama and French (1992), by the criteria that they all contribute to explaining the stock market return.

Market Capitalization ("LnMarketcap"): The data for market capitalization was retrieved from the Swedish House of Finance for the years 2007-2021. To receive a logical result, the data was logarithmized to Ln(Market Capitalization).

Long-term Debt ("ltdebt"): The data for long-term debt was retrieved from the database Retriever for the years 2007-2021. The variable is calculated by dividing the long-term debt by total assets.

Short-term Debt ("stdebt"): The data for short-term debt was retrieved from the database Retriever for the years 2007-2021. The variable is calculated by dividing the short-term debt by total assets.

Cash Holdings ("cashholdings"): The data for cash holdings was retrieved from the database Retriever for the years 2007-2021. The variable is calculated by dividing cash and marketable securities by total assets.

Profitability ("profitability"): The data for profitability was retrieved from the database Retriever for the years 2007-2021. The variable was calculated by dividing the operating income by total assets.

Book-to-Market Value ("booktomarket"): The data for the book-to-market variable was retrieved from the Swedish House of Finance for the years 2007-2021. The variable is calculated by dividing the book value of equity by the market value of equity (market capitalization).

Fixed Effects ("FE"): In the regressions, we use time-fixed effects, as well as industry-fixed effects. Time-fixed effects are created as dummy variables in the dataset for the regression, where each year in the time period receives one dummy variable, marking the data from the specific time period. This is included to account for the general change that happens in a company over time, for example regarding the general increase in stock market return. Industry-fixed effects are created as dummy variables in the dataset for the regression, where each industry receives one dummy variable, marking the data for the specific industry. This is in order to account for how the characteristics of different industries might affect the relationship between CSP and stock market return. Industries are based on SNI codes, a Swedish classification system for industries amongst companies.

Gender Diversity in Board of Directors ("Gender"): As mentioned in section 2.3.1, prior research, including (Campbell and Mínguez-Vera, 2008; Liu, Wei et al., 2014; Abdullah and Ismail, 2016), conclude that women directors have a positive impact on financial performance. The variable is defined as the percentage of women on the BoD, meaning the value will be between 0 and 1.

Fama-French-Carhart Factors

One model which explains changes in stock market return is the Capital Asset Pricing Model (CAPM), introduced by Lintner (1965), based on findings by Markowitz (1952) and Sharpe (1964). The CAPM model is based on the general assumption that a market is efficient, and measures systematic risk in relation to expected return.

$$ER_{it} = Rf_t + \beta_i(Rm_t - Rf_t)$$

The CAPM formula above demonstrates that, in addition to the risk-free rate which investors expect to earn by default, an asset can also yield an excess return calculated by the systematic risk (beta) of the stock and the market risk premium (Rm-Rf) which is the excess return the market yields in addition to the risk-free rate.

Fama and French (1992) developed this theory further by stating that the market is affected by more than the factors included in the CAPM formula. They made two major observations: value stocks outperform growth stocks, and small-cap stocks outperform large-cap stocks, and they created the two variables SMB (small minus big) and HLM (high minus low). Thereby, the Fama-French model is based on three factors: market-beta, SMB, and HLM. This takes into account the fact that small-cap companies and value companies outperform the market more than large-cap companies and growth stocks respectively, as these companies generally have a higher cost of capital and a more significant business risk.

Continuing, Carhart (1997) developed this theory even further by introducing a fourth variable: the momentum factor (MOM). This is based on Carhart's conclusion that stocks of companies have a tendency to follow past trends, continuing to grow, or fall, if they have done so for a certain period of time. Hence, the stock develops momentum in a certain direction. Carhart proposes that by adding the MOM variable, the explanatory value of the excess return of a stock becomes even higher. Through these contributions, the theory has evolved to be called the Fama-French-Carhart's four factors model.

The Fama-French-Carhart's four factors model is described as follows (definitions of variables can be found in the Appendices):

$$R_{it} - Rf_t = \alpha_{it} + \beta_1(Rm_t - Rf_t) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + e_{it}$$

In our second regression, we use the Fama-French-Carhart's four factors model to control for factors other than CSP and board gender composition which affect the stock market return. This is in accordance with previous research such as by Brammer et al. (2006).

The data for the Fama-French-Carhart's four factors was extracted from the FinBas database by the Swedish House of Finance. Due to a lack of data from FinBas for the years 2020 and 2021, data was only collected for the period 2007-2019. To be able to include data for 2020 and 2021 as well, we create two regressions, one of which includes the financial firm-specific control variables mentioned above, and another which includes the Fama-French-Carhart factors as control variables.

Risk-free Rate ("Rf"): The risk-free rate is derived from the Swedish one-month treasury bill, and an average is calculated to receive an average yearly risk-free rate.

Market Risk Premium ("rm-rf"): The market risk premium is calculated through the market return, derived from the SIXRX index which shows the average return of the Stockholm Stock Exchange, and the risk-free rate. The monthly results are then used to calculate the yearly averages used in the regression.

Size Factor ("SMB"): The size factor, or "small minus big firms", describes the excess return for small-cap companies compared to large-cap companies and is based on the size of market capitalization. The monthly data from FinBas is used to calculate yearly averages.

Value Factor ("HMB"): The value factor shows the spread in returns from companies with high book-to-market value compared to companies with low book-to-market value. The monthly data from FinBas is used to calculate yearly averages.

Momentum Factor ("MOM"): The momentum factor is calculated by subtracting the excess return of the 30% lowest performing stocks from the excess return of the 30% highest performing stocks. The monthly data from FinBas is used to calculate yearly averages.

3.2 Description of Applied Models

3.2.1 Two regression models

This paper uses two separate regression models to account for different control variables. The first uses financial firm-specific control variables, whereas the second one uses the Fama-French-Carhart factors as control variables. The reason for this is twofold. We want to compare the models to see which control variables best capture the stock market return, and we want to include data from 2007-2021 despite only having data for 2007-2019 for the Fama-French-Carhart factors model. Therefore the regression with financial firm-specific control variables will include data for 2007-2021, and the regression with the Fama-French-Carhart factors will include data for 2007-2019.

3.2.2 Model 1

The following describes the model for the regression which includes the financial firm-specific control variables (definitions can be found in the Appendices):

$$Stock\ market\ return = \beta_1 * ESG + \beta_2 * Gender + \beta_3 * ESGxGender + \beta_4 * ltdebt + \beta_5 * stdebt + \beta_6 * cashholdings + \beta_7 * profitability + \beta_8 * booktomarket + \beta_9 * LnMarketcap + FE + \varepsilon$$

In this regression, stock market return is the main dependent variable. The main independent variable is ESG, and ESGxGender acts as a moderating effect. For control variables, we use long-term debt, short-term debt, cash holdings, profitability, book-to-market value, market capitalization, and gender diversity which is the proportion of women present in the BoD. Market capitalization is logarithmized in order to obtain numbers that are more suitable for linear regressions. Furthermore, both time-fixed effects and industry-fixed effects are added.

3.2.3 Model 2

The following describes the model for the regression which includes the Fama-French-Carhart factors as control variables (definitions can be found in the Appendices):

$$Weighted\ stock\ market\ return = \beta_1 * ESG + \beta_2 * Gender + \beta_3 * ESGxGender + \beta_4 * Rf + \beta_5 * Rm–Rf + \beta_6 * SMB + \beta_7 * HML + \beta_8 * MOM + FE + \varepsilon$$

This regression has a weighted stock market return as the dependent variable, which is weighted based on their market capitalization size. This is used in order to create weighted portfolios based on ESG performance scores, which is further explained in section four. The main independent variable is ESG performance, and ESGxGender acts as a moderating variable. The control variables are the Fama-French-Carhart factors: SMB, HML, and MOM, as well as Gender, and time-fixed effects. Industry-fixed effects are not included in this regression as the regression is based on portfolios of many companies from different industries.

3.3 Data Collection and Sample Construction

3.3.1 Model 1

The data used is collected from multiple sources. The ESG performance score data and the gender diversity data are both obtained from the Refinitiv EIKON database. The stock market

data, book value data, and market capitalization data are retrieved from the Swedish House of Finance database. The total assets data, cash data, marketable securities data, long-term debt data, short-term debt data, and operating income data are obtained from Retriever. The ISIN codes for the industry-fixed effects were taken from Statistics Sweden (Statistiska Centralbyrån).

The dataset is constructed by first merging the opening price and closing price data in Stata to be able to calculate the stock market return. Since we are using ISIN codes to identify and match the datasets with each other, we drop the observations that are missing ISIN codes. This accounts for 10 observations and no firm is entirely removed. We then use ESG performance score data from EIKON and merge it with a linking file containing ISIN codes and years to be able to match the data for ESG performance with the data for stock market return. As the ESG performance data is merged with the file for the stock market return, several observations are dropped due to either the firm not producing ESG data or the firm only having data for a few years. The total firm-year observations dropped are 4 430, and the number of firms dropped are 337. Since the gender diversity data come from the same database as the ESG data, they have the exact same observations, which is the reason for no observations being dropped when the gender diversity data is merged with the stock market return file.

The sample construction continues with the inclusion of the control variables. The market capitalization data is extracted from FinBas, meaning it already includes ISIN numbers in the original file. Therefore it is easily merged into the stock performance data file. Some data points were missing for market capitalization, and 125 observations (42 firms) are dropped. The book value data is also extracted from FinBas and merged into the parent file, with two observations being dropped. Total assets, short-term debt, long-term debt, cash holdings, and operating income are all extracted from Retriever, and hence the same procedure as with the ESG and gender data is performed. A linking file is used with ISIN codes and years in order to match the data with the stock market performance data. Since the data comes from the same database, the variables mostly have the same missing data points, which is why so many observations are dropped for total assets but not for the rest of the variables. From these variables, the calculations are performed for the following variables: stock market return, ESGxGender, long-term debt, short-term debt, cash holdings, profitability, book-to-market value, and LnMarketcap.

Table I: Sample Selection Criteria

Criteria	*Total firm-year observations*	*Total firms*
Full sample: Publicly listed firms on the Stockholm Stock Exchange 2007-2021 with stock market data on Swedish House of Finance database FinBas	5 637	589
Loss due to ISIN codes missing	(-10) = 5 627	589
Limitations from added variables:		
ESG performance data	(-4 430) = 1 199	(-337) = 255
Gender data	(0) = 1 199	(0) = 255
Market Capitalization data	(-125) = 1 074	(-42) = 213
Book value data	(-2) = 1 072	(0) = 213
Total assets data	(-71) = 1 001	(-7) = 206
Missing variables financial control variables	(-4) = 997	(0) = 206
Singleton observation dropped in regression with FE	(-1) = 996	(0) = 206
Total	996	206

3.3.2 Model 2

The data for Model 2 is also retrieved from multiple databases. The ESG performance data and the gender diversity data are obtained from the Refinitiv EIKON database. The Fama-French-Carhart factors are all collected from the Swedish House of Finance database FinBas.

As in the sample construction for Model 1, data for opening price and closing price are merged in Stata to calculate the stock market return for the years 2007-2019. ESG performance data are merged according to ISIN code and year to match the right data in both files with each other. The same procedure is performed for the gender diversity data. The Fama-French-Carhart data is extracted from FinBas as monthly numbers, which are then restructured to yearly data by calculating the average numbers over the 12 months of the year. The data used are the value-weighted data, as we later construct the stock market return as value-weighted. Market capitalization data is hence also extracted from FinBas to calculate the value-weighted stock market return.

To use the Fama-French-Carhart factors as control variables in the regression, four portfolios are constructed based on their relative ESG performance score. The companies are divided into four portfolios (quartiles), with portfolio (quartile) 1 having the lowest ESG performance scores and portfolio (quartile) 4 having the highest ESG performance scores. For each portfolio, a weighted-average stock return is calculated based on each firm's market capitalization.

Table II: Sample Selection Criteria

Criteria	*Total firm-year observations*	*Total firms*
Full sample: Publicly listed firms on the Stockholm Stock Exchange 2007-2019 with stock market data on Swedish House of Finance database FinBas	4 796	550
Loss due to ISIN codes missing	(-10) = 4 786	589
Limitations from added variables:		
ESG performance data	(-4 034) = 752	(-441) = 150
Gender data	(0) = 752	(0) = 150
Fama-French factors data	(0) = 752	(0) = 150
Market Capitalization data	(-41) = 711	(-42) = 142
Total	711	142

The division of portfolios is depicted in Table III. Due to data limitations for ESG performance and gender diversity data, the number of companies included in the portfolios is slightly limited. There are, however, enough companies that we deem the portfolios significant enough to regress. If a company increases or decreases its ESG performance score over time, they are moved to the appropriate portfolio for the corresponding years. However, this does not affect the portfolios significantly, as most companies stay in the same portfolio during the entire time period.

Table III: Portfolio Construction

Year	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*
Qrt 1	16	12	8	6	9	9	8	9	10	12	13	27	39
Qrt 2	11	7	9	10	7	8	8	11	9	12	13	28	45
Qrt 3	10	13	12	15	12	14	12	10	11	12	14	19	24
Qrt 4	3	6	9	7	12	10	14	13	16	18	22	21	26
Total	40	38	38	38	40	41	42	43	46	54	62	95	134

4. Empirical Data

4.1 Descriptive Statistics

4.1.1 Model 1

Looking at the descriptive statistics for the years 2007 to 2021 in Table IV, we note that the mean ESG performance score (0-1) is 0.513 which is approximately half of the highest score. This indicates that the firms are fairly equally distributed across the scope of the score. Moreover, we note that the mean percentage of women on the BoD is 0.323, which means

that, on average, there are 32% women on the BoDs. For our financial control variables, we note that long-term debt is, on average, 24,6% of total assets, and short-term debt is 26,4% of total assets. Furthermore, the mean for cash holdings, which is cash added to marketable securities, is 11,1% of total assets. Profitability is, on average, between the firms 82,7% of total assets. The book-to-market value is, on average, 0,8%, which is close to 1%, the usual benchmark.

Table IV: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
return	997	.228	.556	-.951	5.619
ESG	997	.513	.204	.013	.932
gender	997	.323	.123	0	.75
ESGxGender	997	.169	.098	0	.49
ltdebt	997	.246	.162	0	1.006
stdebt	997	.264	.159	0	.986
cashholdings	997	.111	.148	0	.96
profitability	997	.827	.643	-.793	4.544
booktomarket	997	.008	.135	-.067	3.972
Ln(Marketcap)	997	23.214	1.923	13.428	26.888

4.1.2 Model 2

In Table V, we observe the descriptive statistics for Model 2 for the years 2007-2019. One interesting note in the data is that the mean weighted average return of the analyzed firms is 0.1% which is much lower than the equally weighted mean retrieved in the descriptive statistics in 5.1.1. Furthermore, the average ESG performance and average gender diversity are close to the mean in 5.1.1. The difference is due to this analysis not including the years 2020 and 2021. For the Fama-French-Carhart control variables, the mean risk-free rate is 0.1%, the mean market risk premium is 1.1%, the size factor is -0.2%, the value factor is 0%, and the momentum factor is 1.4%.

Table V: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Weighted Return	711	.001	.001	-.002	.007
ESG	711	.535	.2	.013	.915
Gender	711	.313	.12	0	.636
ESGxGender	711	.171	.097	0	.49
Rf	711	.001	.001	0	.003
rm-rf	711	.011	.019	-.041	.037
SMB	711	-.002	.012	-.019	.02
HML	711	0	.009	-.015	.023
MOM	711	.014	.024	-.043	.053

4.2 Correlation, Multicollinearity and Heteroscedasticity

4.2.1 Model 1

To check for correlation, the Pearson Correlation Matrix was performed for the years 2007 to 2021. In Table VI, the result from the test is shown, with the parenthesis showing the significance level. The variables included are the dependent variable, the main independent variable, the moderating independent variable, as well as the financial control variables. We note that, in general, no independent variable strongly correlates with another, as most numbers are fairly close to zero. This is excluding the ESGxGender variable, which unsurprisingly is highly correlated with both ESG and Gender. However, what is interesting is that gender is positively correlated with ESG performance, even though the correlation is not that high. We also note that profitability and short-term debt are moderately correlated with each other. Continuing, a Variance Inflation Factor (VIF) test was computed to control for multicollinearity. As seen in Table VI, most variables have a rather low VIF with the exception of ESG, gender, and ESGxGender. This can simply be explained by ESGxGender being a multiplication product of ESG and gender, hence per definition correlating highly with both factors.

Table VI: Pearson Correlation Matrix and Variance Inflation Factor (VIF)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	VIF
(1) ESG	1.000									12.5

(2) gender	0.140	1.000								9.77
(3) ESGxGender	0.746	0.717	1.000							21.34
(4) ltdebt	0.170	0.024	0.143	1.000						2.66
(5) stdebt	0.124	0.002	0.071	-0.270	1.000					2.09
(6) cashholdings	-0.137	0.001	-0.088	-0.355	-0.006	1.000				2.27
(7) profitability	0.116	0.096	0.141	-0.239	0.556	-0.042	1.000			2.33
(8) booktomarket	0.009	-0.004	0.001	0.020	-0.033	-0.016	-0.051	1.000		1.11
(9) LnMarketcap	0.492	0.058	0.351	0.055	-0.100	-0.205	-0.056	-0.197	1.000	2.39

Furthermore, a Breusch-Pagan/Cook-Weisberg test was done to control for whether the variables are subject to heteroskedasticity, meaning that their standard deviations vary over time. The test illustrated in Table VII shows that H0 is rejected, meaning that heteroskedasticity is present in the data. Taking this into account, robust standard errors are used in the regression to minimize the impact of this heteroskedasticity on the result.

Table VII: Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

H0: Constant variance	
chi2(1)	186.91
Prob>chi2	0.0000
Result	H0 Rejected

4.2.2 Model 2

To check for a correlation between the independent variables, a Pearson Correlation Matrix was constructed. Like the Pearson Correlation Matrix in Table VI also showed, non-surprisingly, the ESGxGender variable in Table VII is highly correlated to both the ESG variable and the Gender variable. We also note that all the Fama-French-Carhart factors correlate fairly highly to the risk-free rate and the market risk premium, some negatively and some positively. Furthermore, a Variance Inflation Factor (VIF) test was also performed to show any multicollinearity between the independent variables. As shown in Table VIII, the

only significantly high VIF is for ESG, Gender, and ESGxGender, which can be explained by the ESGxGender variable being a multiplication between the two others. Hence, it will naturally strongly correlate.

Table VIII: Pearson Correlation Matrix and Variance Inflation Factor (VIF)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	VIF
(1) ESG	1.000								8.43
(2) gender	0.138	1.000							8.89
(3) ESGxGender	0.726	0.741	1.000						18.21
(4) Rf	-0.042	-0.249	-0.184	1.000					2.12
(5) rm_rf	-0.002	0.074	0.046	-0.641	1.000				2.02
(6) smb_w	0.076	0.040	0.074	-0.435	0.274	1.000			1.41
(7) hml_w	0.060	0.002	0.026	-0.361	0.487	0.323	1.000		2.59
(8) mom_w	0.012	-0.054	-0.026	0.353	-0.480	-0.093	-0.727	1.000	2.44

Continuing, we also performed a Breusch-Pagan/Cook-Weisberg test for heteroskedasticity to check whether the standard deviations of the variables are non-constant over time. As seen in Table IX, the result shows that the dataset is subject to heteroskedasticity, which means that a normal regression will not be as trustworthy. To adjust for this, we will use robust standard errors in the regression.

Table IX: Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

H0: Constant variance	
chi2 (1)	229.88
Prob>chi2	0.0000
Result	H0 Rejected

5. Results and Analysis

5.1 Regression Results and Analysis

5.1.1 Results Model 1

Based on the model in 3.2.2, a regression was performed with the results shown in Table X. As seen in the table, three separate regressions are made, one with time-fixed effects and

industry-fixed effects, one with only industry-fixed effects, and one without any fixed effects. This is done to compare how time affects the relationship. Since we noticed the data had heteroskedasticity, robust standard errors are used instead of normal. The dependent variable in the regressions is stock market return, and the main independent variable is ESG performance, as well as the moderating variable ESGxGender. The financial control variables are long-term debt, short-term debt, cash holdings, profitability, book-to-market value, and the natural logarithm of market capitalization.

The first regression (1) is done without either time-fixed effects or industry-fixed effects. Observing the results from (1), we see that ESG positively correlates to return but not on a conventional statistical significance. We can also see that the moderating effect variable ESGxGender is negatively correlated to return, but not on a conventional statistical significance level either. The only two variables with significant results are the control variables, book-to-market value, and LnMarketcap, which both were significant on a 1% significance level.

Observing the results of the second regression (2), we have added industry-fixed effects and robust standard errors but not time-fixed effects. In the result, we can see similar results as in regression (1), that even if the coefficient for ESG shows that it is positively correlated to stock market return and that the moderating effect ESGxGender is negatively related to stock market return, neither ESG performance nor the moderating variable has a low enough significance level to accept our hypothesis. Furthermore, we can see that the only variables with low enough significance levels are book-to-market value, which has a positive correlation to stock market return with a statistical significance of 1%, which indicates a strong correlation. We can also observe that no other control variable is correlating to stock market return on a statistically significant level. The results from this regression indicate that our first hypothesis, that CSP has a positive relationship with stock market performance, and our second hypothesis that gender diversity on the BoD has a positive moderating effect on the relationship between CSP and stock market performance, will be rejected at the moment.

We see no major difference in the result from the third regression (3) when taking time-fixed effects into account. As in (1) and (2), ESG and ESGxGender are not correlated to stock market return on a significant level. Including time-fixed effects, however, the results for both book-to-market value and LnMarketcap become positively correlated to stock market return at a 1% and 5% significance level respectively. In regression (3), the constant is also significant, at a 10% significance level.

Table X: Regression result

Regression	*(1)*	*(2)*	*(3)*
	Return	*Return*	*Return*
Time FE	*No*	*No*	*Yes*
Industry FE	*No*	*Yes*	*Yes*
Robust SE	*No*	*Yes*	*Yes*
ESG	0.0200	0.110	0.0734
	(0.08)	(0.43)	(0.23)
gender	0.499	0.468	0.373
	(1.27)	(1.03)	(0.76)
ESGxGender	-0.940	-1.092	-1.245
	(-1.28)	(-1.42)	(-1.30)
ltdebt	-0.148	-0.195	-0.192
	(-1.17)	(-1.20)	(-1.30)
stdebt	-0.096	-0.234	-0.173
	(-0.69)	(-1.45)	(-1.19)
cashholdings	0.075	0.183	0.104
	(0.57)	(0.84)	(0.30)
profitability	0.037	0.00461	0.0350
	(1.09)	(0.11)	(1.01)
booktomarket	0.344***	0.311***	0.310***
	(2.56)	(4.99)	(9.31)
LnMarketcap	0.031***	0.0201	0.0342**
	(2.69)	(1.19)	(2.75)
Constant	-0.473	-0.178	-0.465*
	(-1.66)	(-0.47)	(-1.88)
N	997	996	996
R^2	0.0206	0.084	0.247

Note: T-values are presented in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.1.2 Analysis Model 1

The result from regression (1), regression (2) and regression (3) show that there is no significant positive relationship between CSP and stock market return, and that gender diversity in the BoD does not significantly positively moderate the effect between CSP and stock market return, hence both of our hypotheses are according to these results, rejected.

As mentioned in section 2, there are previous studies concluding that there is no relationship between CSP and stock market return, hence supporting this result, as well as

studies concluding that there is. In order to fully understand the result, we will perform another regression with different control variables to make our results more robust. This will be discussed in the next part.

5.1.3 Regression result

Based on the model in 3.2.3, four regressions were performed for the years 2007 to 2019 for the four portfolios. The dependent variable for this regression is a weighted stock return, the main independent variable is ESG performance, and the moderating independent variable is ESGxGender to moderate for the effect of gender diversity on the relationship between CSP and stock market return. The financial control variables included are the CAPM factors risk-free rate and market risk premium, as well as the Fama-French-Carhart factors size factor, value factor, and momentum. Furthermore, the control variable gender diversity is included, as well as time-fixed effects. Since the test in 4.2.2 concluded that the data is subject to heteroscedasticity, robust standard errors are used.

The results from the regression for Quartile 1 (1), the quartile including the firms with the 25% lowest ESG performance score, can be seen in the first column of Table XI. The results show that there is no significant correlation between the ESG variable and weighted stock market return, as well as no significant correlation adding to the moderating effect of gender diversity. For the control variables, all Fama-French-Carhart factors were correlated to weighted stock market return, with risk-free rate, market risk premium, size factor, and value factor all being significant at a 1% significance level and the momentum factor at a 5% significance level. Following these results, both the first hypothesis and the second hypothesis would have to be rejected.

The regression for Quartile 2 (2) includes the companies with the 25-50% lowest ESG performance scores. The result differs slightly from regression (2). For the control variables, we can note that they are, in general, less significant than in (1), with the risk-free rate and SMB not being significant anymore and HML being significant on a 5% level instead of 1%. Furthermore, the correlation between the value factor (HML) and the weighted stock market return has shifted from negative to positive, and the correlation between the momentum factor (MOM) and the weighted stock market return has shifted from positive to negative. The main independent variable, ESG, is not significant. However, it has also shifted from being positively correlated to weighted stock market return to negative, which is a notable change.

The regression for Quartile 3 (3) includes the companies with the 25%-50% best ESG performance scores. The results in Table XI show that the main independent variable, ESG, and the moderating effect variable, ESGxGender, are still insignificant at an acceptable significance level. The moderating variable has, however, shifted from negative to positive, meaning that the relationship between the ESG variable and weighted stock return is enhanced by having women on the BoD. This result is, however, not significant, meaning that there is no strong base for a conclusion. In regression (3), all financial control variables are positively correlated to weighted stock return on a 1% significance level, meaning that the correlation is strong.

The regression for Quartile 4 (4) includes the companies with the 25% highest ESG performance scores. This regression differs substantially from regressions (1), (2), and (3) in the results. The main independent variable, ESG, is negatively correlated to weighted stock market return with a statistical significance of 5%. Furthermore, the moderating effect variable ESGxGender is positively correlated to weighted stock market return with a significance level of 10%, meaning that the relationship between ESG and stock market return is enhanced by having more women on the BoD. The financial control variables are all positively correlated to weighted stock market return with risk-free rate market risk premium, HML and MOM being significant on a 1% significance level, and SMB on a 10% significance level. This regression is also the first to have a significant result for the control variable gender, with it being negatively correlated to weighted stock market return on a 10% significance level.

Table XI: Regression result

Regression	*Quartile 1 Return*	*Quartile 2 Return*	*Quartile 3 Return*	*Quartile 4 Return*
Time FE	*Yes*	*Yes*	*Yes*	*Yes*
Robust SE	*Yes*	*Yes*	*Yes*	*Yes*
ESG	0.0025	-0.0003	-0.0012	-0.0065**
	(1.24)	(-0.03)	(-0.40)	(-2.21)
gender	0.0015	0.0053	-0.0064	-0.0112*
	(1.53)	(0.46)	(-1.60)	(-1.83)
ESGxGender	-0,0021	-0.0186	0.0104	0.0153*
	(-0.50)	(-0.73)	(1.62)	(2.04)
Rf	0.3043***	0.0826	0.2144***	0.2355**
	(3.55)	(0.43)	(4.18)	(2.49)

Regression	*Quartile 1* <u>*Return*</u>	*Quartile 2* <u>*Return*</u>	*Quartile 3* <u>*Return*</u>	*Quartile 4* <u>*Return*</u>
rm_rf	0.0577***	0.0679***	0.046***	0.0532***
	(29.04)	(15.30)	(19.37)	(21.79)
smb_w	0.0395***	0.0096	0.0183***	0.0036*
	(13.74)	(1.37)	(9.20)	(1.76)
hml_w	-0.0341***	0.0272**	0.064***	0.0318***
	(-6.65)	(2.53)	(14.68)	(5.35)
mom_w	0.0057**	-0.0126**	0.013***	0.0074***
	(2.42)	(-2.32)	(8.90)	(9.01)
Constant	-0.0006	0.002	0.0007	0.0049**
	(-1.23)	(0.50)	(0.38)	(2.06)
N	178	178	178	177
R^2(within)	0.7725	0.7924	0.9279	0.8340

Note: T-values are presented in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.1.4 Analysis Model 2

The results in Table XI show noticeably different results compared to each other. In regression (1), the ESG variable positively correlates to stock market return, though not on a conventional statistical significance level. In regressions (2), (3), and (4), the ESG variable is, however, negatively correlated to stock market return, and in (4) on a 5% significance level, meaning a strong significance. For the moderating effect variable, we can observe that in regression (1) and (2), it has a negative correlation with stock market return, and in (3) and (4), it has a positive correlation, and in (4) on a 10% significance level. Even though most results are not statistically significant, we can observe an interesting pattern that CSP seems to have a more negative effect on stock market return if the company is performing well in CSR. This disagrees with our hypothesis 1, which stated that CSP positively correlates with stock market performance.

Furthermore, we can observe that the moderating effect of gender diversity in the BoD, even though most results are non-significant on a conventional significance level, show an interesting relationship. In the group with the lowest ESG scores, the ESG variable is positive, and ESGxGender is negative, meaning that CSP affects stock market return more positively with fewer women on the BoD. However, in the 25-50% group (regression 2), a negative ESG and negative ESGxGender indicate that CSP affects stock market returns more negatively with fewer women on the BoD, the opposite of the result in (1). A note, however,

is that the result for the ESG score is that the result is noticeably close to zero with a significance level so high that the result could equally have been positive, meaning that there is no real implication of this result. However, in (3), the correlation between ESG and the stock market return is negative as well, but the ESGxGender is positive, meaning that CSP affects stock market return more negatively with more women on the BoD. The same results, but significant, can be found in (4). There, the correlation between CSP and stock market return is also negative, with a significance level of 5%, and the ESGxGender is positive with a significance level of 10%. This implies that in companies with good CSP, doing CSR affect stock market returns more negatively with more women on the BoD, which disagrees with our second hypothesis (H2).

5.2 Additional Analysis

As stated above, the results of the regressions show fairly different results. All aforementioned regressions have used gender diversity as a continuous variable. There are, however, indications that gender can affect the results more binary rather than continuously. Therefore, as a robustness test to our results and to receive a clearer answer, an additional analysis is performed. This analysis is based on the critical mass theory and tokenism with gender in groups developed by Kanter (1977). Kanter concludes that a threshold of 20-40% of women needs to be reached for it to affect the organization. Furthermore, supporting Kanter's theory, papers more relevant to this study, for example, Torchia, Calabrò et al. (2011), and Joecks, Pull et al. (2013) show that with 30% of women on the BoD, firms increase both innovation and financial performance. This suggests that a threshold of the number of women on the BoD is needed for them to have an influence.

In the regressions above, we included gender as a continuous variable, but to test this, a dummy variable, *gendum* will be introduced, which is defined as whether the share of women is over 30% in the BoD or not. The new moderating variable will hence be *ESGxgendum* which is the CSR performance multiplied by the gender dummy variable.

5.2.1 Results Model 1

The result from regression one (1) includes a dummy variable for gender for if the share of women in the BoD is higher than 30%. No fixed effects are included, meaning that both industry-fixed effects and time-fixed effects are excluded. The results show that the ESG variable is negatively correlated to stock market return but not on a low enough significance level to be able to trust. Furthermore, the moderating variable ESGxgendum is negatively

correlated to stock market return but, similarly to ESG, is not on a conventional significance level. Looking at the control variables, we can conclude that only two significantly correlate to the stock market return. Book-to-Market value is positively correlated on a 5% significance level, and LnMarketcap is positively correlated on a 1% significance level.

The results from regression two (2) are based on a dummy variable for gender diversity, including industry-fixed effects and excluding time-fixed effects. The results show that ESG performance is negatively correlated to stock market performance, however, not on a conventional significance level. Furthermore, ESGxgendum, acting as the moderating variable, shows a negative correlation to stock market return, meaning that companies with fewer women on the BoD result in a stronger correlation between CSP and return. The only significant result in the regression is the control variable Book-to-Market, which is positively correlated to return on a 1% significance level.

The results from regression three (3) include both industry-fixed effects and time-fixed effects, as well as robust standard errors. The results are similar to regressions (1) and (2), showing that both ESG and the moderating variable ESGxgendum have an insignificant negative correlation to the stock market return. Furthermore, looking at the control variables, we can see that Book-to-Market value is positively correlated to stock market return on a 1% significance level, and LnMarketcap is positively correlated to stock market return on a 5% significance level.

Table XII: Regression result

Regression	*(1)*	*(2)*	*(3)*
	Return	*Return*	*Return*
Time FE	*No*	*No*	*Yes*
Industry FE	*No*	*Yes*	*Yes*
Robust SE	*No*	*Yes*	*Yes*
ESG	-0.156	-0.110	-0.195
	(-1.05)	(0.43)	(-1.00)
gendum	0.126	0.118	0.086
	(1.32)	(0.90)	(0.77)
ESGxgendum	-0.214	-0.229	-0.244
	(-1.21)	(-1.07)	(-1.42)
ltdebt	-0.149	-0.181	-0.187
	(-1.18)	(-1.07)	(-1.24)
stdebt	-0.087	-0.217	-0.153
	(-0.63)	(-1.34)	(-1.04)

Regression	*(1)*	*(2)*	*(3)*
cashholdings	0.079	0.177	0.094
	(0.60)	(0.80)	(0.27)
profitability	0.036	0.0004	0.026
	(1.09)	(0.01)	(0.77)
booktomarket	0.343**	0.311***	0.304***
	(2.56)	(4.88)	(8.27)
LnMarketcap	0.031***	0.020	0.013**
	(2.69)	(1.16)	(2.51)
Constant	-0.392	-0.04	-0.351
	(-1.48)	(-0.805)	(-1.32)
N	997	996	996
R^2	0.021	0.084	0.246

Note: T-values are presented in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.2 Analysis Model 1

Looking at the results from Table XII, we can see that no significant results for the main independent variable nor the moderating variable can be observed for any of the regressions (1), (2), and (3). An interesting finding, however, is that, when comparing these regressions with the regressions in Table X, the main difference is that the ESG variable shifts from being positively correlated to being negatively correlated to the stock market return. Even if none of the results are significant enough to strongly rely on, it is a clear trend that when shifting gender diversity to a dummy variable, CSP becomes negatively correlated to the stock market return. However, if we instead analyze the moderating effect variable, it stays negatively correlated to stock market return in both Table X and Table XII, even though these results aren't significant on a conventional significant level either. In Table X, the results imply that CSP is more positively correlated to stock market return with fewer women on the BoD. In Table XII, the results imply that CSP is more negatively correlated with fewer women on the BoD. This means that the results contradict each other completely.

5.2.3 Results Model 2

The result from Quartile 1 (1) includes the companies with the 25% lowest ESG scores and, in comparison to Table XI, includes a dummy variable for gender diversity in the BoD showing if the share of women is higher than 30%. We can observe that the ESG variable is

positively correlated to stock market return, however, not on a conventional significance level. Furthermore, the ESGxgendum variable is close to zero, meaning that it does not correlate with stock market return, however, not on a conventional significance level either. Looking at the control variables, we see that both the risk-free rate, market risk premium, and SMB are positively correlated to stock market return on a significant level, with the risk-free rate being significant on a 5% level and the other variables on a 1% significance level.

The result from Quartile 2 (2) includes the companies in the 25-50% quartile of ESG scores and includes a dummy variable for gender diversity. In this regression, the ESG variable negatively correlates to stock market return on a 5% significance level. This is a clear difference from Table XI, which did not have a significant result for ESG. ESGxgendum has, similarly to (1), a value of close to zero, however not significant on a conventional significance level. The control variables are less significant than in (1), with the risk-free rate not being significant anymore, market risk premium staying with being significant at a 1% significance level, SMB not being significantly correlated anymore, and HML going up to being significant on a 10% significance level. However, both MOM and the constant are significantly correlated to stock market return on a 5% significance level.

The result from Quartile 3 (3) includes the companies in the 50-75% quartile of ESG scores and has gender diversity as a dummy variable. The ESG variable is no longer significantly correlated to stock market return but has, unlike (2), a positive correlation. The moderating variable ESGxgendum positively correlates to stock market return but not on a conventional significance level. All financial control variables positively correlate to stock market return on a 1% significance level, which implies a strong correlation.

The result from Quartile 4 (4) includes the companies with the 75% highest ESG scores and gender diversity as a dummy variable. The results show that the ESG variable negatively correlates to stock market return on a 5% significance level. Furthermore, the moderating variable ESGxgendum positively correlates to stock market return but not on a conventional significance level. For the financial control variables, all variables are positively correlated to stock market return on a 1% significance level except SMB, which is positively correlated but not on a conventional significance level. The constant is positively correlated to stock market return on a 5% significance level, and gender is negatively correlated, but not on a statistically significant level.

Table XIII: Regression result

Regression	*Quartile 1 Return*	*Quartile 2 Return*	*Quartile 3 Return*	*Quartile 4 Return*
Time FE	*Yes*	*Yes*	*Yes*	*Yes*
Robust SE	*Yes*	*Yes*	*Yes*	*Yes*
ESG	0.0020	-0.0065**	0.0010	-0.0034**
	(1.44)	(-2.13)	(0.69)	(-2.41)
gendum	0.0000	-0.0006	-0.0014	-0.0016
	(0.06)	(-0.29)	(-1.27)	(-1.16)
ESGxgendum	0.0003	0.0005	0.0022	0.0024
	(0.24)	(0.11)	(1.29)	(1.35)
Rf	0.2594**	0.1971	0.2127***	0.2527***
	(2.28)	(1.03)	(3.89)	(4.00)
rm_rf	0.0571***	0.0687***	0.046***	0.0537***
	(13.36)	(11.37)	(20.10)	(20.06)
smb_w	0.0392***	0.0123	0.0183***	0.0033
	(13.74)	(1.21)	(5.73)	(1.05)
hml_w	-0.0340***	0.0320*	0.0673***	0.0326***
	(-2.85)	(1.76)	(10.40)	(5.12)
mom_w	0.0059	-0.0124**	0.013***	0.0076***
	(1.48)	(-2.08)	(6.83)	(3.65)
Constant	-0.0002	0.0039**	-0.0007	0.0026**
	(-0.42)	(2.61)	(-0.68)	(2.35)
N	178	178	178	177
R^2(within)	0.7711	0.7860	0.9276	0.8391

Note: T-values are presented in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.4 Analysis Model 2

Looking at the result from Table XIII, we can see that CSP is only significantly correlated to stock market return for (2) and (4), which differs from Table XI, where only (4) has a significant correlation for ESG. We can, however, observe that for (1) and (3), the ESG variable is, although insignificant, still positively correlated to stock market return, which differs slightly from Table XI, where the ESG variable in (3) has a negative result and (1) has a positive correlation. Overall, Table XIII with gender diversity as a dummy variable and

Table XI with gender diversity as a continuous variable have fairly similar results for ESG, which strengthens the overall result that CSP has a negative correlation to the stock market return, especially for companies with excellent CSR ratings.

Furthermore, the result for the moderating variable is also fairly similar in both tables. In Table XI, the moderating variable has a significant and positive result for (4), and in Table XIII, the moderating variable has, although not significant, still a positive result. In other words, the results in both tables say that CSP in companies with a good ESG score has a more negative effect on stock market returns with more women on the BoD. Both the result of our main independent variable and our moderating variable thereby strengthen the conclusion that both of our hypotheses are rejected.

6. Discussion

6.1 Discussion of Findings

As demonstrated in section 5, the results show that both of our hypotheses are rejected. We are neither able to conclude that *there is a positive relationship between corporate social performance and firm stock market performance (H1)* nor that *there is a more positive relationship between corporate social performance and corporate financial performance in companies with higher gender diversity on the board of directors (H2)*. In general, our results are quite inconsistent, with some regressions yielding positive correlations between CSP and stock market return while others yielding negative correlations. The results for the moderating variable ESGxGender were also mixed. The only significant results found for the ESG variable are negative, and the only significant results found for ESGxGender are positive. All significant results were yielded by the second model, or the Fama-French-Carhart regressions.

There are a few possible factors affecting why only the second model generated significant results for the main variable. One explanation could be that the Fama-French-Carhart factors more efficiently explain stock market return and thereby more successfully single out the factor of stock market return that is affected by CSP. As previous research has explained (Fama and French, 1992; Carhart, 1997), the model is used as an explanation for excess return, which could explain the more significant result in these control variables. As the results in section 5 showed, Model 2 showed far more significant results for the control variables than Model 1. This indicates that the Fama-French-Carhart factors have a higher explanatory value for stock market return than the control variables used in Model 1.

As a result, the accuracy of the CSR relation to stock market return increases. The other possible explanation could be that dividing companies into portfolios identifies areas where CSR significantly correlates with the stock market return. The result for Model 1 is an average of all companies, whereas Model 2 shows the differences in how stock market return of firms with high versus low ESG performance scores are affected by CSP. Model 2 indicates a positive correlation between CSP and stock market returns in firms with low ESG performance scores, but a negative correlation between CSP and stock market returns in firms with high ESG performance scores. In Model 1 the positive and negative correlations present for different groups of firms are expected to offset each other, thus lowering the total explanatory value.

Griffin and Mahon, 1997 point out many methodological inconsistencies as a cause of different results regarding CSP and CFP. One such shortcoming is failing to account for other factors directly influencing financial performance, such as industry affiliation, age of assets, or factors affecting the provision of CSR, such as R&D investments and advertising (Cochran and Wood, 1984; McWilliams and Siegel, 2001). Another potential shortcoming is not considering different geographical markets' reactions to CSP (Wang, Q., Dou et al., 2015). We have considered two of these by using industry-fixed effects in Model 1 and delimiting our data set to firms on only the Swedish market for both Model 1 and Model 2.

6.1.1 Model 1

The regressions in Model 1 were conducted three times, each time including a different amount of fixed effects. This was done to identify what aspects have the most significant effect on the correlation. As mentioned in section 5, neither the main independent variable nor the moderating variable showed any significant results, but the ESG performance score was slightly positive for all regressions, and the ESGxGender was slightly negative for all regressions. However, in the additional analysis, where the moderating variable was based on a dummy variable for gender diversity, the results for the ESG performance score variable were the opposite but still insignificant. This indicates that the results are, in general, relatively untrustworthy, especially since most results had a significance level of over 50%. As previous research has shown (Konar and Cohen, 2001; Griffin and Mahon, 1997; Chih, Chih et al., 2010), CSP is largely dependent on industry, with some industries being at the forefront of CSR and some working in areas where the industry itself negatively affects CSR. Thereby, we would have expected to see a larger difference between including and not including industry-fixed effects. Furthermore, one explanation for the overall low

significance for the main independent variables could be that since the financial control variables of the regression were not that significant, they did not effectively control for other factors affecting the stock market performance.

6.1.2 Model 2

The results with the most significant values came from Model 2, based on Fama-French-Carhart's four-factor model. For quartile 1, the firms with the lowest ESG scores, our results indicate a positive relationship between ESG performance score and stock market return for all regressions performed. Although not significant at conventional levels, these findings are in line with the instrumental stakeholder theory and the majority of previous literature, which have found CSP to contribute to an increased CFP (Freeman, 1984; Orlitzky, Schmidt et al., 2003; Baron, 2008; Bénabou and Tirole, 2010; Fatemi, Fooladi et al., 2015; Albuquerque, Koskinen et al., 2019).

For quartiles 2 and 3, we find a very slight negative relationship between CSP and CFP for the regressions with a continuous gender variable. Both correlations are found to be very close to zero, especially for quartile 2, while simultaneously being very far from significant at any conventional level and could be deemed to be negligible. Although no conclusions can be drawn due to the high p-values, which approach 1, these results could indicate a neutral relationship which some previous researchers have found (Alexander and Buchholz, 1978). Quartile 4 yield a negative relationship between ESG performance score and stock market return at a 5% significance level both for the regression using a continuous gender variable and the one using a dummy variable. These findings are also supported by a handful of previous studies (e.g. Di Giuli and Kostovetsky, 2014).

Changing the moderating variable to be based on a dummy variable for gender diversity yields lower p-values for all quartiles. The increase in significance for quartiles 1, 3, and 4 is slight, and although the correlation in quartile 3 flips from negative to positive, we continue to be unable to draw conclusions as the p-value remains to be high. The most substantial change is observed in quartile 2, which yields a negative correlation at a significance of 5% through the regressions using a dummy variable. We conclude that the use of a dummy variable meaningfully increased the significance of our results.

The significant negative correlations found in quartile 4 and quartile 2 support the neo-classical shareholder view and the smaller body of research that has concluded that CSR investments come at the expense of firm value (Friedman, 1970; Di Giuli and Kostovetsky, 2014). Although most previous research has concluded the opposite, as is discussed in section

2.2, it is clear that the type of CSR activities performed may impact the effect CSP has on CFP (Wood and Jones, 1995; Orlitzky, Schmidt et al., 2003; Bird, Hall et al., 2007). In this study, we represent CSP through an ESG performance score which is a consolidation of environmental, social, and governance scores. Constructing a measure of CSP is very complex, and many researchers have developed different models considering different dimensions of CSR (Wood, 1991; Orlitzky, Schmidt et al., 2003). Differing measures of CSP are a possible explanation as to why our results contrast many previous studies.

Our findings in Model 2 indicate a positive, yet insignificant, relationship between CSP and CFP only for the firms with the lowest ESG performance scores. We attempt to explain this through the distinction between positive and negative CSR. Bird, Hall et al. (2007) find that the market consistently punishes firms for failing to meet basic or regulatory standards, both in areas where high CSP is normally rewarded and punished. Similarly, Krüger (2015) observes a negative market response to positive CSR activities but an even stronger negative response to negative CSR activities. Further, he finds that investors value CSP specifically for firms that have had poor stakeholder relations historically, so-called "offsetting CSR". These findings imply that firms with historically poor CSP are rewarded by the market for improvements up to a certain basic standard. This would explain our finding of a positive relationship between CSP and CFP of firms with very low ESG performance scores despite otherwise finding the relationship to be negative for other firms.

The result for the moderating variable ESGxGender is negative for quartiles 1 and 2 and positive for quartiles 3 and 4, with quartile 4 being significant at a 10% significance level. By changing the gender diversity variable to a dummy, the moderating variable becomes positive for all quartiles, and more insignificant. Seeing that there was no major difference in the results for the moderating variable when a dummy was used to consider the critical mass perspective, our results point towards the conclusion that reaching critical mass does not change the effect CSP has on shareholders' valuation of firms. However, due to this study having a small scope, it is not a conclusion we can confidently draw.

Furthermore, disregarding the negligibly low results for quartile 2, gender diversity seems to weaken positive correlations between CSP and CFP, and strengthen negative correlations between CSP and CFP. In other words, the market seems to find CSP performed by women less valuable than general CSP. Previous research, such as Dawson (1997), conclude that women on the BoD generally consider a broader range of stakeholders compared to men. Investors might not deem all stakeholders to be material and could therefore punish rather than reward firms for directing resources toward increasing legitimacy

in the eyes of immaterial stakeholders. Adding to this, the positive effects women have on firms' ability to fulfill stakeholder expectations seem to affect consumers, shareholders and employees less (Bear, Rahman et al., 2010). Satisfying shareholder expectations should, by definition, relate to market-based firm value, and according to mismatching theory, only CSP related to market-related stakeholders, such as consumers, are expected to contribute to CFP (Orlitzky, Schmidt et al., 2003). This further strengthens the hypothesis that women might focus on stakeholders which investors consider unimportant, and that this drives a stronger negative reaction by the market for firms' CSP.

As previously brought up in the discussion, the type of CSR activities performed could be a deciding factor as to whether the firm value is created or destroyed (Orlitzky, Schmidt et al., 2003; Bird, Hall et al., 2007). Women directors have been shown to improve firm CSR ratings and voluntary CSR disclosure (Bear, Rahman et al., 2010; Liao, Luo et al., 2015; Ben-Amar, Chang et al., 2017). At the same time, they seem to focus more heavily on philanthropy, and the increased degree of disclosure often pertains to environmental aspects (Williams, 2003; Liao, Luo et al., 2015; Ben-Amar, Chang et al,. 2017). These areas have been identified by previous researchers as not contributing to higher firm value, regardless of if the general relationship between CSP and CFP was found to be positive or negative (Orlitzky, Schmidt et al., 2003; Bird, Hall et al., 2007). In conclusion, the fact that women might contribute to a negative market reaction to CSP could be explained through their focus on certain stakeholders and areas of CSP that investors do not value.

Our findings could be regarded as surprising considering the relative consensus of previous literature on the positive correlation between women directors and CFP (e.g. Campbell and Mínguez-Vera, 2008; Liu, Wei et al., 2014; Abdullah and Ismail, 2016). Galbreath, (2018) suggests that women indirectly influence firm performance through direct involvement in the firm's CSP. If women indeed increase CSP in areas that are unrelated or negatively correlated with CFP, the indirect effect of women directors that Galbreath mentions would be expected to be negative. Additionally, Bennouri, Chtioui et al., (2018) find that women directors improve accounting-based but not market-based CFP which is in line with our findings.

6.2 Issues Related to Data Selection

Since the study is performed on Swedish-listed companies that have recorded both ESG performance data and gender diversity data in Refinitiv EIKON, the data collected is somewhat limited, which could have affected the outcome of the results. Furthermore, as

previously mentioned, the Fama-French-Carhart factors were limited to 2007-2019, which resulted in Model 2 only including companies for those years. Our initial data included 5637 data points for 589 unique companies. However, due to data limitations, especially caused by the lack of ESG performance data, our final dataset was unbalanced, consisting of 906 data points for 206 unique companies for Model 1 (2007-2021) and 711 data points for 142 companies for Model 2 (2007-2019). This can be defined as a relatively small dataset. The data for Model 2 was also split into four portfolios which meant an even smaller group of data. However, the amount was still deemed large enough to regress. To increase the scope, we could have included, for example, all nordic countries, but due to the lack of availability of data for the control variables, we decided not to go forward with that.

6.3 Issues Related to Endogeneity

In this study, we also need to take into account the endogeneity issue that could come from CSP being correlated to stock market return, as well as gender diversity being correlated to CSP. It could be that companies with a high financial performance, and thereby also a high stock market return, for example, feel that they have the opportunity to focus more on CSR, or that companies who focus on CSR have a higher cost lowering their financial performance, and thereby the stock market return. This would entail that shareholders do not price the company for the CSP but rather the financial performance. Furthermore, companies with high CSP might attract more women, which could result in the share of women being skewed towards companies with high CSP. Gender diversity is also an aspect of a good CSP, which means having women on the BoD would automatically improve your ESG score. These are all important endogeneity factors and might have affected the outcome of our results.

7. Conclusion

7.1 Contributions

Our paper, as described in 1.3, aims to contribute to the vast stream of research on CSP and CFP and the different perspectives regarding the relationship between the two factors. This is done by investigating the relationship between CSP and stock market return for companies listed on the Stockholm Stock Exchange, as well as examining how the relationship is affected by the share of women on the BoD. The inclusion of the moderating effect of gender diversity is something that, to the best of our knowledge, has not previously been examined thoroughly. Based on our results, we conclude that CSR does not have a strong correlation to

stock market performance, opposing the majority of previous literature. Firms with excellent ESG ratings are an exception as we conclude a small but significant negative correlation between CSP and stock market return for these firms.

Furthermore, we conclude that gender diversity in the BoD generally results in a stronger relationship between CSP and stock market return, meaning that shareholders react more strongly to CSP if more women are part of the BoD. As we found a negative relationship between CSP and CFP in firms with high CSP, this means that the stock market values the CSP even less if there are more women on the BoD.

To summarize, our results show a weak correlation between CSP and stock market performance, indicating that shareholders do not primarily consider CSP when valuing a company. We also note that for companies with excellent CSP, shareholders negatively price CSP, whereas companies with insufficient CSP are slightly rewarded by the market for improvements in CSP. This correlation was, however, not found to be significant. Further, our results indicate that shareholders price CSP more negatively or less positively, when more women are present on the BoD. Through this conclusion, we consider the research question - *What is the relationship between corporate social performance and stock market return, and how is it affected by the share of women on the Board of Directors?* - answered.

This paper contributes with new insights into the ongoing discussion regarding how shareholders price CSP and what factors can affect the underlying valuation.

7.2 Suggestions for Future Research

Through this paper, several potential areas of further investigation have been identified which might be relevant to look at in future research.

Firstly, as mentioned in the theoretical background, different kinds of CSR actions have been shown to have different effects on financial and market firm performance. In this paper, we look at a general measure for CSP, but further development would be to divide the performance into several areas, for example, according to the areas of ESG: environment, social, and governance. Our mixed results indicate that it might not be possible to draw conclusions regarding general CSP and CFP, and that these further divisions might be necessary to obtain clearer results. It would also be relevant to even further analyze smaller subsections of the areas of ESG to pinpoint the specific CSR activities which are valued by the market. Philanthropy is an example that has been shown to negatively affect stock market return, but there are many other areas not yet investigated thoroughly.

Another aspect worth investigating further is the differentiation between positive CSR and negative CSR. A future area to investigate could be how shareholders value actively engaging in positive CSP versus only avoiding negative CSP, thus further observing how shareholders value different types and levels of CSP. This could also contribute to shedding light on if CSP is only rewarded up until a certain level which some of our findings implied.

Continuing, this study examines the moderating effect of gender diversity of the BoD with the motivation that women act differently from men in governing positions. There are other possible moderating factors for the correlation between CSP and stock market return worth investigating. An example could be looking further into the Stakeholder Influence Capacity (SIC), its effects on CFP, and what leads to strong or weak SIC.

Further, we did not find any significant differences in the effect of women directors on the correlation between CSP and CFP when considering critical mass. If gender diversity is to be continued to be used as a moderating variable, its moderating effect with or without critical mass could also be further explored.

In our study, we saw that shareholders seem to not value women's effect on a firm's CSR actions. We examined stock market returns, and therefore do not directly consider the effect on accounting-measured financial performance. It would be interesting to perform the same study but using accounting measures for financial performance, e.g., ROA or ROE, instead of the stock market return. This way, we could further compare our results and deepen our understanding as to how different stakeholders, not just shareholders, react to CSP and the moderating effect of gender diversity. Further, it could provide further insights into the market reactions observed in our study.

Our dataset was limited to larger Swedish firms due to our databases only containing a limited amount of data. There are, therefore, many opportunities to develop this study, both by including Swedish firms of smaller sizes and by expanding to other geographic locations.

Finally, taking endogeneity into consideration would be an important step in future research. Since there is a possible endogeneity issue between CSP and gender diversity, the results would ideally have to be adapted accordingly. Therefore we would recommend future research to investigate endogeniety further.

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Appendices

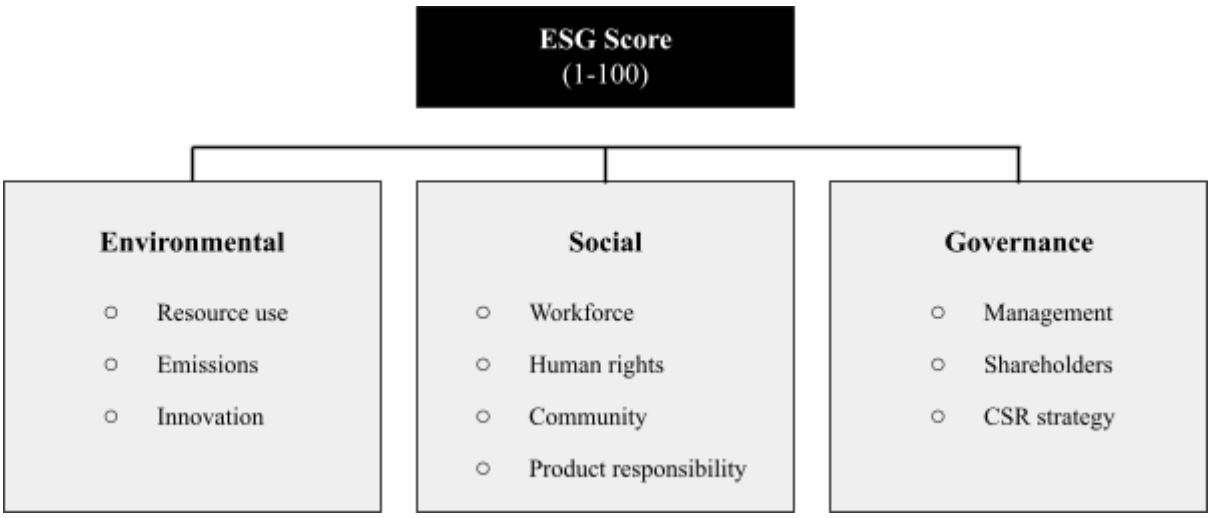
Variable Definitions

Variable	*Definition*
booktomarket	Book-to-Market value calculated by taking the book value of equity divided by the market value of equity (market capitalization)
cashholdings	Cash + Marketable Securities divided by total assets
ε	Residuals in the regression models
esg	ESG performance score described in 3.1.2
ESGxGender	ESG performance score multiplied by the percentage of women in BoD
ESGxgendum	ESG performance score multiplied by the *gendum* variable
gender	The percentage of women in the Board of Directors
gendum	Dummy variable showing companies with a *gender* result over 30%
hml_w	Value weighted spread in return from companies with high book-to-market value compared to companies with low book-to-market value
LnMarketcap	The natural logarithm of market capitalization
ltdebt	Long-term debt divided by total assets
Market Capitalization	Price of the stock multiplied by shares outstanding.
mom_w	Value weighted spread in performance of the 30% highest performing stocks from the 30% lowest performing stocks
profitability	Operating income divided by total assets
Rf	Risk-free rate
rm_rf	Market risk premium
smb_w	Value weighted excess return for small-cap companies compared to large-cap companies
stdebt	Short-term debt divided by total assets

Definition Variables Fama-French-Carhart Model

Variable	*Definition*
a_{it}	Intercept point of the function–factors that can not be explained by the model.
R_{it}	Return of a portfolio i for time t
Rf_t	Risk–free rate for time t
Rm_t	Rmt= Market portfolio return for time t
$SMBt$	The size factor for time t (small–cap stocks minus large–cap stocks)
HML_t	The value factor for time t (value–stocks minus growth–stocks)
MOM_t	The momentum factor for time t
e_{it}	Residuals in the regression model

ESG Performance Score Explanation



The score for ESG performance from Refinitiv EIKON is based on the sub-categories shown in the picture above. The process of creating the ESG scores for a company starts by collecting around 630 ESG measures on a company level, where the 180 most material measures for the industry are extracted. These measures are grouped into the 10 sub-categories mentioned in the picture and are then calculated into three pillar scores based on relative weights of the sub-categories. The weight of the sub-categories can vary between industries depending on the materiality of the areas. An overall ESG score is then calculated based on the three pillars.

Descriptive Statistics Model 2 Divided by Portfolios

Quartile 1	N	Mean	SD	Min	Max
w portfolio return	178	.001	0.001	-.001	.003
esg	178	.26	0.103	.013	.397
gender	178	.287	0.118	0	.6
ESGxGender	178	.075	0.045	0	.205
Rf	178	.001	0.001	0	.003
rm rf	178	.01	0.021	-.041	.037
smb w	178	-.003	0.011	-.019	.02
hml w	178	-.001	0.009	-.015	.023
mom w	178	.014	0.024	-.043	.053
Quartile 2					
w portfolio return	178	.001	0.002	-.001	.007
esg	178	.481	0.050	.397	.564
gender	178	.313	0.121	0	.636
ESGxGender	178	.151	0.061	0	.337
Rf	178	.001	0.001	0	.003
rm rf	178	.013	0.019	-.041	.037
smb w	178	-.003	0.011	-.019	.02
hml w	178	0	0.008	-.015	.023
mom w	178	.012	0.024	-.043	.053
Quartile 3					
w portfolio return	178	.001	0.001	-.002	.003
esg	178	.628	0.039	.564	.7
gender	178	.323	0.130	.067	.636
ESGxGender	178	.203	0.083	.039	.388
Rf	178	.001	0.001	0	.003
rm rf	178	.009	0.020	-.041	.037

smb w	178	-.002	0.012	-.019	.02
hml w	178	.001	0.009	-.015	.023
mom w	178	.015	0.025	-.043	.053
Quartile 4					
w portfolio return	177	.001	0.001	-.001	.003
esg	177	.77	0.048	.7	.915
gender	177	.33	0.105	.067	.583
ESGxGender	177	.254	0.084	.053	.49
Rf	177	0	0.001	0	.003
rm rf	177	.011	0.017	-.041	.037
smb w	177	0	0.012	-.019	.02
hml w	177	.001	0.008	-.015	.023
mom w	177	.014	0.024	-.043	.053