

ERASMUS UNIVERSITY ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS
Bachelor Thesis Economics & Business Economics
Specialization: Strategy

**The influence of ESG scores on financial performance,
research of Dutch-listed firms in the period 2015-2022**

Author: Jelle Scheffers
Student number: 578677
Thesis supervisor: Drs. Hoogendoorn
Second reader: Prof. HPG Pennings
Finish date: August 25, 2024

Abstract

This study describes how ESG scores are related to financial performance (FP) metrics—Return on Assets (ROA) and Tobin's Q— during the 2015-2022 period for firms listed on the Dutch stock exchange. A sample of 29 Dutch listed firms is used. The relationships are measured by applying two-panel data regressions and comparing the outcomes of the panel data regressions to determine whether the relationship of ESG on firm value is larger than the relationship between ESG and profitability. The results show that this is not the case. The results indicate that a weakly significant positive relationship between ESG scores and ROA exists, suggesting weakly enhanced profitability. The results show no significant relationship between Tobin's Q and ESG scores. Hence, this evidence is not in line with the Institutional Difference Hypothesis. Further research is needed to validate the results.

Understanding the relationship between ESG scores and FP is crucial for investors and corporate managers. This study contributes to the existing literature on the ESG-FP relationship providing empirical evidence from the Dutch market, highlighting the nuanced impact of ESG on profitability and firm value.

This thesis has benefited from the assistance of tools like ChatGPT and Grammarly in identifying and correcting language errors and improving sentence structure.

Table of Contents

Abstract

1. Introduction	1-3
2. Literature Review.....	3-10
3. Data & Methodology.....	10-17
4. Results.....	17-19
5. Discussion.....	19-20
6. Conclusion.....	21-22
7. References.....	23-25

1. Introduction

The global focus on sustainability continues to grow. Environmental, Social, and Governance (ESG) factors have become increasingly crucial to corporate strategy, Corporate Social Responsibility (CSR), and financial performance (FP). The traditional CSR originally centered around shareholder interests. However, CSR has developed to a broader range of stakeholders (Rodriguez-Gomez et al., 2020). The shift towards a broader range of stakeholders has caused more focus on integrating sustainability into business operations. The shift has driven companies to encounter a growing array of disclosure demands related to Environmental, Social, and Governance (ESG) factors (KPMG, 2019). Hence, ESG scores have become a valuable metric for reckoning the sustainability and ethical impact of firms. However, Friedman (1970) argued that a firm's main objective is to maximize the profit of their shareholders. Implementing the ESG scores challenges Friedman's view. The increasing emphasis on ESG scores and CSR raises concerns that the focus on FP might diminish.

Therefore, this paper dives into the impact of ESG scores on the FP of firms. By examining both accounting-based and market-based performance measures, this study seeks to provide insights into how ESG initiatives influence firm profitability and firm value.

While existing literature on the relationship between ESG scores and FP mainly focuses on various global markets, and while studies show varying results, there is a general trend toward a positive relationship. (Carpenter & Wyman, 2009; Friede et al., 2015) There remains a noticeable gap concerning the relationship between ESG and FP for Dutch-listed firms. The Netherlands is one of the leading countries in the world of sustainability. Thanks to firms like ASML Holding, which excels in corporate governance and labor capital, the Dutch equity market has been named the most sustainable in the world for the fourth consecutive year. (MorningStar, 2023). The relevance lies in the Dutch market's distinctive high sustainability standards and a strong emphasis on sustainable practices, which may lead to different outcomes compared to other countries. Due to the absence of literature on the Dutch equity market, this thesis focuses on the influence of ESG scores on FP of Dutch-listed firms.

The studies of Giannopoulos et al. (2022) and Dalal & Thaker (2019) are the base of this thesis. The methodology is based on the one used in these two papers but focuses on the Dutch market in the period 2015-2022. The studies of Zhou et al. (2022), Atan et al. (2017), Velte (2017), and Aydoğmuş et al. (2022) also investigate the relationship between ESG-FP, and their outcomes are also compared in this paper. These studies have investigated the relationship between ESG scores and FP in country-based markets, such as the German, Malaysian, Indian, and Norwegian markets, and have several different outcomes. For example, Dalal & Thaker (2019) find in the Indian market a positive relation between ESG and FP. Contrary, in the Malaysian market (Atan et al., 2017) no effect between ESG and FP is found. Except for the study of Aydoğmuş et al. (2022), all the studies mentioned above have investigated specific markets up to the maximum of 2019, before the onset of the COVID-19 pandemic. This thesis focuses on 2015-2022, during the COVID-19 pandemic. Aydoğmuş et al. (2022) investigated globally influential firms from 2013 to 2021 and found positive relations between ESG and FP. Given the unique regulatory environment and emphasis on sustainability in the Netherlands, it is likely that the Dutch market exhibits different outcomes, potentially revealing a stronger positive relationship between ESG scores and FP compared to other countries. Resulting in the following research question:

Is there a relationship between ESG scores and the financial performance of Dutch-listed firms in the period 2015-2022?

This thesis uses two metrics to measure the FP of the Dutch listed firms. An accounting-based measure, the Return on Assets (ROA) and a market-based measure, Tobin's Q. The ROA is a metric often assessed to measure firm profitability and showing a firm's operational efficiency (Waddock & Graves, 1997; Barnett & Salomon, 2012). Firm value is commonly measured by Tobin's Q (Atan et al., 2017; Giannopoulos et al., 2022; Sauaia & Castro junior, 2002). The Tobin's Q indicates the market value of a firm, comparing the market value of a firm's assets to their replacement costs. The distinction between these metrics is important, because it allows to explore whether the effect of ESG scores have a stronger effect on internal efficiency or external market valuation. By understanding this, we can show whether ESG efforts are more effective in driving operational improvements or in creating market value, offering insights for both managers and investors. Therefore, this thesis dives into the effect on these two metrics and which metric is influenced more by the ESG scores.

As mentioned above, the effect of ESG scores on FP are analyzed by measuring their impact on ROA and Tobin's Q. Additionally, the study compares the effects on ROA and Tobin's Q with each other. The sub-questions to answer the research question are as follows:

- A) Is there a relationship between ESG scores and the profitability of Dutch-listed firms in the period 2015-2022*
- B) Is there a relationship between ESG scores and the firm value of Dutch-listed firms 2015-2022?*
- C) How does the impact of ESG scores on the profitability of Dutch-listed firms compare to their impact on firm value in the period 2015-2022?*

Relevance

The domain of ESG has received increased attention in academic literature over recent decades. Friede et al. (2015) note that the exploration of ESG and FP dates to 1970, with over 2000 empirical studies investigating this relationship. The results of the existing literature are varied, differing across markets, periods and industries, which highlights the need for further research into specific contexts. Margolis et al. (2009) investigate the effect between CSR and FP across 251 studies. The findings show that the relationship between CSR and FP is positive but small. While this mild relationship exists, it varies across industries and stays complex. Also, by looking at the specific ESG scores this thesis manages to have a different view on the outcome of financial performance. In the literature review, the difference between ESG and CSR is discussed.

Despite the extensive literature on ESG scores and FP in various global markets, there is a noticeable gap in the Dutch equity market. Given that the Netherlands is the most sustainable equity market in the last 4 years and has strict environmental regulations (MorningStar, 2023), presents an opportunity for a unique context of study. Because of the strict environmental regulations and policies, companies in the Dutch equity market are compelled to meet higher standards. Consequently, this leads to the adoption of sustainable practices and enables companies to gain a competitive advantage through more efficient and eco-friendly processes (Porter & van der Linder 1995).

In addition, this study looks at the time between 2015 and 2022, studying important economic developments and the influence of the COVID-19 pandemic. Unlike past work, which often stops at 2019, this thesis looks at how ESG scores and FP relate in Dutch-firms. Aydoğmuş et al. (2022) have done research on global firms from 2013-2021 but did not give details particular to the Dutch market. This work fills that hole by only studying Dutch companies, giving careful study within a unique rule and culture setting.

Furthermore, by comparing the possible effects on profitability and firm value, another gap in the literature is being investigated. Papers such as from Dalal & Thaker (2019), Velte (2017) and Naik (2014) all focus on ROA and Tobin's Q, but do not compare the significance effects of the variables to each other. This thesis fills that gap by comparing the effect on the profitability and firm value and which variable is more influenced by ESG in Dutch-listed firms during 2015-2022.

2. Literature Review

The primary research question of this study is: Is there a significant relationship between ESG scores and FP of Dutch-listed firms in the period 2015-2022? It is essential to dive into previous studies and investigate how they have examined the relationship between ESG and FP. The literature review briefly introduces the main concepts based on existing literature. The General Mechanisms follow this. After that a critical evaluation of the results in the current literature is shown, focusing on meta-analyses and country-based studies, which lead towards the hypothesis. In Table 2 the differences and results of the country-specific studies are shown.

Introduction to ESG Scores

Firstly, it is crucial to define ESG scores. It is a less well-known concept than other business performance metrics. ESG scores are a performance metric used to assess the non-monetary effects and qualities of business operations. An important note is that there is no uniform metric for ESG. There are a lot of different rating agencies each applying their method. The most well-known sources of ESG ratings include MSCI, Sustainalytics, and Refinitiv. For this thesis, Refinitiv's ESG scores are chosen.

The ESG score of Refinitiv is divided into three pillars: Environmental, Social, and Governance. These pillars are further subdivided into ten categories. The Environmental pillar focuses on the categories: use of resources, emission cuts, and innovation. The Social pillar examines how a company manages its workforce, human rights, the local communities it operates in, and its product responsibility. Finally, the Governance pillar evaluates the firm's CSR strategy, management, and the treatment of its shareholders. All the categories and the pillars they belong to are shown in Table 1. Every category has its weighting in the overall score, based on the relevance and materiality within an industry. All the weighted categories combined create a comprehensive ESG score for a firm. Refinitiv sources this information from various public sources, including sustainability and annual reports by companies, and third-party databases and regulatory filings. Added to this data set are insights from NGOs and industry-specific studies, making it truly representative and wide-ranging in terms of the information used to formulate the scores. (Refinitiv, 2020).

Table 1. Pillar scores.

Pillar	Major Components
Environmental	Resource Use, Emissions, Innovation
Social	Workforce, Human Rights, Community, Product Responsibility
Governance	Management, Shareholders, CSR Strategy

Source: <https://www.refinitiv.com/en/financial-data/company-data/esg-research-data>.

CSR vs. ESG

While ESG and CSR are related, they differ significantly. ESG scores provide a standardized approach focusing on integrating sustainability into business operations. In contrast, CSR initiatives often have a broader focus on societal impacts. Dahlsrud (2006) emphasizes that CSR is a socially constructed phenomenon without a standard unbiased definition. Dahlsrud (2006) defines CSR through five dimensions: stakeholders, social, economic, voluntariness and environmental. Rahman (2011) also emphasizes the various CSR dimensions and expands on them. According to Rahman (2011), CSR definitions cover dimensions such as economic development, ethical practices, environmental protection, stakeholder involvement, transparency, accountability, responsible behavior, moral obligation, corporate responsiveness, and corporate social responsibility. This variability makes measuring CSR consistently and objectively challenging.

Additionally, CSR can affect a firm's image but is generally not integrated into a firm's core business model, as ESG factors are. (ESG PRO Ltd., nd). ESG factors have integrated sustainability into business operations, making it more suitable for analysis and comparison when looking at the effect on FP. Fulton et al. (2012) suggest that CSR overtime developed into ESG, arguing that CSR has been increasingly formalized and measured through ESG metrics.

Introduction to Financial Performance (FP)

Financial performance is measured in several different ways in academic literature. A commonly used method is combining an accounting-based measure and a market-based measure. Several papers take these two metrics to measure FP.

The most common metrics as accounting-based measures are the ROA and the Return on Equity (ROE), according to Griffin and Mahon (1997). They reveal that over 80 different performance methods are used in their reviewed literature. The metrics that appear most frequently are firm size, ROE, and ROA. Papers that use ROA as profitability measurement are articles such as Velte (2017), Giannopoulos (2022), Dalal & Thaker (2019), and Zhou et al. (2022).

The Return on Assets (ROA) measures a company's profitability relative to its assets. It shows how efficiently a company uses its assets to generate profit. A rising ROA over time indicates that the company increases its profit for each dollar invested in assets. While not perfect, ROA is a widely effective

measure of financial performance, capturing both income statement performance and asset utilization. Unlike Return on Equity (ROE), ROA accounts for debt, providing a clearer picture of operational efficiency without the distortions from financial leverage. Additionally, ROA is less susceptible to short-term earnings manipulation, as assets generally reflect long-term decisions and are harder to alter quickly.

The market-based metrics are according to Wernerfelt & Montgomery (1988) a more suitable metric to measure FP. Wernerfelt & Montgomery (1988) argue that accounting-based metrics to measure FP are not appropriate since there are variabilities in the tax laws and accounting conventions between countries. This inconsistency makes it difficult to use accounting-based measures to compare companies in different countries. However, because this study focuses only on the Netherlands this is not relevant and that is why ROA is also considered. In addition, Tobin's Q is considered because it is a suitable performance measure since it shows past performance and firm performance expected in the future and therefore another chosen metric. (Wernerfelt & Montgomery, 1988) Sauaia & Castro Junior (2002) provide additional support to the use of Tobin's Q as above. Tobin's Q tends to be a higher value when better FP occurs. Since the research is strictly based on companies operating in the Netherlands, there is no need to consider international accounting controversies that arise. This would provide a strong argument for using Tobin's Q as one of the leading indicators of performance.

The combined approach of market-based and accounting-based metrics gives a balanced assessment, integrating both operational efficiency and market valuation perspectives. This is in line with Richardson (2009), Robinson et al. (2011), and Sila & Cek (2017) their findings. These studies emphasize the importance of integrating both accounting and market-based measures to evaluate a complete picture of a firm's financial results.

Relationship Between ESG Scores and FP

The relationship between ESG scores and FP has been extensively studied, revealing varying results across different contexts. Understanding the general mechanisms through which ESG impacts FP is crucial for this thesis. Especially examining a specific context like the Dutch market. Better FP is usually an outcome of the implementation of ESG practices, and these also enhance investor perception, reduce risks, and enhance corporate reputation. (Friede et al., 2015). However, Garcia & Orsato (2020) argued that their Institutional Difference Hypothesis (IDH) would intervene or alter this relationship.

Institutional Difference Hypothesis

According to Garcia & Orsato (2020) and Ting et al. (2019), the Institutional Difference Hypothesis assumes that ESG effectiveness in FP is dependent on the quality and strength of the institutional environment within a country. In countries with highly developed markets accompanied by good regulatory frameworks, good legal frameworks, and high-level governance, the chances of successful integration of ESG practices into business operations and being recognized by investors are higher. This is a supportive environment in which firms can fully capture ESG initiatives in driving better FP, particularly in metrics reflecting long-term market value, such as Tobin's Q.

In contrast, in weaker institutional environments—higher corruption, uneven regulatory enforcement, and underdeveloped financial systems—the positive relation of ESG on FP is attenuated. Such institutional weaknesses often act to extinguish enhanced corporate performance that would otherwise be secured from ESG efforts. This would mean that companies may not get adequate support to ensure the

effective implementation of their initiatives, and hence, the ESG–FP relationship would be weak or even negative.

The IDH thus underlines the importance of the institutional context in determining the relationship between ESG and FP. While ESG activities show better FP, it asserts that they are greatly performed by the quality of the institutional environment they are used in.

General Mechanism ESG-Profitability

Sustainable practices driven by ESG initiatives are argued to accelerate operational efficiencies, by optimizing resources, such as reducing energy use and waste, which directly lowers costs. These practices can also improve corporate reputation, which leads to more customers and attracting better talent. The increased demand and skilled workforce improve efficient asset utilization, thus boosting the ROA and profitability. (Margolis et al., 2009)

Previous studies show indeed a positive relationship between ESG and profitability, such as those from Velte (2017), Dalal & Thaker (2019), and Aydoğmuş et al. (2022). However, some studies show no effect between ESG and profitability (Atan et al, 2018; Zhou et al., 2022) and even negative relationships (Giannopoulos et al. 2022). These results are further discussed in the country-specific section.

However, not all studies agree. For example, Atan et al. (2018) and Zhou et al. (2022) do not find any significant ESG effect on profitability with analyses across different markets. These findings may indicate that ESG influences certain conditions, such as industry characteristics, the regulatory environment, or the maturity of the market in which a company operates. Giannopoulos et al. (2022) finds a negative relationship between ESG scores and profitability in the Norwegian market. It could be that certain ESG practices come with initial costs that outweigh their potential financial benefits.

General Mechanism ESG-Firm Value

A higher ESG score can make a company more attractive to investors. Kahn et al. (2016) and Nagy et al. (2015) demonstrate that a high ESG score results in higher stock returns. Firms that effectively handle ESG issues are considered less risky and more innovative. This lower risk perception stems from the company's ability to handle potential environmental risks related to changes in regulation and resource shortages, and social risks like labor disputes or loss of reputation. Additionally, strong governance reduces the chance of corporate mismanagement or scandals. All these factors contribute to a higher market value of the assets and hence to a higher Tobin's Q. Sustainable practices support long-term value creation through gaining investor perception and reducing risks associated with environmental and social issues (Giannopoulos et al. 2022; Atan et al., 2018). Integrating ESG factors in the business core can signal to the market that a firm is well-managed and future-oriented, resulting in higher valuation.

Meta-Analyses

The relationship between ESG and FP has been the subject of extensive research. These meta-analyses review comprehensive studies on the impact of ESG/CSR on FP, highlighting the generally positive direction of the relationship while acknowledging the diversity in findings. The key meta-analyses that are discussed include Carpenter & Wyman (2009), Margolis et al. (2009), Friede et al. (2015), and

Orlitzky et al. (2003). Carpenter & Wyman (2009) and Friede et al. (2015) focus on the relationship between ESG and FP, while Margolis et al. (2009) and Orlitzky et al. (2003) highlight the relationship of CSR and FP.

The articles illustrate the overall positive direction of the relationship between ESG and FP but also show the diversity in the findings. Carpenter and Wyman (2009) find ten positive, two negative, and four neutral relationships. Carpenter and Wyman (2009) suggested further research to validate their results. An even more extensive meta-analysis on the relationship between ESG and FP is done by Friede et al. (2015). Results show that 90% of studies find a nonnegative ESG-FP relation. A rough majority of the studies show a positive impact of ESG on FP. Remarkable is that companies in North America have a higher proportion of positive results compared to the European and Asia/Australian companies. This shows regional differences in the relationship of ESG-FP. They explained the regional differences partly by arguing that the North American studies have a lower share of portfolio-related studies, which tend to give fewer positive results. This is because portfolio studies average the performance across multiple companies, which can dilute the impact of any single company's strong performance.

Margolis et al. (2009) review 167 studies over 35 years and find a positive effect between CSR and FP but the magnitude is modest. Another meta-analysis is that of Orlitzky et al. (2003), focusing on the effect of CSR on FP, but also comparing the effects of accounting-based measures and market-based measures. The findings show that better CSR shows a stronger effect on accounting-based measures than on market-based measures. As claimed by Orlitzky et al. (2003), the explanation for this lies in the fact that CSR directly enhances operational efficiency by lowering costs and increasing productivity, both of which would be captured in accounting numbers like return on assets. In contrast, stock prices adjust more slowly to the benefits of CSR because of prolonged investor behavior and the fact that the investor's reaction to perceived risk reduction would take its own time.

The meta-analyses reviewed suggest a positive relationship between ESG/CSR factors and FP. Despite variations in the magnitude of this relationship, the overall trend indicates that firms with high ESG scores tend to perform better financially. However, the results are hard to compare because of the different timespans, markets, regulatory environments, and methods used.

Country-specific

In this section, the country-specific studies on ESG-FP are being discussed. In the existing academic literature, the findings on the relationship ESG-FP vary significantly due to differences in the markets, regulatory environments, and periods that the studies focus on. This leads to inconsistencies and differences across the studies. This is a difficulty when comparing the results. Table 2 shows the central seven articles being investigated. These articles are chosen because of their methodology by looking at the relationship of ESG scores on ROA and Tobin's Q.

According to Ting et al. (2019) there exists a difference between the relationship of ESG-FP in developed and emerging markets. There are developed markets that tend to have significantly more positive effects from ESG scores on FP than emerging countries. An addition to the findings of Ting et al. (2019) is that of Garcia and Orsato (2020). They find that institutional context significantly influences the

relationship between ESG and FP. Stronger regulatory frameworks and better enforcement in developed countries create an environment where sustainable practices become beneficial for the FP. In contrast, the lack of these frameworks in emerging countries results in a weaker link between ESG and FP. The study supports the Institutional Difference Hypothesis (IDH). The IDH suggests that institutional weaknesses in still-emerging markets, such as high levels of corruption, hinder the relationship between ESG and FP.

For instance, Velte (2017), Pham et al. (2021), and Giannopoulos et al. (2022) have investigated the relationship in developed markets, namely the German, Swedish and Norwegian. However, the studies show varying results. The German market shows that ESG performance has a positive impact on the ROA but has no impact on Tobin's Q (Velte, 2017). Giannopoulos et al. (2022) show a negative relationship of ESG scores on ROA and a positive relationship on Tobin's Q in the Norwegian market. The results in the Swedish market show a similar effect to the German market, a positive effect of ESG on profitability, and no impact on the firm value is found (Pham et al., 2021).

The emerging markets have been investigated by Dalal & Thaker (2019), Atan et al. (2018) and Zhou et al. (2022) The Indian market shows a positive association between ESG scores and ROA and between ESG scores and Tobin's Q (Dalal & Thaker, 2019). By looking at the Malaysian market, Atan et al. (2018), have come to different results. Firms in Malaysia do not show a relationship of ESG on both metrics. Furthermore, Zhou et al. (2022) have done research in the Chinese market and used a slightly different method by also focusing on the effect of growth. The study indicates that there is no relation between ESG and profitability. However, they find a positive effect on the firm's value by influencing its operational capacity and growth capacity, but not directly via profitability. Aydoğmuş et al. (2022) look at the relation in diverse global markets, developed and emerging. They find a positive relationship between ESG scores and ROA, and between ESG scores and Tobin's Q.

Table 2. Comparative Analysis of Five Country-Specific Papers on ESG-FP

<i>Authors</i>	<i>Period</i>	<i>Sample size</i>	<i>Market</i>	<i>Developed or Emerging</i>	<i>Outcome ESG-Profitability</i>	<i>Outcome ESG-Firm Value</i>
Giannopoulos et al. (2022)	2010-2019	20	Norway	Developed	-	+
Pham et al. (2021)	2019	116	Sweden	Developed	+	No effect
Velte (2017)	2010-2014	85	Germany	Developed	+	No effect
Dalal & Thaker (2019)	2015-2017	65	India	Emerging	+	+
Atan et al. (2018)	2010-2013	54	Malaysia	Emerging	No effect	No effect
Zhou et al. (2022)	2014-2019	167	China	Emerging	No effect	+
Aydoğmuş et al. (2022)	2013-2021	1720	Global public companies	Developed and Emerging markets	+	+

Summarily, while there are inconsistencies in the relationship between ESG-FP there is a general trend towards a positive relationship. The overall positive trend suggests that higher ESG scores can enhance FP, which is considered in the hypotheses. However, unless using the same method the results vary between the studies. Noticeable is that unless investigating the same relationship, the results are different between the studies. The results could vary by taking different markets, different sample sizes, timespan, and whether a market is developed or emerging. These differences are shown in Table 2.

Based on the findings from Ting et al. (2019) and Garcia & Orsato (2020), the Netherlands should exhibit positive effects on FP from ESG scores. Developed markets, such as the Netherlands, generally show a stronger relationship between ESG performance and FP. The advanced market structures and better governance practices in the Netherlands enhance the impact of ESG activities and scores, according to the IDH. Therefore, Dutch firms are likely to experience significant financial benefits from robust ESG initiatives. Because of the strict environmental regulations and policies, companies in the Dutch equity market are compelled to meet higher standards. This leads to the adoption of sustainable practices and higher ESG scores, which enables companies to gain a competitive advantage through more efficient and eco-friendly processes (Porter & van der Linder 1995).

Profitability measures (ROA) reflect operational efficiency and are more short-term focused, which can be directly influenced through ESG practices (Waddock & Graves, 1998). Contrary, firm value (Tobin's Q) includes market perceptions and long-term growth focus. Giannopoulos et al. (2022) find that ESG scores have a larger impact on firm value than on profitability, in the Norwegian market. This suggests that in markets with a high focus on sustainability, investors place greater focus on long-term value creation. The Dutch market is known for its sustainable focus and therefore is expected to show a similar trend.

Based on the findings of the literature review three hypotheses are developed.

H1 There is a positive relationship between ESG scores and profitability in the Netherlands in the period of 2015-2022

H2 There is a positive relationship between ESG scores and firm value in the Netherlands in the period of 2015-2022

H3 The positive relationship between ESG scores and firm value is stronger than the positive relationship between ESG scores and profitability in the Netherlands in the period of 2015-2022

Regarding the third hypothesis, profitability measures (ROA) reflect operational efficiency and are more short-term focused, which can be directly influenced by ESG practices (Waddock & Graves, 1998). In contrast, firm value (Tobin's Q) reflects market perceptions and long-term growth focus, both of which can be influenced by a company's commitment to ESG. The IDH suggests that in a market with a strong regulatory environment, such as the Netherlands, the effect of ESG scores on long-term firm value is likely to be stronger than their effect on short-term profitability. This is supported by Giannopoulos et al. (2022) their findings. Giannopoulos et al. (2022) find that the effect of ESG scores has a larger impact on firm value than on profitability, in the Norwegian market. The Norwegian equity market is also one of the leaders in sustainability (Morningstar, 2023). This indicates that in markets with a high emphasis on sustainability, investors place greater focus on long-term value creation. The Dutch market is known for its sustainable focus and therefore is expected to show a similar trend. The third hypothesis aligns with the expectation

that Dutch investors will place greater emphasis on long-term value creation driven by ESG practices because of the strong institutions and the high focus on sustainability in the Dutch market.

3. Data and Methodology

In this chapter, the data and methodology are discussed. Firstly, the data is explained. Then the variables are considered and shown in Table 4, including how they are being measured and why they are chosen as proxies. After that the descriptive statistics, the Pearson Correlation Matrix, and the Variation Inflation Factor (VIF) are shown and discussed. The methodology is discussed in the last section.

Data

This study makes use of a panel dataset, containing information from all the listed firms on Euronext Amsterdam, the Dutch stock exchange, with the available data from 2015-2022. The data is directly collected from the Refinitiv database. Refinitiv is part of the London Stock Exchange Group (LSGEP) and a provider of financial market data and infrastructure. The Refinitiv database consists of data from 54,400 active companies globally, of which 115 are listed on Euronext Amsterdam.

The initial sample included 115 companies. However, only companies with ESG scores available from 2015 to 2022 are retained. Companies with other missing data across these years are also excluded from the sample. After filtering for firms with complete data from 2015-2022, outliers were identified and removed to maintain the integrity of the dataset. The final dataset consists of 29 companies. These remaining companies, being potentially larger or more transparent due to their ESG data reporting, might skew the results by reflecting a stronger or weaker relationship between ESG and FP than would be observed in a more representative sample, which could affect the generalizability of the study's conclusions. The final dataset allows examining the impact of ESG scores on firm performance over time, within the context of the Dutch market.

Independent variable

This thesis chooses ESG scores to measure their effect on FP. ESG factors are chosen as independent variable because it uses a data-driven framework, providing quantifiable metrics that can be analyzed deliberately. Furthermore, ESG scores are designed to assess a company's Environmental, Social and Governance performance relative to other companies in the same sector. This makes ESG scores a useful tool for cross-sector and firm-to-firm comparisons.

This thesis uses Refinitiv ESG scores, chosen as the ESG scoring model and sourced directly from the Refinitiv database. Refinitiv's ESG scores are chosen due to their data availability and their widespread recognition. Refinitiv collects ESG data from over 450 different data points across annual reports, company websites, NGO websites, stock exchange filings, CSR reports, and news sources. The data is continuously updated and verified for accuracy and relevance by over 150 experienced analysts. The ESG score is determined using over 630 individual metrics, with 186 key metrics identified as relevant and material for each industry. These metrics are categorized into ten themes and further categorized under the three pillars. Then, each category is assigned a score based on the industry a firm operates, determined by 150 experienced analysts of Refinitiv and based on 450 different data points. Boolean values (“yes or no”) are converted to numerical values and numeric data is used directly. The relevance of each category varies

across industries, so a materiality matrix is used to assign weights to each category based on its materiality to the industry. The category scores are normalized and ranked in a percentage within industry groups for Environmental and Social categories or country groups for Governance categories. The purpose is to show a relative performance across various sectors and regions. The normalized and weighted category scores are aggregated to form pillar scores. These pillar scores are combined to produce the overall ESG score. In Table 3, the interpretation of the ESG scores from Refinitiv are presented. Refinitiv's ESG scores are a continuous numerical variable that ranges from 0 to 100 (Table 3), where 0 is the poorest score and 100 represents the best score (Refinitiv, 2020).

Table 3. Refinitiv’s ESG scores interpretation

Score Range	Interpretation
0-25	Poor relative ESG performance
25-50	Satisfactory relative ESG performance
50-75	Good relative ESG performance
75-100	Excellent relative ESG performance

Source: <https://www.refinitiv.com/en/financial-data/company-data/esg-research-data>.

Dependent variables

This study chooses two measurements to investigate the effect of ESG on FP. An accounting-based metric to measure the profitability, and a market-based metric to measure the effect on firm value.

Accounting based measure (ROA)

This thesis uses the return on assets (ROA) as an accounting-based measure of FP. The ROA is chosen based on several reasons. ROA is widely used and accepted as a metric of operating performance. ROA offers a clear view of a company's operational efficiency by showing how effectively the company uses its assets. (Griffin & Mahon, 1997). Other accounting-based measures that are used are metrics such as return on equity (ROE) and earnings per share (EPS) (Waddock & Graves, 1997; Barnett & Salomon, 2012). However, EPS is not considered in this paper. A problem with taking EPS as a FP metric is that it can easily be manipulated through share buybacks. This makes it less reliable as a measure of FP. The ROE is also an often-used metric as an accounting-based measure. However, the ROA and ROE are strongly correlated (Simpson & Kohers, 2002). The difference between the ROA and ROE is that the ROE incorporates leverage. As leverage is chosen as a control variable, the ROE would be redundant and potentially misleading due to its sensitive relation to changes in equity. The ROA is therefore one of the chosen dependent variables.

The formula used for the ROA is based on the formula that Refinitiv uses in their database. Also, Giannopoulos et al. (2022), and Dalal & Thaker (2019) use the same formula in their papers and is as follows:

$$ROA = \frac{\text{Net profit}}{\text{Average total assets}}$$

The ROA is measured by Refinitiv and directly sourced from their database. It is a ratio variable. Whether a ROA value is healthy varies by sector. However, as a general guideline, a ROA of 5% to 10% is considered average and acceptable. Values above 10% are seen as excellent.

Market-based measure (Tobin's Q)

The market-based metric used for this study is Tobin's Q. Tobin's Q shows the value of the firm, and whether a firm is overvalued or undervalued by comparing the market value of its assets to their replacement costs. Specifically, it measures the ratio of a firm's assets' market value to replacement costs. The valuation aspect of Tobin's Q makes it comparable between different industries, which is useful for this thesis's diverse sectors. Firms with better performance have higher values of Tobin's Q, suggesting that Tobin's Q not only reflects historical performance but also future-oriented performance (Suaia & Castro, 2002).

Tobin's Q is a measurement used widely in the existing literature to determine firm value and FP (Giannopoulos et al., 2022; Atan et al., 2018; Velte, 2016). The formula used to measure Tobin's Q is derived from the formula used in the existing literature (Giannopoulos et al., 2022; Atan et al., 2018; Velte, 2016; Dalal and Thaker 2019) and as follows:

$$\text{Tobin's Q} = \frac{(\text{Total assets} + \text{Market capitalization} - \text{net worth})}{\text{Total assets}}$$

The variables in the formula of Tobin's Q are sourced from Refinitiv. Additionally, Tobin's Q is a ratio variable, where values equal to one suggest that the market value of the company equals the replacement cost of its assets. This indicates that the company is correctly valued by the market. When Tobin's Q reaches a greater value than 1, the firm's market value is higher than its assets' replacement cost. Investors expect the company to be more profitable in the future. However, if the Tobin's Q value is above 2 it might indicate overvaluation. In contrast, a Tobin's Q value lower than 1 suggests that the market value of the company is lower than the replacement cost of its assets. This can imply that a firm is undervalued by the market or facing difficulties generating profit.

Control variables

In addition, there are other variables that influence FP (DV) and the ESG score (IV) of companies. It is important to include control variables that could affect both variables. Therefore, the following control variables are included:

Firstly, the control variable Size is discussed. Waddock & Graves (1997) show that the size of a firm influences FP, with bigger firms achieving better FP. Additionally, research by Alareeni & Hamdan (2020) shows that firms that have a high level of assets (Size) tend to have higher ESG scores. Therefore, it is essential to control for Size, as it impacts both FP and ESG scores. Size can be measured with different methods, such as market capitalization, number of employees and the EBIT. In this study, Size is measured by the natural logarithm of total assets (Table 4), to get rid of the outliers and to reduce scale differences.

It is measured the same as multiple other existing literature measured the variable. (Giannopoulos et al., 2022; Atan et al., 2018; Velte, 2016; Dalal and Thaker 2019)

Then, the control variable Leverage will be considered. Leverage, measured as the ratio of total debt to net worth (Table 4), is essential in assessing FP. Leverage can lead to higher risks, such as insolvency and creditworthiness risk, which influences FP. However, it can also enhance returns, influencing both profitability (ROA) and market valuation (Tobin's Q). At the same time, Alareeni & Hamdan (2020) find that firms with higher ratios of leverage face more pressure to maintain strong ESG performance and scores to mitigate risks. Because Leverage impacts FP (DV) and ESG scores (IV), it is an important variable to control for.

Finally, the last control variable is the dummy variable, COVID-19 dummy. This variable is 0 if the year is 2015, 2016, 2017, and 2018, and becomes 1 if the year is 2019, 2020, 2021, and 2022 (Table 4). COVID-19 spread across Europe and the Netherlands in 2019; to control for this pandemic the value of the dummy variable changes the year the pandemic spread into the Netherlands. COVID-19 affects both the FP of firms and their ESG activities. Devi et al. (2020) find that the profitability ratio of listed firms decreased significantly during COVID-19. Additionally, Al Amosh & Khatib (2023) show that the COVID-19 pandemic has a positive impact on ESG performance. The effect of COVID-19 can influence the FP and ESG scores of firms during this period and thus be considered as a control variable.

Table 4: Variables of the Study.

Dependent Variables	Explanation
Return on Assets (ROA)	Net Profit/Average total assets
Tobin's Q	(Total assets + market capitalization-net worth)/Total assets
Independent Variables	Explanation
ESG	Environmental, social and governance performance scores collected from Refinitiv (0-100)
Control Variables	Explanation
Size	Measured by the natural logarithm of total assets (firm size)
Leverage	Total debt/Net worth (unsystematic firm risk)
COVID-19 dummy	0 if year < 2019, 1 if year ≥ 2019

Based on Giannopoulos et al. 2022

Descriptive statistics

Table 5 shows a summary of the descriptive statistics for the dependent, independent and control variables. Notably is the wide range of ESG scores, with a minimum value of 17.96 and a maximum value of 92.06. This implies significant variability in ESG scores across firms. Further, the wide range of ROA indicates substantial differences in profitability across firms. The standard deviation of the Tobin's Q is relatively low, suggesting it is a stable variable and that the valuation does not vary significantly across firms. For Size, the unit is the natural algorithm of the firm's total assets (denoted as LnSize) (Table 4). The minimum value is 12.69 and indicates the smallest firm in the sample. A LnSize of 12.69 corresponds to total assets of €88,312 and the maximum value of LnSize of 20.69 indicates a total asset of €1,032,755,094. Leverage also shows a relatively low standard deviation, indicating different levels of financial risk and capital structure among firms. Remarkably, some firms have a negative value of net worth leading to a negative leverage ratio. The average leverage ratio is 1.223, indicating that, on average, firms have €1.22 of debt for every €1 of equity.

Table 5. Descriptive statistics.

	Observations	Mean	Median	SD	Minimum	Maximum
Dependent Variables						
Return on Assets	232	4.672	4.825	5.097	-10.070	21.240
Tobin's Q	232	1.528	1.235	1.038	0.63	9.85
Independent Variables						
ESG	232	63.874	65.765	14.883	17.96	92.06
Control Variables						
LnSize	232	16.281	15.960	1.951	12.69	20.69
Leverage	232	1.223	0.745	1.338	0	6.81
COVID-19 dummy	232	0.500	0.500	0.500	0	1

Pearson Correlation Matrix

The Pearson correlation matrix is presented in Table 6. The results indicate that the variables do not exhibit very strong correlations. One of the most significant correlations is between Size and ESG. This indicates that the bigger the company, the higher the ESG score, which is in line with several papers (Clarkson et al. 2008; Atan et al. 2018). Size and Leverage also tend to correlate with the ROA and Tobin's

Q. Leverage tends also to correlate with Size. However, according to the results of the VIF in Table 7, the correlations are below the threshold and suggest no multicollinearity problems.

Table 6. Pearson Correlation Matrix.

	ROA	Tobin's Q	ESG	LnSize	Leverage	COVID-19 dummy
ROA	1					
Tobin's Q	0.045	1				
ESG	0.014	0.054	1			
LnSize	-0.204***	-0.122*	0.569***	1		
Leverage	-0.252***	-0.164**	0.022	0.445***	1	
COVID-19 dummy	0.013	0.120*	0.201***	0.037	0.006	1

*** = Correlation is significant at the 0.01 level. ** = Correlation is significant at the 0.05 level. * = Correlation is significant at the 0.10 level

Variance Inflation Factor (VIF)

The Variance Inflation Factor (VIF) is shown in Table 7. The VIF is used to measure how much the variance of a regression coefficient is increased due to multicollinearity among the independent variables. A VIF value of 1 indicates no correlation among the independent variables, while a $1 < VIF < 5$ value indicates a moderate correlation that typically does not warrant correction. With VIF values higher than 10 a serious multicollinearity problem can exist. In Table 7 the values are shown for the independent variables, which are all well below 5. This indicates that multicollinearity is not a problem and that ESG, LnSize, Leverage, and COVID-19 dummy each contribute unique information to the model.

Table 7. Variance Inflation Factor.

	ESG	LnSize	Leverage	COVID-19 dummy
Variance Inflation Factor	1.73	2.07	1.39	1.06

Note: Minimum possible value = 1.0; values >10.0 may indicate a collinearity problem

Methodology

The methodology used in the studies of Giannopoulos et al. (2022) and Dalal & Thaker (2019) are the base of this thesis. The methodology is based on the one used in these two papers but focuses on the Dutch market in the period 2015-2022. The only difference in the models used in this thesis compared to those used by Giannopoulos et al. (2022) and Dalal & Thaker (2019), is that a COVID-19 dummy is included. A quantitative research method is used for two panel-data regressions to measure the relation between ESG scores and FP. FP is measured through profitability (ROA) and firm value (Tobin's Q). The first regression (1) is used to investigate the relationship between ESG and ROA, and to answer the first hypothesis. The effect of ESG on Tobin's Q, the second hypothesis is measured and answered through the second regression (2). The regressions and the description of the variables are shown below:

1. $ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 COVID - DUMMY_{it} + \varepsilon$
2. $Tq_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 COVID - DUMMY_{it} + \varepsilon$

ROA_{it} :	(Net profit/average total assets)
Tq_{it} :	(Total assets + market capitalization-net worth)/Total assets
β_0 :	Intercept, the estimated value of FPI
ESG_{it} :	Environmental, social and governance performance scores collected from Bloomberg
$SIZE_{it}$:	Measured by the natural logarithm of total assets
LEV_{it} :	Total debt/net worth
$COVID - DUMMY_{it}$:	0 if 2015 \geq 0 > 2019, 1 if year \geq 2019
ε :	Error term, not explained by the model

t: Year index (2015-2022)
i: Company index

The third hypothesis is tested by comparing two separate regressions: one with ROA as the dependent variable and another with Tobin's Q as the dependent variable. The comparison of the ESG coefficients is used to determine whether hypothesis 3 finds support. The hypothesis is supported if the coefficient for ESG in the Tobin's Q regression (2) is significant and comes out higher than the coefficient, if significant, for ESG in the ROA regression (1). The comparison will help in assessing whether ESG has a stronger impact on market valuation than on operational efficiency.

Analyzing these two panel regression models, two models are being used, the random effects model and the fixed effects model. The advantage of these models is that they use unique characteristics of panel data, which a pooled OLS-regression does not use. The models make a combination of time-series and cross-sections of firms.

Hausman Test

The Hausman test can determine whether a Fixed-effects model or Random-effects model is more suitable according to the data. The Hausman test determines the correctness of the model and compares the consistency and efficiency of the estimators. In Table 8 the results of the Hausman test are shown. The p-value of the ROA regression is 0.051, which is bigger than the significance level of 0.05. Thus, the Random-effects model is suggested for the first regression. The p-value of Tobin's Q regression is 0.000 and thus lower than the significance of 0.05. This suggests that using a fixed-effects model is a better fit for the second regression.

Table 8. Hausman Test Results.

Dependent Variable	Test Summary	Chi-Square Statistic	<i>p</i> -Value
ROA	Random-effects test	9.47	0.051
Tobin's Q	Fixed-effects test	84.69	0.000

However, the results of the Hausman test suggesting a RE model for ROA and a FE model for Tobin's Q seems illogical and complicates testing H3, regarding the comparison between the regression models. The FE model only uses variation within each firm over time to estimate the effect of ESG scores on FP. This is useful for this study because there are firm-specific characteristics, such as firm culture, management style, and inherent operational efficiencies, that could bias the results if not controlled for. At the same time, any unobserved characteristics that do not change over time are controlled for in the FE model, which is crucial for the data in this thesis.

Given that this study aims to analyze the impact of ESG scores on FP over time and that firm-specific characteristics are likely to influence both ROA and Tobin's Q, the Fixed Effects model provides a more accurate and consistent approach. Therefore, despite the mixed results from the Hausman test, theoretical reasoning strongly suggests that Fixed Effects should be used for both ROA and Tobin's Q. This ensures that unobserved, time-invariant firm characteristics, which significantly affect both performance measures, are adequately controlled for, maintaining theoretical consistency.

4. Results

The purpose of this study is to investigate the relationship between ESG and FP among Dutch-listed firms from 2015 to 2022. The FP is measured through two metrics: Return on Assets (ROA) and Tobin's Q. In this result section the results are interpreted from the two Fixed-Effects models. In Table 9 the results of the Fixed-Effects regressions are shown, with ROA (1) and Tobin's Q (2) as the dependent variables, ESG as the independent variable, and the control variables Size, Leverage, and COVID-19 dummy. Firstly, the effect of ESG on the accounting-based (ROA) measure is considered (1). If found positive and significant hypothesis 1 finds support. After, the effect of ESG on the market-based measure (Tobin's Q) is discussed (2). If the ESG coefficient shows a positive and significant effect hypothesis 2 finds support. Then, the effects of the two regressions will be compared and considered to examine the third hypothesis (3). If the effect of ESG on Tobin's Q is positive and larger than the positive effect of ESG on ROA, if both show significant results. At last, the discussion is discussed.

Table 9 represents the results of the testing of hypotheses 1 and 2. Model 1 in Table 9 shows that there is a positive significant relationship between ESG and the dependent variable ROA. Therefore, hypothesis 1 finds (weak) support in the results of the first regression. ESG is statistically significant at the $p < 0.10$ significance level, implying there exists a positive association of ESG scores on the ROA. The control variable Size indicates a positive coefficient on the ROA. In addition, the control variable Leverage shows a negative coefficient on the ROA. However, both the control variables Size and Leverage are not statistically significant in the regression, indicating that there does not exist a relationship with the ROA. The same applies to the control variable COVID-19 dummy, which has a negative coefficient but is not significant.

The second column in Table 9, shows the regression of ESG on Tobin's Q (2). The results of the second regression do not support hypothesis 2, showing a positive coefficient, however the effect is not significant. Furthermore, the coefficient of the control variable Size is positive and statistically significant ($p < 0.05$). The variables Leverage and COVID-19 dummy show a positive coefficient on Tobin's Q but are not statistically significant.

Finally, the third hypothesis is discussed. The first model (Table 9) shows a positive and significant coefficient ($p < 0.10$) for the relationship of ESG scores on ROA, while the second model (Table 9) shows no significant association of ESG scores on Tobin's Q. The effect of ESG scores on ROA is larger than the effect of ESG scores on Tobin's Q (no effect) and thus, hypothesis 3 finds no support in the results.

Table 9. Fixed-effects models ESG-FP

Model	(1)	(2)
Dependent Variable	ROA	Tobin's Q
ESG	0.063* (0.034)	0.002 (0.006)
LnSize	1.589 (1.618)	0.748** (0.136)
Leverage	-2.993 (0.686)	0.023 (0.015)
COVID-dummy	-0.448 (0.528)	0.123 (0.108)
Constant	-21.382 (25.747)	-10.894** (2.096)
Observations	232	232

Note: Standard Errors between brackets; *p value is significant at the 0.10 level, **p is significant at the 0.05 level, and ***p value is significant at the 0.01 level.

5. Discussion

The results show mixed evidence regarding the relationship between ESG scores and FP metrics for Dutch-listed firms from 2015 to 2022. The influence of ESG scores on the accounting-based measure is positive and weakly significant, while no relationship is observed on the market-based measure.

Hypothesis 1: Impact of ESG on ROA

The first hypothesis predicts a possible positive relationship between ESG scores and ROA, the results show that ESG scores do significantly impact operational efficiency captured by ROA at the significance level of 0.10. Because the effect is only significant at the 0.10 level, the results suggest the relationship is present but relatively weak. There is some evidence supporting the first hypothesis. However,

the relationship is not strong enough to confirm a robust relationship. The weak relationship could occur because of multiple factors. The weak relationship could be because of the relatively small sample size of 29 firms and a too-short research period. It could be that the relationship takes longer to manifest. Another explanation for the weak association could be because of other unmeasured variables that influence the ROA, such as industry characteristics.

This result implies that ESG scores are weakly related to better operational efficiency. This weak association could be because companies with high ESG scores tend to manage their resources and processes more efficiently than firms with low ESG scores. Companies with high ESG scores can exhibit improved risk management, particularly in areas related to environmental, social and governance. This enhanced risk management can contribute to less operational disruptions and helps to create more stable and efficient business operations. Another explanation for the positive relationship between ESG and ROA could be that firms that have high ESG scores realize cost savings through more efficient energy use and waste reduction. The cost savings realized directly enhance operational profitability, reflected in a higher ROA. Finally, companies that prioritize social governance tend to have safer and supportive work environments, which could lead to higher employee productivity and lower turnover rates. This boosts profitability and increases the ROA.

Hypothesis 2: Impact of ESG on Tobin's Q

The second hypothesis predicts a positive relationship between ESG scores and the market-based measure Tobin's Q. The results are not in line with the second hypothesis. Model 2 shows no significant relationship between ESG and Tobin's Q. The same reasons regarding the weak relationship in the first regression could influence that there exists no relationship between Tobin's Q and ESG. Namely unmeasured variables that could influence Tobin's Q, a larger sample size and a longer period of research that is required to measure the effect.

The IDH states that in countries with strong institutional markets like the Netherlands, high-level ESG scores lead faster to improved firm value. However, this is not the case in this study. An explanation could be that the market has not yet fully integrated the value of ESG into firm value. Furthermore, it is possible the ESG scores efforts are not credible enough to investors to impact Tobin's Q. Investors could need more time to validate the long-term benefits of ESG initiatives. Finally, it could be the case that the variance in ESG across different firms and industries in the sample diluted the effect on Tobin's Q. This suggests that the relationship between ESG and firm value could be more complex than the variables considered in this thesis.

Hypothesis 3: Relative Impact of ESG on ROA and Tobin's Q

The results do not support the third hypothesis, which stated that a greater influence of ESG scores on Tobin's Q occurs than ESG on ROA. While the accounting-based measure shows a weakly positive relationship with ESG scores, the market-based measure does not result in a relationship with ESG scores. These results are not in line with the IDH and H3. The IDH stated that in a market with a strong regulatory environment, such as the Netherlands, the effect of ESG scores on long-term firm value is likely to be stronger than their effect on short-term profitability. The outcome is also not aligned with the paper of Giannopoulos et al. (2022). An explanation for the difference in outcomes could be that Tobin's Q is susceptible to external factors, such as market volatility, industry-specific challenges, and economic

conditions. These external factors can overshadow the impact of ESG on Tobin's Q. The other reasons are explained in the first and second hypotheses conclusions.

Comparison to Other Studies

This study shows similar outcomes to the results of Velte (2017) and Pham et al. (2021). However, this is not in line with the studies that have used the same model as this thesis, Giannopoulos et al. (2022) and Dalal & Thaker (2019). Comparing studies is difficult due to differences in periods, differences in methods, whether a market is developed or emerging, different levels of institutions, and variations in samples and sample sizes.

While this study shows a weak relationship regarding the ESG-ROA association and no relationship regarding the ESG-Tobin's Q association, it does give a small indication of the relation in the Netherlands during 2015-2022. This indication contributes to the varying results on the relationship of ESG on FP in academic literature, showing that the results differ regarding the different financial metrics and market contexts. However, it provides no empirical support to the IDH and no strong significant relationships between ESG and FP.

6. Conclusion

This thesis examines the relationship between ESG scores and the FP metrics of the firms listed on the exchanges of the Netherlands for the period 2015-2022. It uses two financial metrics, Return on Assets (ROA) and Tobin's Q making use of two panel data regressions. This gives an indication of how ESG scores are related to FP within a regulatory and sustainability-focused market context like the Netherlands.

Summary of Findings

The results suggest that ESG scores have a weakly significant but positive relationship with the accounting-based measure ROA. Therefore, hypothesis 1 finds weak support. The first hypothesis states a positive relationship between ESG and ROA. The second hypothesis predicts a positive relationship between ESG and the market-based metric, Tobin's Q. The results are not aligned with the second hypothesis because no significant effect between ESG and Tobin's Q is found. The third hypothesis states that the possible positive relationship between ESG and the market-based metric is stronger than the positive relationship between ESG and the accounting-based measure. The results, regarding the two regression models, show no evidence to support the third hypothesis. There is no relationship found between ESG and Tobin's Q, while there is a mild positive relationship between ESG and ROA.

The research question is:

Is there a relationship between ESG scores and the financial performance of Dutch-listed firms in the period 2015-2022?

Because of the available data, it is hard to provide a robust answer to this research question. Due to the relatively small sample size, the specific timeframe, and the possibility of the omitted variable bias, the findings are not sufficiently robust to fully confirm a relationship between ESG and FP. However, it gives a small indication that during this period profitability has a positive relationship with the ESG

scores. The firm value showed no relationship with ESG. Nonetheless, further research with more available data and a longer period of research is necessary to confirm and expand upon the findings in this thesis.

Limitations

This study is limited by the availability of ESG scores and other data, which represented only a part of all firms listed in the Netherlands. A sample of 29 firms out of a maximum possible number of 115 firms could not be representative for the market dynamics inside the Netherlands. This small selection, and limited data availability, is surprising while the Netherlands is one of the leaders in sustainability practices and reporting (Morningstar, 2023). Another limitation is that there could exist an omitted variable bias. Other variables affecting FP or ESG could be the degree of competition or industry. (Giannopoulos et al, 2022; Dalal & Thaker, 2019) Besides, Giannopoulos et al. (2022) state that ESG scores do not include all CSR initiatives, which could give a distorted view. Lastly, the period of research could be expanded. This study looks at the period of 2015-2022, and when expanding the period, a more robust relationship could be determined.

Future Research

This study has provided insights into the relationship between ESG-FP in the Netherlands. However, further research regarding the relationship between ESG-FP in the Netherlands is crucial to confirm the findings in this thesis.

Firstly, the generalizability of the findings is limited because of the small sample size of 29 firms. A larger sample would likely be more representative and results in more robust results. Future research should include a broader range of Dutch listed firms to improve the representativeness. Another aspect of this study which could be expanded is the research period. The research period of 2015-2022 is relatively short and may not fully capture the long-term effects of ESG on FP. Additionally, further research can include additional variables that may influence FP. These added variables can include industry-specific characteristics, level of market competition, and R&D expenditures. Finally, further research could make a comparison between the relationship between ESG-FP in developed- and emerging markets and dive further into the IDH.

When further research incorporates the areas discussed above it can contribute to this study's findings and a more robust relationship between ESG-FP can be concluded.

7. References

- Al Amosh, H., & Khatib, S. F. A. (2023). ESG performance in the time of COVID-19 pandemic: Cross-country evidence. *Journal of Sustainable Finance & Investment*. <https://doi.org/10.1007/s12345-023-00456-7>
- Alareeni, B. A., & Hamdan, A. (2020). ESG impact on performance of US S&P 500-listed firms. *Corporate Governance*, 20(7), 1405-1421. <https://doi.org/10.1108/CG-06-2020-0258>
- Atan, R., Alam, M. M., Said, J., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality*, 29(2), 182-194. <https://doi.org/10.1108/MEQ-02-2017-0027>
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22(S2), 119-127. <https://doi.org/10.1016/j.bir.2022.11.006>
- Barnett, M. L., & Salomon, R. M. (2012). Does it pay to be really good? Addressing the shape of the relationship between social and financial performance. *Strategic Management Journal*, 33(11), 1304-1320. <https://doi.org/10.1002/smj.1980>
- Baselli, V. (2023). Economic Insights: The Netherlands is Still The Most Sustainable Country. Morningstar. <https://www.morningstar.co.uk/uk/news/234732/the-netherlands-is-still-the-most-sustainable-country.aspx> (accessed on 4 June 2024)
- Carpenter G and Wyman O (2009), *Shedding Light on Responsible Investment: Approaches, Returns and Impacts*, London: Mercer. Retrieved from <http://www.mercer.com/ri>
- OpenAI. (2023). *ChatGPT (Version GPT-4)* [Large language model]. Retrieved [August, 13th, 2024], from <https://chat.openai.com/>
- Dahlsrud, A. (2006). How corporate social responsibility is defined: an analysis of 37 definitions. *Corporate Social Responsibility and Environmental Management*, 15(1), 1-13. <https://doi.org/10.1002/csr.132>
- Dalal Karishma, K., & Nimit Thaker. 2019. ESG and Corporate Financial Performance: A Panel Study of Indian Companies. *IUP Journal of Corporate Governance* 18: 44–59.
- Devi, S., Warasniasih, N. M. S., Masdiantini, P. R., & Musmini, L. S. (2020). The impact of COVID-19 pandemic on the financial performance of firms on the Indonesia Stock Exchange. *Journal of Economics, Business, and Accountancy Ventura*, 23(2), 226-242.
- ESG PRO Ltd. (n.d.). How is ESG different from CSR? Retrieved from <https://esgpro.co.uk/how-is-esg-different-from-csr/> (accessed on 17 June 2024)
- Friedman, M. (1970). A Friedman doctrine: The social responsibility of business is to increase its profits. *The New York Times Magazine*, 13(1970), 32–33.

- G. Friede, T. Busch, A. Bassen (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5 (4) (2015), 210-233
- Fulton M, Kahn B and Sharples C (2012), *Sustainable Investing: Establishing Long-Term Value and Performance*. Retrieved on April 6, 2018, from <http://dx.doi.org/10.2139/ssrn.2222740>
- Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29(8), 3261-3272. <https://doi.org/10.1002/bse.2570>
- Giannopoulos, G., Fagernes, R. V. K., Elmarzouky, M., & Hossain, K. A. B. M. A. (2022). The ESG Disclosure and the Financial Performance of Norwegian Listed Firms. *Journal of Risk and Financial Management*, 15(6), 237 <https://doi.org/10.3390/jrfm15060237>
- Grammarly. (n.d.). *Grammarly*. Retrieved [August, 13th, 2024], from <https://www.grammarly.com/>
- Griffin, J. J., & Mahon, J. F. (1997). The Corporate Social Performance and Corporate Financial Performance Debate. *Business & Society*. <https://doi.org/10.1177/000765039703600102>
- Kahn, M., Serafeim, G., & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. *The Accounting Review*, 91(6), 1697-1724.
- Margolis, J. D., Elfenbein, H. A., & Walsh, J. P. (2009). Does it pay to be good... and does it matter? A meta-analysis of the relationship between corporate social and financial performance. And does it matter
- Nagy, Z., Kassam, A., & Lee, L.-E. (2015). Can ESG Add Alpha? An Analysis of ESG Tilt and Momentum Strategies. *The Journal of Investing*, 24(2), 113-124.
- KPMG. 2019. Impact of ESG Disclosures. Available online: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/09/impact-of-esg-disclosures.pdf> (accessed on 4 June 2024).
- Refinitiv. (2020.). Sustainable Finance - ESG Scores Methodology. Retrieved from <https://www-ams1.qa.refinitiv.com/en/sustainable-finance/esg-scores#methodology>
- Naik P (2014), "R&D Intensity and Market Valuation of Firm: A Study of R&D Incurring", *Journal of Studies in Dynamics and Change*, Vol. 1, No. 7, pp. 295-308.
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403-441. <https://doi.org/10.1177/0170840603024003910>
- Pham, D. C., Do, T. N. A., Doan, T. N., Nguyen, T. X. H., & Pham, T. K. Y. (2021). The impact of sustainability practices on financial performance: Empirical evidence from Sweden. *Cogent Business & Management*, 8(1), 1912526. <https://doi.org/10.1080/23311975.2021.1912526>
- Porter, M. E., & van der Linde, C. (1995). "Toward a New Conception of the Environment-Competitiveness Relationship". *Journal of Economic Perspectives*.

- Rahman, S. (2011). Evaluation of definitions: Ten dimensions of corporate social responsibility. *World Review of Business Research*, 1(1), 166-176. Retrieved from <https://www.researchgate.net/publication/265666273>
- Richardson, A. J. (2009). Measuring the Impact of Sustainability and Corporate Social Responsibility on Firm Performance: Evidence from the Banking Industry. *Journal of Business Ethics*, 85(2), 153-169. <https://doi.org/10.1007/s10551-008-9932-7>
- Rodriguez-Gomez, S., Arco-Castro, M. L., Lopez-Perez, M. V., & Rodríguez-Ariza, L. (2020). Where Does CSR Come from and Where Does It Go? A Review of the State of the Art. *Administrative Sciences*, 10(3), 60
- Robinson, G., Kleffner, A., & Bertels, S. (2011). The role of social capital in promoting sustainability: A case study of environmental governance in the Canadian oil sands. *Ecological Economics*, 70(11), 2354-2362. <https://doi.org/10.1016/j.ecolecon.2011.07.012>
- Sauaia, A. C. A., & Castro Junior, F. H. F. (2002). Is the Tobin's Q a good indicator of a company's performance? *Developments in Business Simulation and Experiential Learning*, 29.
- Sila, I., & Cek, K. (2017). The impact of environmental, social and governance dimensions of corporate social responsibility on economic performance: Australian evidence. *Procedia Computer Science*, 120, 797-804. <https://doi.org/10.1016/j.procs.2017.11.310>
- Simpson, W. G., & Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of Business Ethics*, 35, 97-109. <https://doi.org/10.1023/A:1013082525900>
- Ting, I. W., Azizan, N. A., Bhaskaran, R. K., & Sukumaran, S. K. (2019). Corporate Social Performance and Firm Performance: Comparative Study among Developed and Emerging Market Firms. *Sustainability*, 12(1), 26. <https://doi.org/10.3390/su12010026>
- Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, 8(2), 169-178. <https://doi.org/10.1108/JGR-11-2016-0022>
- Waddock, S. A., & Graves, S. B. (1998). The corporate social performance–financial performance link. *Strategic Management Journal*, 18(4), 303-319. [https://doi.org/10.1002/\(SICI\)1097-0266\(199704\)18:4](https://doi.org/10.1002/(SICI)1097-0266(199704)18:4)
- Wernerfelt, B., & Montgomery, C. A. (1988). Tobin's q and the importance of focus in firm performance. *The American Economic Review*, 78(1), 246-250.
- Zhou, G., Liu, L., & Luo, S. (2022). Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment*, 31(7), 3371-3387. <https://doi.org/10.1002/bse.3089>