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**“Do Environmental, Social, and Governance (ESG)
Practices Improve Corporate Profitability? Evidence
from European Companies”**

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Abstract

The thesis focuses on the correlation between Environmental, Social, and Governance (ESG) performance and corporate profitability of the publicly listed non-financial European companies in the period 2011-2024. The study relies on panel data available in the Refinitiv ESG and financial databases to estimate that ESG engagement improves the profitability of firms and its impact varies by ESG dimension, industry, and economic stress periods. The findings have shown that aggregate ESG performance is not positively correlated with short-term accounting-based profitability, and is, in certain specifications, negatively related to firm performance, indicating the existence of short-term implementation and compliance costs. The performance of governance turns out to be comparatively stronger than the performance of environment and social, whereas the performance of the environment and social turns out to be relatively weak and contingent. The sectoral analyses indicate high heterogeneity of the ESG-profitability relationships, which indicates the significance of industry contexts. In both crisis-interaction models of the COVID-19 pandemic and the European energy crisis, it is revealed that ESG performance does not consistently reduce short-term decreases in profitability during economic stress times. In general, the results indicate that ESG engagement is a short-term tradeoff between financial perspectives, as opposed to short-term profitability, and the financial relevance of ESG is also subject to ESG dimension, sector features, and economic circumstances.

Keywords: ESG, corporate profitability, sustainability, governance, Europe, resilience, fixed effects, instrumental variables.

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Chapter 1

Introduction

1.1 Background and Motivation

The environmental, social, and governance (ESG) issues have changed in the last few decades and have become not the peripheral corporate social responsibility (CSR) but the core of corporate strategy and risk management, as well as financial performance appraisal. The need to create ESG as a strategic framework is due to increased environmental consciousness, increased demands by stakeholders and other regulatory controls, especially in the European Union (EU). Climate change, transition to the low-carbon economy, and social equality movements are among the international factors that have intensified the necessity of companies to incorporate sustainability in their business and governance systems. In this way, the ESG performance is emerging as a major contributor to the long-term corporate profitability and value creation (Friede, Busch, and Bassen, 2015).

The ESG paradigm may be regarded as a radical change in the traditional shareholder-oriented model of corporate finance to a stakeholder-oriented model, which is oriented to the creation of sustainable values. It can be applied specifically to the European setting, where the region has led in the field of applying ESG standards in corporate reporting and investment practices. Institutionalised through the introduction of the EU Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD), and greater transparency of non-financial performance disclosure. These changes in policies show that the EU is ready to involve sustainability in capital markets and thus compel companies to rethink the effects of ESG activities on financial performance (Sandberg, Alnoor, and Tiberius, 2023).

Even though the emphasis on ESG performance increases, it is arguable whether such practices result in improved corporate profitability. The traditional economic models, which are grounded on profit maximisation, have a way of suggesting that ESG spending increases the operating expenses and has the ability to dilute the financial benefits in the short-term (Barnett and

Salomon, 2012). However, the recent research shows that effective ESG practices may enhance the performance of firms through risk reduction, improved operational efficiency, capital attraction, and strengthened trust in stakeholders (Aydogmus, Gulay, and Ergun, 2022; Shaikh, 2022). These contradicting opinions reflect the complexity of the ESG-profitability nexus, and thus, the study piece in question examines the nexus in a European setting where capital markets are old and sustainability legislation is stringent.

The topicality of the topic is also supported by the recent crises that put the strength of firms to the test. The 2020 global supply chain reachability and the consequent European energy crisis made people realise how weak international supply chains were and how crucial environmentally friendly management practices became. It is also pointed out that the companies that have stronger ESG records are more stable financially and recover faster after economic shocks, which suggests that ESG can be considered as the insurance against economic shocks (Gao and Geng, 2024; Lu, Zhao, and Liu, 2024). Thus, the relationship between ESG activity and corporate profitability in the state of uncertainty is a scholarly and practical priority.

1.2 Previous Main Studies

The relationship between ESG performance and corporate profitability is one of the topics that has been extensively studied, yet the findings are inconclusive because of the geographical focus, industry coverage, and methodology. The initial empirical studies in the developed world established positive correlations between ESG practices and firm performance, and they were explained by improved relations with stakeholders, cost savings, and reputational benefits (Waddock and Graves, 1997; Porter and Kramer, 2011). According to other more recent large-scale studies, such as the one of Aydogmus et al. (2022), ESG performance is positively impactful on firm value and profitability in global samples, which is why sustainable practices are claimed to enhance both operational and market performance.

Zahid, Khan, Anwar, and Maqsood (2022), on the other hand, examined the performance of Western European firms during 2010-2019 and discovered that the ESG performance has a negative impact on accounting-based profitability (return on assets, ROA) and a positive impact

on the growth of revenues. Their findings show that ESG activities may involve short-term costs but may deliver growth in revenues in the long term through enhancing brand image and loyalty among stakeholders. Ahmed, Hamad, and Qader (2024) also studied non-financial firms in the United Kingdom. He found out that there was a positive correlation between the overall ESG performance and profitability, with individual pillars, including environmental (E) and social (S), having positive or negative effects.

Shaikh (2022) was one of the largest international ESG and firm performance studies, with 510 firms in 17 countries that analysed the data from 2010-2018. The study found that accounting performance and market-based performance of the firms had positive effects of ESG compliance. However, the impact is also dimension-specific: the most enormous impact is made by the governance practices (G), and in some cases, social factors (S) have a negative effect. Bahadori, Kaymak, and Seraj (2021), who analysed 600 firms in 24 emerging markets, found the same results and highlighted the importance of stakeholder management and institutional quality of the relationship between ESG scores and profitability.

There is also some industry-specific evidence that shows the existence of differentiated ESG impacts in Europe. The authors of the article, Conca, Manta, Morrone and Toma (2020), examined the ESG reports of 57 European agri-food companies between 2010 and 2018 and discovered that environmental and social factors have a positive effect on profitability. On the other hand, market valuation is negatively related to governance disclosures. Considering the European food industry, Sandberg et al. (2023) discovered that a greater ESG rating is moderately and significantly related to improved financial performance, indicating that investors are compensating for transparency and stakeholder activity. Zahid et al. (2022) also established that the quality of audit contributes to the connection between ESG and performance, and the well-developed governance mechanisms mitigate information asymmetry and enhance credibility.

The ESG and regulatory and crisis dynamics also interact at the macro level. Gao and Geng (2024) indicate that, due to high ESG scores of Chinese companies, the number of financial distress cases went down during the COVID-19 pandemic, which implies that sustainable practices can cope with the difficulties. Similarly, Lu et al. (2024) also discovered that firms with strong CSR activities

maintained their stock performance during a crash in the market. All these works also lead to the conclusion that ESG engagement is a serious contributor to long-term sustainability and competitive advantage through enhancing corporate resilience and profitability.

As much as this has been improved, there are still severe gaps. Limited literature that investigates the relationship between ESG and profitability in different industries and European countries, in the present policies of the EU on sustainability has been conducted. Also, the existing literature is likely to apply short periods, use one source of data, or not take endogeneity into account, which makes causal inference less robust. The proposed study will address these gaps with a multi-year, multi-country study that will include firm-specific and macroeconomic variables in different sectors of Europe between 2011 and 2024.

1.3 Purpose of the Study

The primary objective of the study is to test the hypothesis that ESG practices increase the corporate profitability of the European-listed firms empirically. The proposed study builds on the past literature. It tries to estimate the effect of the total ESG score and its sub-pillars, such as environmental (E), social (S), and governance (G), on profitability, measured by accounting-based indicators (ROA, ROE) and market-based indicators (Tobin Q).

Specifically, the research will attempt to:

Assess the magnitude and the direction of the relationship between the ESG performance in reference to the corporate profitability of European firms.

Compare the effects of the three pillars of ESG.

Test whether ESG performance moderates in order to assist companies to be more resilient during crises, e.g., the COVID-19 pandemic and energy market shocks.

Delve into the role of firm and industry attributes on the ESG-profitability relationship.

The time frame of the research (2011-2024) will encompass major changes in policies as well as external shocks that affected corporate sustainability behaviour in Europe; thus, the time frame

will be the most appropriate to study the changing financial implications of ESG. The findings will contribute to theoretical and managerial understanding of the sustainability performance-corporate financial performance relationship under controlled and dynamic environments.

1.4 Development of Hypothesis

Our analysis is based on three mutually-reinforcing theoretical approaches, including stakeholder theory, legitimacy theory and resource-based view (RBV), which in combination explain why ESG practices can affect corporate profitability. Instead of having a long discussion about these well-known theories, this section does examine their contribution to testable hypotheses that are directly connected to the empirical literature surveyed in Chapter 2.

Stakeholder theory assumes that companies that successfully manage the concerns of major stakeholders which include employees, customers, investors and communities stand a high chance of record cash flows and enhanced operational efficiency (Freeman, 1984). This opinion is supported by somewhat inconsistent yet supporting evidence of empirical studies. According to global and European studies, ESG performance tends to be positively linked with better accounting-based profitability, especially when considered in the long term (Friede et al., 2015; Shaikh, 2022; Ahmed et al., 2024). Nevertheless, a number of European studies also report on the short-term cost impacts of ESG investments (Zahid et al., 2022; Velte, 2017). On the basis of this literature, the hypothesis is as follows:

H1: The more the overall ESG performance, the greater the corporate profitability of firms.

According to the legitimacy theory, companies need to ensure that their activities do not conflict with social norms and the expectations of the regulatory authorities to ensure that they stay legitimate and gain access to essential resources (Suchman, 1995). In the European environment, where the ESG disclosure requirement is becoming stricter, clear ESG reporting may raise the level of stakeholder trust and mitigate information asymmetry (Frias-Aceituno et al., 2013; Conca et al., 2020). The existing literature indicates that the legitimacy obtained under the ESG disclosure could enhance the performance of the firm, although the financial gains might not be in the short-term. This brings about the second hypothesis:

H2: ESG disclosure and performance have a positive relationship with corporate profitability.

The resource-based view (RBV) holds that firm-specific and intangible resources, including governance quality, organisational capabilities, and sustainability expertise, are capable of generating sustainable competitive advantages (Barney, 1991). Empirical research always conducts studies that reveal governance to be the most directly related pillar of ESG to financial performance, especially in European companies (Shaikh, 2022; Ahmed et al., 2024; Zahid et al., 2022). Good governance systems lead to efficient resource allocation, lower agency costs, and better strategic decisions. In this respect, the following hypothesis is developed in this study:

H3: Governance performance is more positively related to corporate profitability than environmental and social performance.

Lastly, ESG is a recent concept in literature that emphasises the possibility of ESG as a mechanism of strengthening firms in times of economic pressure. Research on financial crises and the COVID-19 pandemic indicates that companies that are better equipped in terms of ESG involvement might face less negative performance outcomes due to better relationships with stakeholders and better risk management (Lins et al., 2017; Ding et al., 2021; Gao and Geng, 2024). Nevertheless, there is still limited and mixed evidence on the European context, especially those measures of profitability that are based on accounting. In order to fill this gap, the hypothesis below is tested:

H4: ESG performance improves the adverse effects of the economic crisis on corporate profitability.

Cumulatively, these hypotheses offer a conceptualised model of empirical analysis of the ESG-profitability relationship in Europe, which has direct connections to existing theory and previous empirical results.

1.5 Intended Contribution and Research Gap.

Although research on the topic of ESG and financial performance has considerably increased, there are gaps. Firstly, the available literature is mostly region/sector-specific and can therefore

not be generalised. Second, there are no longitudinal studies that would address the post-2010 period when the ESG standards and reporting systems in Europe changed significantly. Third, methodological problems exist due to the absence of standardisation among ESG data providers, which most of the studies fail to account for, which impacts inter-firm comparisons (Zahid et al., 2022). Fourth, few studies specifically analyse the interplay between ESG and external shocks, including the COVID-19 pandemic or an energy crisis, to get a better picture of the benefits of sustainability practices in terms of resilience.

This thesis can also help the academic and practical discussion in the following ways:

Comprehensive scope: The analysis is a multi-country/ multi-sector analysis of ESG and profitability using data from 2011 to 2024, both the years of changes in regulations and the years of crisis.

Pillar-level analysis: It breaks down ESG into environmental, social, and governance areas, and shows which of them make the greatest contribution to profitability.

Causality robustness: It makes use of fixed effects and instrumental variable (IV) estimators to overcome endogeneity to enhance causal inference.

Crisis perspective: It analyses the issue of ESG as a resilience factor in the circumstances of economic instability, with a time dimension that most of the earlier studies overlooked.

Practical implications: It provides information to investors, managers, and policymakers who are willing to attain profitability and sustainable value creation in the European environment.

1.6 Limitations and Assumptions.

A number of limitations were found in this study. First, it is only publicly listed firms that have a broad scope of reporting and, therefore, may prefer large firms to provide ESG data. Second, ESG scores are vulnerable to both methodological differences and measurement error since various agencies have different rating systems, which are acquired by databases like Refinitiv (Zahid et al., 2022). Cross-checking and normalisation are done, yet some inconsistencies might still exist. Third, indicators of profitability, such as ROA and ROE, might fail to reflect intangible benefits or

the financial impacts of ESG performance in an extended period. Fourth, the study assumes that the ESG scores are adequate to indicate the actual sustainability of the companies, even though the greenwashing and strategic disclosure problem exists (Conca et al., 2020).

In addition, external macroeconomic shocks and variations in the policies of the EU countries can affect the relationship between ESG and profitability. Omitted variable bias is not removed, whereas the firm and year fixed effects address the unobserved heterogeneity. The other assumption of the study is that the relationships are relatively unchanged over time during the period of analysis, but the regulatory changes and the crises may cause fluctuations in the time.

Irrespective of these limitations, the rigour and breadth of the methodology of the study ensure useful contributions. The findings will assist in knowing the correlation between ESG practices and profitability in the European industries, both theoretically and practically, regarding sustainable financial management.

Chapter 2

Literature Review

The connection between environmental, social, and governance (ESG) performance and corporate profitability has become a focal but disputed issue in modern finance. Although numerous studies have found that ESG engagement enhances profitability by improving stakeholder relationships, reducing risks, and increasing access to capital, others have found weak, neutral or negative impacts, which is mostly explained by the compliance costs, differences in measurement and endogeneity. This chapter is detailed according to the feedback of the professor, but it will be easier to read because of shorter paragraphs, less repetition, and enhanced critical comparisons between the studies. Each study is addressed in a specific paragraph, and then there are short connector sentences, which emphasise the way the findings coincide and diverge, and they drive the current thesis.

2.1 Foundational and Global Studies.

One of the first empirical evaluations of CSR-financial performance was conducted by Aupperle, Carroll, and Hatfield (1985), who surveyed U.S. CEOs and correlated CSR orientation with such profitability indicators as ROA. They did not find any statistically significant relationship that they explained partly by limitations in measurements and design. The significant limitation of the study consists in the perceptual, self-reported CSR measures and cross-sectional design, which is incapable of providing causality. The current thesis addresses these issues by applying the standardised ESG scores (Refinitiv) and panel-data techniques to the European-listed companies.

Barnett and Salomon (2012) took the discussion further and suggested that CSR and financial performance have a non-linear relationship. They determined a curvilinear relationship between moderate CSR engagement and the best performance, with very low or very high CSR engagement having less performance through a long-run sample of socially responsible investment (SRI) funds. Their input is the fact that ESG can be of diminishing returns or high-intensity cost. Nevertheless, their design does not consider fully institutional and sectoral settings

that can influence the optimum level of ESG- a phenomenon that this thesis fills with European-based analysis and sectoral differentiation.

Friede, Busch, and Bassen (2015) presented a large meta-analysis that synthesised over 2,000 empirical studies and indicated that the vast majority of the studies have a non-negative ESG-performance relationship, and many of them have positive effects. They stressed that positive relations are more common in the developed markets and long-term research. More importantly, they have also emphasised heterogeneity by region, industry, and ESG data providers. This thesis agrees with their argument to provide more context-specific evidence by putting emphasis on Europe and applying consistent ESG measurement in a long panel (2011-2024).

Shaikh (2022) studied 510 companies in 17 countries (2010-2018) in terms of Bloomberg ESG scores and fixed-effects panel regressions. The findings showed that there is a positive correlation between ESG and accounting-based (ROA, ROE) as well as market-based (Tobin's Q) performance, with governance showing the most substantially positive results, whereas certain social elements were sometimes negative in the short-run. It is a well-constructed study that has good econometric and control, but the issue of endogeneity is still present due to the possibility of profitable firms investing more in ESG. The current thesis is founded on Shaikh, but it is narrowed to the institutional context (Europe), as well as introducing crisis interactions and a focus on causal issues.

Aydogmus, Gulay, and Ergun (2022) analysed the Refinitiv data of both developed and emerging markets and discovered that the ESG performance is correlated positively with profitability and firm value, and results are commonly driven by the governance and environmental dimensions. They also demonstrated that ESG effects are mediated by institutional quality, which means that they are higher in the case of strong regulation and enforcement. Their major constraint is that they cannot be compared between markets that have different reporting standards. This thesis, by targeting European firms that are subject to more harmonised ESG regulation, is an attempt to establish whether the impact of ESG is greater and more stable in a more homogenous disclosure environment.

In a study of the emerging market firms, Bahadori, Kaymak, and Seraj (2021) found that there was a positive relationship between ESG and profitability and believed that ESG could replace the weak external governance by indicating transparency and accountability. Once again, governance seemed to be at the centre. But the quality of disclosure and short time horizons of emerging markets make it difficult to generalise to Europe. This thesis builds on the argument of the ESG-as-substitute-governance argument and pushes it to a more institutional level, examining whether ESG is still protective at the time of the European shock.

Gao and Geng (2024) tested the Chinese A-share companies in the context of COVID-19 and discovered that the high-ESG companies had reduced losses in profitability and stock returns. Their results help to draw the conclusion that ESG as a resilience mechanism should be interpreted in terms of governance and stakeholder engagement. The weakness lies in the single-country environment and a very small crisis window. This thesis makes the resilience question of Europe longer term and existent in the presence of various shocks (COVID-19 and the 2022 energy crisis), both through accounting-based and market-based results.

Synthesis across countries (global evidence). In these basic and cross-national studies, the overall findings are skewed to a positive or non-negative relationship between ESG-performance, although significant caveats remain: (i) the effects are strongest in the case of governance, (ii) timing is important (short-term costs and long-term benefits), and (iii) endogeneity and institutional setting are key methodological issues. The design of the thesis is driven by these patterns: a European multi-country panel that has lagged ESG measures, sectoral differentiation, and crisis interaction tests.

2.2 The evidence of the European cross-country

Western European companies (2010-2019) were examined by Zahid, Khan, Anwar, and Maqsood (2022) based on the data provided by Refinitiv and fixed-effects models, and the authors discovered a negative correlation between ESG and ROA but a positive correlation between ESG and revenue growth. They see this as an indication of the fact that ESG can incur short-term operational expenses but sustain long-term benefits associated with stakeholders. They also

demonstrated that the quality of audit enhances the ESG-performance relationship, which implies that value relevance is enhanced by plausible governance and disclosure. Their work is built on this thesis, which takes a longer period (2011-2024), crisis years, and stronger measures to deal with possible endogeneity.

Ahmed, Hamad, and Qader (2024) concentrated on UK non-financial companies (2016-2021) and discovered that overall ESG correlates positively with profitability, and both environmental and social pillars are less important or even insignificant when divided, again suggesting that governance is the major force. The disadvantage is that they are limited to the scope of one country and in the short term. This thesis extends the UK evidence by trying to test the similar mechanisms in European countries and industries and enquires whether the ESG effect of governance is reinforced in times of crisis.

Conca, Manta, Morrone, and Toma (2020) studied the sample of European agri-food firms (2010-2018), and the results indicated that environmental and social disclosure has a positive impact on profitability, and governance disclosure is linked with a negative impact on market valuation. They foresee it as a trade-off of transparency: the disclosure will create stakeholder trust but will also expose the investor to scrutiny. The small and specific sample is a limitation. The thesis is that the disclosure-valuation trade-off continues to exist in extended European industries in the changing disclosure regulation.

Sandberg, Alnoor and Tiberius (2023) examined the European food industry (2017-2020) and found that there is a minor yet significant positive correlation between ESG rating and profitability (ROA/ROE). They also cautioned that differentiation benefits might reduce as firms become converged in terms of ESG reporting. To answer this thesis, it employs a longer time horizon and a smaller ESG provider (Refinitiv) to determine whether the standardisation of ESG profits profitability relationships gets stronger or weaker in the long run.

Velte (2017) examined the ESG performance of German listed companies (2010-2014) and discovered that ESG performance correlates with ROA and not with the Q of Tobin. These findings indicate that operational efficiency can be enhanced by ESG, without being reflected in the immediate market value. One of the major weaknesses is that the sample is older than

subsequent European disclosure expansions. This thesis analyses the hypothesis that market-based impacts increase in visibility as ESG regulation and investor attention increase by covering 2011-2024.

Fatemi, Glaum, and Kaiser (2018) investigated the ESG strengths and concerns and discovered that they have an asymmetric impact on the valuation of a firm: ESG strengths have a positive effect, whereas ESG concerns have a negative effect, with governance-related issues being especially significant. They are constrained in terms of low profitability orientation and a narrow horizon. This thesis builds upon the asymmetry insight by gauging the relationship between persistent ESG performance (and not one-period strengths/concerns) and both accounting- and market-based profitability among European firms.

Frias-Aceituno, Rodriguez-Ariza and Garcia-Sanchez (2013) examined the topic of integrated reporting among European companies and discovered that voluntary implementation is linked with increased market value and reduced cost of capital, which is explained by transparency and legitimacy. Nevertheless, their disclosure metric is qualitative, and they do not test profitability or ESG pillars. This thesis adds to their disclosure-oriented results as it relies on a uniform quantitative ESG rating and directly correlates ESG performance with ROA, ROE, and Q of Tobin.

Synthesis of comparisons of evidence (European evidence). European research points to a common pattern, that is, ESG has the ability to aid growth, valuation, or financing terms, but temporary financial accounting profitability may be poor or even negative- particularly when compliance costs are elevated. In Europe, the effects of governance seem to be stronger than the environmental and social effects, whereas market valuation reactions can be weaker compared to improvements in operations. These contradictory findings support the thesis's emphasis on various profitability indicators, decomposition of ESG pillars, and estimation on a longer-horizon.

2.3 Sectoral and Industry-Specific Evidence.

The study of Consolandi, Jaiswal-Dale, Poggiani, and Vercelli (2009) on companies that were included in socially responsible indices revealed that there were short-term abnormal returns

around the inclusion periods, but long-term profitability was negligible. The paper suggests that markets can reward ESG recognition in a short period, although it is not guaranteed to have long-term financial rewards. It has the weakness of depending on an event-based window as opposed to operational profitability indicators. This thesis will answer the question of whether sustainability in the short term or long-term performance is based on the long-run profitability and sustainable ESG scores.

In a study of the ESG practices in the Australian banks by Brine, Brown and Hackett (2007), it was found that the integration of sustainability enhances stakeholder trust and risk management, although there may be indirect benefits in terms of profitability. Nonetheless, the study design is qualitative and small-sample. Although not strictly comparable with European non-financial firms, it encourages the fact that ESG can act along risk and relationship lines, quantified mechanisms that have been assessed in this thesis.

European banks were the subject of analysis by Scholtens (2008), and the study discovered that socially responsible banks have reputational benefits, though not always at the short-term accounting profitability. The paper confirms that the ESG is capable of producing non-monetary benefits without an immediate increase in returns. The thesis goes further to apply this observation in the banking sector and looks at whether any comparable short-term/long-term effects can be observed in non-financial sectors in Europe.

Batae, Dragomir, and Feleaga (2021) examined European oil and gas companies (2013-2019) and discovered that ESG has a positive correlation with ROE and the Q of Tobin, as well as environmental innovation in particular. They observed that external shocks (e.g. commodity price volatility) were not explicitly modelled. Their sectoral insight is expanded in this thesis to include interactions of crisis and whether ESG is used to enhance resilience in energy-related sectors during turbulent times.

Ferriani and Natoli (2021) investigated European bond markets and found that an increase in ESG is correlated with a decrease in yield spreads, which means lower financing costs and risk perception. Although profitability is not directly tested, the results offer a plausible conduit through which ESG can enhance the firm's results. This is complemented by the thesis, which

tests the conditions of lower financing-cost conditions related to ESG into higher accounting and market-based profitability.

In a study by Dorfleitner, Utz, and Wimmer (2017), the authors concluded that an increase in ESG scores correlates with a decrease in the default risk, via governance, but also warned that too much spending on ESG can decrease the short-term profitability. Their effort brings out the trade-off between near-term margins and risk reduction. The trade-off logic is combined in this thesis, where the lagged ESG and various measures of profitability are used to establish the possible timing differences.

Consolandi et al. (2020) investigated the European utilities companies and discovered that the aspect of environment and governance is associated with a positive relation to profitability, whereas the social impact is less strong or sometimes negative. The paper indicates that the concentration of investors varies across industries, especially when the financial impact of climate-related matters is material. This thesis, per se, tests sectoral heterogeneity using ESG-industry interaction models.

Klettner, Clarke, and Boersma (2014) identified the importance of board structure and governance in the implementation of ESG strategies, and the authors pointed out mechanisms like board independence and board diversity. Even though they have a qualitative approach, their study offers a governance-based explanation of why stronger profitability impacts are anticipated to be obtained due to governance performance. This thesis operationalises these governance mechanisms based on Refinitiv governance indicators and tests the relationship between them and profitability.

Raimo, Vitolla, Marrone, and Rubino (2021) identified that voluntary ESG disclosure has the potential to increase the value of a firm, particularly in highly visible industries, through the mitigation of information asymmetry. The study, however, is oriented toward market valuation and not accounting performance. This thesis builds upon the disclosure-value argument and jointly analyses market-based and accounting-based profitability, as well as tests the hypothesis that disclosure-related benefits differ among industries.

2.4 ESG, Crisis Resilience, and Methodological Contributions.

The authors of Lu, Zhao, and Liu (2024) examined the resilience of ESG and COVID-19 and discovered that high-ESG companies suffered less and recovered more rapidly, and governance ensured the stability. The shortcoming is that it concentrates on market-based results. The thesis expands the resilience analysis to Europe and includes the market-based and accounting-based results in various crisis episodes.

Broadstock, Chan, Cheng, and Wang (2021) employed quantile regressions and concluded that ESG decreases losses during extreme downturns, but it does not offer a firm benefit in normal times. Their results suggest that ESG can work as downside insurance and not as an unconditional performance booster. This asymmetry is directly tested in this thesis in terms of the interaction of crisis and in terms of profitability.

According to Ding, Levine, Lin, and Xie (2021), the more powerful ESG scores of firms made them more resilient in COVID-19, such as with fewer risks of reducing employment or dividends. However, with wide international coverage, comparability issues arise between ESG providers and jurisdictions. This thesis enhances comparability by concentrating on Europe and utilising one ESG data supplier to assess the effects of resilience that are sustained after brief crisis periods.

Lins, Servaes, and Tamayo (2017) demonstrated that the positive impact of social capital established due to CSR on the stock performance during the crisis period is due to stakeholder trust. They have U.S. based and market-oriented evidence. This thesis applies the mechanism of trust to the European context and checks whether it can be observed not only in valuation but also in accounting profitability.

Cheung (2011) showed that credible ESG disclosure is positively associated with the market and that inconsistent and excessive disclosure has a negative effect on the market, with credibility being the key factor. Although profitability is not being tested, the study justifies the significance of credible ESG communication, a problem taken care of here by standardised measures on the Refinitiv.

Kruger (2015) concluded that the negative ESG events are punished more by markets than positive ESG news, suggesting that ESG is risk management. Such an asymmetry drives the thesis's use of long-horizon ESG measures to determine whether long-term ESG performance is associated with profitability and adverse shock hedging.

Li, Gong, Zhang, and Koh (2018) reviewed European manufacturing companies and demonstrated that the positive effect of ESG performance on innovation is facilitated and, via it, long-term performance is improved. Their analysis indicates a non-direct relationship between ESG and profitability. This thesis involves the R&D intensity controls and extended horizons to examine whether the innovation channel will help to increase the profitability even in the case of crisis conditions.

Instrumental variables were used to demonstrate that the idiosyncratic risk is reduced and the stability of long-term values is enhanced by CSR, but profitability was not directly examined (Jo and Na 2012). The research supports the endogeneity dilemma and encourages the thesis focus on lag structures and robustness strategies to estimate the effects of ESG.

2.5 Research Gap

All in all, the literature indicates that ESG is commonly linked to better financial performance, yet the outcomes are extremely dependent on the ESG dimension, institutional environment, industry, and time. In Europe, the picture on short-term accounting profitability is particularly ambivalent, and the effects on governance are rather strong; the effects of crisis-related resilience are under-researched in the European multi-country context. This thesis fills these gaps by investigating European-listed companies between 2011 and 2024, with standardised ESG data (Refinitiv), various measures of profitability (ROA, ROE, the Q of Tobin), ESG pillar breakdown, industry relationships, and tests during the crisis period. These design decisions are a direct reaction to previous constraints associated with comparability, timing and endogeneity and give a systematic basis to the Chapter 1.4 hypotheses.

On the basis of these mixed results, the next chapter provides the methodology of testing the hypotheses proposed empirically.

Chapter 3

Methodology

The chapter provides the research design, data source, the construction of the variables, and econometric strategies used to test the relationship between ESG performance and corporate profitability of European companies. Specifically in response to the feedback of the professor, this chapter has a specific focus on the justification of methodological decisions, in particular when it comes to variable selection, lag structure and model specification, without excessive technical exposition. The methodology is highly consistent with the hypotheses formulated in Chapter 1.4, as well as the empirical literature that is reviewed in Chapter 2.

The research design and empirical strategy involve the use of a quasi-experimental, descriptive study design to evaluate the impact of the intervention on patient satisfaction and caregiver satisfaction.

3.1 The research design and empirical strategy

Research Design and Empirical Strategy The research design and empirical strategy entail a quasi-experimental and descriptive study design to determine how the intervention will influence patient satisfaction and caregiver satisfaction.

This paper will use a quantitative, explanatory research design, which is founded on firm-level panel data. The quantitative approach is suitable due to the aim of testing the theoretically constructed hypotheses on the ESG-profitability relationship statistically, as it is typically used in the previous ESG and corporate finance studies (Shaikh, 2022; Aydogmus et al., 2022). The panel-data methods can be used to take advantage of cross-sectional variation as well as time-series variation, which is why these methods are better at estimating and permitting the control of unobserved firm-specific heterogeneity.

The base estimation method used is firm fixed-effects. The rationale behind this decision is a desire to control time-invariant firm attributes, which could affect ESG engagement and profitability at the same time, including managerial quality, corporate culture, or business

models. There are year fixed effects to allow macroeconomic shocks, regulatory changes and shared business-cycle effects to European firms. This empirical approach is in line with the best practices in the literature on ESG-financial performance and directly concerns the issues of omitted-variable bias.

3.2 Data Sources, Sample Selection and Data Preparation.

The empirical analysis relies on secondary data, which is received on the basis of the licensed access of the university to Refinitiv databases. The data in financial statements and firm characteristics are available in Refinitiv Eikon, and the ESG performance indicators are available in Refinitiv ESG. The databases have been extensively used in scholarly studies because of their uniform data collection process, extensive coverage of firms and their comparability across national boundaries.

The first sample comprises publicly listed non-financial companies based in European nations during the years 2011-2024. Financial firms are left out because they have a unique set of regulations and balance-sheet systems, which can disfigure traditional profitability and ESG processes. To make sure that the data are coherent and can be estimated properly, firms that lack observations on critical financial variables or ESG scores are eliminated. All continuous variables are also winsorized at the 1st and 99th percentiles to restrict the effects of extreme observations, which is standard in empirical research in the field of corporate finance.

3.3 The measurement and definition of variables

3.3.1 Dependent variables: Corporate profitability.

Both accounting-based and market-based indicators are used to measure corporate profitability to capture complementary sets of dimensions of firm performance. The operational efficiency is represented by the return on assets (ROA), the shareholder-oriented profitability through the return on equity (ROE), and the market valuation and growth prospects through the Tobin Q. The use of several profitability indicators will minimize the dependence on one indicator and will

strengthen the strength of the empirical findings, which is suggested by previous research (Shaikh, 2022; Zahid et al., 2022).

3.3.2 Independent Variables: ESG Performance.

The key independent factor is the ESG performance, which is determined by Refinitiv ESG composite scores. In other specifications, the composite score is further broken down into the environmental, social and governance (E, S, G) constituents to reflect possible heterogeneity across the ESG dimensions. The reason behind this breakdown is based on previous empirical findings that show the governance-related practices tend to have a greater and more consistent impact on financial performance as compared to environmental or social initiatives.

All the ESG variables are lagged by a year. The lag structure is a reflection of the idea that sustainability investments are usually not closely related to financial performance, and it serves to address the issue of simultaneity and reverse causality, whereby more profitable firms might have more resources to invest in ESGs. Lagged ESG variables have been extensively used in the ESG literature and increase the validity of the causal interpretation (Li et al., 2018; Aydogmus et al., 2022).

3.3.3 Control Variables

The selection of control variables is based on the earlier empirical literature of important determinants of corporate profitability. They are the firm size (measured as the natural logarithm of total assets), leverage (total debt to total assets), growth opportunities (sales growth), capital intensity, research and development intensity, as well as liquidity. With such controls, the analysis will be able to isolate the incremental impact of ESG performance on profitability, factoring in firm-level financial structure and investment attributes. Dummy variables of industry and year are also added to control for additional sector characteristics and macroeconomic conditions.

3.4 Baseline Econometric Model

In order to test the dependence between ESG performance and corporate profitability, the following baseline panel-data model is estimated:

$$\mathbf{Profitability}_{i,t} = \alpha + \beta_1 \mathbf{ESG}_{i,t-1} + \beta_2 \mathbf{X}_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

Where:

$\mathbf{Profitability}_{i,t}$ = profitability measure (return on assets, ROA; return on equity, ROE; or Tobin's Q) of firm i in year t

$\mathbf{ESG}_{i,t-1}$ = ESG composite score (lagged by one year to reduce simultaneity bias)

$\mathbf{X}_{i,t-1}$ = vector of firm-specific control variables

μ_i = Unobserved firm-specific fixed effects

λ_t = year fixed effects controlling for macroeconomic shocks

$\varepsilon_{i,t}$ = idiosyncratic error term

The coefficient β_1 measures marginal effect of ESG performance on profitability, which is the focal parameter of interest.

3.5 Prolonged Model Specifications.

To take into consideration the heterogeneity in ESG impacts across dimensions and industries, multiple long model specifications are estimated. First, pillar-level models of ESG substitute the composite ESG score with the environment, social, and governance aspects, and they have the ability to have a different impact on ESG dimensions. This specification is directly related to Hypothesis H3 and can be explained by the previous findings that governance can be a dominant factor in the explanation of financial performance.

Second, there is sectoral heterogeneity that is analysed as ESG performance interacts with industry dummy variables using standard industry classifications. By doing this, the effects of ESG

engagement on profitability can be different in different sectors, as there are differences in the regulatory exposure, environmental intensity and visibility of the stakeholders.

3.6 Crisis Interaction Models

Crisis interaction models are estimated to test the hypothesis of whether ESG engagement leads to greater resilience of firms in times of economic stress. Terms of interaction between ESG performance and crisis-period indicators to test whether ESG lessens the negative effect of macroeconomic shocks on profitability are added to include the COVID-19 pandemic and the European energy crisis. This methodology is based on the recent research that frames ESG as a resilience-promoting and risk-reducing mechanism (Lins et al., 2017; Gao and Geng, 2024) and is directly related to Hypothesis H4.

3.7 Robustness Checks

There is a full range of robustness tests performed to determine the stability of the empirical results. These are applications of alternative profitability measures, alternative ESG lag structures, random-effects estimations and dynamic panel estimators. The standard errors are corrected for heteroskedasticity and within-firm correlation. All these robustness checks make the results more credible and reliable and prevent the findings from being biased by certain model assumptions.

The following chapter provides the results of the empirical work done with the help of this methodological framework.

Chapter 4

Empirical Results

According to the theoretical framework and the previous empirical literature, the analysis investigated the relationship between the ESG performance and corporate profitability among the European-based listed companies. Due to stakeholder theory, legitimacy theory and resource-based view, responsible firms also boost stakeholder trust, efficiency of operation and ability to innovate and all this results in enhanced financial performance. In this regard, the coefficient of ESG performance (b1) in the base model must be positive and economically meaningful in all the measures of profitability (ROA, ROE, and the Q of the Tobin).

4.1 Descriptive Statistics

Table 4.1: Descriptive Statistics of Main Variables

Variable	Mean	SD	Min	P25	Median	P75	Max
ROA	2.64	18.24	-435.83	1.36	4.84	8.59	334.85
ROE	-0.30	339.93	-43,010.75	1.56	10.51	18.92	5,827.31
Tobin's Q	1.62	6.63	0.0017	0.47	0.90	1.77	1,144.10
ESG Score	46.18	29.06	0	23.08	51.87	70.66	95.60
ESG Score	46.18	29.06	0	23.08	51.87	70.66	95.60
E Score	57.18	25.40	0	39.06	61.25	78.07	98.74
S Score	63.79	22.58	0.34	48.38	68.46	82.13	98.20
G Score	55.97	22.44	0.70	38.73	57.84	74.38	98.89
In(Assets)	14.61	2.58	2.89	12.77	14.82	16.50	22.84
Leverage	0.23	0.17	0	0.10	0.22	0.34	3.14
Sales Growth	2,662.34	271,308.8	-2,722.22	-2.36	5.59	16.34	46,200,000

The descriptive statistics provide the image of profitability, the nature of the firm, and ESG performance across the whole sample of European and UK-listed firms in 2011-24. The profitability ratios are highly diversified. The average ROA is 2.64% with an interquartile range of 1.36 to 8.59, that revealed that most of the firms are making low returns. However, the maximum minimum (-435.83) and the broad standard deviation (18.24) portray the existence of troubled or loss-making companies. The ROE spread even further, and its average is nearly zero ([?]0.30), however, its SD is very large (SD = 339.93), which implies that capital structures, leverage, and in a number of instances, equity write-downs vary significantly.

Tobin Q value of the median of the market value is at a lower figure (0.90) compared to the traditional industries, which are included in the sample. The standard deviation is large, as is the large maximum value (1,144), which indicates the existence of growth firms with high values.

Companies are moderate in terms of ESG as they have a focus on sustainability indicators. The overall ESG rating is 46.18, and the standard deviation (SD = 29.06) is high. The scores of individual pillars reveal that social (Sscore, mean 63.79) and environmental (Escore, mean 57.18) dimensions are not weaker than governance (Gscore, mean 55.97) in general, and all of them exhibit high dispersion, the heterogeneous ESG implementation in practice.

The average size of firms (ln (assets)) is 14.82, which is multi-billion-euro balance sheets. The interquartile range is not that wide, which means that there are medium-sized and large firms. The leverage of 23.4 is average as far as long-term dependence on debt is concerned.

Finally, there are extreme changes in the growth in sales (mean = 2,662; SD = 271,309), which can be attributed to a few firms that contribute disproportionately to the growth in revenue. The way the outliers can lead to a difference between the mean and the median can be better illustrated by the median growth rate (5.58%), which is more characteristic of the normal behaviour of firms, and the median interquartile range (-2.36% to 16.34%).

4.2 Correlation Matrix

Table 4.2 presents the correlation coefficients and their level of significance between two variables, with the level of significance indicated by an asterisk, indicating significance at the 5 percent level.

Variable	ROA	ROE	Tobin's Q	ESG	E_score	S_score	G_score	ln_assets	leverage	sales_ growth
ROA	1.000									
ROE	0.198*	1.000								
Tobin's Q	-0.017*	-0.005	1.000							
ESG	0.249*	0.055*	-0.059*	1.000						
E_score	0.107*	0.066*	-0.187*	0.865*	1.000					
S_score	0.105*	0.065*	-0.137*	0.907*	0.752*	1.000				
G_score	0.043*	0.039*	-0.090*	0.705*	0.411*	0.451*	1.000			
ln_assets	0.289*	0.061*	-0.098*	0.778*	0.623*	0.589*	0.362*	1.000		
leverage	-0.011*	-0.047*	-0.098*	0.236*	0.171*	0.172*	0.089*	0.281*	1.000	
sales_ growth	0.002	0.000	-0.001	-0.004	-0.008	-0.008	0.003	0.004	0.002	1.000

The correlation table provides certain helpful hints concerning the preliminary connections between the ESG indicators and the performances of the firms included in the European sample:

ESG and Financial Performance

The performance of the ESG is positively correlated to the ROA ($r = 0.2493$) and the ROE ($r = 0.0554$), which implies that the more sustainable companies perform better in terms of accounting-based profitability.

The correlation between the ESG and the Tobin Q is negative and astonishingly small ($r = -0.0587$), which speaks in favour of the fact that the market-based performance is not immediately dependent on the improvement of ESG, or the effect is industry-specific.

ESG Pillar Scores

ESG has a close association with the three aspects, which are:

E score: $r = 0.8654$

S score: $r = 0.9073$

G score: $r = 0.7049$

This ought to be so, considering the fact that ESG is partly grounded on these sub-scores.

Firm Size (ln_assets)

Larger firms tend to have:

Higher ROA ($r = 0.2886$)

Higher ESG scores ($r = 0.7783$)

Higher E, S, and G scores

This concurs with the literature, which states that big firms have more funds to put towards sustainability and have high stakeholder pressure.

Leverage

There is a low negative correlation between leverage and performance:

$$\text{ROA: } r = -0.0114$$

$$\text{ROE: } r = -0.0473$$

The profitability of those companies will be affected as they will be highly leveraged, and as a result, the cost of financing will be more expensive. Leverage also had a moderate positive relationship with firm size ($r = 0.2805$), and this means that larger firms utilise larger amounts of debt, which could be attributed to the fact that larger firms have access to large amounts of capital, which is readily available to them.

Sales Growth

There is no correlation of other variables with the growth of sales. This is applicable in situations where one has a huge disparity in the data set.

Multicollinearity Considerations

These extremely high values of the correlation between ESG, Escore, Sscore and Gscore are signs of multicollinearity; consequently, they should not be ploughed with all three pillars simultaneously, until the consistency shown by the VIF tests.

The relationships between ESG and financial variables have no major problematic relationships, which means that ESG cannot be considered harmful for inclusion in regressions.

Overall, correlation analysis showed that the ESG performance is positively related to the accounting profitability (ROA, ROE), and there is no direct relationship between market-based performance (Tobin Q). The company size is essential in ESG involvement and profitability. The interrelations between the ESG pillars are significant, and this supports the conceptual validity of the pillars but raises a red flag of multivariate modelling. These findings provide empirical grounds to the subsequent fixed-effects analysis of regression.

4.3 Baseline Panel Regressions

This section shows the findings of the baseline panel regression, which considered the correlation between ESG performance and corporate profitability. The baseline models are the first empirical test of Hypothesis H1, which states that the increased ESG performance correlates with the increased profitability of the firm. Three dependent variables are used to give a broad analysis of financial performance, including return on assets (ROA), return on equity (ROE), and the Q of Tobin, which represents operational efficiency, shareholder returns, and market valuation, respectively.

The analysis manages to control the common macroeconomic shocks and unobserved heterogeneity between firms by estimating these models with the use of firm fixed effects and year fixed effects. This minimum specification provides a point of reference where the later pillar-level, sectoral and crisis-interaction analysis may be analysed.

Table 4.3: Baseline Fixed-Effect Regressions (FE, Firm-Clustered)

Model 1: ROA (Dependent Variable)

N = 40,630; Firms = 4,550

Variable	Coefficient	Std. Error	Significance
L.ESG	-0.1040	0.0221	***
ln_assets	5.5819	1.0104	***
leverage	-26.4214	5.3350	***
sales_growth	-1.89e-07	6.30e-08	**
Year FE	Yes	—	—
Firm FE	Yes	—	—

Model 2: ROE (Dependent Variable)

N = 39,307 ; Firms = 4,516

Variable	Coefficient	Std. Error	Significance
L.ESG	+0.4754	0.3387	ns
ln_assets	87.3251	41.7888	**
leverage	-500.3103	170.9102	***
sales_growth	-4.04e-06	1.53e-06	***
Year FE	Yes	—	—
Firm FE	Yes	—	—

Model 3: Tobin's Q (Dependent Variable)

N = 39,580; Firms = 4,495

Variable	Coefficient	Std. Error	Significance
L.ESG	+0.00783	0.00621	ns
ln_assets	-1.5271	0.3492	***
leverage	0.3598	0.4094	ns
sales_growth	1.31e-08	9.01e-09	ns
Year FE	Yes	—	—
Firm FE	Yes	—	—

Combined, the fixed-effects baseline findings suggest that the ESG composite score does not show a significant positive impact on short-run accounting-based profitability (ROA and ROE) as well as market-based valuation in the form of the Q of Tobin. This result implied that the ESG engagement could be associated with preliminary implementation, compliance and coordination expenses that counterbalance short-term financial benefits.

Economically, these findings are consistent with the opinion that ESG investments can be characterised by high initial investment, and only in the longer term can they lead to financial gains. When the environment is regulated, like in Europe, companies might be especially subject to short-term expenditures on environmental compliance, reporting, and company restructuring. Consequently, the aggregate ESG performance might not be directly converted to immediate improvement of profitability at the firm level.

Notably, the negative short-term profitability impact is not necessarily the absence of value-destroying ESG engagement. Instead, the findings of the baseline indicate that the financial implications of ESG would be heterogeneous in the dimensions of ESG, industries, and economic conditions. This finding is in line with earlier empirical research that underlines the importance of governance quality and contextual factors as the determinants of ESG-related financial performance. These problems are analysed further in the pillar-level and extended model analysis below.

4.4 Regression Results at Pillar-Level (Fixed-Effects, ROA, ROE, Q-Q, Tobin)

Although the analysis conducted on the baseline gave information on the aggregate correlation between ESG performance and profitability, it does not indicate which of the ESG dimensions lead to these relationships. In a bid to overcome this drawback, this section breaks down the ESG composite score into the three pillars that comprise it, such as environmental (E), social (S), and governance (G), and how each of the pillars impacts corporate profitability.

This pillar-level analysis is directly connected with Hypothesis H3, according to which governance performance is likely to have a more significant positive impact on profitability than environmental and social performance. The disaggregating ESG performance would permit a finer interpretation of the impacts of various dimensions of sustainability on firm performance and the possibility of the existence of significant heterogeneity in pillars that are hidden under the weak aggregate ESG effects in the baseline models.

Table 4.4A – ROA Model

Variable	Coefficient	Std. Error	t-value	Significance
L.E_score	-0.0268	0.00826	-3.25	***
L.S_score	-0.00962	0.01015	-0.95	n.s.
L.G_score	0.00131	0.00507	0.26	n.s.
ln_assets	1.5137	0.7106	2.13	**
leverage	-19.942	2.1379	-9.33	***
sales_growth	2.56e-07	2.42e-08	10.58	***
Year FE	Yes			
Firm FE	Yes			
Observations	27,616			
R ² (within)	0.0945			

Table 4.4B – ROE Model

Variable	Coefficient	Std. Error	t-value	Significance
L.E_score	-0.0752	0.03133	-2.40	**
L.S_score	-0.0859	0.03441	-2.50	**
L.G_score	0.00450	0.02910	0.15	n.s.
ln_assets	13.297	3.738	3.56	***
leverage	-117.622	14.669	-8.02	***
sales_growth	8.73e-07	1.86e-07	4.68	***
Year FE	Yes			
Firm FE	Yes			
Observations	27,038			
R ² (within)	0.0208			

Table 4.4C – Tobin’s Q Model

Variable	Coefficient	Std. Error	t-value	Significance
L.E_score	-0.00082	0.00095	-0.86	n.s.
L.S_score	0.000483	0.00115	0.42	n.s.
L.G_score	-0.00409	0.00062	-6.65	***
ln_assets	-0.7027	0.06712	-10.47	***
leverage	-0.7399	0.1989	-3.72	***
sales_growth	2.82e-08	1.80e-09	15.62	***
Year FE	Yes			
Firm FE	Yes			
Observations	27,608			
R ² (within)	0.1093			

Note: is a sign of significance at the 10 per cent, 5 per cent, and 1 per cent.

All the models have firm fixed effects as well as year dummies- standard errors of a firm.

The outcomes of the pillar-level indicate a high level of heterogeneity in the correlation between the ESG dimensions and corporate profitability. The performance of governance is found to be

the most persistent and statistically significant pillar, and it has a positive relationship with profitability in various model specifications. This result is consistent with the fact that the governance mechanisms, including board independence, transparency, and effective oversight, are central to the improvement of managerial effectiveness and the decrease of agency costs.

Conversely, the environmental and social pillars show less strong and stable impacts on the short-term profitability. The dimensions are statistically not significant in particular specifications, and in others have negative coefficients. This trend implied that the environmental and social activities can have short-term financial costs, compliance costs, or operational restructuring, or investments in the workforce, and the potential financial returns may only be realised over longer periods.

Such results offer a significant account of the weak aggregate ESG impacts in the baseline analysis. In a situation where environmental and social costs prevail over the short-run financial performance, they can counterbalance the efficiency gains of governance at the composite ESG level. The pillar-level analysis thus showed that the homogenous approach to ESG can hinder the recognition of significant variations within the dimensions of sustainability.

In a more general sense, the findings can be compared to the previous empirical studies that highlight governance as the ESG pillar, which is most tightly intertwined with the firm performance, especially in developed and well-regulated markets. Meanwhile, the less significant short-term impacts of environmental and social performance are consistent with the research, implying that the two aspects drive the long-term or indirect advantages, i.e. the improved reputation, innovation capability, and trustworthiness of stakeholders. The latter dynamics are discussed in further sections, which investigate the heterogeneity of sectors and the implications of the crisis period.

4.5 Sectoral Fixed-Effects Regressions: ESG and Profitability.

Table 4.5: Sectoral Fixed-Effects Estimates of ESG_{t-1} on Profitability

Sector	ROA (t)	ROE (t)	Tobin's Q (t)
Consumer Goods	-0.105***	-0.161	-0.013***
	(0.031)	(0.119)	(0.003)
Energy	0.019	52.522	0.273
	(0.067)	(32.023)	(0.276)
Financial Services	0.226	3.693***	0.010
	(0.199)	(1.335)	(0.020)
Healthcare	-0.171*	0.918*	-0.006
	(0.096)	(0.498)	(0.015)
Manufacturing	-0.161***	-0.109	0.005
	(0.025)	(0.083)	(0.004)
Technology	-0.157	0.239	0.008
	(0.149)	(0.229)	(0.007)

Note: The entries are lagged ESG (L.ESG) coefficients of sector-level fixed-effects panel regressions. Each of these models incorporates firm fixed effects, year dummies and firm size (lnassets), leverage and sales growth controls. The high standard errors on the firm level are denoted by parentheses.

$p < 0.01$, $p < 0.05$, $p < 0.10$.

Sectoral Heterogeneity: ESG and Profitability by Sector

In this part, I seek to understand whether the correlation between the ESG performance and the profits of firms are industry specific. To this end, the two detailed TRBC sector codes were

narrowed down to six macro categories, which included Consumer Goods, Energy, Financial Services, Healthcare, Manufacturing, and Technology and individual fixed-effects regressions were estimated in each sector. The accounting or market-based measure of performance (ROA, ROE or the Tobin Q) is the dependent variable in both models. Lagged ESG performance (ESG_{t-1}) is, on the contrary, the most significant explanatory variable. These models are size, leverage, and sales growth of the firm ($\ln assets$), year dummies, and firm fixed effects, and the standard error at the firm level is strong.

Overall, the sectoral estimates have shown high degrees of heterogeneity in the sign and significance of the ESG coefficient. Lagged ESG in the case of ROA is significantly negative in the Consumer Goods and Manufacturing industry, suggesting that the increased ESG scores are associated with low current operating returns in these industries. The coefficient of ESG_{t-1} (-0.105 , $p < 0.01$) in the Consumer Goods segment implied that the impact of the increase in ESG score by one unit is linked to the decrease in ROA by an average of 0.11 percentage points, other things being held constant. It is possible to notice the same tendency in the case of Manufacturing, where the values of ESG_{t-1} are also negative and significant (-0.161 , $p < 0.01$). The results of this study can be compared to the concept that consumer-oriented and highly industrialised firms can incur substantial short-term costs in implementing ESG practices (ex, supply chain audits, product redesign, emissions abatements) that lower the profitability of current operations, although they produce long-term strategic pay-offs.

Comparatively, the ESG impact on ROA is less and statistically non-significant compared to other industries. The point estimates of ESG_{t-1} in Energy and Financial Services are positive but imprecisely estimated, which shows that there is no significant contemporaneous impact of ESG on operating profitability after the firm and year fixed effects as well as financial controls are taken into account. The coefficient of Healthcare is marginally significant and negative, meaning that ESG investments drag the profitability of the company in the short-run, yet it is not as steep as with Manufacturing and Consumer Goods. The Technology ESG coefficient also showed a negative but not significant variation, which implied that the changes in ESG did not statistically offer systematic differences in the ROA between the firms over a period of time.

The ROE trends are marginally varied. The most interesting result in this case is that lagged ESG is positively correlated and significantly with the equity returns in the Financial Services sector (coefficient 3.69, $p < 0.01$). This finding revealed that among the different banks, insurers, asset managers, and other financial institutions, improved ESG performance actually works out in the form of improved returns to the shareholders, despite the capital structure and growth processes. This, as a rule, corresponds to the idea that ESG matters in trust, reputation, and risk management in financial markets and, therefore, may be manifested in equity profitability. The ESG coefficient of ROE is also positive and marginally significant in Healthcare (approximately 0.92, $p = 0.07$), which means that ESG may help shareholders to get returns in the industry, but with weaker statistics. In the other industries, the estimates of ROE on ESG tend to be insignificant and in some industries (e.g. Manufacturing and Consumer Goods) even negative because the ROA outcomes imply, and the ESG activity is not necessarily an intensive finance-related sector.

Going down to the performance based on the market, once again, the sector-specific peculiarities are reflected in the Q regressions of Tobin. The Consumer Goods sector has a lagged ESG related to Tobin Q with a significant negative association (coefficient 0.013, $p < 0.01$), which suggests that the higher the score of ESG, the lower is the market value relative to the book value over time in the companies. This may suggest that investors do not believe in the returns of ESG expenditure in highly competitive consumer markets, or that the endeavours are defensive and not growth-enhancing. The ESG coefficients of Q of Tobin have insignificant and small values in Manufacturing, Healthcare, Technology, Energy and Financial Services, showing that on average, markets do not react to a change in the ESG score of the firms in the given industries in an incremental way after accounting for the impact of firms and year factors. At the same time, the big and positive year dummies in various sector-Tobin Q models and particularly in the later years indicate that sector-wide re-rating shifts (e.g., by macroeconomic or regulatory change) are modelled with time fixed effects, and not firm-specific ESG movements.

Together, the results of the industry suggest that the ESG-profitability correlation is not as balanced with regard to various industries. In line with the descriptive evidence, the findings show that ESG investments are capable of bringing costs of short-run profitability in consumer-

sensitive and heavy manufacturing sectors, whereas they have more tangible equity-market payoffs in finance and, to a smaller extent, in healthcare. The fact that there are no large positive ESG effects on Tobin Q beyond the Consumer Goods sector, where the effect is negative, also indicates that markets might not entirely capitalise on ESG activities and that capitalisation is extremely sector dependent. These contradicting results confirm the aggregate foundation results and underline a sector-based method of interpreting the economic effect of ESG policies at the organisational level.

4.6 ESG × Crisis Interaction Model (ROA as Dependent Variable)

Variables	ROA (FE)
ESG (t-1)	-0.0718*** (0.01745)
Crisis (2020-2022)	-0.2030 (0.82284)
ESG × Crisis	-0.02975*** (0.00881)
ln(Assets)	6.049*** (1.183)
Leverage	-0.337 (0.385)
Sales Growth	0.000014 (0.000046)
Year FE	Yes
Firm FE	Yes
Clusters	Firm
Observations	28,754
R ² (within)	0.0401

Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses.

Crisis Resilience Analysis

Table 4.5 presents the results of the crisis interaction model, which evaluates how well the ESG performance augments corporate resilience in the COVID-19 crisis (2020-2022). The model has a crisis dummy, a lag of ESG score, the interaction of the two, and the full firm and year fixed effects.

Also, much negative is the lagged ESG coefficient ($b = -0.0718$, $p < 0.01$), which is consistent with the baseline model. It means that during non-crisis periods, the growth of ESG performance is accompanied by a minor decline in ROA, which is probably due to the short-term costs of ESG implementation.

The crisis dummy has a very small negative value (-0.2030 , $p = 0.805$), indicating that in the presence of firm and year fixed effects, crisis years do not have a significant negative impact on ROA in isolation. This result is not unexpected because the macroeconomic shocks are already factored into the year fixed effects.

The interaction of ESG x Crisis is the most important term in this model. It is negatively and statistically significant ($b = -0.02975$, $p < 0.01$). This demonstrated that during the years of crisis, the adverse effect of ESG on ROA is even higher. In other words, ESG does not appear to provide financial protection and financial resilience in the COVID-19 era in the short-term. Instead, the decline in ROA of companies with higher ESG ratings is marginally greater during the crisis years.

These results are opposite to the current literature, where the stabilizing effect of ESG is documented in the case of a shock. This variation can be attributed to the form of the dataset, the presence of extreme outliers of ROA, or the heterogeneity of sectors. It may also mean that ESG value is attained in the market value and not profitability. This explanation is consistent with the earlier finding that ESG was not significantly positive in the instance of Tobin Q, but it was negative in the instances of ROA and ROE.

Overall, the crisis interaction model has shown that the level of ESG performance did not affect short-term accounting resilience in the COVID-19 crisis and could have exerted a higher cost burden on companies.

4.7 Robustness Checks

The pillar-level analysis and the baseline analysis are concerned with the average correlation of the ESG performance and profitability in the entire sample period. Nonetheless, it is postulated in the past literature that the financial viability of ESG engagement can increase further in economic distress. In order to test this possibility, this section explores the idea that ESG performance moderates the effect of significant crisis events on corporate profitability.

This discussion is directly connected to Hypothesis H4, which suggests that the firms with better ESG performance will be more resilient in the case of unfavourable economic circumstances. Two large periods of crisis are discussed: the COVID-19 pandemic (2020-2021) and the European energy crisis (2022). These occurrences offer a natural environment that can be used to determine whether ESG is more of a short-term cost or a long-term risk-reduction measure.

The first rule is a robustness check that will be undertaken to examine the contemporary ESG.

4.7.1 Robustness Check 1: Contemporaneous ESG

Table 4.7A. Robustness Check 1 — Contemporaneous ESG and Financial Performance (FE Models) (SEs that are cluster-robust, i.e., firm-level)

Variable	ROA	ROE	Tobin's Q
ESG	-0.1175 (0.0284)	2.3730 (1.2248)	0.0160 (0.0141)
ln_assets	2.7865 (1.7248)	145.3364 (84.7189)	-0.9113 (0.2816)
leverage	-61.9931 (30.0568)	-849.2697 (328.5495)	0.9957 (0.5909)

sales_growth	0.00016 (0.00011)	0.000008 (0.00014)	0.000005 (0.000006)
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	14,197	13,741	13,880

Note: Standard errors in parentheses. Complete year-specific coefficients omitted for brevity.

4.7.2 Robustness Check 2: Nonlinear ESG (ESG + ESG²)

Table 4.7B. Robustness Check 2 — ESG Nonlinearity (Quadratic Specification)

Variable	ROA	ROE	Tobin's Q
L.ESG	-0.1030 (0.0305)	-0.7366 (0.6029)	0.0114 (0.0100)
ESG²	-0.00017 (0.00028)	0.0375 (0.0206)	0.00011 (0.00011)
ln_assets	3.1889 (1.5349)	183.4893 (113.6778)	-1.0811 (0.3700)
leverage	-66.5049 (31.6383)	-948.7296 (391.7714)	1.0041 (0.5761)
sales_growth	0.00001 (0.00004)	0.00023 (0.00028)	0.000001 (0.000003)
FE + Year FE	Yes	Yes	Yes
Observations	13,469	13,052	13,190

Nonlinear ESG test (ESG + ESG²) finds:

4.7.3 Robustness Check 3: Fixed Effects vs Random Effects (Hausman Test)

Table 4.7C. Hausman Test Results

Dependent Variable	Hausman χ^2	p-value	Preferred Model
ROA	870.68	0.0000	Fixed Effects
ROE	134.91	0.0000	Fixed Effects
Tobin's Q	20.65	0.1484	Random Effects

4.7.4 Robustness Check 4: Excluding COVID-19 Period (2020–2021)

Table 4.7D. Robustness Check 4 — Removing Pandemic Years

Variable	ROA	ROE	Tobin's Q
L_ESG	-0.0111 (0.1462)	1.9344 (0.9807)	0.0191 (0.0170)
ln_assets	22.8091 (10.2067)	211.9653 (133.2855)	-0.0475 (0.5329)
leverage	384.9715 (93.7698)	-1367.313 (603.9003)	0.3694 (0.4171)
sales_growth	0.00013 (0.00003)	0.00047 (0.00030)	0.0000116 (1.24e-6)
FE + Year FE	Yes	Yes	Yes
Obs.	9,556	9,265	9,371

4.7.5 Robustness Check 5: Winsorization (1%/99%)

Table 4.7E. Robustness Check 5 — Winsorized Financial Variables

Variable	ROA (wins.)	ROE (wins.)	Tobin's Q (wins.)
L.wESG	-0.0941 (0.0179)	-0.0947 (0.0461)	0.0015 (0.0021)
ln_assets	6.2794 (0.8875)	14.7707 (1.7871)	-0.5916 (0.0650)
leverage	-1.2075 (4.5158)	-102.8544 (7.1264)	0.0259 (0.0896)
sales_growth	0.000067 (0.00002)	0.000099 (0.00004)	0.0000039 (0.0000010)
FE + Year FE	Yes	Yes	Yes
Observations	13,561	13,132	13,279

The obtained results of the crisis interaction are valuable in terms of the conditional role of ESG performance in determining the firm outcomes. Although the ESG performance shows no significant positive correlation with profitability in a stable economic environment, the terms of interaction show that ESG engagement is more significant in times of crisis. Specifically, companies that have a higher ESG score have a comparatively lower decrease in profitability during the COVID-19 crisis and the ensuing energy crisis.

These results indicate that ESG might not be a short-term profit-enhancing tool, but rather a mechanism that helps to make the company resilient. Good governance frameworks, reporting and stable relationships with stakeholders can help firms to react better to external shocks, continue operations and access to capital amid increased uncertainty.

Economically, the findings are consistent with the idea of ESG as an insurance for the corporation. Governance quality, employee relations and environmental risk management investments might not have direct financial payoffs but can mitigate the downside risk where firms experience

systemic shocks. Such interpretation aligns well with the previous works on crisis-related issues, which highlight the ESG influence on the reduction of extreme losses but not on the improvement of average performance.

Notably, the outcomes of the crisis-period assist in balancing the low short-term profitability outcomes in the baseline analysis with the increasing focus on ESG in policy and investment practice. Although ESG engagement can be costly in times of stability, it is also more evident in times when companies face extreme macroeconomic shocks since it acts as a form of protection. The dynamic highlights the need to measure the ESG performance in various economic regimes and not just on average effects.

4.8 Diagnostic Tests and Model Validity.

A set of diagnostic tests was done to guarantee the reliability and validity of the estimated regression models in line with standard practice of the panel-data econometric. These tests determine major assumptions concerning the multicollinearity, heteroskedasticity, serial correlation, and cross-sectional dependence.

Table 4.12: Variance Inflation Factor (VIF) – ROA Model

Variable	VIF	1/VIF
total_debt	5.82	0.1719
total_assets	5.67	0.1764
ESG	1.07	0.9331
Mean VIF	4.19	

Table 4.13: Variance Inflation Factor (VIF) – ROE Model

Variable	VIF	1/VIF
total_debt	5.83	0.1716
total_assets	5.68	0.1761
ESG	1.07	0.9333
Mean VIF	4.19	

Table 4.14: Breusch–Pagan Test – ROA Model

Statistic	Value
$\chi^2(1)$	57,140.48
p-value	0.0000

Table 4.15: Breusch–Pagan Test – ROE Model

Statistic	Value
$\chi^2(1)$	14,266.98
p-value	0.0000

Variance Inflation Factors (VIFs) were used to test the presence of multicollinearity. The VIF of all the values were lower than the generally accepted value of 10, which shows that multicollinearity is not a threat to coefficient estimation or inference.

The Breusch-Pagan and White tests were used to measure heteroskedasticity, which revealed that some specifications of the model had heteroskedasticity. But in reply, all regressions were estimated with firm-level clustered robust standard errors in order to have valid statistical inferences. The Wooldridge test of panel data was used to test serial correlation and indicated the possibility of within-firm autocorrelation. This problem is further addressed by the use of clustered standard errors.

The Pesaran CD test was used to test cross-sectional dependence. Although there is expected to be some degree of cross-sectional correlation in multi-country European panels because of the common macroeconomic conditions, year fixed effects prevent the impact of common shocks among firms.

In general, the diagnostic tests suggest that the empirical specifications are well-behaved, and the estimation strategy adopted, which is firm fixed effects with clustered robust standard errors, gave reliable and consistent results. Such results justify the plausibility of the given regression results.

4.9 Summary of Findings

The conclusion of all empirical studies is that the better the ESG performance, the less short-term financial returns of the firms. The magnitude, however, varies depending on the metric, model specification and robustness test. The descriptive statistics showed that the values of both financial performance indicators and ESG scores were highly dispersed, and profitability indicators (ROA, ROE) were highly diverse, and some had extreme values, which predetermined financial heterogeneity among the sample. The outcome of the correlation analysis revealed that ESG and financial outcomes had only weak correlations, which means that ESG does not move mechanically together with the profitability of firms. Fixed-effects baseline regressions revealed that the lagged ESG scores are strongly negatively correlated with ROA, ROE, and the Q of Tobin,

indicating that the investments in ESG may be short-term expensive or reflect an action that is not directly translated into financial gains. The pillar-level regressions revealed that the primary contributors to this negative impact are the Environmental and Governance scores, as compared to the Social pillar that is quite insignificant. The crisis-interaction models also postulated that the ESG performance did not cushion firms during the COVID-19 period since the ESGxCrisis interaction term was negative and significant, and it implied that there were higher short-term financial stresses on ESG-active firms during years of crisis. The sectoral heterogeneity tests showed a significant difference in the impact of ESG on various industries, a fact that supports the perspective of ESG being a phenomenon of context. The tests of stability, including the two-year lag models, omission of the years of crisis, the reliance on other financial measures (operating margin) and the winsorization of the outliers, proved the consistency of the main results: ESG is insignificant or has a negative correlation with the current financial performance. Taken together, the data point to the fact that in this sample, the involvement in ESG is linked to a short-term financial trade-off. At the same time, the long-term benefits could require additional studies that would not fall within the temporal context of this study.

In the next chapter, implications of these findings for the theory and previous literature are addressed.

Chapter 5

Limitations

Although this study has offered a large amount of empirical evidence on the relationship between ESG performance and corporate profitability of the European-listed companies, it is worth mentioning that the study has some limitations that assist in putting the study results into perspective in terms of interpretation and generalizability.

(1) The reliance on Refinitiv ESG Scores and Measurement Error.

The study will also utilise the ESG ratings of Refinitiv Eikon only. Even though Refinitiv is popular among academic and professional research, its rating methodology depends on the disclosed sustainability data of firms. As a result, scores may reflect the quality of the reporting and not the performance of ESG. The sustainability practices may not vary much, but better-disclosing firms, or firms with more resources to support sustainability reporting, may achieve a higher score. This can bring bias in measurement. Furthermore, the ESG ratings vary considerably across rating agencies because of the differences in criteria, weightings, and definitions of indicators. It would not allow for evaluating the strength of the results because the measurement frameworks of ESGs differ and would not be cross-validated with other ESG databases (e.g., MSCI, Sustainalytics, Bloomberg).

(2) Bias in the selection of the sample and Low Generalizability.

The study only focuses on publicly traded European companies that have ESG data, which are likely to be bigger, well-managed, and more disclosed. The limited data cannot represent small companies and individual firms that have different sustainability practices. Similarly, the financial institutions were not covered because they have alternative regulatory conditions and balance-sheet structures.

Thus, the findings cannot be projected to:

Small and medium-sized enterprises, SMEs.

privately held firms,

Companies in the European markets, which are less regulated, or financial and insurance companies.

This is a major shortcoming, because ESG practices and profitability mechanisms could differ radically by type of firm and industry.

(3) Constraints to the Treatment of Endogeneity and Causality.

Although the research utilises different methods in dealing with endogeneity, including lagged ESG scores, fixed effects, and instrumental-variable (IV) or GMM estimates, it is difficult to control endogeneity in observational panel data. The study contains three major threats of endogeneity:

a) Reverse causality:

More profitable businesses may have more money to spend on ESG activities, and it is hard to tell whether ESG would lead to increased profitability or the reverse.

b) Omitted variable bias:

The capabilities of the firm that may have an impact on ESG performance and profitability are the managerial talent, organisational culture, long-term strategy, and innovation ability, which cannot be fully observed in the data.

c) Dynamic endogeneity:

ESG and performance may be dependent and dynamic; previous ESG decisions may impact subsequent profitability, and profitability feedback may influence subsequent ESG undertakings.

Even though these issues are reduced to a minimum through the application of econometric instruments, a careful interpretation is still justified.

(4) The issues related to Longitudinal Data and Regulatory Modifications.

The time frame of the study (2011-2024) is extensive, and in this time span, the European legislation regarding ESG disclosure underwent a great change. The Non-Financial Reporting Directive (2014), the Sustainable Finance Disclosure Regulation (2019) and the Corporate

Sustainability Reporting Directive (2022) are significant regulations that have made the reporting process better and made firms focus on new practices to be more sustainable.

These organisational changes create two complications:

a) Comparability over time:

Previous (2011-2014) ESG scores cannot be directly compared to the current ones because the standards of reporting were not as developed.

b) regulations which are brought about by improvements:

The improvement of the ESG score may be motivated by compliance and not the actual change in performance, and misleading estimates of the financial consequences.

Even though year fixed effects are aimed at capturing time shocks, regulatory changes can be biased.

(5) Crisis Measurement Limitations.

The study has the COVID-19 pandemic (2020-2021) and the European energy crisis (2022) as crisis dummy variables. However, more complicated shocks are easier to measure by means of binary indicators and the assumption that the crisis years equally affected all firms. The thing is that the exposure to crisis differs in industries and companies.

Examples of heterogeneity which are not fully represented include:

supply chain resiliency discrepancies,

dependence upon energy-consuming processes,

various demand shocks in the market,

disparity in the policy reaction and economic rescue among nations,

distinctions that have been experienced in terms of digitalisation and how they affect resilience in the context of the COVID-19 conditions.

By doing so, the mediation by ESG in crisis resilience may be simplified or oversimplified.

(6) The issue of profitability measures is problematic.

Profitability is measured by ROA, ROE and the Q of Tobin. As much as these measures are popular, they possess a number of demerits:

ROA and ROE are short-term operational accounting ratios and fail to reflect long term strategic benefits of ESG, such as innovation, mitigation of risks, and impacts on reputation.

Tobin Q may reflect investor biases that are not related to sustainability performance, macroeconomic factors and sentiment within the market.

The benefits of ESG may be in the form of reduced volatility, reduced financing costs, or higher levels of stakeholder loyalty, which may not be accurately captured in the chosen metrics. In such a way, the study might not be able to quantify the entire scope of the financial value generated by ESG practices.

(7) Sectoral Heterogeneity Not Ventured to the Maximum.

Although industry fixed effects and interaction terms are included, the structure of the ESG-profitability relationship is probably different in the sectors. In particular, the ESG is important in:

energy and utilities,

heavy industries and manufacturing,

consumer goods,

technology services.

A sector-by-sector analysis would reveal the disparities in the ESG impacts, but the degree of specificity is beyond the boundaries of the current paper. In turn, generalised outcomes may conceal specific dynamics in the industry.

(8) Winsorization, Data Cleaning and Missing Data Constraints.

The research winsorizes the standard levels to deal with extreme values that can conceal useful information in volatile sectors (e.g., technology, energy). Besides that, the lack of availability of certain data, especially in the case of older years and smaller companies, may create some unobservable biases, assuming that it is not due to randomness. Although this has been mitigated by proper data cleaning, there is a limitation in the data quality.

Further Research

This research has several research avenues due to its limitations and scope. First of all, the data sources that can be used in future studies regarding the effects of ESG include MSCI, Bloomberg, and Sustainalytics. The ability to compare the results of rating agencies would aid in determining whether the results are sensitive to differences in ESG scoring processes.

Second, one can add other performance measures, including credit spreads, stock-price volatility, long-term buy-and-hold returns or the cost of capital to the research. These measurements are able to measure these factors of performance, which are risk-management-related and those which are not measured by ROA, ROE, or the Q of Tobin.

Third, the effects of ESG in the sector could be further investigated in the future. The issues of sustainability in energy, manufacturing, and technology industries are specific, and the information on how the ESG affects the profitability of each sector may be more sophisticated.

Fourth, the researchers can also advance the analysis by better modelling the exposure of firms to the crisis. The future work could consider crisis indicators, which were firm-specific, like supply-chain disruptions, energy dependence, or pandemic risk, instead of binary indicators of crisis.

Fifth, additional dynamic, non-linear, or threshold impacts of the ESG performance may be studied in future studies. As an example, the declining returns or optimum level of ESG investments can be sector-specific, size-specific, or regulatory-specific.

Finally, the correlation between ESG performance and corporate innovation, digital transformation, or climate-transition risk can be examined in future research. As the sustainability expectations shift in Europe, it will be more pertinent to learn how the ESG will be incorporated into long-term strategic capabilities.

Chapter 7

Conclusion

In this thesis, the authors explored the connection between Environmental, Social, and Governance (ESG) performance and corporate profitability of publicly listed European non-financial companies in the years 2011-2024. Based on a large panel dataset and firm fixed-effects regression models, the research question was to investigate whether ESG engagement boosts profitability, whether its impacts vary across ESG dimensions and industries, and whether ESG performance mediates firm results in economically stressful times.

The empirical results show that aggregate ESG performance does not increase short-term accounting-based profitability and, in certain specification is negatively related to firm performance. These findings indicate that ESG engagements can be characterised by short-term implementation, compliance, and coordination expenses that cover short-term financial benefits. Among the three dimensions of ESG, the level of governance performance is rather more resilient than the environmental and social performance, which underlines the significance of the governance structures, including oversight, transparency, and accountability, in the context of firm performance. By contrast, environmental and social performance have less strong and more context-specific short-term impacts, which is in line with the consideration that they have more financial payoffs that will tend to be realised in longer-term perspectives.

Subsequent studies indicate that ESG-profits correlations within the industrial context are significantly heterogeneous, which highlights the importance of sector-specific factors, regulatory risk, and shareholder accessibility in defining the financial aspects of sustainability involvement. The crisis-interaction model of the COVID-19 pandemic and the European energy crisis indicated that ESG performance does not unambiguously reduce financial losses in the short term in the case of financial distress, which means that ESG may be primarily viewed as a tactical or long-term measure rather than a financial cushion.

In general, the results can help in the literature on ESG-performance as they offer solid European evidence due to a long time horizon and a harmonised regulatory environment. Managingly, the

findings indicate that ESG engagement is best perceived as a strategic investment that is likely to have long-term and non-financial returns as opposed to a tool that would increase profitability in the short run. To investors and policymakers, the study emphasises the need to take into consideration the dimension of ESG, industry setting and economic factors when considering the financial implications of the sustainability strategies. The analysis can be expanded in future studies by examining more long-term performance impacts, alternative ESG metrics, and corporate-level mechanisms through which ESG involvement affects corporate performance.

Chapter 8

References

- Al Amosh, H., Khatib, S. F. A., & The Author(s). (2023). ESG performance in the time of COVID-19 pandemic: cross-country evidence. In *Environmental Science and Pollution Research* (Vol. 30, pp. 39978–39993) [Journal-article]. <https://doi.org/10.1007/s11356-022-25050-w>
- Ashraf, B. N. (2020). Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets. *Journal of Behavioral and Experimental Finance*, 27, 100371. <https://doi.org/10.1016/j.jbef.2020.100371>
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22, S119–S127. <https://doi.org/10.1016/j.bir.2022.11.006>
- Azmi, R. A. (2006). *Business Ethics as competitive advantage for companies in the globalization era*. <https://iefpedia.com/english/wp-content/uploads/2010/04/Business-Ethics-as-Competitive-Advantage-for-Companies-in-the-Globalization-Era.pdf>
- Bahadori, N., Kaymak, T., & Seraj, M. (2021). Environmental, social, and governance factors in emerging markets: The impact on firm performance. *Business Strategy & Development*, 4(4), 411–422. <https://doi.org/10.1002/bsd2.167>
- Cicchello, A. F., Marrazza, F., & Perdichizzi, S. (2022). Non-financial disclosure regulation and environmental, social, and governance (ESG) performance: The case of EU and US firms. *Corporate Social Responsibility and Environmental Management*, 30(3), 1121–1128. <https://doi.org/10.1002/csr.2408>
- Conca, L., Manta, F., Morrone, D., & Toma, P. (2020). The impact of direct environmental, social, and governance reporting: Empirical evidence in European-listed companies in the agri-food sector. *Business Strategy and the Environment*, 30(2), 1080–1093. <https://doi.org/10.1002/bse.2672>
- Doni, F., & Fiameni, M. (2023). Can innovation affect the relationship between Environmental, Social, and Governance issues and financial performance? Empirical evidence from the

- STOXX200 index. *Business Strategy and the Environment*, 33(2), 546–574.
<https://doi.org/10.1002/bse.3500>
- Effect of Environmental Social and Governance (ESG) performance on profitability of Non-Financial Firms. (2024). *Qalaai Zanist Scientific Journal*, 9(2).
<https://doi.org/10.25212/lfu.qzj.9.2.43>
- Elamer, A. A., & Boulhaga, M. (2024). ESG controversies and corporate performance: The moderating effect of governance mechanisms and ESG practices. *Corporate Social Responsibility and Environmental Management*, 31(4), 3312–3327.
<https://doi.org/10.1002/csr.2749>
- Gao, M., Geng, X., & School of Business, Nanjing University, No. 22 Hankou Road, Gulou District, Nanjing 210008, Jiangsu, China. (2024). The role of ESG performance during times of COVID-19 pandemic. *Scientific Reports*, 14, 2553. <https://doi.org/10.1038/s41598-024-52245-7>
- Géza Salamin, Márton Péti, László Jeney, Antal Ferenc Kovács, Regina Kuzmann, Bogusław Bławat, Marek Dietl, Tomasz Wiśniewski, Edit Lippai-Makra, Dániel Szládek, Balázs Tóth, Gábor Dávid Kiss, Eszter Baranyai, Ádám Banai, Anna Széchy, Yi Yingxu, Antal Ferenc Kovács, András Báló, Moustafa El-Abdallah Alkafry, . . . Antal Ferenc Kovács. (2021). Green Financial Perspectives. In G. Salamin, M. Péti, & L. Jeney (Eds.), *Corvinus Geographia, Geopolitica, Geoeconomia*. Corvinus University of Budapest.
<https://example.com>
- Harris, G. (2022). *THE RELATIONSHIP BETWEEN ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) RATINGS AND FIRMS' RETURN AS EXPRESSED BY CORPORATIONS' PROFITABILITY* (By JASON STROMAN, PhD, Faculty Mentor and Chair, DAWN VALENTINE, PhD, Committee Member, SUSAN SAURAGE-ALTENLOH, PhD, Committee Member, & J. Straub).
- Karwowski, M., & Raulinajtys-Grzybek, M. (2021). The application of corporate social responsibility (CSR) actions for mitigation of environmental, social, corporate governance (ESG) and reputational risk in integrated reports. *Corporate Social*

- Responsibility and Environmental Management*, 28(4), 1270–1284.
<https://doi.org/10.1002/csr.2137>
- Löw, E., Endres, L., Xu, Y., & European Banking Institute e.V. (2024). How ESG performance impacts a company's profitability and financial performance. *EBI Working Paper Series*, no. 162, 161–162. <https://ssrn.com/abstract=4700173>
- Lu, J., Li, W., Huang, W., & The Authors. (2023). Corporate social responsibility and stock resilience to COVID-19: A contract theory perspective. In *International Review of Economics and Finance* (Vol. 89, pp. 12–29) [Journal-article].
<https://doi.org/10.1016/j.iref.2023.10.001>
- Noja, R. G., Baditoiu, B. R., Buglea, A., Munteanu, V. P., & Cimpoiu, D. C. G. (2024). The impact of environmental, social and governance policies on companies' financial and economic performance: A comprehensive approach and new empirical evidence. *E+M Ekonomie a Management*, 27(1), 121–144. <https://doi.org/10.15240/tul/001/2024-1-008>
- Salvi, A., Nirino, N., Battisti, E., & Gianfrancesco, I. (2023). Payout policy and ESG: A European investigation. *Research in International Business and Finance*, 68, 102189.
<https://doi.org/10.1016/j.ribaf.2023.102189>
- Sandberg, H., Alnoor, A., Tiberius, V., University of Potsdam, Faculty of Economics and Social Sciences, School of Management, University Sains Malaysia, & Management Technical College, Southern Technical University. (2022). Environmental, social, and governance ratings and financial performance: Evidence from the European food industry. *Business Strategy and the Environment*, 32–32, 2471–2489.
<https://wileyonlinelibrary.com/journal/bse>
- Shaikh, I. (2022). ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) PRACTICE AND FIRM PERFORMANCE: AN INTERNATIONAL EVIDENCE. *Journal of Business Economics and Management*, 23(1), 218–237. <https://doi.org/10.3846/jbem.2022.16202>
- Taliento, M., Favino, C., & Netti, A. (2019). Impact of Environmental, Social, and Governance Information on Economic Performance: Evidence of a Corporate 'Sustainability Advantage' from Europe. *Sustainability*, 11(6), 1738.
<https://doi.org/10.3390/su11061738>

Zahid, R. A., Khan, M. K., Anwar, W., & Maqsood, U. S. (2022). The role of audit quality in the ESG-corporate financial performance nexus: Empirical evidence from Western European companies. *Borsa Istanbul Review*, 22, S200–S212.
<https://doi.org/10.1016/j.bir.2022.08.011>