

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis [Financial Accounting]

**Green Profits: Assessing ESG
Performance Impact on SMEs and
Larger European Firms' Profitability**

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Date final version: 10-07-2024

The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam.

Abstract

This paper examines the influence of Environmental, Social, and Governance (ESG) performance on profitability of European firms. The focus lies on both small and medium-sized enterprises (SMEs) and larger companies. With the use of data from over 600 organizations from Refinitiv's Eikon Datastream during the period of 2012-2022, the study performs two fixed effects regressions. One is to determine the impact of ESG scores on profitability, which is measured in return on assets (ROA). This model supports the first hypothesis, which states that a higher ESG rating positively influences the profitability of European firms. For the second regression, the interaction effect is measured between ESG score and a dummy variable of size. A line is drawn between large firms and SMEs and the second model finds a significant negative effect of size and ESG score on profitability. This means that the second hypothesis, which claims that SMEs tend to increase more when obtaining a higher ESG rating, is also supported by the regression. This highlights the risk, because SMEs can also decrease more in their profitability, and rewards for smaller firms when investing in ESG activities. For stakeholders, this study provides valuable insights regarding ESG and profitability for both smaller and larger European firms.

Keywords: ESG, SMEs, size, profitability.

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1. Introduction

The importance of engaging in sustainability activities cannot be avoided anymore. Many investors' decisions are based on the Environmental, Social and Governance (ESG) activities of a company (Murray, 2024). This rising tension caused by stakeholders make it stressful for firms to decide on what to do. Although firms want to satisfy the demands of stakeholders, they still want to remain profitable. This is not fully guaranteed if they increase their spendings on ESG activities (Naidu & Jessop, 2024). The paper aims to give more insight on this matter for European firms specifically. Does firm size matter when it comes to the effect of ESG ratings on profitability?

1.1 Research Question

This thesis will investigate the relationship between profitability and ESG performance. Some of the biggest companies as well as small and medium-sized enterprises (SMEs) who have reported an ESG score will be investigated. ESG was first coined in 2004 by the United Nations Global Compact and afterwards it kept becoming more important every year (Krantz, 2024). The question is, is it worth to invest a lot of money in these ESG activities? Will it help improve a company's profitability? And especially for smaller firms, who have fewer financial capabilities, the question is if they should take the risk to invest in ESG. The following research question sums up all these questions and will be answered in this paper:

To what extent does ESG performance influence the profitability of SMEs and larger European firms?

1.2 Relevance

Investors and stakeholders keep demanding more from companies when it comes to sustainability reporting. Although ESG reporting is mandatory for listed companies from 2024, some of the biggest firms already started reporting on this topic years before (Kimbrough et al., 2022). Interestingly, some papers already mentioned that SMEs might have the potential to increase more in profitability in comparison with bigger firms. This study is going to find out if that is true for European organizations, which is very relevant for investors specifically.

Several studies have already shown the importance of ESG reporting regarding topics like risk management and long-term value creation. However, the effect of ESG scores on profitability is not looked at much yet. This study aims to contribute to previous papers written on the topic of

sustainability and firm performance. By measuring the interaction effect of ESG scores and size, this paper introduces a new methodology.

1.3 Preview

In this study the relationship between ESG scores and financial performance is measured by using fixed linear regressions. Financial performance is measured in return on assets (ROA) whereas the ESG scores are the combined scores of the environmental, social and governance scores of a company. The first regression will measure the effect of ESG scores only on the ROA. Also, a second fixed linear regression will estimate the combined effect of firm size and ESG scores on the profitability. The results of the first empirical model indicate that an increase in ESG score improves the profitability of European firms. For the second model, the combined effect of ESG scores and size show a negative impact on the ROA. For further analysis of the regression results look at chapter 4.2 Main Regression Results.

1.4 Structure

In the continuation of this paper a theoretical framework will be made in the form of a literature review. Here, the motive of the two hypotheses will be discussed based on previous research done in this field. The papers studied origin from different highly ranked journals from accounting, finance and sustainability fields. After the literature review, a research design will be set up which contains the methods to test the two hypotheses. Also, there will be an explanation of the sample chosen and which data is used. Thirdly, the descriptive statistics of the regression will be shown as well as the results of the two methods. The results and descriptive statistics will be presented in the form of a table. Both tables will be discussed and interpreted to give an idea what the values mean. Finally, a conclusion will be given which contains a short summary of the paper and the limitations of this research. In addition, tips for future research will be shared.

2. Literature Review and Hypothesis Development

Over the last decade, much research has been done on ESG reporting and its influence on the financial performance of companies. This has come with various results, although most papers describe a positive influence of sustainability reporting on profitability. Especially organizations who have a high ESG score come out better when reporting on their ESG activities. This chapter will highlight some of the best papers written on the influence of ESG scores on financial performance. This includes sustainability, accounting and finance topics.

2.1 Market Reactions to ESG Scores

The first paper written by Serafeim and Yoon (2022) mentions the influence of ESG scores on market reactions. Their research concluded that positive ESG news tends to trigger positive market responses, with market response meaning the change in stock price. For negative news it works the other way around, creating a negative market response. Interestingly, the study also found that the amount of consensus on the ESG ratings plays a significant role in these market reactions. A greater disagreement among ratings weakens the market response. Furthermore, the Serafeim and Yoon (2022) observed that firms with already high ESG scores experience less radical market reactions to positive news compared to firms with lower ESG scores. This suggests that ESG reporting can enhance market valuation, however it has a weaker effect for firms that are already perceived as ESG leaders.

Mervelskemper and Streit (2016) also explore the market valuation of ESG performance. Their study focuses more on integrated reporting (IR) and if it is a better method than stand-alone ESG-reports. They conclude that IR further improves the market valuation of a firm's ESG without incurring additional costs. This implies that IR is a better reporting method than stand-alone ESG reports. Therefore, companies might adopt IR in the future, not only to meet regulatory requirements but also to boost market valuation. However, firms should have a high ESG performance to avoid negative effects.

Another paper that examined the effect of ESG disclosure on firm's financial performance comes from Pulino et al. (2022). For their research they only included Italian listed firms. Their results indicate a positive influence of ESG disclosure on firm performance driven mostly by the environmental and social pillars. However, the governance aspect showed no significant impact, suggesting that while environmental and social initiatives are valued by customers and can drive revenue, governance factors might be less influential in this context. They used Return on assets (ROA) and earnings before interest and taxes (EBIT) as financial performance variables. The empirical findings reveal that customers appreciate environmental and social initiatives, leading to increased profitability.

Contrary to the last two papers mentioned, Oprean-Stan et al. (2020) indicated that sustainability reporting does not influence financial performance. They focused on the effect of the different aspects of an ESG score. The study found that social management positively impacts sustainable growth, whereas governance aspects are less influential. These findings show that the importance of each aspect differs in its influence on profitability of firms. For future research, Oprean-Stan et al. (2020) suggests that each aspect of the ESG score is more carefully explained in how it influences the financial performance of a company. Important to mention is that their independent variables were not significant, and the sample size was restricted. This should stimulate future research to perform the same research with a larger group.

Demers et al. (2021) also found no evidence to support the claims made by Serafeim and Yoon (2022) and Mervelskemper and Streit (2016). Their study examined the performance of firms with higher ESG scores during the COVID-19 pandemic and concluded that these firms did not obtain higher returns during the market crash in early 2020. Instead, the researchers suggest that investments in intangible assets, such as innovation, were more important in explaining that some firms kept a stable stock price during the pandemic. This finding opposes the statement that ESG factors alone can stabilize stocks during crises. This emphasizes the importance of strategic investments in innovation and other intangibles for long-term shareholder value creation and resilience.

2.2 Regulatory and Media Influence on ESG Reporting

Arvidsson and Dumay (2021) did research on the influence of regulatory and investor attention on company's ESG activities. They did this in Europe, with the most focus on Swedish firms. Their study found an increase in both the quantity and quality of ESG reporting. However, there was no improvement found in ESG performance. This means that the real goal of more and better ESG reporting did not work because what really matters is that companies improve ESG activities. Therefore, the authors argue that the focus should shift from enhancing reporting frameworks to taking concrete actions that improve ESG performance. They also suggest that future research should investigate the influence of stakeholders on ESG behavior.

Using a different approach, Wong and Zhang (2022) looked at how ESG disclosures through media channels affected stock performance. They found that negative ESG news significantly affected stock market reactions. Firm characteristics such as size, liquidity, reputation status, and industry had an influence on investor behavior. This paper explains the importance of ESG reputational management, because negative media coverage on ESG issues can be considered value-relevant to investors according to Wong and Zhang (2022). They support the signaling theory and resource-based view of

ESG corporate reputation, suggesting that firms need to proactively manage their ESG profiles to mitigate potential negative impacts on their stock performance.

Bissoondoyal-Bheenick et al. (2023) also examined the role of media coverage as well as the effect of size. Unlike Oprean-Stan et al. (2020) and Pulino et al. (2022), they did find a significant influence of the governance pillar on performance, in some sectors. A difference is that they used the Tobin's Q as performance variable for the measurement of market valuation. When it comes to size, they mention that bigger firms invest more in ESG activities because of their larger responsibility towards stakeholders. With an improvement of media coverage, it is claimed to have a positive effect because it reduces information asymmetry, ultimately reducing costs for a firm. Lastly, Bissoondoyal-Bheenick et al. (2023) made an Industry-level analyses with the conclusion that most industries are influenced differently by ESG scores. The key conclusion of this research is that there is a big potential for firms to increase their financial performance when they improve their sustainability practices.

2.3 Firm Characteristics

Not much research has been done yet on ESG scores, Dremptic et al. (2019) however looked at the effect of firm size on ESG performance. They did this with the Thomson Reuters ASSET4 database's which contains ESG data including ESG scores of many companies. First, they mention the importance of gaining trust of stakeholders by improving sustainability reporting and activities. They also claim that larger firms are more likely to receive higher ESG scores. This is mainly because of their greater resources. Dremptic et al. (2019) also question if ESG scores are a good enough indicator to decide which companies are 'genuinely' trying to enhance sustainability activities. They want more criteria and better judgement to decide which companies deserve the credits. Furthermore, the paper calls for more transparency in ESG rating methodologies, as well as more discussion on the definition of corporate sustainability performance.

Yu et al. (2020) would agree with Dremptic et al. (2019) concerns about the reliability of ESG scores. This is because they wrote a paper about greenwashing behavior, which is the act of misleading stakeholders by falsely portraying a company's products, practices, or policies as environmentally friendly, when they are not. They created greenwashing scores for all three dimensions of ESG for large firms. The main goal of this paper is to identify factors that discourage greenwashing. Factors that were relevant are independent directors, institutional investors and public interest. Another aim of this paper is to point out the increasing importance of accurate ESG data for investors. Furthermore, future research could explore greenwashing behavior among smaller firms and the support they need from regulators and governments.

2.4 Board Characteristics and ESG Performance

A slightly different approach to this topic comes from Lewellyn and Muller-Kahle (2023). So far, others looked at the effect of ESG scores on market reactions and the influence of media and size. Lewellyn and Muller-Kahle (2023) however, explored how board characteristics and institutional environments are associated with ESG performance. They obtained data for their sample from firms over 32 countries. The conclusion of their paper is that resource abundant and legitimacy seeking boards are helping to achieve high ESG performance. On the other hand, insider resource, ticking the box, and resource scarce boards are not effective and probably lead to low ESG performance. This research highlights the importance of a legitimate and a resource rich board to achieve a higher sustainability performance.

Just like Lewellyn and Muller-Kahle (2023), Li et al. (2018) believed that the people at the top of a company have an influence on ESG related activities. They used a large sample of UK public firms from the Bloomberg database (2004-2013) to investigate the effect of ESG disclosure on firm value. Their findings indicate that higher ESG disclosure levels are positively associated with firm value. This relationship is even stronger when CEO power is higher. Interestingly, this positive association holds for different measures of ESG disclosure and financial performance indicators (Tobin's Q and ROA). The reason why ESG disclosures enhances firm value is because of improved transparency, accountability, and stakeholder trust. Strong CEO's can make the effect even more positive by giving strong signals that the companies want to improve their sustainability activities. This strong signal is important for stakeholders, so they know the firm is serious about their ambitions.

2.5 Investor Motives and Bank Profitability

Raut et al. (2023) investigated the motives of investors to invest in ESG stocks, considering both financial and sustainability motivations. Their findings suggest that social motivation plays a more significant role in choosing to buy ESG stocks than a financial motive. This indicates that high ESG scores are valuable for companies, because it indicates that they are a green company, and investors can rely on them to keep performing sustainable activities. Another interpretation of this conclusion is that by getting a larger ESG score, a company can increase its stock price.

A more unique research paper comes from Agnese et al. (2024), who have investigated the relationship between ESG controversies and bank profitability. They used a sample of European banks over the period 2015 until 2022. It should not be a surprise that higher levels of ESG controversies are associated with lower profitability. The profitability was measured in ROA, ROE and Net interest Margin. This finding suggests that avoiding ESG-related scandals can enhance financial performance. This counts even more for banks operating in sectors with significant reputational risks. The research highlights the

importance of ESG risk management strategies and engagement with stakeholders to mitigate potential negative impacts of ESG controversies. Additionally, Agnese et al. (2024) suggest that banks should integrate ESG factors into their strategies and decision-making processes to promote long-term sustainability and profitability.

2.6 ESG Reporting in SMEs

The final study comes from Yip and Yu (2023), who have examined the quality of ESG reporting among SMEs in Hong Kong. Instead of looking at all three ESG factors combined, they only focus on the disclosure of environmental key performance indicators (KPIs). The results varied, indicating that while some SMEs provide detailed and transparent ESG reports, others offer limited information. This variability explains the need for improved ESG reporting practices among smaller firms who often lack the resources and expertise. Yip and Yu (2023) recommend that policymakers provide guidance to support SMEs in enhancing their ESG reporting. Moreover, the study highlights the importance of ESG reporting for SMEs in gaining investor confidence and attract capital to improve financially.

2.7 Hypotheses

As already mentioned in this chapter, a lot of researchers have examined the impact of ESG activities on market reactions and financial performance. This has been done for countries and continents from all over the world with various results, although most papers indicate a positive effect. Serafeim and Yoon (2022) explained that positive ESG news improves the stock prices. Especially firms who first have a low score and later obtain a higher rating can increase a lot in market value. Pulino et al. (2022) probably support the statement made by Serafeim and Yoon (2022). They examined the effect of the scores on profitability of Italian listed firms. The conclusion was that environmental and social aspects can help to increase revenue. However, for the governance factor they did not find such an effect though for the combined ESG score the effect will still be positive. So most results indicate that, in general, a higher ESG rating gives financial advantage to firms. Based on this information, I have formulated the following hypothesis:

H1: A higher ESG score triggers a positive change in profitability for European companies

Also, there is some research done on the effect of size on sustainability reporting and scores. The bigger firms currently improve more financially because they invest more in ESG activities than smaller firms (Bissoondoyal-Bheenick et al., 2023) (Drempetic et al., 2019). Larger firms also report better on ESG related activities compared to SMEs (Yip & Yu, 2023). The believe is, although bigger companies have more resources and capabilities, that lower firms have the potential to improve more financially because they have more room for improvement in this area. Wong and Zhang (2022) support this statement in their paper. For their research they found out that small firms are most sensitive towards ESG news, indicating that they can either improve or suffer the most from a change in ESG rating. This study aims to provide evidence that it would be beneficial for SMEs to invest in sustainability activities though it seems too expensive. Given the information of the papers mentioned in this paragraph the second and last hypothesis is formulated:

H2: Smaller sized European companies who have a high ESG score will obtain a greater profitability compared to bigger European firms

3. Research Design

3.1 Sample and Data

To examine the relationship between financial performance, ESG scores and size, this paper uses data from Refinitiv's Eikon Datastream. Here, information from over 600 European companies is gathered and adjusted for this research' purposes. These companies were specifically chosen because they were the only ones that had a combined ESG score available as well as all other desired (control) variables. The data is from 2012 until 2022, so stretched over eleven years. The firms all origin from different European countries, participate in different industries and differ in size. There were some outliers in the data, however, they were eliminated from the regression. Also, unrealistic numbers were taken out of the sample, for example the variable leverage (see 3.2 Regression Variables) cannot be negative but had some negative values. Finally, there were some missing results for a few companies. These firms were excluded from the sample to be able to obtain results.

3.2 Regression Variables

The main variables of interest are the combined ESG scores and size. The variable size is measured as the logarithm of total assets. ESG scores consist of three elements, the environmental score, a social score and finally the governance rating. The combination of these three ratings creates the combined ESG score, which has a minimum score of one and a maximum of hundred. Since the values of the total assets are widely spread, the logarithm is used to avoid any skewness. Also, the logarithm helps to weaken heteroskedasticity and leads to more robust and therefore more reliable results. There is no need to worry about heteroskedasticity at all because the fixed linear regression is robust to it. The dependent variable in this research is financial performance. This is measured in return on assets (ROA), which is often used as profitability indicator in previous reliable papers. The ROA is measured by dividing the net income by the total assets of a firm.

Based on research done before in this field, this paper also included control variables such as leverage, yearly fixed effects, industry fixed effects and country fixed effects. Leverage is in this case measured in total assets divided by total debt. Return on equity (ROE) is another control variable used, because it controls for another perspective of profitability. Multicollinearity will not be high because the fixed effects regression helps to reduce it. ROE is measured in net income divided by total equity. The final three control variables are fixed effects, so they control for heterogeneity and are included in the regression results in Table 2.

For the second hypothesis a dummy variable of size is created which is called 'large firm'. The line between large firms and SMEs is decided by the European Commission of the European Union (EU). The commission explained that large firms have total assets worth more than 43 million euros (SME Definition, z.d.). Therefore, the dummy variable large firm only includes firms with a logarithm of total assets that is more than the logarithm of 43 million. Additionally, an interaction effect is measured between ESG score and the large firm dummy variable to assess the second hypothesis. Final important note is that every financial variable is converted to euros. In this way all the results are comparable.

3.3 Empirical Model for Hypothesis 1

For the first hypothesis (H1: A higher ESG score triggers a positive change in profitability for European companies) the following fixed effects linear regression is performed:

$$ROA_i = \beta_0 + \beta_1 \cdot ESG_i + \beta_2 \cdot Size_i + \beta_3 \cdot Lev_i + \beta_4 \cdot ROE_i + YearFixedEffect_t + CountryFixedEffect_c + IndustryFixedEffect_s + \epsilon_i$$

In this formula, ESG_i is the main explanatory variable. ROA_i is the dependent variable and $Size_i$, Lev_i and ROE_i are control variables. The fixed effects of year, country and industry are controlling for factors that may influence the ROA_i beyond the variables explicitly included. Finally, β_0 is the constant whereas ϵ_i is the error term.

3.4 Empirical Model for Hypothesis 2

To test the second hypothesis (H2: Smaller sized European companies who have a high ESG score will obtain a greater profitability compared to bigger European firms), the dummy variable 'large firm' and the interaction effect between ESG and 'large firm' are included. The variable size on the other hand is excluded from the equation. Given this information, the second fixed effects regression looks as follows:

$$ROA_i = \beta_0 + \beta_1 \cdot ESG_i + \beta_2 \cdot Large_firm_i + \beta_3 \cdot (ESG_i \times Large_firm_i) + \beta_4 \cdot Lev_i + \beta_5 \cdot ROE_i + YearFixedEffect_t + CountryFixedEffect_c + IndustryFixedEffect_s + \epsilon_i$$

The difference in this equation is that $Large_firm_i$ is also an explanatory variable. Also, an interaction term is included in the form of $(ESG_i \times Large_firm_i)$. The rest is still the same as in the first hypothesis.

4. Results

4.1 Descriptive Statistics

Table 1 shows the descriptive statistics of all variables used. Among the descriptive statistics are the observations (N), the mean, median, standard deviation, minimum and maximum. Interesting to see is that the ROA has a positive mean, indicating that on average the companies together have a positive financial performance. Leverage has minimum of 0.00 because, as mentioned before, it cannot be negative. Final noticeable statistic is the high minimum and maximum for the ROE. Although these statistics seem extreme, they are still not considered as outliers since there were more firms with either very high or low returns.

Table 1.

Descriptive Statistics for Key Variables

Variable	N	Mean	Median	Standard Deviation	Minimum	Maximum
ROA	7,010	5.41	4.60	14.02	-417.73	269.11
ESG	7,111	57.24	58.61	17.83	1.53	95.16
Size	7,111	15.90	15.71	1.86	7.34	21.78
Lev	7,111	41.76	39.06	48.91	0.00	2394.02
ROE	7,008	13.01	11.46	63.50	-1124.4	2409.86

Note. N = number of observations; ROA = return on assets; ESG = environmental, social, and governance score; Size = firm size; Lev = leverage; ROE = return on equity.

4.2 Main Regression Results

The regression results of hypotheses one and two are presented in Table 2. For hypothesis one there is a significant positive effect of the ESG score on profitability. This means we can confidently approve the first hypothesis. On average with a 95%- confidence interval, if a firm increases their ESG score with 1, their ROA increases with 0.028 percent. In model 1, 50.82 percent of the variance of the ESG score explains the variance of the dependent variable, in this case the ROA.

For model 2 the ESG score gives an even higher coefficient but is not significant at a 95%- confidence interval. The second hypothesis, just like the first one, can be supported as well. The interaction effect between the ESG scores and large firms is significant and negative. This means that for SMEs, on average they increase more in profitability when obtaining a higher ESG score in comparison with larger companies. However, this also means that when a smaller firm has a decreased ESG score, their profitability will drop more than it would occur for a larger firm. Almost the same as in model 1, in model 2, 50.91 percent of the variance of the independent variables explain the variance of the profitability.

Table 2.

Regression results (ROA as dependent variable)

Variables	(1)	(2)
ESG	0.028** (0.013)	0.037* (0.021)
Size	0.006 (0.368)	
Large_firm		1.674 (1.238)
(ESG*Large_firm)		-0.045** (0.021)
leverage	-0.078*** (0.014)	-0.076*** (0.016)
ROE	0.142*** (0.025)	0.142*** (0.025)
Constant	4.943 (6.265)	4.617** (1.814)
Observations	6,923	6,923
Adjusted R ²	50.82%	50.91%
Year dummies	Yes	Yes
Country dummies	Yes	Yes
Industry dummies	Yes	Yes

*Note. *p < 0.10, **p < 0.05, ***p < 0.01. Standard errors in parentheses.*

5. Conclusion

5.1 Answer to Research Question

This research paper tried to answer the following research question:

To what extent does ESG performance influence the profitability of SMEs and larger European firms?

To answer this question, the paper looked at over 600 companies from the Refinitiv Eikon DataStream who had combined ESG scores available. This was done over the period of 2012 until 2022, so data from eleven years. First the study examined the effect of ESG scores on profitability for European firms. Based on the literature review in chapter 2, the first hypothesis was formulated as follows: “A higher ESG score triggers a positive change in profitability for European companies”. This hypothesis is supported by the regression results of model 1, because the coefficient of the ESG score in the first fixed effects regression was positive and significant.

In addition to that, the study also investigates the combined effect of the ESG ratings and the size of the companies. Previous research mentioned that there was a lot of potential for SMEs to improve financially when they would increase their ESG activities (Yip & Yu, 2023). Overall, the studied papers mentioned that larger firms were more stable towards ESG news whereas smaller companies suffered more. Therefore, the second hypothesis was formulated: “Smaller sized European companies who have a high ESG score will obtain a greater profitability compared to bigger European firms”. Like the first hypothesis, this one is accepted as well, given the results of the second model. In this regression, the interaction effect between ESG score and the dummy variable for large firms was significant and negative. This indicates that on average, SMEs can improve more in profitability when they obtain a higher ESG score but can also suffer more if they perform less in ESG activities.

5.2 Limitations

Although this research found significant results supporting both hypotheses, there are still some limitations. First, the ESG scores can be misleading due to greenwashing as said before by Yu et al. (2020). This means that probably not all combined ESG scores are that accurate. Furthermore, the results might not be generalizable towards non-European countries. These countries have other laws and restrictions that might cause it to be less effective to invest in ESG activities. Lastly, this research only uses return on assets (ROA) as profitability indicator, while there are more ways to measure financial performance.

Future research can look for other ways to see if ESG scores still have the same impact if the profitability indicator is different. Another interesting topic to delve into is the greenwashing effect. How much does this happen and for how much does this influence the ESG ratings and therefore profitability.

Reference List

- Agnese, P., Cerciello, M., Oriani, R., & Taddeo, S. (2024). ESG controversies and profitability in the European banking sector. *Finance Research Letters*, 61, 105042. <https://doi.org/10.1016/j.frl.2024.105042>
- Arvidsson, S., & Dumay, J. (2021). Corporate ESG reporting quantity, quality and performance: Where to now for environmental policy and practice? *Business Strategy and The Environment*, 31(3), 1091–1110. <https://doi.org/10.1002/bse.2937>
- Bissoondoyal-Bheenick, E., Brooks, R., & Xuan, H. (2023). ESG and firm performance: The role of size and media channels. *Economic Modelling*, 121, 106203. <https://doi.org/10.1016/j.econmod.2023.106203>
- Demers, E., Hendrikse, J., Joos, P., & Lev, B. (2021). ESG did not immunize stocks during the COVID-19 crisis, but investments in intangible assets did. *Journal Of Business Finance & Accounting*, 48(3–4), 433–462. <https://doi.org/10.1111/jbfa.12523>
- Drempetic, S., Klein, C., & Zwergel, B. (2019). The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review. *Journal Of Business Ethics*, 167(2), 333–360. <https://doi.org/10.1007/s10551-019-04164-1>
- Kimbrough, M. D., Wang, X., Wei, S., & Zhang, J. (2022). Does Voluntary ESG Reporting Resolve Disagreement among ESG Rating Agencies? *European Accounting Review*, 1–33. <https://doi.org/10.1080/09638180.2022.2088588>
- Krantz, T. (2024). *The history of ESG: A journey towards sustainable investing*. IBM Blog. <https://www.ibm.com/blog/environmental-social-and-governance-history/>
- Lewellyn, K., & Muller-Kahle, M. I. (2023). ESG Leaders or Laggards? A Configurational Analysis of ESG Performance. *Business & Society*, 63(5), 1149–1202. <https://doi.org/10.1177/00076503231182688>
- Li, Y., Gong, M., Zhang, X., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review*, 50(1), 60–75. <https://doi.org/10.1016/j.bar.2017.09.007>

- Mervelskemper, L., & Streit, D. (2016). Enhancing Market Valuation of ESG Performance: Is Integrated Reporting Keeping its Promise? *Business Strategy and the Environment*, 26(4), 536–549. <https://doi.org/10.1002/bse.1935>
- Murray, S. (2024). Investors widen focus to business models in assessing ESG impact. Financial Times. <https://www.ft.com/content/1a9e92d5-e573-42d8-ae3f-54802f45ffa0>
- Naidu, R., & Jessop, S. (2024). Companies walk ESG Tightrope, under fire from all sides over disclosures | reuters. Reuters. <https://www.reuters.com/sustainability/boards-policy-regulation/companies-walk-esg-tightrope-under-fire-all-sides-over-disclosures-2024-02-29/>
- Oprean-Stan, C., Oncioiu, I., Iuga, I., & Stan, S. (2020). Impact of Sustainability Reporting and Inadequate Management of ESG Factors on Corporate Performance and Sustainable Growth. *Sustainability*, 12(20), 8536. <https://doi.org/10.3390/su12208536>
- Pulino, S. C., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG disclosure influence firm performance? *Sustainability*, 14(13), 7595. <https://doi.org/10.3390/su14137595>
- Raut, R. K., Shastri, N., Mishra, A., & Tiwari, A. K. (2023). Investor’s values and investment decision towards ESG stocks. *Review Of Accounting and Finance/Review of Accounting & Finance*, 22(4), 449–465. <https://doi.org/10.1108/raf-12-2022-0353>
- Serafeim, G., & Yoon, A. (2022). Stock price reactions to ESG news: the role of ESG ratings and disagreement. *Review Of Accounting Studies*, 28(3), 1500–1530. <https://doi.org/10.1007/s11142-022-09675-3>
- SME definition*. (z.d.). Internal Market, Industry, Entrepreneurship and SMEs. https://single-market-economy.ec.europa.eu/smes/sme-definition_en
- Wong, J. B., & Zhang, Q. (2022). Stock market reactions to adverse ESG disclosure via media channels. *The British Accounting Review*, 54(1), 101045. <https://doi.org/10.1016/j.bar.2021.101045>
- Yip, A. W. H., & Yu, W. Y. P. (2023). The Quality of Environmental KPI Disclosure in ESG Reporting for SMEs in Hong Kong. *Sustainability*, 15(4), 3634. <https://doi.org/10.3390/su15043634>
- Yu, E. P., Van Luu, B., & Chen, C. H. (2020). Greenwashing in environmental, social and governance disclosures. *Research in International Business and Finance*, 52, 101192. <https://doi.org/10.1016/j.ribaf.2020.101192>