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Fuelling Sustainability: Examining the Relationship between CSR Reporting and Financial Performance in the Oil Industry

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Abstract

Climate change has become an undeniable global issue over the past decades. In relation to financial reporting, this issue has expressed itself in the way of growing importance of non-financial reporting. Such non-financial reporting can be interpreted by means of Corporate Social Responsibility (CSR) performance. This thesis evaluates the relationship between CSR performance and financial performance, from both a stakeholder and shareholder perspective. By evaluating ESG risk ratings and their possible influence on ROCE, ROA, and market capitalization as proxies for financial performance, a positive association was found through small, insignificant estimated coefficients. These estimates are made through three different multivariate OLS regression models. The regression models and thesis pertain to the oil industry on a global scale, using proxies for size, risk and past financial performance as control variables. No causal effect was found, but the association is used to draw conclusions and make recommendations for future research.

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1 Introduction

1.1 Background and research question

Climate change is undeniably one of the largest and most pressing global issues society faces. Such a global issue inevitably leads to the questioning of what role society, the government, and industries play in the continuing threat of climate change. The oil and gas industry in particular has been appointed much of the blame. With over 60% of Americans attributing complete or most blame to oil and gas companies (McGreal, 2021). In contrast, oil companies seem to play a significant role in development of renewable energy and lowering their greenhouse gas emissions. Unfortunately, these projects have not always been met with success (Zhong & Bazilian, 2018). To offer more transparency to stakeholders and consumers with regards to the sustainable practices of companies, the European Union (EU) introduced the Corporate Social Responsibility Directive (CSRD), which went into effect January 2023 (European Commission, 2023). Such non-financial reporting is growing in importance and raises many questions on the potential impact on companies, specifically in terms of their financial performance. Thus, the following research question can be posed:

Does the level of Corporate Social Responsibility reporting by firms in the oil and gas industry impact their financial performance?

Regulations on how to uniformly and consistently report on Corporate Social Responsibility (CSR) practices are continuously being introduced, such as the aforementioned CSRD. These regulations provide standards on how companies should report their Environmental, Social, and Governance (ESG) aspects in a more concrete way than before. Such regulations being on the rise can be explained by the increasing demand for non-financial information, which provides a foundation for building trust and communication with stakeholders (PwC, 2021). Its impact on financial performance has been researched extensively (e.g. McWilliams & Siegel, 2000), although not for the oil and gas industry specifically. In order to address the universality of the environmental issues, and have improved generalizability, the scope of this paper pertains to the entire globe. This in turn leads to improved comparability as well.

The overall effect of the level of CSR reporting on the financial performance of a company is yet to be concluded, as contradicting results can be found throughout literature.

However, CSR reporting is, and will be, an integral part of reporting on performance in the industry, leading to the relevance of research into its real effects on both company and society.

1.2 Relevance

The contribution this bachelor thesis makes relates to the limited standardization currently in place, and the definite increasing importance of sustainability reporting. Previous research may have been done on the overall impact on financial performance, but by focusing on one industry, the varying contexts of different industries in relation to CSR reporting is taken into account. By researching multiple industries throughout several papers, a general picture can be formed to support the creation of CSR reporting standards. The lack of standardization in some of the previously performed tests may also have a large impact on the results of those tests, as will be explored in some further detail in the theoretical framework. Thus, the research can prove to be socially relevant in the formation of policies related to CSR reporting standards.

Additionally, the effects on financial performance can be related to how stakeholders perceive the information provided under CSR reporting. Although it has been suggested that there is a link between CSR reporting and reputation of a firm (Pérez, 2015), this area of research has not been touched upon as much as the influence on financial performance. Hence, making it scientifically relevant to try and perceive relation between the level of CSR reporting and the perception of stakeholders on a firm.

1.3 Structure

This thesis will answer the aforementioned research question by first giving an analysis of existing literature, from which the hypotheses of this paper will be formed. Along with this literature review, the most important concepts related to the topic of CSR reporting and financial performance will be explained, as well as the role stakeholders and shareholders may play in answering the research question.

Before presenting the results of the empirical analysis used to answer the research question, the methodology and data analysis is explained first. The empirical analysis will be performed with data from a sample of global companies in the oil and gas industry. As such, the effect of their level of CSR reporting on financial performance can be evaluated. This will be done by evaluating the possibility of a linear relationship between CSR performance and financial performance. In this case, financial performance is divided up into several measures,

some of which evaluate a shareholder perspective, while another evaluates the stakeholder perspective.

The concluding chapter of this thesis will evaluate the hypotheses and draw an overall conclusion, as well as discussing the limitations of the research and make recommendations for possible future research.

2 Theoretical framework and literature review

2.1 Introduction

This chapter is dedicated to the introduction of important concepts for the interpretation and composition of the following empirical research, as well as the assessment of previously done research. After introducing the key concepts, the chapter continues to introduce a literature review, followed by the creation of the necessary hypotheses to eventually answer the research question.

2.2 Corporate Social Responsibility

To start, there are several concepts vital to the understanding of CSR, its reporting guidelines, and some of the implications that have already been researched. Firstly, CSR can be defined as “a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public” (Fernando, 2023). This is closely related to economic, social, and environmental aspects of society that any firm can have an impact on, as well as the concept of Environmental, Social, and Governance (ESG) investing. These concepts were created to encourage a sense of responsibility amongst firms, and have grown immensely in importance to stakeholders and shareholders alike. The terms CSR and ESG may be used somewhat interchangeably within this paper, as they are closely related concepts and ESG investments can be used as indicators of CSR performance, as will be explored in later chapters.

With the increased importance of CSR reporting, it seems quite natural that a demand for regulations went along with this growth. The aforementioned CSRD is the most current directive, intended to introduce new rules that allow stakeholders to make informed decisions on sustainability risks associated with firms. The directive mandates for companies to be audited on their published sustainability information, which is a change with a large impact. The directive applies to a large group of big companies, as well as listed small and medium-sized enterprises (SMEs) (European Commission, n.d.). The CSRD is, however, not the first set of guidelines to be created, although it is the first to be as widespread and mandatory amongst businesses in the European Union. (PricewaterhouseCoopers, n.d.). Existing guidelines include the Global Reporting Initiative (GRI) standards, which apply universal, sector, and topic standards to allow for adaptable reporting based on the topics relevant to a specific company (GRI, 2023).

2.2.1 Greenwashing and the oil & gas industry

The increasing demand for reporting standard related to the non-financial performance of companies can be strongly related to the upsurge of 'greenwashing'. The term greenwashing is used to describe any dishonest practices to appear more sustainable, by giving misleading or false information in published reports (KPMG, 2022). The oil and gas industry specifically has to be considered in relation to CSR reporting and greenwashing, as it is seen as main culprit of climate change, and has been accused of greenwashing on multiple occasions (Carrington, 2022). This is naturally due to the fact that the oil and gas industry is involved with the mining, processing, and producing of goods with such fossil fuels, that are known to be damaging to the environment.

Such greenwashing behavior should not exist without reason, and this thesis will also attempt to find the reasoning for the accusations of greenwashing and poor social awareness of the oil and gas industry. To do so, the impact CSR performance may have on financial performance of companies is evaluated, to deduce whether there is financial incentive for greenwashing, among other goals.

2.3 Financial performance

To evaluate the possible effect CSR performance can have on financial performance, financial performance needs to be defined. In this paper, the financial performance will be regarded from both a shareholder and stakeholder perspective, to evaluate two different effects.

2.3.1 Shareholder perspective

In general, shareholders can be identified as individuals owning part of a company through either purchase or stock. In this thesis, the shareholders will be regarded as those interested in making the company as profitable as possible, and benefitting from these profits. As will be introduced in the literature review, there are many measures of such profitability, and two will be focused on for the research.

With regards to CSR, the emergence of this concept has raised the question of how it will impact firms, both ethically and financially. Shareholders are considered to be the ones in control of strategic policy within a firm, hence, they can control the CSR performance. Taking shareholders' interests into account, this would imply there may be a relation between the financial performance and the reasoning behind a certain level of CSR performance.

2.3.2 Stakeholder perspective

Stakeholders, in the context of this paper, are defined as those individuals impacted by the activities of a company, without necessarily having any ownership over that company. Specifically, in relation to CSR, the general public has been identified as an external stakeholder to companies involved with CSR performance. (Banton, 2022). This is due to the environmental impact companies may have when refusing to engage with CSR. As such, stakeholders can adjust their perceptions of firms depending on how they perform in terms of CSR. This leads into the interpretation of the stakeholder perspective as market indicators of the financial performance of a firm, such as stock price or market capitalization, in order to quantify the relationship.

2.4 Literature review

2.4.1 Criticizing guidelines and greenwashing

As the demand for guidelines has continued to grow, so has the number of critics, who either want to create new standards, or change the ones already in place.

To start, the aforementioned GRI standards have been criticized, for example in a survey amongst Brazilian companies using the GRI guidelines. Quilice et al. (2018) performed this survey, and suggested that the respondents found the GRI guidelines “complex, ambiguous, and too flexible”, which lead to decreased reliability and comparability of the sustainability reports. The authors supported the idea of simpler, less flexible reporting methods.

Another result from the study by Quilice et al. (2018) is that some organizations saw the sustainability reports as marketing tool, to appear more attractive to stakeholders. This can be a useful tool, but poses a risk of companies engaging in greenwashing activities. Such greenwashing behavior is the topic of research performed by Yu et al. (2020), on how greenwashing is present in the ESG data presented to stakeholders in sustainability reports. The authors found that greenwashing behavior has to be discouraged at firm-level for the most effective results. Overall, they stress the importance of auditing and standardization for the disclosure of ESG data, and call for increased transparency towards stakeholders.

This transparency is expected especially from industries that are as closely related to the environment as the oil and gas industry. Grasso (2019) critically evaluates the role of the oil and gas industry in climate change. He argues that companies within this industry contribute both directly and indirectly to climate change. The direct influence of the industry is seen in

the argument that two-third of global greenhouse gas emissions can be attributed to companies within the oil and gas industry. The indirect influence, on the other hand, can be found when Grasso (2019) argues that some major companies in the industry played a large role in the denial of climate change amongst the global population.

Another study in opposition of allowing greenwashing to occur, is the one presented by Velte (2017). His study relates ESG performance to the financial performance of a sample of firm in Germany. This study relates to greenwashing in the sense that the author argues CSR reporting should not be used as marketing tool, as firms described it to be used in the aforementioned paper by Quilice et al. (2018). Velte (2017) states that only once non-financial reporting is seen as reliable and objective information, it can lead to improved financial results and discourage greenwashing behavior. This leads into the further investigation of how CSR reporting and financial performance may be causally related.

2.5 CSR reporting and shareholder perspective

Velte (2017) is one of the many researches that has tried to link CSR reporting and financial performance of companies. In his paper, he evaluates the financial performance by means of the Return on Assets (ROA) ratio, relating it to ESG performance. In his results, he finds that CSR reporting has a positive impact on the ROA, but no impact on Tobin's Q; evaluating the market-based financial performance. Velte (2017) states that CSR reporting is a key component and that increased guidelines will lead to better CSR performance, which in turn will lead to better financial performance. This, however, can only be done when CSR reporting is objective and reliable, as mentioned before, which is why the author stresses the importance of standardization.

Another study that uses ROA as indicator for financial performance is the one by Alhassan and Islam (2019). They find a significant positive effect of corporate environmental and social disclosures on the ROA. The authors conclude by recommending companies to increase the quantity of CSR information in their reports and consider the positive impact it will have on the companies' financial performance.

A somewhat contradictory result was found by Kamatra and Kartikaningdyah (2015), who found only a partially significant impact on ROA and net profit margin (NPM), while they found no significant of CSR reporting on return on equity (ROE) and earnings per share (EPS), which are also indicators of a company's profitability. Dhaliwal et al. (2011) explored a different approach, by looking at the impact on the cost of equity capital as a result of voluntary

non-financial disclosures. They found that companies that initiated CSR reporting experience the benefit of lower cost of equity capital and were more likely to raise equity capital, as well as raising a larger amount.

The contradicting results in the papers that investigate the link between CSR reporting and financial performance have been noted and several reasons were found for these contradictions. McWilliams and Siegel (2000) that the inconsistencies in results were due to flaws in the empirical analyses used. They argue that the excluding of investment in Research and Development (R&D) is crucial for the evaluation of financial performance. After correcting the model with this new control variable, they find a neutral impact of CSR on financial performance. The paper by McWilliams and Siegel (2000) is similar to the others studies in the sense that the R-squared value, which represents the goodness of fit of a model, is relatively low with a value of 0.29. One reason many papers experience this may be the fact that they use many companies across different industries, which may have hindered the comparability.

Another paper that reviews previously done research is presented by Galant and Cadez (2017), in which they evaluate the measurement approaches used for both CSR and financial performance. Their main conclusion is that researcher subjectivity and selection bias may influence the impact CSR reporting has on financial performance in empirical studies. To correct such problems, the authors suggest increased, mandatory standardisation of CSR reporting.

All in all, while previous studies' may be contradicting, there is somewhat of a majority that conclude a positive association between CSR performance and financial performance is present, although most estimates were small in magnitude. The discrepancies in results may partially be due to the measurement of CSR performance being done differently for most empirical studies, as there is not one way of measuring such a variable yet.

2.6 CSR reporting and stakeholder perspective

After taking the shareholder perspective into account, the study by Galant and Cadez (2017) notes the importance of stakeholders as well. Namely, they conclude increased CSR reporting standards can provide more reliable and comparable information, which in turn helps stakeholders to make informed economic decisions.

As discussed in the previous paragraph, some flaws have been identified with regards to the empirical analysis of CSR reporting and its impacts. The measurement of CSR reporting is still a topic of discussion, as there is no universally accepted definition on how to quantify CSR performance. Bahurmoz (2019) investigates this issue, claiming there is often no scientific basis behind the measurement of CSR performance. The author mainly dedicates their paper to develop an index to be used in empirical research and mentions how vital the inclusion of stakeholder judgements is for the establishment of this index.

This paper is part of a larger group of literature dedicated to the relationship between CSR reporting and its impact on stakeholders' perception of the firm. To start, Hetze (2016) describes how CSR reporting influences the CSR reputation of a firm, through signalling and stakeholder perspective. The article includes a discussion on both the positive and negative effect on reputation that CSR reporting may have, depending on the perception of the stakeholder. A more concrete analysis is performed by Amel-Zadeh and Serafeim (2017) who delve into the reasons and methods that stakeholders have to make use of ESG information provided to them. The main conclusion they draw is that the information is used to evaluate risk, rather than competitiveness, due to the lack of standardization. Without such standardization, it remains difficult for stakeholders to find reliable and comparable information, which related to the argument previously made by Velte (2017).

To contrast these arguments made for the urgency of improved and an increased number of regulations for CSR reporting, Arvidsson and Dumay (2021) argue that it is not the regulations, quantity, or quality that need improvement, but the ESG performance. This is in direct contrast with the paper written by Pérez (2015), who argues that quantity and quality, among others, are crucial to the success of CSR reporting. Pérez (2015) relates the success of CSR reporting back to corporate reputation, claiming that CSR reporting improves corporate credibility and may solve informational problems if the reporting is of a larger quantity and good quality.

The literature on the relation between CSR reporting and stakeholders can be rounded off by examining the paper by Fiechter et al. (2022). These authors argue that the real effects of the CSRD that was passed by the EU already show meaningful increases in CSR. They specifically mention that these effects are not simply an attempt by firms to greenwash their reporting, but show real improvements in CSR within the scope of affected firms.

To form the hypotheses for this paper, the conclusions for both shareholder and stakeholder perspective are taken into account. The conclusions drawn from the literature lead into the following two hypotheses being formed:

H1: the financial performance of companies in the oil industry is positively correlated with the level of CSR reporting.

H2: companies with better CSR performance will be perceived more positively by the public than those with worse CSR performance

These are formed by combining the conclusions from previous literature, noting that most literature relating to shareholders has found a positive correlation between CSR performance and financial performance. Additionally, the result that CSR performance may improve the perspective of the general public about a firm is stated by multiple authors, and thus used to form the second hypothesis. Accordingly, the first hypothesis relates to the shareholder perspective, while the second relates to the stakeholder perspective.

In reference to the literature, it is interesting to note the repeated call for standardization of CSR reporting throughout the analysed literature. Such standardization has the potential to let researchers re-evaluate their findings and add to the literature. This can improve the completeness of the literature on this topic the longer the reporting standards are in place, or allow to compare differences before and after implementation of reporting standards for CSR performance.

Now that the hypotheses are in place, the concepts that are used in the literature have to be translated into empirical research. In order to do this, the data and methods are explained, to quantify the key concepts and eventually evaluate the hypotheses.

3 Data and methodology

3.1 Introduction

The following chapter will describe the data collection and research design that is used for the results in the chapters after this one. The chapter will delve into the reasoning behind the research design and chosen variables, to explain how they contribute towards answering the research question through the empirical research method. Moreover, the sample selections, limitations, reliability and validity will be discussed. The combination of these paragraphs yield the complete setup of the empirical research performed in chapter 4.

3.2 Research design

To answer the overall research question of this thesis, a quantitative study is performed. This choice was made as financial performance is inherently a quantitative measure, and the nature of this variable allows for the application of a multivariate Ordinary Least Squares (OLS) regression method. The choice for this multivariate linear regression method is strengthened by the fact that a number of financial variables are used in the analysis. Most importantly, the dependent variables for both hypotheses will be expressed in a quantitative financial measure, as described in a following section.

One drawback of the method is that CSR performance is not yet easily quantified and there is no consensus on how to measure this type of non-financial performance. Additionally, there are underlying assumption of linearity and homoscedasticity with OLS regressions, which can lead to biased coefficients. Some transformations to the data can be applied to counteract this, which are discussed in further sections of this chapter. Overall, the OLS regression allows for intuitive interpretations of the estimated coefficients and is an appropriate method for quantitative research, which is used in most literature referred to in the theoretical framework as well.

3.3 Data analysis

In order to answer the research question, the two hypotheses will be evaluated through two separate regression models. However, the first model on the effect of CSR performance on financial performance from a shareholder perspective is split into two models. Namely, both the Return on Capital Employed (ROCE) and ROA are used as dependent variables in two separate models that work towards evaluating the first hypothesis. For the second hypothesis,

which focuses on the stakeholder perspective, another regression model is used. This implies there are three main regression equations used to answer the research question:

Model 1:

$$ROCE_{i,t} = \alpha + \beta_1 * ESG\ Risk\ Rating_i + \beta_2 * \ln(Total\ Assets_{i,t}) + \beta_3 * Leverage_{i,t} + \beta_4 * ROCE_{i,t-1} + \varepsilon_{i,t}$$

Model 2:

$$ROA_{i,t} = \alpha + \beta_1 * ESG\ Risk\ Rating_i + \beta_2 * \ln(Total\ Assets_{i,t}) + \beta_3 * Leverage_{i,t} + \beta_4 * ROA_{i,t-1} + \varepsilon_{i,t}$$

Model 3:

$$\ln(Market\ Cap_{i,t}) = \alpha + \beta_1 * ESG\ Risk\ Rating_i + \beta_2 * \ln(Total\ Assets_{i,t}) + \beta_3 * Leverage_{i,t} + \beta_4 * \ln(Market\ Cap_{i,t-1}) + \varepsilon_{i,t}$$

In these equations, the index i shows the individual company, while t shows the year of most recently available data, and $t-1$ is one year before year t . This inclusion of a lagged value is described in the section on control variables. The choice to use most recently available year of data lies in the fact that there is no treatment that impacted the possible effect of CSR performance on financial performance. Thus, there is no need to use data that was all collected in the same year. However, the following table shows the distribution of the number of firms per year that is the last available year of data for each individual company.

Table 1: Frequency of firms per most recent available year of data

Last available year	Frequency	Percentage
2016	2	0.87
2018	1	0.43
2020	1	0.43
2021	11	4.76
2022	216	93.51
Total	231	100

Notes: This table presents the frequency of the most recent available years of data per year that occurs in the sample. For any lagged value, this means one year before the most recent one is selected; this implies the oldest data is taken from 2015.

As table 1 shows, most of the collected data was collected in 2022 and the range of years is 2015-2022, including the lagged values, which implies there are no large discrepancies in the overall context in which the data was collected.

To continue, each of the variables in the three models is explained, including their measurement method, any necessary transformation, and reason for inclusion in the models.

3.4 Dependent variables

3.4.1 ROCE and ROA

As mentioned before, both ROCE and ROA are used separately to measure the financial performance for the first hypothesis. Previously done research often uses ROA as indicator of profitability (e.g. McWilliams & Siegel, 2000 and Velte, 2017). ROA is calculated as the ratio of net income over the value of total assets in the firm. High values of the ROA imply better financial performance, which works in the same way for the ROCE ratio. Where the ratios differ is that the ROCE is calculated by taking the ratio between earnings before interest and tax (EBIT) and capital employed. This implies the ratio evaluates the efficiency with which capital is used in a company and therefore is a good indicator of financial performance in capital-intensive sectors, such as the oil and gas industry. As most papers in the theoretical framework did not focus on one specific industry, the ROCE was not used as much. Nevertheless, the paper by Adeneye and Ahmed (2015) does focus on the oil and gas industry specifically, and thus, makes use of the ROCE.

By running two separate models with these indicators, similar results can imply a consistent impact of CSR performance on financial performance. This can add to the robustness of the relationship and help generalize and validate the results. As both ROA and ROCE are ratios, the interpretations of coefficients are percentual changes in the dependent variable after a unit increase of the independent or control variable.

3.4.2 Market capitalization

In the third model, market capitalization is used as dependent variable. Specifically, the natural logarithm of the Euro value of market capitalization is used. The choice for market capitalization is made as it can reflect the market's perception of the company's value. This way the stakeholder perspective is introduced, relating to the second hypothesis. By making use of the natural logarithm the values are normalized, to make them more suitable for a linear regression analysis. The previously mentioned issues with the assumptions of linearity and

heteroscedasticity are also addressed, as the transformed variable dampens exponential growth and may achieve a more linear relationship. By stabilizing the variance of the residuals with the natural logarithm, the assumption of heteroscedasticity is more likely met.

3.5 Independent variable

The independent variable to describe the CSR performance of each company, is the ESG risk rating. This is the only non-financial measure used in the empirical research, as there is no way yet to accurately quantify CSR performance. The ESG risk ratings are a measure created by Sustainalytics, which offers one of the few reliable and absolute measures of ESG risk. The ratings present a “company’s exposure to industry-specific material ESG risks” (Sustainalytics, 2023). It combines both management and exposure, to allow for comparability among companies. There are five categories measuring the severity of the ESG risk rating given to the companies. All categories have a range of 10 score points, the lowest category ranging from 0-10 and portraying negligible risk. The other categories show low, medium, high, and severe risk, with 40+ scores being severe. It is important to note that this implies higher ESG risk ratings are considered to be disadvantageous, which is necessary to note for the correct interpretation of the estimated coefficients in the next chapter.

One drawback for the use of these ratings is that they are relatively new, limiting the number of companies for which a rating is available. Moreover, the largest companies within the industry are mainly the ones for which ratings are available. This may lead to biased results, but implies the key players of the industry will be included in the research. It is also worth mentioning that the choice of the oil and gas industry as focus group implies all ESG risk ratings are relatively high, ranging from medium to severe.

3.6 Control variables

In the literature discussed in the theoretical framework, several control variables come forward as commonly used. One of which being industry. However, as this study only pertains to the oil and gas industry, there is no need to control for industry in this analysis. In this paper, the sample may include any company in the business of mining and/or producing oil and gas products. Another control variable that is advised to be used is investment into research and development (R&D). Unfortunately, the limited availability of data on this variable strongly limited the sample size and worsened the validity of the models quite severely. As such, the

variable was excluded from the regressions to allow for a larger sample group and thus more reliable results. This is one of the larger limitations of this research paper.

The control variables that are included in the regression equations are ones for size, leverage, and previous financial performance. To start, the natural logarithm of total assets in the last available year is used as proxy for the size of the company, as was done by Velte (2017) and others. Size is an important control variable because larger firms may have different ways of allocating resources or access to other advantage, which could all affect financial performance. Similar to market capitalization, using the logarithm allows for scale normalization, and linearity and heteroscedasticity assumptions to be applied more accurately. Lastly, the total assets are a highly comparable measure between companies and encompasses all resources owned by a company.

To continue, the financial leverage of a firm is used because it represents the ratio of debt to assets, which is a risk indicator. Risk is a commonly used control variable in the researched literature, and can influence the financial performance through, for example, high levels of debt. Leverage can be calculated in several ways, but in this paper is calculated as the debt-to-equity ratio, dividing total debt by total equity. This means a higher leverage implies a higher level of debt, increasing the level of risk associated with a company.

Finally, the lagged value of the dependent variable for each of the three models is used as control variable. This lagged value can be a direct indicator of current financial performance. By including the lagged value, the regression models may control for possible trends in financial performance. Each model uses a one-year lag of the dependent variable, which is respective to the year t of last available data.

3.7 Data collection and sample

To collect most of the necessary variables, the database Orbis is used, which is provided by Bureau Van Dijk. This database provides the option to create a dataset with specifically selected variables, all of which are financial, over a range of years. To specify the sample used in this thesis, the ESG risk ratings provided a group of 244 companies in the oil and gas industry for which a risk rating was listed. After collecting the names of this group of companies, their financial data was collected from Orbis. The availability of data decreased the sample size from 244 to 231, and even 211 for some variables. This is the size after outliers were removed from the sample. An overall insight into the sample is provided in the next chapter by means of

descriptive statistics, showing the final sample that was used for the OLS regressions of each model.

3.8 Limitations: Validity and reliability

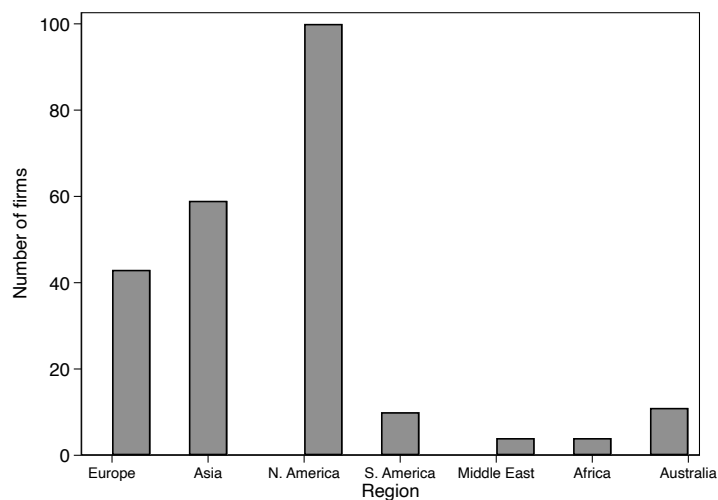
3.8.1 Validity

To review the validity of the research models, one must look at both internal and external validity of the study.

The external validity pertains to how the research can be generalized. As this research uses a global range of companies, the generalization could be quite high in that regard. Nevertheless, by only using data for one industry, the applicability across different industries with different corporate structures is strongly limited. Additionally, even though companies of all regions in the world are used, the distribution amongst those regions is presented in figure 1, and shows the limited generalizability for some regions.

The internal validity describes the level to which the desired relation is found in the results, not being an effect caused by outside variables. The most commonly used control variables of previous research are included in this study, improving the internal validity. However, R&D investment could not be included, which is suggested by McWilliams & Siegel (2000) to be of great importance for the estimation of the effect researched in this paper. It can also not be said with certainty that there is no further omitted variable bias from other excluded variables.

Figure 1: Histogram for number of firms per region



Notes: This figure presents the number of firms per region for the sample as used for the OLS regressions. The columns for Asia and Middle East do not include overlapping companies; any companies in the Middle East are not included in the category of Asian companies.

3.8.2 Reliability

To evaluate the reliability of the study, several factors should be reviewed, which partially has already been done in the previous sections. For example, the study design in itself is described in such detail that replication is enabled. By making use of a reliable database like Orbis, the data collection is without bias and the ratios are consistently calculated. The only variable that is manually collected is ESG risk rating, but as Sustainalytics offers transparent methodologies, the data collection does not impact the reliability of this research.

One way the reliability is limited is the sample size, due to the limited amount of available data of the ESG risk ratings. Additionally, a generally accepted measure of CSR performance would greatly improve the reliability of the research, but this is not yet available.

3.9 Conclusion

All in all, the data collection yields the necessary data to perform three regressions for three research models. While not all desired variables may have been able to be included, the most important control variables are included, and reliably measured. The regression models cannot be said to certainly be without bias, but by transforming the data where necessary, bias can be avoided to a certain extent. As such, the results in the following chapter can be interpreted and used to evaluate the hypotheses and hopefully draw conclusions for the research question.

4 Results

4.1 Introduction

This chapter is fully dedicated to the results of the regression analysis as described in the methodology. Starting with the descriptive statistics to give an overall impression of the variables and providing correlation values to form expectations of the results. To continue, the OLS regression results will be presented and interpreted, commenting on the reliability of the models as well. The results will then be compared to previously found results as described in the theoretical framework. Finally, the limitations of these results are explained and the results are related back to the research question, before drawing final conclusions in the next chapter.

4.2 Descriptive statistics and correlations

The descriptive statistics in table 2 provide an overview of the key variables used in each of the three models. After removing outliers from the sample, the number of observations was adjusted from the initial 244 companies to 231 for most variables. The observations for market capitalization decreased a bit further, to 211, due to a lack in available data for several companies. It is interesting to note that the market capitalization seems more consistent over the two years used for each company than the ROCE and ROA ratios. Lastly, the mean of the ESG risk ratings supports the statement that the sample has relatively high ratings, as the mean value falls into the ‘severe’ risk category.

Table 2: Descriptive statistics

Variable	N	Mean	Standard Deviation	Min.	Max.
ROA_t	231	13.1721	12.1175	-25.9870	62.6400
ROA_{t-1}	231	6.9345	11.9289	-78.564	49.8320
ROCE_t	231	18.7905	16.1485	-38.5450	103.1790
ROCE_{t-1}	231	11.4789	15.6791	-50.5842	96.5940
Ln(Market Capitalization_t)	211	21.7099	1.8528	16.4606	28.1995
Ln(Market Capitalization_{t-1})	211	21.4159	1.8617	16.2489	28.2486
ESG Risk Rating	230	43.9783	10.0674	21.4000	89.8000

Ln(Total Assets)_t	231	22.3019	1.8476	16.8935	27.1583
Leverage_t	230	0.7811	0.4371	0.0187	4.8977

Notes: This table presents summary statistics for the dependent, independent, and control variables in the sample, used in the OLS regression equations. The rows with ROA_t, ROCE_t, Ln(Market Capitalization_t), Ln(Total Assets_t) and Leverage_t all represent data from year t, which is the most recent year of available data for an individual company. Respectively, the rows with index t-1 describe data of a year before the most recent year with available data.

In addition to the descriptive statistics, first impressions of the relationships between the variables are drawn from table 3, showing the correlations between each variable used in the three models. The row of ESG risk ratings shows only small correlations with the other variables, but no conclusions on the possibility of causal inference or association can be drawn from this table.

Table 3: Correlation of variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1.ROA_t	1.0000								
2.ROA_{t-1}	0.4205	1.0000							
3.ROCE_t	0.9498	0.3797	1.0000						
4.ROCE_{t-1}	0.3749	0.9118	0.3875	1.0000					
5.Ln(Market Cap_t)	0.1822	0.1479	0.1350	0.0560	1.0000				
6.Ln(Market Cap_{t-1})	0.0842	0.1313	0.0250	0.0395	0.9653	1.0000			
7.ESG Risk Rating	0.0451	0.0356	0.0731	0.0741	-0.3393	-0.3470	1.0000		
8.Ln(Total Assets_t)	-0.0062	0.0146	-0.0396	-0.0486	0.9136	0.9095	-0.3521	1.0000	
9.Leverage_t	-0.2235	-0.5288	-0.1092	-0.3289	-0.1328	-0.1332	-0.0597	0.0156	1.0000

Notes: This table presents the correlation values between each of the variables used in the three different models. Expectations can be formed from these numbers, but no causal inference can be concluded.

4.3 Regression analysis

To start with the first two models, which describe the relationship between financial performance and CSR performance linked to the shareholder perspective, the results are presented in table 4. Each of the control variables for both models is significant at a 1% level, implying a significant association between the control variable and the dependent variable, holding other variables constant. Furthermore, table 4 shows that each of the estimates in the ROCE column is similar in direction and magnitude to the ROA column. This consistency strengthens the reliability of the results, supporting the possibility of CSR performance having an effect on financial performance.

Table 4: Regression results for the effect of ESG risk rating on ROCE and ROA

	ROCE (1)	ROA (2)
ESG Risk Rating	-0.0250 (0.0995)	-0.0400 (0.0710)
Ln(Total Assets)	9.6447*** (3.2378)	9.6625*** (2.2935)
Leverage	-24.0222*** (6.0757)	-22.8463*** (4.3522)
ROCE_{t-1}	0.3906*** (0.0651)	
ROA_{t-1}		0.4351*** (0.0671)
Constant	14.7710 (14.0039)	10.4014 (9.9896)
Number of observations	229	229

Notes: This table presents estimated coefficients for a multivariate linear regression. The purpose is to estimate the effect that the ESG Risk Rating may have on ROCE and ROA, as indicators of financial performance, with all other rows working as control variables. Note that higher ESG risk ratings are associated with worse CSR performance. ROCE and ROA are both ratios, measured as percentages. The estimates are based on a sample of 229 global companies, with data ranging between 2015 and 2022. Each column shows results for a separate linear regression model, using two different indicators of financial performance. The numbers (1) and (2) in the top row imply the number of the model. The numbers in between parentheses below each coefficient show standard errors of the estimated coefficients and the meaning of one, two, and three stars is as follows:

***p<0.01

**p<0.05

*p<0.1

Nevertheless, the estimated coefficients for ESG risk ratings as independent variable are not significant. To interpret the coefficients regardless of their significance, the coefficient of -0.0250 in column 1 implies that a one-point increase in ESG risk rating can be associated with a 0.0250-point decrease in ROCE. Knowing that high ESG risk ratings are associated with

more severe risk, this would imply that a worse CSR performance is associated worse financial performance. In the same way for column 2, the coefficient -0.0400 implies that a unit increase in ESG risk rating is associated with a 0.0400-point decrease in ROA, which leads to the same conclusion as for ROCE.

To support the fit of the models, the adjusted R-squared value can be used, explaining how much of the variability in the dependent variable is accounted for by the independent variables used in the regression. For model 1, the R-squared value of 0.68 implies that the independent variables account for 68% of the variability in the dependent variable. For model 2, this value is 0.63, so relatively similar.

Overall, these first two models seem to describe a positive association between CSR performance and financial performance, regarding the shareholder perspective.

To continue with the third model, which relates to the stakeholder perspective and second hypothesis, the results are somewhat similar to the first two models. The results in table 5 show that while each of the independent variables is significant at either the 1% or 10% significance level, the estimate for ESG risk rating itself is not significant. However, the direction of the estimate is negative again, while the magnitude is smaller than in the previous models. To interpret the ESG risk rating estimate regardless of significance, the value -0.0026 would imply that a unit increase in ESG risk rating is associated with a 0.2597% decrease in the natural logarithm of market capitalization. This is calculated with the formula $(e^{-0.0026} - 1) * 100$.

Table 5: Regression results for the effect of ESG risk rating on market capitalization

	Ln(Market Capitalization_t)
ESG Risk Rating	-0.0026 (0.0034)
Ln(Total Assets)	0.9703*** (0.1109)
Leverage	-0.3477* (0.1788)
Ln(Market Capitalization_{t-1})	0.8180*** (0.0402)
Constant	0.3605* (0.4550)
Number of observations	210

Notes: This table presents estimated coefficients for a multivariate linear regression. The purpose is to estimate the effect that the ESG Risk Rating may have on the natural logarithm of market capitalization, as indicators of

the public's perception of a firm, using the stakeholder perspective. Note that higher ESG risk ratings are associated with worse CSR performance. All other rows work as control variables. As the logarithm of market capitalization is used, all coefficients are interpreted with a percentage change in the dependent variable. The estimates are based on a sample of 210 global companies, with data ranging between 2015 and 2022. The numbers in between parentheses show standard errors of the estimated coefficients and the meaning of one, two, and three stars is as follows:

*** $p < 0.01$

** $p < 0.05$

* $p < 0.1$

The adjusted R-squared value for this model is 0.9523, which implies 95.23% of the variability in the market capitalization can be explained with this model. This value is quite high and strengthens the reliability and effectiveness of this model to explain the value of market capitalization.

All in all, this model implies the existence of a positive association between ESG risk rating and financial performance as the other two models did, now regarding the indicators of the stakeholder perspective.

4.4 Hypotheses

In order to round off the research and reach the objective of this paper, it is of key importance to evaluate the hypotheses. To recall, these are:

H1: the financial performance of companies in the oil industry is positively associated with CSR performance

H2: companies with better ESG risk ratings will be perceived more positively by the public than those with lower ESG risk ratings

For the first hypothesis, using the results from table 4, the conclusion can be drawn that there is a positive association between CSR performance and financial performance. This is because of the negative estimate for the coefficient for ESG risk rating, which implies worse CSR performance for higher ratings. This means the first hypothesis cannot be rejected, and there is no evidence regarding a causal effect of CSR performance on financial performance due to the coefficient not being significant.

To analyze the second hypothesis, the market capitalization was used as dependent variable to give an indication of the public's perception of a firm, through a financial indicator showing the stakeholder perspective. Similar to the previous conclusion, the second hypothesis

cannot be rejected, although there is no evidence of a causal effect in table 5. There is an implication of a positive association between CSR performance and market capitalization.

4.5 Conclusion

In conclusion, all three models imply a positive association between CSR performance and financial performance, both from a stakeholder and shareholder perspective. No causal effect is indicated in the results, as the estimated coefficients for ESG risk ratings, which is used as proxy for CSR performance, are not significant in any of the three models. The results presented in this chapter will be evaluated further in the final concluding chapter, to draw an overall conclusion for the central research question.

5 Conclusion

In this concluding chapter, the theory and results of each chapter are gathered draw an overall conclusion. Additionally, the chapter makes note of the limitations of this study and makes recommendations for future research.

5.1 Central research question

To draw an overall conclusion for this study, the central research question is revisited:

Does the level of CSR reporting by firms in the oil industry impact their financial performance?

The main purpose of this thesis is to find the nature of a possible relationship between CSR performance and financial performance. By doing so, the impact of the increasing importance CSR reporting has on companies can be evaluated, and taken into account for policy-making purposes. The oil industry specifically is seen as big contributor of climate change and has been accused of greenwashing their CSR performance. In the context of climate change as global issue, both shareholders and stakeholders are influenced by the possible relationship that is researched, and thus both perspectives have been evaluated.

Firstly, for the stakeholder perspective a small, insignificant, but positive effect is found for the effect of ESG risk ratings on financial performance, as indicated by the ROCE and ROA. This implies worse CSR performance can be associated with worse financial performance. Secondly, the stakeholder perspective is evaluated through market capitalization, and a similar conclusion is drawn, as the estimates showed similar direction and significance.

These results appear consistent with some of the leading research papers in the field of research. However, the existent literature is expanded upon through this study, by focusing on one industry and taking both stakeholder and shareholder perspective into account with the use of multiple models in one research paper.

Overall, the results imply a positive association for CSR performance with financial performance both for the shareholder and stakeholder perspective of companies in the oil industry. This discourages the implied incentives for companies within the oil industry to engage with greenwashing, but is in concord with the previously found positive association between CSR performance and firm reputation. Most importantly, the positive association

between CSR and financial performance can be used to evaluate implications on society and policy-making.

5.2 Implications

The impact of the CSR effects on financial performance in general is of importance to policymakers, especially as long as the demand for CSR reporting standards is increasing. As for the policies themselves, the implications for financial performance may call for nuanced requirements, keeping both shareholder and stakeholder in mind. Keeping the positive association found in this study in mind, policymakers may choose to increase the level of CSR performance expected of companies, without damaging their financial performance and with the support of shareholders. Additionally, policymakers within a firm have a better grasp of the influence their CSR performance may have on their financial performance, and improve the transparency they offer to stakeholders.

5.3 Limitations and recommendations

Some of the limitations of the research have already been described, with regards to the availability of data. A methodological limitation of the study is that, especially for the first two models, an omitted variable bias may be present, due to the limited number of control variables. This implies there is still a possibility for a causal effect of CSR performance on financial performance, but this effect cannot be assumed to be present from this study. An improved study could be performed with a treatment to differentiate between financial performance before and after the treatment, which could give a better representation of the true effect CSR performance may have. Such a treatment could be possible with the introduction of the CSRD, which introduces a large group of firms to the same standards, allowing for comparable CSR reporting.

Additional limitations to this study are the exclusion of R&D investment as control variable, as well as the use of ESG risk ratings as proxy for CSR performance. Both strongly affected the sample size, and the ESG risk ratings are a relatively new measure, which are mostly available for the largest firms in an industry only. As mentioned before, a generally accepted measure for CSR performance does not yet exist, but could be introduced in the future through research performed with reports using the CSRD standards, for example.

Lastly, to ensure a large enough sample size, companies from any region on the globe were used, but CSR reporting standards widely differ throughout these regions. In a future

study, it may be interesting to compare companies that all use the same reporting standards for both financial and CSR performance, improving comparability and thus the validity of the results. Again, this may be possible with the introduction of CSRD, which pertains to companies within the EU.

5.4 Concluding remarks

In conclusion, no definitive causal effect between CSR performance and financial performance can be concluded from this thesis. However, a positive association serves a purpose of its own, and can still have indications for future policy-making. The association can be used as call for the integration of sustainability practices and transparent reporting of these practices in the oil industry. This can address both the rise in importance of non-financial reporting and the greenwashing accusations previously made by stakeholders. The importance of strategic approaches to sustainability reporting is certainly addressed and may be of increasing significance as time progresses.

While the sample and research model definitely allow for improvements in future research, this thesis adds to the existent literature through the inclusion of both shareholder and stakeholder perspective, and the focus of one industry gives more credibility to the results, although it limits generalizability. Further research is needed to explore the complexities of the relationship between CSR performance and financial performance in the oil industry, as well as other industries.

Such future research may yield insights that allow for the strategic implementation of CSR reporting. This could address sustainable practices not only from a moral standpoint, but from a financial one as well. Subsequently, the research could be of benefit to both shareholders and stakeholders alike, and thus, fuel the implementation of sustainability practices.

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