ERASMUS UNIVERSITY ROTTERDAM

ERASMUS SCHOOL OF ECONOMICS

October 27, 2023

The Impact of Increased Emphasis on Corporate Social Responsibility on Firm Financial Performance of Companies after COVID-19

MASTER THESIS

MSc ECONOMICS & BUSINESS – FINANCIAL ECONOMICS

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Preface & acknowledgements

As I conclude my academic journey at Erasmus University of Rotterdam with this thesis, I would like to take this opportunity to thank several individuals who supported me during this time. First of all, my appreciation goes out to all the professors and teaching assistants. Your willingness to share your invaluable knowledge and genuine enthusiasm for your fields of expertise have enriched not only my academic experience but also that of many other students. It is a true privilege for all of us to learn and flourish under your esteemed guidance. Furthermore, I would like to extend special thanks to my supervisor, Dr. Kil. His guidance and invaluable insights have been important throughout this thesis process. The thoughtful discussions and the time he dedicated have significantly improved the quality of this paper. I am also grateful to the second reader for the expertise and time in assessing this work. Lastly, as this chapter of being a student comes to an end, I cannot forget to thank my parents, sisters, and girlfriend for their constant encouragement and support during my studies and beyond.

Abstract

This paper examines the impact of Corporate Social Responsibility (CSR) on financial firm performance, specifically comparing the periods before and after the COVID-19 pandemic. The results demonstrate that the positive impact of ESG performance on financial firm performance in the post-pandemic phase surpasses its positive influence during the pre-pandemic era. This is particularly pronounced for growth-oriented companies prioritizing R&D. Furthermore, this study reveals that, among the individual pillars, the social pillar experienced the most pronounced increase in its influence on financial firm performance, compared to the positive effect of the environmental pillar. Notably, the governance pillar showed no effect. However, when accounting for endogeneity, the impact of the governance performance on financial firm performance becomes positive. In addition, this paper shows that US companies saw an increased impact from ESG performance, whereas European companies did not experience a rise in impact. The study utilized a sample of 3,446 firm-year observations representing publicly listed firms in Europe and the United States from 2018 to 2022. The financial firm performance is measured by the Tobin's q, while CSR is measured via Thomson Reuters ESG Scores. The results are obtained by utilizing random effects regressions with robust clustered errors.

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2SLS	Two-Stage Least Squares
ADF	Augmented Dickey-Fuller
CG score	Corporate Governance score
COVID-19	Coronavirus Disease 2019
CFP	Corporate Financial Performance
CSR	Corporate Social Responsibility
EN score	Environmental
ESG	Environmental, social and governance
EU	European Union
GDP	Gross Domestic Product
LM	Lagrange Multiplier
OLS	Ordinary Least Squares
Prob	Probability
PP	Phillips-Perron
R&D	Research & Development
ROA	Return on assets
ROE	Return on equity
ROI	Return on investments
ROS	Return on sales
SEC	Securities and Exchange Commission
SIC	Standard Industrial Classification
Size	Firm size
SO score	Social score
US	United States
VIF	Variance Inflation Factor
VIX	Volatility Index
WHO	World Health Organization

1 Introduction

In today's business landscape, profit maximization and outperforming competitors are no longer the sole priorities for ensuring the success of a company. Companies acknowledge their societal role and their responsibility to improve the interests of the community while pursuing its own profit, a concept known as Corporate Social Responsibility (CSR) (Sheldon, 2024). A recent study by the International Federation of Accountants (2023) highlights that 95% of US-listed companies published CSR reports in 2022, underscoring their commitment to sustainable and responsible business practices. The widely embraced philosophy of "doing well by doing good" has become a guiding principle for both startups as well as established companies around the world (McClimon, 2020).

While the concept of CSR originated in the early 20th century, its global prominence surged at the start of this century, influenced by trends and unforeseen events such as global warming, financial crises, and governmental regulations (Berkowitz, 2021). The occurrence of these environmental, economic, and political events heightened the public awareness regarding companies' responsibility beyond just financial objectives (Agudelo et al., 2019). The global outbreak of the coronavirus disease 2019 (COVID-19) in December 2019 is one of the most recent unexpected events that further intensified the societal expectations of companies. The unprecedented global crisis has had a detrimental impact on social cohesion and public health of the population, causing a tragic death toll of nearly 15 million people worldwide (Taylor, 2022). As a result of this pandemic, global awareness soared by over 70%, leading consumers to place greater expectations on companies to more deeply integrate environmental concerns into their operations than before (Boston Consultancy Group, 2020). Moreover, it has reshaped employees' attitudes, leading to increased demand for social aspects, particularly concerning health and emotional well-being (McGill & Clark, 2021).

However, CSR is more than a commendable company initiative that benefits communities. It also empowers businesses to achieve better firm performances (Price & Sun, 2017). Existing literature has shown that companies with a strong commitment to CSR consistently outperform their less sustainable competitors during stable times (Eccles et al., 2014; Khan et al., 2016). However, despite the long-standing recognition of these initiatives' benefits, companies have significantly intensified their engagement in CSR activities predominantly in recent years, largely attributed to COVID-19. Beyond its detrimental impact on public health, the pandemic had profoundly affected global economies and financial markets, leading to significant and widespread declines in firm values worldwide (Al-Awadhi et al., 2020; He et al., 2020; Chatjuthamard et al., 2021). The pandemic affected Corporate Financial Performance (CFP) at the individual firm level as well, as operations disrupted by lockdowns and reduced sales, exposing the deficiency in effective risk management strategies in times of crises (Woong & Goh, 2021). This further emphasized the importance for companies to ensure that they are adequately prepared for unforeseen events and trends that could impact the firm performances. Recognizing these

vulnerabilities, CSR has gained substantial support as an effective strategy in addressing crises, including the COVID-19 outbreak (Ghoul et al., 2011; Memon et al., 2019; Prayanthi & Budiarso, 2022). Prior research has demonstrated that a strong commitment to CSR during COVID-19 mitigated financial risk and enhanced the financial performances of companies, achieved through the reduction of financing costs, enhanced creditworthiness, and increased firm valuation (Ding et al., 2021; Engelhardt et al., 2021). Besides, companies engaging in CSR activities experienced faster recovery and demonstrated greater adaptability and resilience during the pandemic (Wenchuang et al., 2020). These activities cultivate moral capital and goodwill, serving as insurance-like protection that bolsters financial stability in the face of adverse events (Ongsakul et al, 2020). These benefits, along with the rising societal expectations, explain the increasing CSR commitment among companies, reflected in the 41% surge in corporate social investments from 2018 to 2020 (George, 2020; Solórzano et al., 2021).

Despite the widespread acknowledgement of the importance of CSR in the literature, both during times of crisis and stability, there are still numerous topics that remain untouched. As described above, several authors have explored the relationship between CSR and firm performance before the COVID-19 crisis and during this period. However, there is a lack of research examining the specific impact of the increased global prioritization of CSR during the pandemic on the financial performance of companies post-pandemic. Specifically, no research has explored the comparison between the period before and after the outbreak to assess the change in performance. Based on the above, the following research question is formulated:

What is the impact of increased emphasis on CSR on financial firm performance after COVID-19, and are there differences between Europe and the United States?

This paper contributes to the existing literature in several ways. First, to the best of current knowledge, this paper stands as the first to examine the comparative effect of CSR commitment on financial firm performances spanning the period before, during, and after the COVID-19 pandemic. By examining this research question, it aims to provide a deeper understanding of the relationship and the importance of CSR on companies in an dynamic world characterized by evolving behaviours, influenced by unforeseen events. Second, this study enhances the limited literature by delving into the distinct roles of individual CSR pillars and their impact on financial firm performance. Lastly, there is limited literature that examines the relationship between CSR commitment and financial firm performance while considering different geographies worldwide.

This paper examines the impact of CSR on financial firm performance, conducting a comparative analysis across the pre-, intra-, and post-COVID-19 phases. Specifically, it aims to evaluate shifts in performance attributable to heightened global emphasis on CSR during the pandemic. To provide a comprehensive analysis, this research examines firm-level data from both Europe and the United States, from 2018 until 2022. 2018 and 2019 are designated as the pre-COVID-19 periods, while 2020 and 2021

are categorised as the pandemic period. This classification follows the World Health Organization's (WHO) declaration on January 30, 2020, which identified the coronavirus outbreak as a Public Health Emergency of International Concern (Jasarevic et al., 2020). As of early 2022, the world had largely transitioned from the pandemic phase of COVID-19 to its endemic phase (McLaughlin, 2022; Anderson, 2022). Consequently, this study classifies 2022 as the post-pandemic period. To measure the level of CSR, this paper utilizes the Thomson Reuters ASSET4 database to assess the ESG scores of US and European companies. According to Refinitiv (2023), this database is designed to provide a transparent and objective assessment of a company's overall ESG performance and detailed sub-ESG scores. Tobin's q serves as the proxy indicator for the financial performance of the analysed firms.

The findings reveal that the positive impact of ESG performance on financial firm performance in the post-pandemic period surpassed its pre-pandemic influence, having been reduced during the pandemic. This amplified impact in the post-COVID-19 era is particularly pronounced for growth-oriented companies that prioritize R&D. Regarding the individual pillars, post-pandemic findings highlight that the social pillar experienced a more pronounced increase in its impact on financial firm performance compared to environmental pillar. The governance pillar did not exhibit a significant influence. However, when accounting for endogeneity through the 2SLS analysis, the governance performance's impact on financial firm performance turned positive. Moreover, while European firms saw the impact of ESG performance on financial firm performance revert to its pre-pandemic level after a decline during the pandemic, US companies experienced an increase in the post-pandemic period. This contrasted with the US firms' lack of significant ESG performance influence on financial performance, both before and during the pandemic.

The structure of this paper is outlined as follows: Chapter 2 presents the literature review, providing an overview of the key principles underlying the paper and further investigating the impact of CSR commitment on financial performance and financial risk during stable periods and in times of crisis. Moreover, it explores the impact of CSR during the COVID-19 crisis and examines the effect of geographic differences between EU and the US. Chapter 3 details the formulation of the hypotheses. Chapter 4 describes the data sample, including an overview of the descriptive statistics. Chapter 5 outlines the overall research methodology and encompasses additional tests. Chapter 6 presents the results from the empirical analyses, integrating both the Two-Stage Least Squares (2SLS) test and sensitivity analysis as robustness checks. Finally, Chapter 7 concludes the paper, discusses its limitations, and provides suggestions for further research.

2 Literature review

2.1 Corporate Social Responsibility

2.1.1 Defining CSR

Despite extensive efforts and nearly a century of progress, the precise and objective definition of CSR remains a topic of ongoing debate with continuously evolving definitions. Contrary to the belief of some, the first concept of CSR was initially introduced by Sheldon in the early 20th century, spurred by the emergence of modern businesses and an increasing awareness of the shortcomings of a free-market economy. This shift in perspective was accompanied by a growing demand for businesses to embrace sustainability and establish better work environments (Hou & Li, 2014). Sheldon (1924) illustrated the concept of CSR in *The Philosophy of Management* as the responsibility of an enterprise to improve the interests of the community while pursuing its own profit. It emphasized that businesses should not solely prioritize profit maximization but also consider the societal impact of their actions and engage in socially responsible practices.

Howard R. Bowen (1953) provided a comprehensive elaboration on the concept of CSR in his book *Social Responsibility of Businessmen*, which served as a catalyst for the subsequent growth and development of literature on CSR during that era. Bowen's perspective on CSR emphasized the social obligations of businessmen and their responsibility to pursue policies, make decisions, and take actions aligned with the values and objectives of the society (Bowen, 1953). Carroll (1979) further emphasized the importance of corporations fulfilling their responsibilities, stating that businesses have four categories of social responsibility they should address simultaneously: economic, legal, ethical, and discretionary which he later redefined as corporate philanthropy. Carroll (1991) later revised and expanded this theory by introducing the pyramid of CSR, a framework that depicts the four components as a pyramid to comprehend the different types of obligations a company has towards stakeholders. The economic level constitutes the primary responsibility of a company to be profitable. The second level, the legal responsibility, represents the obligation to adhere to laws and regulations. The ethical level follows, signifying the company's responsibility to act ethically, justly, and fairly beyond legal requirements. Lastly, the philanthropic building block sits atop the pyramid, reflecting the expectation for a company to be a good corporate citizen by contributing financial and human resources to the community and enhancing the quality of life (Carroll, 1991). Despite several adaptations of the CSR pyramid by Carroll and other research, this framework continues to be a leading CSR theory and remains one of the most frequently cited models in the CSR literature (Schwartz & Carroll, 2003; Ma et al., 2012).

However, despite the widespread acceptance of CSR as a social obligation, there are also contrasting definitions that challenge this perspective. The European Union (2001) presents a different viewpoint,

defining CSR as a voluntary exercise where companies integrate environmental concerns into their business operations on a voluntary basis. Another prevalent critique widely expressed is that a firm's only obligation is to maximize its profits (Werden et al, 2010). This perspective aligns with the shareholder view proposed by Friedman (1970), which asserts that the only social responsibility of a law-abiding business is to maximise profits for its shareholders and that engaging in social actions would only diminish those returns. This shareholder view, also called the neo-classical view, has been criticized in various literature as morally unjustified, due to the narrow focus on profit maximization without considering social responsibility to society and neglecting other important stakeholder groups.

In response to this, Freeman et al. (2004) introduced the stakeholder view as a counterview to the traditional approach, arguing that all stakeholders, including employees, customers, suppliers and the community, should be given equal consideration to those of shareholders when making corporate decisions. This contrary view of social responsibility, in contrast to Friedman's neoclassical viewpoint, provides a more comprehensive and ethical perspective and has laid the framework for organizations approach to CSR and community engagement in the present era.

2.1.2 The rise of CSR in modern business

In the modern business environment, the focus of operating businesses extends beyond merely maximizing profits or eliminating the competition. Companies recognize the significance of their role in society and their social responsibilities. Highlighting this trend, A recent study by the International Federation of Accountants (2023) found that 95% of the US-listed companies published CSR reports in 2022, emphasizing their commitment to sustainable and responsible business practices.

The contemporary understanding of corporate responsibilities towards all stakeholders is not a recent development. The introduction of the concept CSR, as subscribed above, began challenging the traditional beliefs of solely maximizing profits as early as the 20th century. During this time, academic research and analysis started to shed light on the role of executives and the social performance of corporations, giving rise to discussions about the specific social responsibilities that companies should pursue (Carroll, 1999). In the second half of the 20th century, CSR began to gain traction, driven by a growing public awareness of the societal and environmental impact of corporate activities (Agudelo et al., 2019). It became increasingly recognized that businesses had a broader responsibility beyond their financial objectives, given the social, economic, and political changes occurring (Davis, 1960). This period witnessed the emergence of influential business leaders who advocated for the concept of corporate citizenship, with companies, including *Ben & Jerry's* and *The Body Shop*, taking notable strides in embracing responsible business practices (Msimanga, 2023).

The influence of CSR and the interest to engage in socially responsible activities has further intensified since the beginning of the 21st century. Research reveals a significant surge in CSR research and a substantial increase in reported CSR levels by companies during this period of time (Chapple et al., 2013; Lee, 2017). Various shocks and trends in the recent decades, including global warming, financial crises, and governmental regulations, have served as driving factors behind the rising CSR embracement by companies (Berkowitz, 2021). According to a report by McKinsey during that time, it was found that 57% of companies around the world were integrating sustainability principles across their corporate operations (Bonini & Görner, 2011)

2.1.3 COVID-19: catalysing the rapid transformation of CSR

The outbreak of COVID-19 has accelerated the pace of change in recent years, intensifying the expectations of society towards companies. Boston Consultancy Group (2020) revealed that the pandemic shock has resulted in a significant increase of over 70% in environmental awareness, leading consumers to have higher expectations for companies to prioritize environmental concerns in their operations. Additionally, the global pandemic has significantly influenced the attitude of employees towards companies, putting more pressure on their organizations to invest in societal responsible activities. Berkowitz (2021) found that 88% of employees are no longer accepting the sole focus on financial gains and are actively demanding that executives prioritize delivering positive impact on society. The outbreak has led to a significantly increase in employees' demand towards social factors, focusing on areas such as their health and emotional well-being (McGill & Clark, 2021). It has also accelerated the shift in prioritizing among corporate leaders, moving away from a narrow focus on their shareholders towards addressing societal needs. CEOs are prioritizing the safety and well-being of employees and customers, placing health concerns ahead of profitability (George, 2020). According to a study conducted by the Arizona State University (2021), 77% of employers identified mental health and well-being as the top priority for their companies during the pandemic. It has become the fundamental aspect of the employer-employee relationship.

The past years have highlighted the increasing importance of corporations redefining their societal value and expanding their commitment to all stakeholders. In direct response to the mounting urgency and increasing pressure to take responsibility for their actions, companies have significantly increased the total investment in social responsible activities by 41% during the period from 2018 to 2020 (Solórzano et al., 2021). Fortune Global 500 companies are making substantial investments, amounting to approximately 20 billion US Dollars, to CSR initiatives such as healthcare disparities, access to education, unemployment, and economic hardship (Iglesias, 2022). However, it is noteworthy that this commitment extends beyond these large corporations, as 68% of all companies worldwide have

increased their total investments in recent years to address the urgent needs that have become more apparent during the pandemic (Solórzano et al., 2021).

Today, the significance of CSR cannot be overstated, as outdated strategies are no longer adequate to meet the social obligations of companies. The pandemic has underscored the importance of prioritizing their social responsibilities over mere profit maximization, and all stakeholders will continue to demand positive impact on society. The question of whether businesses should make substantial CSR commitments is no longer up for debate. The emphasis now lies on determining the most effective ways to fulfil these commitments in the future.

2.2 Financial Firm Performance

2.2.1 Impact of disruption events on financial performance

It is widely acknowledged that the financial performances of companies can exhibit perplexing behaviour. However, delving deeper into this issue reveals a more complex reality: the presence of numerous extraordinary movements that profoundly affect financial markets (Friedman & Laibson, 1989). Throughout history, financial markets have been susceptible to significant disruptions arising from unexpected shocks and events, also referred to in the existing literature as Black Swan events. Nassim Nicholas Taleb (2008) portrays Black Swans as highly improbable events characterized by three key attributes. Firstly, they are unpredictable. Secondly, they have a substantial impact, leading to severe consequences that often reverberate cross various domains. Lastly, in the aftermath of a Black Swan event, there is a tendency to retrospectively seek explanations to make it seem less random and more predictable than it was (Taleb, 2008).

Those shock events come in many different forms, financial crashes, elections, wars, unexpected regulations and declarations about economic situations and may have tremendous impact on social and economic life (Manhire, 2018). Numerous studies analysed the effects of these major events on financial markets in the past and consistently revealed that they tend to manifest as extreme price fluctuations on financial markets (Friedman & Laibson, 1989). Birz & Lott (2011) demonstrated that macroeconomic news, such as news about Gross Domestic Product (GDP) and unemployment, significantly influences the jump intensities and volatility of stock market returns. Additionally, Bohl et al. (2008) found that unexpected monetary policy actions have a negative impact on financial firm performance. Also, other extraordinary movements, including financial crashes, terrorism, elections, and disasters, have been shown to result in substantial volatility shocks of daily index returns and have detrimental impact on the financial performances of companies (Arin et al., 2008; Charles & Darné, 2014; Ferretti et al., 2015).

One of the most recent shock events is the outbreak of COVID-19 in December 2019, which rapidly spread across the world. The outbreak of the pandemic has been characterized as one of the most biggest shock events in history, with a tragic death toll of nearly 15 million people worldwide (Taylor, 2022). This unprecedented global crisis has had a detrimental impact on various aspects, including social cohesion, economic activity, and the overall public health of populations across the globe (Delardas et al., 2022). The pandemic is commonly referred to as a Black Swan event because of its disruptive and challenging impact (Antipova, 2021). However, other researches refute the Black Swan characterization by arguing that COVID-19 was a completely foreseeable event, as risk indicators were readily apparent beforehand (Mishra, 2020). Regardless of how we categorize this event, the greatest shock of the recent century has undoubtedly put disaster risk management and public health systems to the test, pushing them to their limits.

As previously discussed, the pandemic had profound and far-reaching impacts on global economies and has shaken up the financial markets (Donthu & Gustafsson, 2020). The severity of its impact is evident in Wall Street's worst year since the 2008 Great Recession (Haworth, 2023). Dong Wang et al. (2020) provides evidence of the significant shocks that the pandemic has caused in international financial markets. The outbreak has resulted in widespread declines in the stock returns across all companies, with the reaction being influenced by the outbreak severity in each country separately (Al-Awadhi et al., 2020; Dong Wang et al. 2020; He et al., 2020; Chatjuthamard et al., 2021). Ashraf (2020) expanded on this and provided further support by confirming that the number of new COVID-19 cases negatively influenced market returns. Put differently, stock market returns declined as the number of confirmed cases increased. The daily number of COVID-19 death cases also had an adverse impact on daily market returns around the globe (Al-Awadhi et al., 2020; Ullah, 2022). The pandemic has had a substantial impact on the financial performance at the individual level as well. Lockdowns and reduced sales have disrupted productions and operations, leading to decreased performance and increased financial distress among companies (Hao Xiong et al., 2021).

Overall, the pandemic has revealed the vulnerability of companies and exposed the inadequacy of firms in effectively assessing the impacts of risks across all sectors (Woong & Goh, 2021). The outbreak has highlighted the critical need for implementing and improving effective risk management strategies (Arroyo et al., 2020).

2.2.2 CSR and Financial Firm Performance: stable vs turbulent periods

The inevitability of change and the occurrence of extraordinary movements underscore the need for proactive risk management and preparedness to mitigate potential impacts on the financial performance of companies. Despite the challenge posed by the pandemic, it is noteworthy that 85% of organizations with a strong and clear sense of social purpose experienced growth of 10% or more between 2017 and 2020 (Stobierski, 2021). Hence, it is crucial for companies to understand how CSR initiatives affect business performance across various periods of economic conditions. In terms of firm reputation, recent research by Bhattacharya et al. (2019) has provided compelling evidence supporting the positive effects of CSR on brand loyalty and brand credibility during stable economic conditions. CSR initiatives not only help consumers to form positive impressions of the firm but also contributes to favorable changes in the reputation of companies over the long-term (Saxton et al., 2017).

In the context of financial firm performance, Djalilov et al. (2014) conducted a study to examine the impact of CSR activities on firm performances in the financial sector during stable periods. They demonstrated a positive relationship between CSR and firm performance, highlighting that engaging in CSR-related activities is an effective strategic choice for businesses (Memon et al., 2019). Similarly,

Eccles et al. (2014) conducted prior research on the effect of CSR commitment on firm performance. They identified firms that proactively adopted corporate policies addressing environmental and social issues in the US before it became a common practice. They matched these firms with competitors of similar financial performance, size, capital structure and valuation and found that companies that exhibited a strong commitment to CSR during stable periods, significantly outperform their counterparts over time, both in terms of stock market and accounting performance. In contrast, Mohyletska (2023) argues that CSR initiatives do not directly lead to an increase in accounting-based performance indicators such as Return on Assets (ROA), Return on Equity (ROE), and total assets. However, the study does find that CSR contribute to enhancing the firm's reputation, which in turn lead to increased stock returns and firm valuations.

Furthermore, during periods of crisis, CSR has demonstrated its positive impact on the financial performances of companies and its ability to mitigate financial risk (Chollet & Sandwidi, 2018; Orlitzky & Benjamin, 2001; Benlemlih et al., 2018), achieved through the reduction of financing costs, enhanced creditworthiness, and increased firm valuation (El Ghoul et al., 2011; Memon et al., 2019). Consistent with this, academic research has provided evidence that higher CSR performances significantly decrease the negative stock market reaction and stock price crash risk during times of shocks (Bouslah et al., 2018; Yongtae Kim et al., 2014). During the pandemic, research has indicated that companies that engaged in CSR activities prior to the COVID-19 outbreak experienced faster recovery and demonstrated greater adaptability and resilience (Wenchuan Huang et al., 2020). Ongsakul et al. (2020) argues that these alleviation effects stem from the fact that CSR spawns moral capital and goodwill that functions as an insurance-like protection in the face of adverse events. Stakeholders are more inclined to support socially responsible firms in times of crisis if those firms have previously demonstrated ethical and sustainable behaviour (Tampakoudis et al., 2021). These firms may benefit from reduced regulatory scrutiny, and governments tend to favour them with granting operational licences and permits (Schwartz, 2021).

In contrast to these findings, Khan et al. (2016) highlights that firms with strong ratings on material sustainability issues tend to outperform those with poor ratings, whereas firms with strong ratings on immaterial sustainability issues do not show significant outperformance compared to counterparts with poor ratings. Research by Husnan et al. (2017) suggests that CSR has a significantly influence on the ROA and ROS, but no significant effect on Return on Equity (ROE) and the Current Ratio. This evidence supports the theory proposed by Friedman (1970) that businesses should prioritize profit maximization for their shareholders rather than prioritizing their social responsibilities (Sekhon & Kathuria, 2019).

Prior research have also explored the correlation between CSR and financial performance of firms, with a particular emphasis on the individual pillars of ESG: *environmental*, *social*, and *governance*. The overall score of these individual pillars is an aggregated measure of a firm's CSR performance and

existing literature extensively relies on ESG performances as a preferred measurement for evaluating a company's CSR activities (Shahbaz et al., 2020; Clément et al., 2023). A study by Ahmad et al. (2021) confirms that the individual pillars of ESG each have a positive impact on a company's financial performance. However, their findings also revealed that the level of impact varies across these individual dimensions. In support of these findings, Friede et al. (2015) argues that among the individual pillars, the environmental and governance dimensions demonstrate a slightly stronger positive relationship compared to the social pillar. In addition to this, Lisin et al. (2022) indicates that the governance pillar has the highest positive impact on corporations' financial success. However, in the context of the pandemic, El-Chaarani et al. (2022) demonstrated that corporate governance mechanisms showed no significant impact on financial performance during the crisis period. Notably, Hwang et al. (2021) revealed that the impact of COVID-19 on the financial performance is relatively smaller for companies that have especially higher social scores. They argue that this subdimension not only had a significant effect on increasing profitability but also played a role in reducing earnings volatility during the pandemic. The increased importance of the social pillar can be attributed to the heightened attention towards social factors, including mental health and the well-being of the population, which has been amplified by the COVID-19 outbreak (McGill & Clark, 2021).

The direction of causality in the relationship between CSR and financial performance remains also a controversial topic. Waddock & Graves (1997) supported the view that the relationship between CSR and financial performance is bi-directional, suggesting that the financial performances of a company can also positively impact its CSR activities. This perspective validates the slack resources theory and the free cash flow theory, which argue that organizations with excess resources and available cash are better positioned to invest in social responsible activities and adapt to emerging opportunities (Maqbool et al., 2020; Islam et al., 2021). Lin et al., (2019) further elaborates on this by asserting that the positive impact of CSR activities is contingent upon companies having excess financial resources. In other words, organizations can only derive benefits from CSR initiatives when they possess ample financial resources.

The relationship between CSR and financial performance is a subject of extensive debate in academic literature, with ongoing discussions about its association. Some studies has indicated a non-existent or negative relationship, while others argue that the positive impact of CSR on the financial performance depends on the slack of resources. However, numerous existing literature have demonstrated a positive association between CSR and firm performance, enhancing the reputation, mitigating financial risk, and increasing the financial firm performance in both stable economic periods and times of shock.

2.3 Europe vs United States: exploring the sustainable differences

Existing research indicates that European companies place a greater emphasis on corporate environmental and social responsibility compared to their counterparts in the United States (Tschopp, 2005). In addition to this, numerous commentators are suggesting that the US is lagging behind Europe in the development of more sustainable economic processes and energy infrastructure (Idowu et al., 2017). The level of CSR in Europe significantly differs from that in the US, primarily due to variations in the level of regulations implemented by the authorities in each region (Temel et al., 2021).

The US economy operates with relatively fewer regulations and relies on the free market forces. Consequently, there are no hard laws mandating businesses to allocate specific amounts towards CSR activities. As a result, CSR practices in the US are often characterized by voluntary societal engagements undertaken by businesses, as they are not obligated to participate in social and environmental responsibility activities (Camilleri, 2017). The reason for this is that there are concerns that excessive regulation can potentially have a negative impact on financial markets, making voluntary disclosure a preferable approach (Tschopp, 2015). In the absence of strict CSR regulations, it is the expectations of the population that are the primary driver for corporations to engage in social responsible initiatives. While engagement in CSR is primarily driven by voluntariness, it is worth noting that there are some policies and voluntary checks in place. These include soft laws that mandate larger companies to report their CSR-related initiatives. However, the extent and nature of a company's societal engagement still largely depend on their own voluntary initiatives (Goel & Rathee, 2022).

While the US economy has operated with relatively fewer regulations, many European governments have taken more proactive roles in shaping and promoting CSR in recent years. These governments have been setting standards in various areas, including environmental protection, health & safety, and employment rights. By providing policy and institutional frameworks, they encourage companies to raise their performance beyond minimum legal standards (Steurer, 2010). In addition, CSR in Europe is also actively promoted by the European Commission, which plays an important role in encouraging corporations to adhere to international guidelines and principles. A significant milestone in promoting CSR in Europe was the introduction of the European Green Deal in 2019 by the European Commission. This growth strategy aims to transition the EU economy to a sustainable economic model, with as primary objective the carbon neutrality by 2050 (Lapierre & McDougall, 2021). Furthermore, *EU CSR Directive*, also known as the CSR reporting mandate, has played a significant role in driving CSR activities among large listed firms in Europe since its implementation in 2017. The directive mandates these firms to prepare annual non-financial reports, leading to an increase in socially responsible activities even before the entry-into-force of the directive. Importantly, this has resulted in more meaningful CSR initiatives, alleviating the concerns that firms might engage in greenwashing activities solely to comply with the directive (Fiechter et al., 2022).

Europe is widely recognized as a frontrunner in CSR and CSR policies, outpacing the progress made in the US. In an effort to catch up with Europe, environmental lobbyist are advocating for a transition in the US from voluntary to mandatory environmental policies and stricter compliances for companies (Idowu et al., 2017). It is an opportune time for the Securities and Exchange Commission (SEC) to mandate CSR reporting, serving as a mechanism to address environmental concerns and encourage CSR engagement among US organizations.

3 Hypotheses

The objective of this paper is to examine the comparison of the effect of CSR commitment on financial performances of companies between the period before, during, and after the COVID-19 pandemic. By doing so, it aims to enhance our understanding of the relationship and the importance of CSR in an dynamic world characterized by evolving behaviours and influenced by unexpected events. Academic research conducted prior to the COVID-19 outbreak has highlighted that companies with strong commitment to CSR have consistently outperformed their less sustainable counterparts over time (Eccles et al., 2014; Khan et al., 2016). Additionally, CSR has demonstrated its positive impact on the financial performances of companies not only during periods of stability but also during periods of shocks (Chollet & Sandwidi, 2018; Orlitzky & Benjamin, 2001; Benlemlih et al., 2018). Furthermore, several reports have indicated that the pandemic has amplified stakeholders' demand for organizations to have a more positive impact on society and has emphasized the importance of prioritizing CSR initiatives (BCG, 2020; Berkowitz, 2021). In light of these findings, it can be argued that the positive impact of CSR on a company's financial performance has been amplified in the post-pandemic period compared to the era before COVID-19. To identify this increasing effect, the following hypothesis is formulated:

H1: *Increases in the performance of CSR have a stronger effect on financial firm performance in the post-pandemic period compared to the pre-pandemic period*

Previous research indicates that the environmental and governance pillars had a stronger positive impact on the financial performances of companies before the pandemic, compared to the impact of the social pillar (Friede et al., 2015). The difference in importance between these individual pillars can be attributed to various driving factors, including shocks and trends such as global warming, financial crises and governmental regulations. The outbreak of COVID-19 has further accelerated the demand of the population for companies to invest in societal responsible activities (Berkowitz, 2021). Especially noteworthy is the significant increase in attention towards social factors (McGill & Clark, 2021), with areas such as mental health and the well-being of employees identified as the top priority for companies and executives (George, 2020; Wade & Aspinall, 2021). In light of these observations, it can be argued that the significance of the social pillar on the financial performance of companies has been amplified compared to the impact of the environmental and governance pillars, in context of COVID-19. To explore this potential disparity in impact across the pillars, the following hypothesis is formulated:

H2: *The social pillar of CSR demonstrates a stronger positive relationship with financial firm performance in the post-pandemic period compared to the environmental and governance pillars*

Existing research highlights a notable disparity in the level of importance and implementation of CSR between Europe and the US. European companies exhibit a stronger commitment to corporate environmental and social responsibility in comparison to their counterparts in the US (Tschopp, 2005). The variation in the level of regulations implemented by the respective authorities is the primary factor contributing to this disparity (Temel et al., 2021). The European Commission, along with numerous European governments, has actively taken on a proactive role in setting standards and introducing international guidelines for businesses to adhere (Steurer, 2010; Lapierre & McDougall, 2021). While CSR in Europe is stimulated through regulations and policies implemented by European authorities, the level of CSR in the US is primary driven by the expectations and demands of the population rather than regulatory measures (Goel & Rathee, 2022). The COVID-19 pandemic has accelerated the demand from the population for businesses to engage in socially responsible activities, putting pressure on companies to take responsibility for their actions (Solórzano et al., 2021). Given that public expectations serve as the primary driver for CSR initiatives among US companies, one could argue that the impact of CSR on financial performance has been more significantly amplified in the US compared to Europe, as it directly addresses the heightened demands of the American population. In order to investigate the potential disparity in growth between Europe and the US, the following hypothesis is formulated:

H3: *The increase in the positive association between CSR performance and financial firm performance in the post-pandemic period is greater in the United States compared to Europe*

4 Data

4.1 Sample construction

This paper investigates the impact of CSR on the financial performance of companies, specifically contrasting the pre- and post-COVID-19 eras. The study aims to quantify the performance shifts attributable to an intensified global emphasis on CSR, with a focus on regional disparities. To evaluate the disparity in effect, this research examines data from both European and US firms from 2018 until 2022. Specifically, 2018 and 2019 are designated as the pre-COVID-19 periods, while 2020 and 2021 are categorised as the pandemic period. This classification follows the WHO's declaration on January 30, 2020, which identified the coronavirus outbreak as a Public Health Emergency of International Concern (Jasarevic et al., 2020). Although the pandemic's conclusion does not correspond to a precise point in time, by the beginning of 2022, the world had largely transitioned from the pandemic phase of COVID-19 to its endemic phase, perceiving it as a more manageable event (McLaughlin, 2022; Anderson, 2022). Dhungana et al. (2022) argue that this transition to the endemic state is largely due to widespread vaccination efforts, which have been critical in minimizing and controlling the unexpected shocks of the COVID-19 pandemic across the economy. These arguments reinforce the decision to designate 2022 as the post-COVID period.

This literature utilizes ESG scores as a quantitative assessment tool to measure the level of CSR. One of the most widely used ESG databases to evaluate European and US listed companies is the Thomson Reuters ASSET4 database. ASSET4 is one of the largest global ESG databases with comprehensive coverage of firms in many different countries (De Villiers et al., 2022). According to Refinitiv (2023), the database provides ESG data on more than 12,000 organizations across 76 countries. The financial data for US and European listed companies, including measures of financial performance, is retrieved form the Thomson Reuters Eikon database. This database is highly regarded in the academic community as the most widely available international data source and most commonly used data source for financial data (Landis & Skouras, 2021).

The sample for this study is derived from the ASSET4 database, which lists all US and European firms with available ESG data for the two-years period before the COVID-19 outbreak, as well as during the pandemic and post-pandemic phases. Corresponding financial data for these firms is subsequently obtained from Thomson Reuters Eikon database. Inclusion criteria stipulate that firm-year observations must provide complete information; hence, firm-year observations with missing financial or ESG data are eliminated from the sample.

This study excludes companies from the oil & gas, ordnance & armament, and financial sectors due to the controversial nature of these industries. For oil & gas companies, previous literature indicates that sustainable investments in this sector are often perceived by stakeholders as greenwashing. The motives

behind these investments are frequently questioned, and in some cases, viewed with scepticism, leading to a loss of legitimacy and a negatively impact on firm value (Kaupke & Knyphausen-Aufseß, 2022). Regarding the ordnance & armament industry, ESG investments show limited correlation with military and defence stocks. While preventing war and international conflicts can be seen as foundational to sustainable practice, Russia's recent invasion of Ukraine underline the importance of this industry to ensure the security of citizens, and thereby enhancing its value (Mitkow et al, 2022). Additionally, in alignment with existing research, firms operating in the financial industry are excluded from the dataset due to their highly regulated nature and distinct regulations that set them apart from other sectors (Velte, 2017).

The final sample ultimately consists of 3,489 firm-year observations, comprehensively dissected in Table 1, which is organized into distinct panels for enhanced clarity. Panel A outlines the overall sample distribution, whereas Panel B delineates the sector-specific composition, spotlighting manufacturing as the most prominently represented sector (72.26%), followed by services (18.63%). It should be noted that the wholesale trade sector and the agriculture sector, which also includes forestry and fishing, represent together only 1.00% of the entire sample. Panel C itemizes the sample distribution by the year corresponding to the one-month intervals. Panel D delineates the distribution across countries, revealing that US firms constitute 44.80% (1,563 observations) of the sample. Concurrently, European firms account for 55.20% of the sample, with United Kingdom (9.86%), and Germany (9.14%) being the largest contributors within the European sub-sample.

Table 1: Sample overview

Panel A: Sample distribution		Panel D: Sample distribution by country		
Selection	**Number**	**Year**	**Number**	**Percentage**
Initial sample – firm year observations	13,240	Austria	71	2.03
		Belgium	58	1.66
Firm-year observations in the oil & gas, ordnance & armament, and financial industry	3,025	Czech Republic	5	0.14
		Denmark	101	2.89
Firm-year observations with missing data	6,726	Finland	112	3.21
		France	158	4.53
Final sample – firm-year observations	3,489	Germany	319	9.14
		Greece	5	0.14
Panel B: Sample distribution by industry		Hungary	3	0.09
Industry	**Number**	**Percentage**	Ireland	17	0.49
Agriculture	12	0.34	Italy	81	2.32
Construction	41	1.18	Luxembourg	10	0.29
Manufacturing	2521	72.26	Netherlands	69	1.98
Mining	59	1.69	Norway	64	1.83
Retail Trade	56	1.61	Poland	10	0.29
Services	650	18.63	Portugal	3	0.09
Transportation	127	3.64	Slovenia	5	0.14
Wholesale Trade	23	0.66	Spain	53	1.49
Panel C: Sample distribution by year		Sweden	248	7.11
Year	**Number**	**Percentage**	Switzerland	191	5.47
2018	566	16.22	United Kingdom	344	9.86
2019	666	19.09	Europe	1,926	55.20
2020	736	21.09	United States	1,563	44.80
2021	782	22.41	**Total**	**3,489**	**100.00**
2022	739	21.18			

Note: This table provides a comprehensive breakdown of the total sample, comprising 3,489 firm-year observations over the period 2018-2022. The data consists of listed companies from Europe and the US, and industries categorized according to the Standard Industrial Classification (SIC) codes classification (SICCODE, 2023). Within this classification, the *Agriculture* sector also encompasses *Forestry* and *Fishing*, while *Transportation* also includes *Public Utilities*. Panel A delineates the transition from the initial to the final sample. Panels B,C, and D respectively detail the sample distribution by industry, year, and country.

4.2 Defining variables

4.2.1 Dependent variable – natural logarithm of Tobin's q as Financial Firm Performance

In existing finance literature, a variety of methods are employed to asses financial performances. The choice of measurement largely depends on the objective and framework of the study. This research employs the natural logarithm of the market performance method Tobin's q as a measurement of financial firm performances. Tobin's q is defined as the ratio between the market value of the firm's assets and the replacement value of its assets. Beyond evaluating a firm based on its past performances, it includes the potential growth opportunities of the company from an investor's perspective (Sauaia & Castro, 2014).

Another widely used market performance measurement is abnormal returns, which is defined as the difference between a company's stock return and the expected return based on its benchmark index (Strong, 1992). Both Tobin's q and abnormal returns operate under the assumption that a company's stock price comprehensively reflects all publicly available information about the firm (Marisetty et al., 2020) and that it adjusts to new information swiftly and rationally (Teall, 2023). This means that a rapid shift in a company's ESG activities would lead to immediate reactions in its market value, influencing both its Tobin's q and abnormal returns in the short term. However, Semenova & Hassel (2013) argue that the correlation between ESG engagements and abnormal returns fades in the long run due to the learning hypothesis. According to this hypothesis, when a firm releases a positive announcement, the market responds swiftly, driving stock prices upward and subsequently producing higher returns compared to the broader market, as reflected in abnormal returns. Yet, once the market understands the relevance of the announcement on firm value and performance, it becomes integrated into the market price, causing abnormal returns to disappear (Semenova & Hassel, 2013). Considering the speed at which such announcements are incorporated into stock prices, abnormal returns prove to be an unsuitable method for assessing the long-term effects of ESG activities on financial firm performances.

Prior studies have also utilized accountant performance methods, such as ROA and ROE, as an alternative approach for assessing a firm's financial performance. While these ratios primarily reflect past financial activities, the ESG score serves as a sustainability measurement that provides insights into the future performances of companies. Consequently, ESG scores are utilized by investors as an early warning indicator (Dr. Duerndorfer et al., 2018). Poor ESG reputations increase the risk of lawsuits, shareholder conflicts, and the cost of capital to issue debt (Newton et al., 2022; Wu et al., 2022). This impact also strengthens the argument presented in existing literature against the utilization of accounting measurements such as ROA and ROE. Fogel et al. (2018) and Gregory (2021) argue that firms with superior ESG ratings often secure debt more easily and at reduced costs. Consequently, such firms, when other factors are held constant, tend to have higher debt expenses, resulting in lower ROAs and ROEs. This suggests that, given these economic advantages, one might observe no significant or even a

negative relationship between ESG and accounting rates of returns. Therefore, relying on accounting measurements may not be a suitable approach for this study. Thus, due to its long-term perspective and ability to capture future growth benefits, Tobin's *q* is considered the most appreciate method in this research to measure financial performance.

Although various methods have been proposed for calculating the Tobin's *q* ratio, this study employs the equation formulated by Chung & Pruitt (1994). This approach relies on accessible financial and accounting data of companies. The equation, as presented by Chung & Pruitt (1994), is as follows:

$$Tobin's\ q = \frac{(Market\ Value + Liquidating\ Value + Debt)}{Total\ Assets}$$

The *Market Value* is determined by multiplying the median closing price of shares at the month's end with the number of common shares outstanding at that time. *Liquidating Value* represents the liquidation value of the firm's outstanding preferred stocks. *Debt* is calculated by subtracting current assets from the current liabilities, then adding the book value of inventories and long-term debt. *Total Assets* refer to the book value of the firm's total assets. When Tobin's *q* exceeds 1, it suggests that the firm's value is more than the cost of its assets, indicating a strong financial performance by the firm under study.

4.2.2 Independent variable – CSR

The independent variable in this study is the ESG performance. ESG scores have been widely used in existing CSR literature as they provide a comprehensive evaluation of a company's efforts to protect the natural and social environment. These performances are widely accepted and recognized as the most suitable measure for evaluating a company's CSR activities (Clément et al., 2023).

The database from Thomson Reuters ASSET4 is designed to provide a transparent and objective assessment of a company's ESG performance across ten ESG themes. These themes are categorized under the three principal *environmental*, *social*, and *governance* pillars. By allocating specific weights to each of these ten categories, scores for the individual pillars are generated, with values ranging from 0 to 100 percentiles. The overall ESG score (*Overall ESG*) is the weighted average of these pillar scores, where a higher score signifies commendable ESG performance. This weighted scoring approach facilitates a comprehensive and objective assessment of a company's holistic ESG performance (Thomson Reuters, 2022). Table 2 provides an overview of the individual ESG pillar scores, calculated as the relative sums of their respective categories.

Table 2: Individual ESG pillar scores

Pillars	Categories	Category Weights	Sum of Category Weights
Environmental	Emissions	0.15	0.44
	Resource use	0.15	
	Innovation	0.13	
Social	Community	0.09	0.31
	Human Rights	0.05	
	Product Responsibility	0.04	
	Workforce	0.13	
Governance	Shareholders	0.05	0.26
	CSR Strategy	0.03	
	Management	0.17	

Note: This table illustrates the proportional allocation of weights for each category within its corresponding ESG pillar. The overall ESG score is derived from the weighted average of these three primary pillars (Refinitiv, 2022).

4.2.3 Control variables

In this study, the dependent variable – financial firm performance, as quantified by the natural logarithm of Tobin's q – is influenced by multiple factors, extending beyond the primary independent variable of ESG performance. To account for these additional influences, this research incorporates a set of control variables, which have been identified in existing literature as potential determinants of financial firm performance (Appendix A, Table 7). These control variables include *firm size*, *firm age*, *return on assets* (ROA), *cash ratio*, *revenue growth*, *research & development (R&D) intensity* and *industry effects* (Hestinoviana, 2013; Kim et al, 2013; Dalal & Thaker, 2019; Alareeni & Hamdan, 2020). A detailed explanation of each variable, along with its expected influence, is provided below:

  i.   *Firm Size*: the size of a firm is quantified using the natural logarithm of its total assets. Previous research by Kakani & Kaul (2002) indicates that firm size has a positive effect on financial performance, particularly through the lens of capital market conditions. One plausible explanation for this relationship is that larger firms attract greater attention from a broader range of investors and financial analysts. This enhanced scrutiny often translates into more comprehensive and timely information being available to external investors. Consequently,

larger firms typically benefit from lower cost of capital (Rajan & Zingales, 1995). Therefore, a positive relationship (+) between firm size and financial performance is expected.

ii. *Firm Age*: Firm age is an indicator for firm stability, measured by the number of years that have elapsed since its establishment up to the year under consideration in the dataset. Stinchcombe (1965) introduced the concept of 'liability of newness', arguing that younger organizations are at a higher risk of failure compared to their more established counterparts. Rossi (2010) concurred, stating that firms accrue knowledge and improve operational efficiencies as they age. Orazalin et al. (2019) further substantiated this by identifying firm age as a significant factor improving financial stability. Following this reasoning, a positive relationship (+) between firm age and financial firm performance is expected.

iii. *Return on Assets (ROA)*: ROA, a ratio of a firm's net income to its total assets, serves as an indicator of organizational profitability. A higher ROA indicates that the firm is effectively fulfilling its shareholders' objectives and that executives are positively leveraging the firm's assets (Marito & Sjarif, 2020). Such positive performances will reduce potential conflicts of interest between executives and shareholders, thereby increasing the interest of investors and the firm's value (Purnamasari, 2015). As a result, a positive relationship (+) between ROA and financial firm performance is expected.

iv. *Cash Ratio:* the cash ratio, determined by taking the natural logarithm of the firm's cash and cash equivalents relative to its current liabilities, provides insights into the firm's short-term financial stability. Acting as risk indicator, this ratio assesses the firm's ability to meet its short-term obligations (Alvian, 2022). Besides, strong cash ratios can encourage firms to invest in opportunities, such as launching new products or penetrating new markets. Additionally, an abundance of financial capital can enhance a firm's operational efficiency and profitability (Lin et al, 2019). Consequently, a positive relationship (+) between cash ratio and financial firm performance is expected.

v. *Revenue Growth*: revenue growth is measured as the percentage increase in revenue compared to the previous year and serves as a proxy serves as an indicator of the firm's ability to boost revenue over a certain period. Ullah et al. (2020) identified a significant positive correlation between the annual growth of revenue and profitability. Additionally, an increase in revenue not only suggests strong company performance, but also indicates a growing consumer base with confidence in the company's products. Such upward trends often positively influence investor's perception, thereby enhancing the firm's overall valuation (Prabandari et al, 2020). Given these observations, a positive relationship (+) between revenue growth and financial firm performance is expected.

vi. *Research & Development (R&D) intensity*: R&D intensity is an indicator of growth and is calculated by dividing the firm's research and development expenditures by its revenue (Kama, 2009). Andras & Srinivasan (2003) demonstrate that companies increasing their R&D intensity improve both operational performance and stock returns. This can be attributed to the potential for R&D investments to spur technological innovations, thereby catalysing a firm's growth and reducing production costs (Andras & Srinivasan, 2003; Guo et al., 2018). Such investments often lead to better profitability, subsequently elevating stock prices (Hatem, 2015). Following this reasoning, a positive relationship (+) between R&D and financial performance is expected.

vii. *One-year lagged ln(Tobin's q)*: in line with the approaches of Burkhart & Lewis-Beck (1994) and Oneal & Russet (2001) this study includes the one-year lagged dependent variable as an additional control variable. The introduction of a lagged dependent variable might control for otherwise omitted variables and effects if one believes that current firm performance is influenced by the past (Germann et al., 2015). Additionally, the inclusion of the one-year lagged dependent variable as a control variable protect against interpreting spurious correlations as an evidence of causal relations Oneal & Russet (2001).

viii. *Industry Effects*: industry-specific factors, such as concentration levels, growth rates, dynamism, and complexity have a significant influence on the profitability of firms operating within them (Schmalensee, 1985). While existing literature varies on the subject, there is a broad consensus suggesting that the industry in which a firm operates accounts for approximately 15 to 20 percent of its performance (Short et al., 2009). This highlights the importance of industry structures in shaping financial performance. To account for these effects, the dataset incorporates 4-digit SIC codes, categorizing firms into overarching industries such as Agriculture, Forestry, & Fishing (0100-0999), Mining (1000-1499), Construction (1500-1799), Manufacturing (2000-3999), Transportation & Public Utilities (4000-4999), Wholesale Trade (5000-5199), Retail Trade (5200-5999), and Services (7000-8999).

4.3 Descriptive statistics

Following the approaches of Scharfenaker & Dos Santos (2015) and Butt et al. (2020), this study employs the natural logarithm of the dependent variable, Tobin's q. After analysing the dependent, independent and control variables for distribution, extreme values and linearity, they were subsequently winsorized. Table 3 presents the summary statistics of the variables for all listed companies under study. Importantly, the variables Tobin's q, size, R&D intensity and cash ratio are presented in their unadjusted form, meaning their natural logarithms are not displayed.

The age of firms varies widely, ranging from 1 to 65 years. Given their status as publicly listed company and their duration of existence, it's reasonable to assume that even younger firms are mature organizations. Delving into the ESG scores, the table indicates that the average overall ESG score stands at 54.18, suggesting that a majority of companies aim for a performance slightly above the midpoint. Notably, when evaluating the individual pillars, there are significant differences feasible between the environmental (47.01) and governance (58.16) pillar. This disparity supports the neo-classical perspective, which posits that companies prioritize shareholder interests over mitigating their environmental impact (Friedman, 1960).

Analysing the variations across industries, Table 8 (Appendix A) indicates that the services sector recorded one of the highest average revenue growth at 16.30% during the period 2018 to 2022. This surge can likely be attributed to the COVID-19 lockdown, which caused an increase in demand due to the shift to remote work and online shopping (Hao Xiong et al., 2021). Conversely, the pandemic can explain the diminished revenue growth rates observed in wholesale trade (0.07) and transportation (0.10) industries. Wholesale trade faced challenges contended disruptions in supply chain and shop closures, while the manufacturing sector faced challenges due to travel restrictions and border closures. Additionally, the environmental score for the service industry (35.99) is below the aggregate industry average (47.00). A plausible explanation for this is that service industry is often not directly linked to natural resources or physical production processes. As a result, there is a diminished direct ecological footprint to improve (Rosenblum et al., 2000). Their relatively low emissions at their point of generation might lead to fewer regulatory constraints, reducing incentives to invest in sustainable initiatives. A company's carbon footprint also explains the elevated environmental performance scores in the mining (69.43), construction (66.86), and transportation (62.43) sector. Historically, their poor environmental performances has subjected these industries to greater scrutiny, resulting in stricter regulations and standards (Söderholm et al, 2015; Shi & Xu, 2018).

Examining the annual differences, there is a marked increase in the overall ESG score over the years, rising from 51.55 in 2018 to 56.66 in 2022. Although there was a minor dip to 51.19 in 2019, the pre-pandemic period, the score has been on an upward trajectory since the onset of the COVID-19 outbreak in the beginning of 2020. During the initial year of the pandemic, revenue growth experienced a decline

from 8.30% in 2019 to 2.70% in 2020. However, it rebounded to 18.40% in 2021. This fluctuation in revenue growth performance can largely by attributed to the widespread lockdowns in 2020 (Hao Xiong et al., 2021). As lockdown restrictions were lifted in 2021, businesses saw a resurgence in sales, leading to stronger revenue growth ratios.

Table 9 (Appendix A) presents the statistics segmented by geography. The table shows that the mean of the dependent variable, Tobin's q, is significantly higher for US companies (2.79) compared to European companies (2.06) Additionally, US companies report higher average revenue growth rates (0.13) compared to European companies (0.10), suggesting superior performances by US companies over the past five years. However, when evaluating the level of overall ESG, European firms (62.11) outperform US companies (44.65). This difference can be primarily attributed to the variations in the regulations implemented by authorities in each region (Temel et al., 2021).

Table 3: Summary of the statistics

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	2.39	1.57	2.45	.14	25.29	3489
Overall ESG Score	54.29	55.41	20.70	7.23	96.01	3489
Environmental Score	47.01	48.09	26.93	.06	99.01	3489
Social Score	59.62	61.40	22.08	.91	97.88	3489
Governance Score	58.16	60.08	21.07	4.30	99.44	3489
Firm Age	27.91	27.00	15.29	1.00	65.00	3489
ROA	.04	.05	.11	-.29	.26	3489
Revenue Growth	.11	.08	.21	-.31	.88	3489
Size	$2.73e^{10}$	$2.52e^9$	$2.12e^{11}$	$6.40e^6$	$7.86e^{12}$	3489
R&D Intensity	.11	.04	.21	$3.13e^{-6}$	1.22	3489
Cash Ratio	.78	.42	1.24	$1.51e^{-5}$	13.60	3489

Note: This table provides a summary of the descriptive statistics for the financial firm performance measure, the overall ESG score, individual pillars scores, and control variables. The variables *Tobin's q*, *Size*, *R&D Intensity*, and *Cash Ratio* are presented in their unadjusted form, meaning that their natural logarithms are not displayed.

5 Methodology

5.1 Regressions

To examine the impact of CSR on financial firm performance, specifically across the pre-COVID-19, intra-pandemic, and post-COVID-19 phases, this study utilized STATA's random effects regressions with robust clustered errors. The dependent variable in this analysis is financial performance, denoted by natural logarithm Tobin's q. A higher Tobin's q suggest superior financial performance for the firms being studied. The independent variable is either the firm's overall ESG score or a firm's specific ESG pillar score. This approach aims to investigate whether individual pillars and the overall ESG score have differential impacts on financial performance across the pre-, intra-, and post-pandemic periods. To assess the effect across different periods, a period distinction dummy variable, labelled as $Period$, is included in the regression. This variable designates the pre-pandemic phase ($Period = 0$), intra-pandemic phase ($Period = 1$), and post-pandemic phase ($Period = 2$). Furthermore, various control variables have been incorporated to account for elements affecting financial performance. Additionally, dummy variables, including industry ($Industry$) and geographical location ($Country$) are integrated into the regression to account for variations in industry-specific factors and geographical differences.

To evaluate Hypothesis 1: "*Improvements in CSR performance exert a more pronounced impact on financial firm performance after the pandemic outbreak compared to the pre-pandemic period*", the ensuing regression model is employed:

$$ln(Tobin's\ q_{i,t}) = a + \beta_1 * ESGscore_{i,t} + \beta_2 * Period_t + \beta_3 * (ESGscore_{i,t} * Period_t) + \beta_4 *$$
$$FirmAge_{i,t} + \beta_5 * ROA_{i,t} + \beta_6 * RevenueGrowth_{i,t} + \beta_7 * Size_{i,t} + \beta_8 * \ln(CashRatio_{i,t}) +$$
$$\beta_9 * \ln(R\&D_{i,t}) + \beta_{10} * ln(Tobin's\ q_{i,t-1}) + \beta_{11} * Country_i + \beta_{12} * Industry_i + \epsilon_{i,t}$$

Incorporating the interaction term $\beta_3 * (ESGscore_{i,t} * Period_t)$ into the model allows for an assessment of the change in impact of ESG performances on Tobin's q during the pandemic and endemic era. If the coefficient β_3 is positive and significant, it suggests a heightened influence of CSR on financial performance in the intra- or post-pandemic period relative to the pre-pandemic years.

To delve deeper into how individual pillars might influence financial performance differently before and after the COVID-19 outbreak, each pillar is examined separately. It is hypothesized that the significance of the social pillar on the company's financial firm performance has become more pronounced after the outbreak compared to the impact of the environmental and governance pillars. This is articulated in Hypothesis 2: "*Following the COVID-19 outbreak, the impact of the social pillar on financial firm performance has increased more in the post-pandemic era relative to the environmental and governance pillars, when compared to the pre-pandemic period*". The regression utilized to test this is as follows:

$$\ln(Tobin's\ q_{i,t}) = a + \beta_{1-3} * ESGscore_{i,t} + \beta_4 * Period_t + \beta_{5-7} * (ESGscore_{i,t} * Period_t) +$$
$$\beta_8 * FirmAge_{i,t} + \beta_9 * ROA_{i,t} + \beta_{10} * RevenueGrowth_{i,t} + \beta_{11} * Size_{i,t} + \beta_{12} *$$
$$\ln(CashRatio_{i,t}) + \beta_{13} * \ln(R\&D_{i,t}) + \beta_{14} * \ln(Tobin's\ q_{i,t-1}) + \beta_{15} * Country_i + \beta_{16} *$$
$$Industry_i + \epsilon_{i,t}$$

In the model, the interaction terms $\beta_{5-7} * (ESGpillar_{i,t} * Period_t)$ evaluate the combined effect of each individual ESG pillar's score with the pandemic or post-pandemic period on Tobin's q. This determines if the influence of distinct ESG pillars on financial performance has been intensified during or after the pandemic period relative to the pre-pandemic era. By assessing the coefficients β_{5-7} corresponding to the each individual ESG pillar, Hypothesis 2 is tested. If the coefficient associated with the social pillar's interaction term ($ESGscore_{i,t} * Period_t$ with $Period = 2$) is higher and significant compared to the coefficients of the interaction terms of the environmental and governance pillars (with $Period = 2$), then it suggests a stronger post-pandemic increase in the impact of the social pillar on financial firm performance. This increase is in comparison to the pre-pandemic period and is more pronounced that the changes observed for the environmental and governance pillars.

Hypothesis 3 aims to discern whether geographic disparities influence the relationship between CSR and financial performance. It is posited as follows: "*The increase in the positive association between CSR performance and financial firm performance in the post-pandemic period is greater in the United States compared to Europe*". To explore the potential disparity between Europe and the US, the USA dummy variable (*USA*) is introduced, which has a value of zero for European companies (*USA = 0*) and value of 1 for US companies (*USA = 1*). The subsequent regression is executed:

$$\ln(Tobin's\ q_{i,t}) = a + \beta_1 * ESGscore_{i,t} + \beta_2 * Period_t + \beta_3 * USA_i + \beta_4 * (ESGscore_{i,t} * USA_i *$$
$$Period_t) + \beta_5 * FirmAge_{i,t} + \beta_6 * ROA_{i,t} + \beta_7 * RevenueGrowth_{i,t} + \beta_8 * Size_{i,t} + \beta_9 *$$
$$\ln(CashRatio_{i,t}) + \beta_{10} * \ln(R\&D_{i,t}) + \beta_{11} * \ln(Tobin's\ q_{i,t-1}) + \beta_{12} * Industry_i + \epsilon_{i,t}$$

Incorporating the interaction term $\beta_4 * (ESGscore_{i,t} * USA_i * Period_t)$ into the regressions allows for an examination whether the impact of ESG performance on Tobin's q is more pronounced in the intra- or post-pandemic period in the US relative to Europe. A positive and significant coefficient β_4 when $USA = 1$ and $Period = 2$ suggests a more pronounced increase in impact in the US post-pandemic compared to Europe.

5.2 Additional tests

5.2.1 Multicollinearity

Addressing multicollinearity is paramount in any study and should be tackled prior to data modelling. Multicollinearity arises when two or more independent variables in a regression model are highly correlated with each other (Daoud, 2017), which can diminish statistically significancy of important predictors, even if they are truly influential (Dormann et al., 2012)

One of the primary statistical tools employed to assess multicollinearity is the Pearson correlation coefficient (Armstrong, 2019).While thresholds vary in literature, a common benchmark for indicating a strong correlation is a coefficient of 0.7 (Dormann et al., 2012). Table 10 (Appendix A) presents the Pearson correlations for all variables, with no control variable correlation surpassing the 0.7 threshold. The individual pillars, however, demonstrates strong correlation with the overall ESG score, an anticipated outcome given that the pillars inherently reflect the essence of the overarching ESG score. In addition, also the three individual pillars, especially the environmental and social pillar, exhibit a strong intercorrelation. Nevertheless, since these ESG variables are not simultaneously employed within a single regression, the observed correlations can be disregarded.

To ensure the absence of multicollinearity, this study also employs the Variance Inflation Factor (VIF), which quantifies the extent to which the variance of a regression coefficient increases when predictors are correlated (Daoud, 2017). Conventionally, a VIF value exceeding 10 is considered as a sign for high collinearity (Gómez et al., 2018). The results show that all control variables have VIFs below 1.33, suggesting no multicollinearity. Although the overall ESG score and its individual pillars yield VIFs greater than 10 due to their intercorrelations, this isn't an issue as they aren't combined in any single regression model. Based on both Pearson correlation and VIFs evaluations, multicollinearity does not pose an issue in this research.

5.2.2 Heteroskedasticity & serial correlation

A fundamental assumption of regression models is that the variance of the error term, $\epsilon_{i,t}$, is constant across all levels of the independent variables, also known as homoskedasticity (Williams, 2020). Its violation, heteroskedasticity, can introduce biases in standard error estimates which may lead to biases in test statistics and confidence intervals (Breusch & Pagan, 1979). Addressing heteroskedasticity is crucial in research, given its potential to compromise the validity and reliability of regression results.

The Breusch-Pagan test (1979) is employed to determine whether or not heteroskedasticity is present in the regression model. The test's null hypothesis posits that the error variances are consistent across observations, confirming the presence of homoskedasticity. Executing the Breusch-Pagan test with the

overall ESG included gives the following result: F-statistic = 8.61 and Probability > F = 0.000. The results from the Breusch-Pagan test, when incorporating individual pillars separately, are as follows: Environmental (F-statistic = 8.44, Probability > F = 0.000), Social (F-statistic = 8.46, Probability > F = 0.000), and Governance (F-statistic = 8.86, Probability > F = 0.000). Based on these results, the null hypothesis is rejected, signalling heteroskedasticity at a 1% significance level.

In addition to heteroskedasticity, the presence of serial correlation in panel data models can bias standard errors and causes the results to be inefficient. To address this, the study employs the Wooldridge test (2002), designed to detect serial correlation. This test is grounded on ordinary least-squares (OLS) residuals from the first-differenced model and is suitable for unbalanced panels (Born & Breitung, 2010). The null Hypothesis of the Wooldridge test assumes no first-order autocorrelation in the panel data. Applying this test to the overall ESG score and its individual pillars provides the following results: for the overall ESG (F-statistic = 144.30, Probability > F = 0.000), Environmental (F-statistic = 143.94, Probability > F = 0.000), Social (F-statistic = 145.57, Probability > F = 0.000), and Governance (F-statistic = 145.26, Probability > F = 0.000). These outcomes strongly reject the null Hypothesis, indicating the presence of autocorrelation. To address both heteroskedasticity and autocorrelation, the regression model will incorporate robust clustered errors, clustered on firm name.

5.2.3 Fisher test

The unit root test is conducted in research studies to assess the stationarity of time series variables. A variable is considered stationary when its mean, variance, and autocorrelation structure remain constant over time (He, 2018). Non-stationarity can significantly affect the behavior and characteristics of the series, potentially leading to unreliable and spurious regression results (Maladjian & El Khoury, 2014). Given that economic and accounting variables, including market value – a fundamental component of Tobin's q – often exhibit nonstationary behavior (Qi et al., 2000), it is imperative for this study to conduct a unit root test to ensure stationarity. One of the most widely used tests for stationarity is the Fisher test (1932). It can be conducted through either the augmented Dickey-Fuller (ADF) test (1981) or the Phillips-Perron (PP) test (1988), with both allowing for unbalanced panels (Dr. Jalil & Rao, 2019). However, as argued by Qi et al. (2000) and Sarbapriya (2012), the PP test offers more robust results in ensuring variable stationarity compared to the ADF test. Based on these findings, the PP test is employed in this study to verify stationarity, even though both methods yielded comparable results. The results after conducting the PP test confirm stationarity of the dependent variable, Tobin's q, in this study.

5.2.4 Random effects versus fixed effects

An important consideration is whether to use fixed or random effects in a research study. One must weigh the potential bias from random effects against the efficiency loss and the limitations posed by fixed effects in incorporating time-invariant variables (Clark & Linzer, 2014). While many ESG studies conventionally lean on the Hausman test to determine the choice between fixed and random effects, Bollen & Brand (2008) noted that past applications of the Hausman test predominantly favored the fixed effects model. Given this, research suggests that the choice between fixed and random effects should be based on the underlying theory and structure of the study. In other words, one must consider the size of the dataset, the correlation level between the dependent variable and unit effects, and the extent of within-unit variation in the independent variable relative to the dependent variable, before making the decision (Schilling, 2015; Bell et al., 2019).

As for this study, there are relatively few year-observations per company, with an average of 3.3 and ranging from 1 to 5. As per Clark & Linzer (2014), this could lead to estimates of the *within-unit* effects of the ESG scores on Tobin's *q* that may be significantly deviate from the true effect. Besides, the overall ESG score and the individual pillar scores exhibit relatively little change over time in comparison to the changes in the Tobin's *q*. Such *sluggish* or *slow-moving* independent variables can lead to unstable effects and coefficients that diverge from the true β. This phenomenon is often termed as the *high variance* problem in fixed effects models, an issue not faced by random effects models (Clark & Linzer, 2014). Drawing on the rationale of Schilling (2015) in favor of random effects, this study could leverage both *within-unit* as well as the *between-unit* variance, given the anticipated variations in ESG performance across firms. However, to control for explanatory time-invariant variables that are possibly omitted from the random effects regression model, this study includes the one-year lagged dependent variable as a control variable, in line with the approach of Germann et al. (2015). The lagged dependent variable captures the omitted time-invariant variables that a fixed effects model would typically control for.

6 Empirical results

6.1 Empirical results

This chapter presents the empirical findings derived from the execution of the previously discussed regressions. To address potential endogeneity concerns in the relationship between CSR and financial firm performance, the Two-Stage Least Squares (2SLS) method will be employed as a robustness check. Moreover, to further examine the relationship, a sensitivity test is applied.

6.1.1 ESG performances on Financial Firm Performance post-COVID-19 outbreak

Table 4 presents the regression results examining the relationship between both ESG and individual pillar performances and financial firm performance, as denoted by the natural logarithm of Tobin's q, across various periods: 2018 (pre-COVID-19 period), 2020 and 2021 (COVID-19 period), and 2022 (post-COVID-19 period). The adjusted R-squared provides insights into each model's explanatory power. Henseler (2009) suggests thresholds for R-squared values, with 0.75, 0.50, and 0.25 representing substantial, moderate, and weak explanatory power. Given this guideline, the R-squared values for the regressions on overall ESG (0.894), environmental (0.893), social (0.894), and governance (0.892), all indicate substantial explanatory power.[1]

Column 1 reveals that the regression coefficient for the independent variable, overall ESG performance, is 0.0025, which is positive and significant at 1%. This indicates a positive association with ln(Tobin's q). Specifically, for each additional unit increase in the overall ESG score, Tobin's q is expected to rise by 0.25%, holding other factors constant. This suggests that ESG engagement enhances a company's financial performance. This aligns with the findings of Djalilov et al. (2014) and Eccles et al. (2014), who reported that companies that show strong commitment to CSR during stable periods, significantly outperformed their counterparts over time. Moreover, examining the interaction term between the overall ESG score and the COVID-19 era (-0.0014), which is negative at a 5% significance level, indicates that although engagement in ESG activities during the pandemic increased financial firm performance by 0.0010 (0.0024-0.0014), its impact was significantly diminished. This observation aligns with the findings from Zhang et al. (2022), who argues that the influence of CSR has blunted

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[1] The high R-squared values are attributed to the inclusion of the one-year lagged ln(Tobin's q) in the regression model. This chapter demonstrates the significant influence of the one-year lagged ln(Tobin's q) on its subsequent year's value, consistent with findings from Chelawat & Trivedi (2016) and Cho (2022). Both these studies utilized the one-year lagged dependent variable, ln(Tobin's q), as a control variable in their ESG performance studies, and similarly observed high R-squared values.

during the global health crisis compared to the pre-pandemic period. This decrease indicates a shift in the priorities of investors during the crisis, a notion supported by Löwen et al. (2021) and Tampakoudis et al. (2021). Their researches highlighted the typical flight-to-safety effect among investors, suggesting that investors prioritized immediate survival and financial performance rather than ESG initiatives.

In the post-pandemic phase, the coefficient of the interaction term between the overall ESG score and this period (0.0021), significant at a 1% level, suggest that the positive effect of ESG performance on financial firm performance has surpassed its impact during the pre-pandemic era. These results supports Hypothesis 1, which stated that "*Increases in the performance of CSR have stronger effects on financial firm performance in the post-pandemic period compared to the pre-pandemic period*".

Analysing the individual pillars, column 2 reveals that the coefficient associated with environmental performance (0.0016) is positive and significant at the 1% level. This indicates that stronger commitments to environmental activities enhance financial firm performance. The interaction term between the environmental score and the pandemic period (-0.0085), significantly negative at a 10% level, suggests that the positive impact of the environmental score on the natural logarithm of Tobin's q diminished during the pandemic. However, even though this positive effect was reduced during the crisis, it maintained a positive influence, in line with the findings of Hwang et al. (2021). Additionally, the interaction term between the post-COVID-19 period and the environmental score (0.0016) is positive and significant at the 1% level. This suggest that the positive influence of environmental commitments on financial firm performance not only increased after the pandemic but also surpassed its impact before the outbreak.

Similarly, when analysing the impact of social performance on ln(Tobin's q) in column 3, the coefficient for social performance stands at 0.0022 and is significant at the 1% level. This suggests that firms that enhance their social initiatives are likely to see an increase in their financial performance. Moreover, in line with the findings related to the environmental pillar, social commitments during COVID-19 (-0.0013), negative and significant at a 5% level, led to a reduced positive effect of 0.0009 (0.0022-0.0013) on the natural logarithm of Tobin's q compared to the pre-pandemic period. Furthermore, the coefficient of the interaction term between the social pillar and the post-pandemic phase (0.0019) is positive at a 1% significance. This implies that the positive influence of engaging in social activities after the pandemic surpassed its impact from the years leading up to the outbreak.

In contrast, a closer examination of the governance pillar (column 4) reveals that its impact (0.0008) on ln(Tobin's q) is positive but statistically insignificant, suggesting that corporate governance commitments do not affect the financial performance of companies. This interpretation also holds true for the interaction term of governance performance and post-COVID-19 (0.0005), which is positive but not significant, suggesting that the impact of governance activities on financial firm performance has not changed after the global health crisis. Notably, the interaction term between the pandemic and

governance score (-0.0012), which is negative and significant at the 5% level, indicates that firms increasing their governance commitments during the COVID-19 crisis experienced a decline in financial performances. This aligns with the findings of Farwis et al. (2020) and Boshnak et al. (2023). These studies note that, during the pandemic, firm financial performance tended to decrease particularly with larger board and audit committee sizes, more frequent board meetings and a higher proportion of independent non-executive directors. A logical explanation is that the lack of physical interaction and in-person board meetings led to slower, less effective decision-making in larger boards, thereby impacting financial performance (Farwis et al., 2020). Additionally, Khabit & Nour (2021) highlight the financial strain caused by increased director compensation, as more frequent board and audit committee meetings increase expenses that companies could not afford during uncertain times.

The results from the interaction terms between individual pillars and the post-pandemic period suggest that the social pillar (0.0019) had the most pronounced increase in its impact on financial performance, compared to the environmental (0.0016) and governance pillars (00005, insignificant). This aligns with Hypothesis 2: "*The social pillar of CSR demonstrates a stronger positive relationship with financial firm performance in the post-pandemic period compared to the environmental and governance pillars.*" This amplified effect might stem from the intensified attention to social issues during the pandemic, including mental health and the well-being of the population (McGill & Clark, 2021).

Among the control variables, ROA, revenue growth, size, natural logarithm of R&D intensity, and one-year lagged ln(Tobin's q) all consistently show a significant positive association with the natural logarithm of Tobin's q in the regressions, and therefore increases the financial performances of companies. The coefficient of the one-year lagged ln(Tobin's q) is the highest among all variables in the regression model, indicating strong persistence of Tobin's q over time. Specifically, the coefficient of 0.82 from column 1 suggests that 81.9% of the change in Tobin's q from the previous year is carried over to the current year, holding other factors constant. This emphasizes the strong influence of past Tobin's q values on its current value, a finding that is consistent with the results of the Wooldridge test for autocorrelation. Conversely, size, measured by the natural logarithm of total assets, has a significant negative relation with dependent variable. This might be due to the fact that Tobin's q denominator is total assets, hence, a company with a larger asset base might register a lower Tobin's q, assuming other factors remain constant (Kartikasari & Merianti, 2016). The control variables firm age and the natural logarithm of cash ratio appear to have no significant effect on Tobin's q, while both being expected a positive effect, respectively. The insignificant effect of firm age may arise because age does not necessarily reflect a company's financial health. Companies can face financial difficulties at any point in their existence (Lambey, 2021). As for the cash ratio's non-significant effect, it could be attributed to mixed market perceptions. Some investors interpret high cash reserves as an indication of financial stability and diminished risk, while others perceive it as evidence of inefficiency (Guo et al., 2020).

Table 4: Regression results: ESG Performance and Financial Firm Performance

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Overall ESG score	0.00248*** (0.000630)			
Environmental		0.00152*** (0.000470)		
Social			0.00223*** (0.000574)	
Governance				0.000800 (0.000569)
COVID-19	0.218*** (0.0396)	0.188*** (0.0286)	0.224*** (0.0392)	0.221*** (0.0389)
Post-COVID-19	-0.265*** (0.0491)	-0.219*** (0.0349)	-0.257*** (0.0498)	-0.169*** (0.0467)
Overall ESG * COVID-19	-0.00136** (0.000599)			
Overall ESG * Post-COVID-19	0.00206*** (0.000741)			
ENscore * COVID-19		-0.000847* (0.000450)		
ENscore * Post-COVID-19		0.00156*** (0.000546)		
SOscore * COVID-19			-0.00129** (0.000556)	
SOscore * Post-COVID-19			0.00185*** (0.000707)	
CGscore * COVID-19				-0.00122** (0.000581)
CGscore * Post-COVID-19				0.000511 (0.000698)
Firm Age	-0.000324 (0.000380)	-0.000258 (0.000379)	-0.000216 (0.000379)	-0.000186 (0.000388)
ROA	0.695*** (0.0806)	0.700*** (0.0808)	0.718*** (0.0798)	0.728*** (0.0817)
Size	-0.0269*** (0.00542)	-0.0232*** (0.00512)	-0.0257*** (0.00525)	-0.0123*** (0.00404)
Revenue Growth	0.296*** (0.0375)	0.296*** (0.0375)	0.296*** (0.0372)	0.306*** (0.0378)
ln(Cash Ratio)	0.00377 (0.00663)	0.00377 (0.00664)	0.00394 (0.00657)	0.00350 (0.00663)
ln(R&D)	0.0314*** (0.00450)	0.0328*** (0.00446)	0.0305*** (0.00458)	0.0321*** (0.00459)
One-year lagged ln(Tobin's q)	0.821*** (0.0116)	0.821*** (0.0117)	0.821*** (0.0116)	0.819*** (0.0118)
Constant	0.293** (0.140)	0.254* (0.131)	0.261* (0.137)	0.0601 (0.124)
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	2,628	2,628	2,628	2,628
Number of Companies	799	799	799	799
Adjusted R-Squared	.894	.893	.894	.892

Note: This table provides the result of the random effects regression with clustered errors of the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022. A positive coefficient indicates a positive impact on ln(Tobin's q). The periods are defined as pre-COVID-19 (*Period* = 0), during COVID-19 (*Period* = 1) and post-COVID-19 era (*Period* = 2). The regressions control for industry and country effects. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

6.1.2 The impact of geographic differences on ESG impact

Table 5 presents the association between ESG performance and financial firm performance, for the two geographical subgroups of European (column 1) and US companies (column 2) across the pre-, intra-, and post-pandemic period. The R-squared values for the regressions for the European sub-group (0.911) and US sub-group (0.864) indicate substantial explanatory power for both models.

Analysing the European companies, column 1 reveals that the coefficient associated with the ESG performance (0.0018) is positive and significant at a 5% level. This indicates that stronger commitments to ESG activities enhance financial firm performance. The interaction term between the ESG score and the pandemic period, valued at -0.0025, is significantly negative at the 1% level. This implies that the pandemic diminished the positive effect of the ESG score on the natural logarithm of Tobin's q. Specifically, the net effect of ESG performance on the natural logarithm of Tobin's q during the pandemic became negative, amounting to -0.0007 (0.0018-0.0025), all else being equal. This suggests that European firms that increased their ESG commitments during the global health crisis experienced a decline in their financial performance. These results further highlight investors' shifted priorities from sustainability to financial stability during the crisis. It thereby confirms the notion that sustainable investing is not immune to crises and remains a luxury good, pursued during prosperous times, consistent with the findings of D'Hondt et al. (2021) and Gloßner (2022). Moreover, the ESG commitments in the post-pandemic era (0.0013), positive insignificant, suggesting that for European firms, the impact of ESG on financial performance post-pandemic has returned to its pre-COVID-19 level, but has not shown a significant increase.

A closer examination of the US companies (column 2) reveals that the impact of ESG performance (0.0018) is positive but not statistically significant, suggesting that ESG commitments did not influence the financial performance of US companies before the pandemic. Contrasting with its European counterparts, the interaction term between the ESG score and the pandemic period fur US companies (-0.0000091) is negative but not significant. This suggests that US investors may not have placed a strong emphasis on sustainability either before or during COVID-19. An potential explanation for this is that 87% of US investors suspect corporate disclosures of greenwashing and question the reliability of the reported ESG commitments (Saint-Martin et al., 2022). If investors harbour such scepticism, it's logical to assume they might not factor these commitments in when making investment decisions. Further, the post-COVID-19 ESG performance of US companies (0.0033) is positive and significant at a 5% level, suggesting a positive influence on the natural logarithm of Tobin's q. This indicates that ESG commitments began positively impacting the financial performance of US companies after the pandemic, holding other factors constant. While in Europe, the influence of ESG performance on financial firm performance returned to its pre-pandemic level, US companies experienced a significant shift between the post-pandemic and pre-pandemic periods. This observation aligns with Hypothesis 3:

"*The increase in the positive association between CSR performance and financial firm performance in the post-pandemic period is greater in the United States compared to Europe*". This observed increase in impact in the post-pandemic phase might stem from the accelerated public demand for social responsible activities, forcing companies and investors to reevaluate their priorities (Solórzano et al., 2021). Additionally, as the US sifts towards stricter regulations on ESG disclosure and standardisation, the potential for greenwashing is reduced, facilitating the comparison of ESG performances across companies. This enhances the credibility of reported ESG commitments, thereby encouraging the integration of ESG performance into investment decisions (Cifrino et al., 2023). Furthermore, in both models, no notable differences are observed in the sign and significance of the control variables and the coefficients of the constants remain significant.

Table 5: Regression results ESG and Financial Firm Performance for European and US companies

Variables	(1) Tobin's q	(2) Tobin's q
Overall ESG score	0.00181**	0.00176
	(0.000720)	(0.00108)
COVID-19 (dummy)	0.298***	0.157***
	(0.0531)	(0.0574)
Post-COVID-19 (dummy)	-0.211***	-0.308***
	(0.0642)	(0.0706)
Overall ESG * COVID-19	-0.00252***	-9.12e-05
	(0.000750)	(0.00101)
Overall ESG * Post-COVID-19	0.00136	0.00327***
	(0.000897)	(0.00124)
Firm Age	-0.000375	-4.77e-06
	(0.000426)	(0.000595)
ROA	0.699***	0.680***
	(0.127)	(0.109)
Size	0.166***	0.455***
	(0.0465)	(0.0580)
Revenue Growth	-0.0155***	-0.0209**
	(0.00486)	(0.00928)
ln(Cash Ratio)	0.00692	-0.000831
	(0.00908)	(0.00892)
ln(R&D)	0.0214***	0.0432***
	(0.00467)	(0.00718)
One-year lagged ln(Tobin's q)	0.861***	0.802***
	(0.0143)	(0.0167)
Constant	0.238**	0.450**
	(0.103)	(0.187)
Industry effects	Yes	Yes
Country effects	Yes	Yes
Observations	1,489	1,139
Number of Companies	421	378
Adjusted R-Squared	.091	.862

Note: This table provides the results of the random effects regression with clustered errors of the overall ESG score on financial firm performance for European and US companies over the period 2018-2022. Column 1 shows the results for European companies. Column 2 shows the results for US companies. A positive coefficient indicates a positive impact on ln(Tobin's *q*). The regressions control for industry and country effects. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

6.2 Robustness check

6.2.1 Endogenous test: instrumental variable regression analysis (2SLS)

Endogeneity represents a challenge in numerous studies that rely on regression analysis to discern causal relationships. Endogeneity occurs when an explanatory variable in a regression model is correlated with the error term in the model (Fletcher, 2014). The main source of endogeneity is the omitted variable bias (Felipe, 2007). This bias arises when there's a discrepancy between the expected value of an estimator and the actual value of the underlying parameter, due to omission of one or more relevant explanatory variables (Jargowsky, 2005). In essence, the estimated coefficients of the variables in the model may not solely reflect the impact of the variables itself, but also the effect of omitted variables that should have been included in the regression model. This misrepresentation can result in inaccurate conclusions about the relationship between the variables (Sackett et al., 2003). The inclusion of the one-year lagged dependent variable, the natural logarithm of Tobin's q, serves as a proxy to control for explanatory variables that might be omitted from the regression model, thereby providing protection against omitted variable bias. However, another primary contributor to endogeneity is reverse causality. This arises in situations where the dependent variable influences, and is simultaneously influenced by, one or more explanatory variables (Abdallah et al., 2015). It could be argued that a company's financial performance can also positively influence its CSR activities (Waddock & Graves, 1997). Organizations that perform well financially may have excess resources and are therefore better positioned to invest in social responsible activities and adapt to emerging opportunities (Maqbool et al., 2020; Islam et al., 2021). This bi-directional relationship between CSR and financial performance could introduce endogeneity in this research.

Instrumental variable regression analysis is frequently employed in literature to address the issue of endogeneity. This approach not only establishes causality but also simultaneously mitigates the effects of omitted variable bias. (Becker, 2016). This method results in more consistent coefficient estimates, even in the presence of significant measurement errors (Sargan, 1958). Building on the works of Lee & Park (2009), Erhemjamts et al. (2013), and Liu et al. (2021), this study employs the Two-Stage Least Squares (2SLS) as an instrumental variable analysis to address endogeneity concerns in the relationship between CSR and financial performance.

The two conditions that a variable must meet to be considered a good instrumental variable is that it should be strongly correlated with the variable of interest and have no direct relationship with the outcome variable or the error term in the regression (Newhouse & McClellan, 1998). In line with the methodologies employed by Aouadi & Marsat (2018) and Azmi et al. (2021), this study uses both the industry-year average ESG (or individual pillar) score and the country-year average ESG (or individual pillar) score as instrumental variables. The industry average ESG score is likely correlated with an individual firm's ESG score. When a majority of firms in an industry prioritize ESG initiatives, it can

exert pressure on other firms within that industry to enhance their ESG performance as well. Concurrently, this industry-wide average score is unlikely to be directly linked with an individual firm's financial performance, which is more sensitive to firm-specific characteristics rather than broad industry averages. As a second instrument, this study incorporates the country-year average ESG score, following the approach of El Ghoul et al. (2011). In countries characterized by stronger community engagements, firms might tend to engage in more ESG activities. This could pressure other companies within the same country to elevate their ESG performances. Yet, it remains unlikely that a country-level ESG score would have a direct influence on the financial performance of any specific firm.

To assess the relevance and validity of the instrumental variables, three key tests are performed. The initial test is the Kleibergen-Paap *rk* Lagrange Multiplier statistic test, employed to evaluate the under-identification. This test evaluates the corelation between the instrumental variables and the endogenous regressor. The null Hypothesis for the Kleibergen-Paap *rk* LM test posits that the model is under identified (Lee & Moumbark, 2022). A significant chi-square p-value (less than 0.1) for this test rejects the null Hypothesis, suggesting that the instrumental variables are appropriately identified and are relevant (Kleibergen & Paap, 2006). The chi-square probability values of the Kleibergen-Paap *rk* LM statistics are all highly significant, confirming that the model is adequately identified.

The second test is the Stock-Yogo (2005) test to evaluate weak identification, employing either the Kleibergen-Paap *rk* Wald *F* statistic or Cragg-Donald *F* statistic. Conventionally, instruments are seen as weak if these test statistics fall beneath the critical values tabulated by Stock & Yogo (2005). However, when confronted with heteroskedasticity, autocorrelation, or clustering, the Cragg-Donald *F* statistics loses its validity, making the *rk* Wald *F* statistic the preferable choice (Baum et al., 2007). Given the presence of heteroskedasticity, autocorrelation and clustering in this research, the Kleibergen-Paap *rk* Wald *F* statistic is utilized. Notably, the *rk* Wald *F* statistic for the overall ESG (8.779), as well as for the environmental (10.536), social (8.165), and governance pillars (34.598) surpassed the value of 25% maximal IV size threshold of 7.25. This suggests that the selected instruments have sufficiently strong correlation with the endogenous explanatory variables, reducing potential bias from weak instruments.

A third test employed in this study is the Hansen J statistic, which tests for instrument validity. This statistic evaluates over-identifying restrictions, with the null Hypothesis positing the validity of the instruments. For an instrument to be considered valid, it should be uncorrelated with the error term and should be justifiable excluded from the estimated equation (Kim et al., 2011). Importantly, the Hansan J test is robust to heteroskedasticity and autocorrelation, conditions present in this research (Baum, 2008). The resulting p-values for the overall ESG (p-val = 0.301), environmental (p-val = 0.121) the social (p-val = 0.145), and governance (p-val = 0.543) pillars all exceed conventional significance levels, suggesting that null Hypothesis cannot be rejected. This confirms the validity of the instruments selected

for this study. Table 11 (Appendix B) shows the first stage of the 2SLS regression. Notably, all industry- and country-year average ESG scores, as well as individual pillar scores, exhibit positive and significant regression coefficients.

Table 6 presents the results of the second stage of the 2SLS regression. The results in column 1 indicate that when controlling for endogeneity, the positive and significant relationship between the overall ESG performance and financial firm performance persists. Similarly, for environmental (column 2) and social score (column 3), both pillars maintain their positive and significant impact on financial performance. Notably, the influence of the governance performance (column 4) on financial firm performance emerges as positive and significant at a 1% level. This change can likely be attributed to the power of the instrumental variables, both the industry-year average governance score and country-year average governance score. Their strong correlation provides a more accurate coefficient estimation for the impact of governance performance on financial firm performance (Sargan, 1958).

In addition, a 2SLS regression using different instruments, namely firm visibility and board gender diversity, is conducted, as both of these instruments are less directly associated with the ESG score. Firm visibility measures whether a firm is included in the US Standard & Poor's 500 Index (S&P 500) or the Stoxx Europe 600 Index (Stoxx 600) in a given year, following the methodology of Bruna et al. (2021). Being included in one of these indices (*Visibility* = 1), increasing the scrutiny by stakeholders, making them more sensitive to CSR topics, which in turn can result in stronger CSR commitments (Achour & Boukattaya, 2022). Additionally, inclusion in one of these indices is less likely to directly influence financial firm performances. The second instrumental variable, board gender diversity, is calculated as the ratio of the number of female directors to the total number of directors, consistent with Bruna & Lahouel (2022) and Rizti & Utama (2022). The presence of women on boards tends to promote ESG and environmental disclosures, thereby enhancing a company's ESG performance (Arayakarnkul et al., 2022; Mohammad et al, 2022). For these additional tests as well, the positive and significant impact of ESG performance on financial firm performance remains (Appendix B, Table 13). This also holds true for the impact of the individual pillar scores, further emphasizing that the observed association is not due to endogeneity. Based on the Kleibergen-Paap *rk* LM statistic and the Kleibergen-Paap *rk* Wald *F* statistic, the results indicate that the chosen instruments are neither under-identified nor weak. However, the p-values from the Hansen J test for both the overall ESG and the individual pillars range from 0.006 (significant) to 0.193 (insignificant). This indicates that the chosen instruments, firm visibility and board gender diversity, might be correlated with the error term, raising potential concerns about their validity as instruments.

Table 6: Two-Stage Least Squares (2SLS) regression: second stage results

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Overall ESG score	0.0407***			
	(0.0111)			
Environmental		0.00491*		
		(0.00273)		
Social			0.0219***	
			(0.00681)	
Governance				0.0116***
				(0.00243)
COVID-19	-0.0398	0.141***	0.0800***	0.0737***
	(0.0582)	(0.0166)	(0.0290)	(0.0237)
Post-COVID-19	-0.361***	-0.156***	-0.231***	-0.228***
	(0.0666)	(0.0208)	(0.0354)	(0.0279)
Firm Age	-0.00179	-0.000354	-0.000308	-0.00166***
	(0.00110)	(0.000385)	(0.000663)	(0.000631)
ROA	0.158	0.534***	0.545***	0.512***
	(0.203)	(0.0967)	(0.116)	(0.0935)
Size	-0.295***	-0.0446*	-0.165***	-0.0517***
	(0.0804)	(0.0231)	(0.0510)	(0.0110)
Revenue Growth	0.353***	0.304***	0.308***	0.303***
	(0.0621)	(0.0386)	(0.0464)	(0.0424)
ln(Cash Ratio)	0.0329**	0.00469	0.0214*	0.00351
	(0.0165)	(0.00614)	(0.0113)	(0.00786)
ln(R&D)	0.00206	0.0238***	-0.00182	0.0140**
	(0.0126)	(0.00380)	(0.0105)	(0.00586)
One-year lagged ln(Tobin's q)	0.826***	0.880***	0.840***	0.883***
	(0.0282)	(0.00988)	(0.0210)	(0.0123)
Constant	4.185***	0.668*	2.084***	0.548***
	(1.192)	(0.364)	(0.661)	(0.154)
Kleibergen-Paap rk LM	17.006	19.697	15.168	48.964
Statistic (p value)	(p = 0.000)	(p = 0.000)	(p = 0.001)	(p = 0.000)
Kleibergen-Paap rk Wald F	8.779	10.536	8.165	34.598
Hansen J (chi-sq^2)	0.305	0.121	0.145	0.543
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	2,628	2,628	2,628	2,628
Adjusted R-Squared	.530	.886	.751	.826

Note: This table provides the results of the second stage of the 2SLS regression for the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022, with *Industry-year average ESG (or pillar) score* and *country-year average ESG (or pillar) score* as instrumental variables. A positive coefficient indicates a positive impact on ln(Tobin's *q*). The null hypothesis of the Kleibergen-Paap *rk* LM statistic is that the equation is under-identified. Instruments are seen as weak if the Kleibergen-Paap *rk* Wald *F* statistics fall beneath the critical values tabulated by Stock & Yogo. The null Hypothesis of the Hansen J test posits the validity of the instruments. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

6.2.2 Sensitivity analysis: R&D intensity

A closer examination of the dataset reveals that annual R&D expenditures data is missing for a number of firms under study, reducing the sample size by approximately half. While the primary regression's data sample is sufficiently large, and the inclusion of R&D intensity as a control variable is valid, a sensitivity analysis is employed to investigate whether the effect of ESG performance on financial firm performance during different periods persists when R&D intensity is excluded. This analysis drops R&D intensity as control variable and reintroduces firm-year observations that had been previously excluded due to missing R&D values. Table 14 (Appendix B) provides an comprehensive overview of this sample, which comprises 7,195 firm-year observations. The industry distribution contrasts with that of the main sample in Table 1, with the representation of the retail trade sector expanding from 1.61% to 9.86% and the transportation sector growing from 3.64% to 9.78%. Conversely, the proportion of the manufacturing industry has declined from 72.26% to 46.61%. The distributions by year and country, as presented in Panels B and C (Appendix B, Table 14), aligns closely with those in Table 1.

As illustrated in Table 15 (Appendix B, Column 1), the positive impact of ESG performance on financial firm performance remains evident during the pre-pandemic period. Consistent with prior observations, while engaging in ESG activities increased financial firm performance during the pandemic, its impact was significantly diminished. This is also the case for the individual pillars during both the pre- and mid-pandemic phases. Column 2 and 3 of Table 15 (Appendix B) show the positive and significant impact of the environmental and social pillars, respectively. Yet, as revealed in column 4, corporate governance commitments did not influence the financial performances in either the pre- or mid-COVID-19 periods.

Notably and in contrast to the regression results presented in the previous chapter (Table 4), the interaction term between ESG performance and the post-COVID-19 period (0.0005) is positive but insignificant. This indicates that while the positive influence of ESG commitments on financial firm performance returned to pre-COVID-19 levels, it did not surpass them. Similar insignificant effects are observed for the environmental (-0.0002), social (0.0005), and governance pillars (0.0002) in the post-pandemic period. This implies that the impact of ESG activities on financial performance is more pronounced in the post-pandemic period for companies that report their annual R&D investments, indicating a prioritization of R&D. This deviation in impact could be attributed to the fact that firms with strong emphasis on R&D are often perceived as having substantial growth potential due to their innovative nature (Löfsten & Lindelöf, 2002). With the public's growing demand for a sustainable future, these R&D-intensive companies are better positioned to pioneer green technologies and solutions. Moreover, since the market expects that these growth-oriented companies will be able to capitalize on their green innovations, consequently leading to improvements in both ESG and financial performances (Wang & Sun, 2022).

7 Conclusion and discussion

This concluding chapter consolidates the primary findings of the study and provides recommendations. Additionally, it addresses the study's limitations and proposes directions for further research.

This paper investigated the impact of CSR on financial firm performance, specifically comparing the periods before and after the COVID-19 pandemic and differentiating between European and the US companies. To provide a comprehensive analysis, this research utilized a sample of 3,446 firm-year observations of European and US companies spanning from 2018 to 2022. The years 2018 and 2019 constitute the pre-COVID-19 era, while 2020 and 2021 represent the pandemic phase, and 2022 marks the post-pandemic period. The financial performance of firms was measured by the market-based metric, Tobin's q. This study stands as one of the first to examine the comparative effect of CSR commitment on financial performance of companies spanning the before, during, and after the COVID-19 pandemic. Furthermore, there is limited literature that has explored the effect of individual pillar performance while considering different geographies worldwide. To limit the effect of omitted variables, this study controls for firm-specific factors as firm size, firm age, ROA, cash ratio, revenue growth, and R&D intensity, as well as for country and industry effects. In addition, this study included the one-year lagged dependent variable as control variable, acting as a proxy for explanatory variables that were omitted from the regression model. To analyse the impact of COVID-19 on CSR, an interaction term between the ESG performance and a period dummy variable was incorporated into the regression. This period variable designates the pre- (period = 0), intra- (period = 1) or post-pandemic phase (period = 2).

The findings reveal that the positive impact of ESG performance on financial firm performance in the post-pandemic phase exceeds its positive influence during the pre-pandemic era. This amplified impact in the post-COVID-19 period is particularly pronounced for growth-oriented companies that prioritize R&D. This can be attributed to their innovative capabilities and ability to leverage their green innovations during the accelerated global transition towards sustainability. Notably, there's evidence indicating a diminished influence of CSR during the global health crisis compared to the pre-pandemic period, likely due to investors prioritizing financial stability over sustainability during crises. Regarding the individual pillars, the results demonstrate that post-pandemic, the social pillar experienced the most pronounced increase in its impact on financial firm performance compared to the environmental pillar. The governance pillar showed no significant effect. Notably, when accounting for endogeneity using the 2SLS test, the impact of governance performance on financial firm performance becomes positive, likely due to the strength of the instrumental variables employed in the regression. Upon closer examination of the pandemic's impact, both the environmental and social pillars' positive influence diminished during the crisis, though remaining positive. In contrast, firms enhancing their governance commitments during the pandemic experienced a decline in their financial performance.

The analysis of European companies reveals that the pandemic not only reduced the positive impact of ESG performance, it inverted to a negative effect. These results confirm the notion that sustainable investing is not immune to crises and is only pursued during periods of economic prosperity. In contrast to their European counterparts, US firms showed no significant effect of ESG performance on financial firm performance, either before or during the pandemic. In addition, while the influence of ESG performance on financial firm performance in Europe returned to its pre-pandemic level, US companies experienced an increase in the post-pandemic period. This deviation can be attributed to the US's movements towards stricter CSR regulations and the accelerated public demand for social responsibility among companies.

From a practical perspective, this study provides valuable insights that should be considered by several stakeholders. While the relationship between CSR and financial performance before and during the pandemic has been a subject of extensive debate, this research confirms the positive impact in the post-COVID-19 era. Notably, this paper confirms the increased impact observed among US companies. This paper recommends US executives to integrate CSR, with a particular emphasis on environmental and social activities, into their overall strategy. This is due to its demonstrated ability to enhance financial performance during the post-pandemic period, though its influence on financial outcomes appears less pronounced during times of crises. For European executives and investors during stable times, this paper advocates for the integration of CSR into their overall strategy to increase financial performance. However, during turbulent periods, the recommendation for European executives shifts. This paper advises them to shift focus from sustainability towards financial stability, reflecting the flight-to-safety behaviour observed among investors. From a regulatory perspective, regulators must implement stricter regulations on ESG disclosure and standardisation. By doing so, the potential for greenwashing can be substantially diminished, enhancing the credibility of reported ESG commitments and leading to the integration of ESG performance into investment decisions.

Naturally, this study, like all research, has its limitations. Firstly, the CSR performance of companies has been measured by the Thomson Reuters ASSET4 ESG score. As with any ESG rating metric, there is potential for companies to influence their scores. In addition, CSR measurements techniques, influenced by individual evaluators' perceptions of CSR, can be subjective and may lead to inconsistencies across different indices (Chatterji et al., 2016). Moreover, the Thomson Reuters ASSET4 dataset includes publicly listed companies, excluding private entities that don't receive ESG ratings. It would be beneficial for future research to investigate whether the findings of this study apply to smaller, private firms, given their distinct characteristics. Lastly, this study was limited to considering 2022 as the post-pandemic period. Future research could extend the timeframe to enhance the accuracy of the post-pandemic findings.

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9 Appendix A

Table 7: Overview of the variables

Variables	Type	Description
ln(Tobin's q)	Dependent	Measurement of financial firm performance, defined as the ratio between the market value of the firm's assets and the replacement of its assets.
Overall ESG Score	Independent	Weighted average score of the three pillars: environmental, social and corporate governance.
Environmental Score	Independent	Weighted average score of the three dimensions: emissions, resource use, and innovation.
Social Score	Independent	Weighted average score of the four dimensions: community, human rights, product responsibility, and workforce.
Governance Score	Independent	Weighted average score of the three dimensions: shareholders, CSR strategy, and management.
Firm Age	Control	Number of years since the firm's establishment up to the year under consideration.
ROA	Control	Ratio of a firm's net income to total assets, denoting organizational stability.
Revenue Growth	Control	Percentage growth in revenue relative to the previous year.
Firm Size	Control	Natural logarithm of a firm's total assets, indicating its size.
ln(R&D)	Control	Indicator derived from the ratio of a firm's R&D expenditures to its revenue, representing growth potential.
ln(Cash Ratio)	Control	Natural logarithm of the firm's cash and cash equivalents relative to its current liabilities, denoting short-term financial stability
Period	Control	Dummy variable designating the pre-pandemic, intra-pandemic, and post-pandemic phase.
Industry Effects	Control	Industry-specific factors, categorized by the SIC code representing the company's sector.
Country Effects	Control	Dummy variable denoting the country of the company's headquarters location.
Industry-year average ESG (or pillar) Score	Instrumental	Annual average ESG score of companies within a specific industry.
Country-year average ESG (or pillar) Score	Instrumental	Annual average ESG score of companies based in a particular country.
Firm Visibility	Instrumental	Dummy variable indicating a firm's inclusion in the US S&P 500 Index or the Stoxx Europe 600 Index.
Board Gender Diversity	Instrumental	Ratio of female directors to the total number of board directors.

Table 8: Summary statistics per industry

Agriculture

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	1.24	1.24	.75	.49	3.14	12
Overall ESG Score	55.67	55.11	6.28	47.41	66.10	12
Environmental Score	60.36	60.34	9.58	43.14	73.45	12
Social Score	54.21	54.73	5.86	46.15	67.32	12
Governance Score	47.34	50.00	24.40	14.64	75.24	12
Firm Age	32.42	24.50	17.97	10.00	54.00	12
ROA	.06	.06	.05	$-2.00e^{-3}$	.18	12
Revenue Growth	.10	.04	.15	-.16	.42	12
Size	$4.26e^{9}$	$2.25e^{9}$	$5.16e^{9}$	$9.25e^{8}$	$1.66e^{10}$	12
R&D Intensity	.08	.01	.09	$1.00e^{-3}$	.19	12
Cash Ratio	.41	.24	.41	.02	1.42	12

Construction

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	.64	.58	.25	.30	1.53	41
Overall ESG Score	68.80	69.16	10.97	46.73	89.72	41
Environmental Score	66.86	64.56	13.04	38.27	89.34	41
Social Score	76.24	77.28	12.96	44.11	93.90	41
Governance Score	60.56	65.42	17.53	26.33	89.23	41
Firm Age	33.83	33.00	15.27	11.00	54.00	41
ROA	.03	.03	.05	-.12	.19	41
Revenue Growth	.12	.08	.25	-.20	.88	41
Size	$1.06e^{10}$	$3.40e^{9}$	$1.40e^{10}$	$6.21e^{8}$	$6.01e^{10}$	41
R&D Intensity	.02	$1.56e^{-3}$	.05	$3.13e^{-6}$	0.22	41
Cash Ratio	.34	.33	.14	.07	.72	41

Manufacturing

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	2.25	1.50	2.37	.14	25.29	2521
Overall ESG Score	54.78	56.31	21.11	7.53	96.01	2521
Environmental Score	48.26	50.04	26.95	.25	99.01	2521
Social Score	59.25	61.43	22.87	.91	97.67	2521
Governance Score	58.38	60.43	21.28	4.30	98.56	2521
Firm Age	29.42	28.00	15.72	1.00	65.00	2521
ROA	.05	.06	.10	-.29	.26	2521
Revenue Growth	.10	.08	.19	-.31	.88	2521
Size	$2.57e^{10}$	$2.38e^{9}$	$2.32e^{11}$	$6.40e^{6}$	$7.86e^{12}$	2521
R&D Intensity	.08	.03	.15	$7.18e^{-5}$	1.22	2521
Cash Ratio	.73	.40	1.16	$1.65e^{-5}$	13.6	2521

Mining

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	.97	.85	.38	.39	2.04	59
Overall ESG Score	69.43	71.66	15.01	27.71	91.56	59
Environmental Score	67.62	71.79	18.34	28.18	92.04	59
Social Score	69.72	72.08	17.35	19.53	94.71	59
Governance Score	69.48	75.71	21.20	25.56	99.44	59
Firm Age	37.22	49.00	19.25	5.00	64.00	59
ROA	.01	.01	.09	-.20	.22	59
Revenue Growth	.07	.05	.22	-.31	.88	59
Size	$1.11e^{11}$	$1.95e^{10}$	$3.85e^{11}$	$1.12e^{9}$	$1.92e^{12}$	59
R&D Intensity	.01	.01	.01	$7.09e^{-5}$	.03	59
Cash Ratio	.60	.53	.45	.05	1.90	59

Retail Trade

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	2.22	1.60	1.92	.27	7.50	56
Overall ESG Score	51.49	53.02	21.16	18.68	87.24	56
Environmental Score	44.92	51.69	28.56	2.86	86.51	56
Social Score	52.54	51.64	18.71	23.84	92.06	56
Governance Score	59.37	64.33	19.11	20.25	92.63	56
Firm Age	22.95	15.50	16.70	5.00	61.00	56
ROA	.02	.02	.09	-.29	.26	56
Revenue Growth	.17	.07	.31	-.31	.88	56
Size	$8.05e^{10}$	$2.54e^{9}$	$3.48e^{11}$	$2.67e^{8}$	$2.37e^{12}$	56
R&D Intensity	.03	.01	.04	$4.29e^{-5}$	.16	56
Cash Ratio	.71	.40	.80	.04	3.45	56

Services

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	3.47	2.69	2.85	.39	21.29	650
Overall ESG Score	48.31	46.40	17.80	7.23	89.31	650
Environmental Score	35.99	32.70	24.21	.06	86.75	650
Social Score	58.50	57.55	18.72	11.91	97.88	650
Governance Score	55.14	56.42	20.05	6.63	97.26	650
Firm Age	20.76	20.50	10.60	2.00	55.00	650
ROA	.01	.04	.14	-.29	.26	650
Revenue Growth	.16	.12	.25	-.31	.88	650
Size	$1.05e^{10}$	$1.60e^{9}$	$3.45e^{10}$	$1.20e^{7}$	$3.92e^{11}$	650
R&D Intensity	.27	.15	.35	$8.99e^{-5}$	1.22	650
Cash Ratio	1.14	.58	1.64	$1.15e^{-5}$	13.33	650

Transportation

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	1.18	.97	0.82	.29	4.40	127
Overall ESG Score	66.33	72.83	18.88	12.28	89.93	127
Environmental Score	62.43	66.89	23.59	2.20	96.09	127
Social Score	69.36	75.03	22.03	9.51	95.16	127
Governance Score	66.76	70.37	18.04	19.70	94.50	127
Firm Age	31.19	32.00	10.73	4.00	56.00	127
ROA	.04	.04	.07	-.26	.23	127
Revenue Growth	.10	.04	.21	-.31	.88	127
Size	$9.23e^{10}$	$1.91e^{10}$	$1.81e^{11}$	$1.09e^{8}$	$1.17e^{12}$	127
R&D Intensity	.02	.01	.04	$2.71e^{-5}$	.21	127
Cash Ratio	.33	.20	.44	.01	3.61	127

Wholesale Trade

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	.98	.65	.63	.27	2.36	23
Overall ESG Score	44.38	52.31	21.36	11.73	77.69	23
Environmental Score	45.81	48.61	29.85	1.05	92.30	23
Social Score	42.89	53.45	20.73	11.04	69.46	23
Governance Score	42.01	34.03	20.80	10.38	84.17	23
Firm Age	22.22	15.00	17.29	1.00	56.00	23
ROA	.02	.02	.05	-.08	.10	23
Revenue Growth	.07	.03	.17	-.19	.43	23
Size	$1.14e^{10}$	$6.67e^{9}$	$1.49e^{10}$	$4.42e^{8}$	$4.22e^{10}$	23
R&D Intensity	.03	.01	.03	$3.70e^{-5}$	.10	23
Cash Ratio	.21	.15	.17	0.03	.61	23

Note: This table provides a summary of the descriptive statistics for the financial firm performance measure, the overall ESG score, individual pillars scores, and control variables per industry. The variables *Tobin's q*, *Size*, *R&D Intensity*, and *Cash Ratio* are presented in their unadjusted form, meaning that their natural logarithms are not displayed.

Table 9: Summary statistics of European and US companies

European Companies

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	2.06	1.32	2.20	.22	25.29	1926
Overall ESG Score	62.11	63.84	18.30	8.94	96.01	1926
Environmental Score	57.39	59.88	23.29	.36	99.01	1926
Social Score	67.53	70.46	19.14	2.18	97.67	1926
Governance Score	61.26	64.04	21.57	6.95	98.56	1926
Firm Age	29.31	27.00	15.04	1.00	65.00	1926
ROA	.06	.05	.09	-.29	.26	1926
Revenue Growth	.10	.07	.20	-.31	.88	1926
Size	$4.00e^{10}$	$3.38e^{9}$	$2.78e^{11}$	$1.20e^{7}$	$7.86e^{12}$	1926
R&D Intensity	.08	.03	0.17	$3.13e^{-6}$	1.22	1926
Cash Ratio	.60	.33	1.00	$1.51e^{-5}$	13.60	1926

US Companies

Variables	Mean	Median	Sd	Min	Max	N
Tobin's q	2.79	1.88	2.68	.14	23.53	1563
Overall ESG Score	44.65	41.74	19.38	7.23	92.09	1563
Environmental Score	34.23	30.05	25.59	.06	98.13	1563
Social Score	49.87	49.10	21.56	.91	97.88	1563
Governance Score	54.34	55.74	19.79	4.30	99.44	1563
Firm Age	26.19	25.00	15.43	1.00	57.00	1563
ROA	.02	.05	0.13	-.29	.26	1563
Revenue Growth	.13	.10	0.23	-.31	.88	1563
Size	$1.16e^{10}$	$1.73e^{9}$	$7.19e^{10}$	$6.40e^{6}$	$2.36e^{12}$	1563
R&D Intensity	.15	.07	0.24	$1.28e^{-4}$	1.22	1563
Cash Ratio	1.01	.59	1.44	$1.65e^{-5}$	13.33	1563

Note: This table provides a summary of the descriptive statistics for the financial firm performance measure, the overall ESG score, individual pillars scores, and control variables for the European and US companies. The variables *Tobin's q*, *Size*, *R&D Intensity*, and *Cash Ratio* are presented in their unadjusted form, meaning that their natural logarithms are not displayed.

Table 10: Pearson Correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ln(Tobin's q)	1.000										
Overall ESG	-0.192*	1.000									
Environmental	-0.216*	0.934*	1.000								
Social	-0.132*	0.886*	0.762*	1.000							
Governance	-0.095*	0.650*	0.414*	0.450*	1.000						
Firm Age	-0.207*	0.285*	0.268*	0.208*	0.239*	1.000					
ROA	0.168*	0.216*	0.230*	0.146*	0.137*	0.203*	1.000				
Revenue Growth	0.225*	-0.051*	-0.061*	-0.026	-0.029	-0.160*	0.035	1.000			
Size	-0.243*	0.686*	0.653*	0.632*	0.388*	0.265*	0.199*	-0.024	1.000		
ln(Cash Ratio)	0.342*	-0.282*	-0.290*	-0.244*	-0.132*	-0.218*	-0.121*	0.093*	-0.331*	1.000	
ln(R&D)	0.448*	-0.205*	-0.257*	-0.117*	-0.073*	-0.215*	-0.248*	0.100*	-0.267*	0.432*	1.000

Note: This table provides the results of the Pearson correlation test. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

10 Appendix B

Table 11: First stage 2SLS regression: industry- and country-year average ESG (or pillar) score

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Industry Average ESG	0.403*			
	(0.385)			
Country Average ESG	0.566***			
	(0.185)			
Industry Average Environmental		0.259***		
		(0.0822)		
Country Average Environmental		0.690***		
		(0.215)		
Industry Average Social			0.247**	
			(0.188)	
Country Average Social			0.852***	
			(0.265)	
Industry Average Governance				0.527***
				(0.147)
Country Average Governance				0.803***
				(0.124)
COVID-19	-0.124	-0.121	-0.927	-3.849**
	(1.303)	(1.157)	(1.250)	(1.580)
Post-COVID-19	-0.759	-0.646	-2.066**	-4.071**
	(1.594)	(1.551)	(1.658)	(1.731)
Firm Age	-0.0405	-0.0332	-0.00370	-0.116***
	(0.0248)	(0.775)	(0.0280)	(0.0364)
ROA	11.442***	19.856***	4.322	9.869**
	(3.302)	(4.617)	(4.176)	(4.291)
Size	-7.166***	8.398***	-7.361***	4.125***
	(0.204)	(0.281)	(0.246)	(0.317)
Revenue Growth	-2.540*	-3.767**	-1.483	-3.455**
	(1.362)	(1.891)	(0.361)	(1.774)
ln(Cash Ratio)	-0.734**	-0.657	0.907**	-0.185
	(0.325)	(0.494)	(0.378)	(0.489)
ln(R&D)	0.532**	0.199	1.230**	1.026***
	(0.270)	(0.365)	(0.300)	(0.368)
One-year lagged ln(Tobin's q)	1.497***	1.357*	2.095***	0.526***
	(0.553)	(0.775)	(0.659)	(0.775)
Constant	-157.768***	-179.436***	-161.455***	-107.821***
	(14.407)	(13.938)	(18.225)	(11.433)
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	2,628	2,628	2,628	2,628
Adjusted R-Squared	.530	.889	.880	.879

Note: This table provides the results of the first stage of the 2SLS regression for the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022, with *Industry-year average ESG (or pillar) score* and *Country-year average ESG (or pillar) score* as instrumental variables. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

Table 12: First stage 2SLS regression: firm visibility and board gender diversity

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Firm Visibility	6.024***	6.077***	4.640***	7.352***
	(1.140)	(1.668)	(1.446)	(1.827)
Board Gender Diversity	13.710***	9.389**	11.852***	22.712***
	(3.293)	(4.715)	(3.981)	(4.873)
COVID-19 (dummy)	4.808***	3.965***	3.773***	7.283***
	(0.662)	(0.924)	(0.786)	(1.021)
Post-COVID-19 (dummy)	5.453***	4.929***	4.103***	7.741***
	(0.819)	(1.188)	(0.976)	(1.260)
Firm Age	0.0157	-0.00387	-0.0215	0.093**
	(0.0277)	(0.0407)	(0.0334)	(0.042)
ROA	14.421***	23.610***	3.596	11.222**
	(4.144)	(5.875)	(5.392)	(5.470)
Size	5.805***	7.432***	6.192***	2.366***
	(0.321)	(0.458)	(0.419)	(0.534)
Revenue Growth	-1.014	-1.377	-0.423	-1.064
	(1.683)	(2.373)	(2.041)	(2.083)
ln(Cash Ratio)	-0.811**	-0.622	-1.232***	-0.598
	(0.367)	(0.605)	(0.451)	(0.583)
ln(R&D)	0.144	-0.288***	0.483	0.464
	(0.306)	(0.465)	(0.365)	(0.478)
One-year lagged ln(Tobin's q)	-0.035	0.378	0.822	-1.756*
	(0.685)	(1.003)	(0.830)	(1.066)
Constant	-85.083***	-117.236***	-86.101***	-26.185*
	(8.118)	(12.594)	(9.375)	(15.925)
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	1,662	1,662	1,662	1,662
Adjusted R-Squared	0.922	0.898	0.869	0.879

Note: This table provides the results of the first stage of the 2SLS regression for the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022, with *Firm Visibility* and *Board Gender Diversity* as instrumental variables. *Firm Visibility* is measured as a dummy variable, indicating whether a firm is included in the US S&P 500 Index or the Stoxx Europe 600 Index (*Visibility* = 1) or not (*Visibility* = 0). The robust standard errors are enclosed in the parentheses. *Board Gender Diversity* indicates the ratio of female directors to the total number of board directors. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

Table 13: Second stage 2SLS regression: firm visibility and board gender diversity

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Overall ESG score	0.00934***			
	(0.00315)			
Environmental		0.0115***		
		(0.00410)		
Social			0.0111**	
			(0.00436)	
Governance				0.00586***
				(0.00225)
COVID-19 (dummy)	0.0943***	0.0945***	0.0972***	0.0962***
	(0.0250)	(0.0273)	(0.0267)	(0.0257)
Post-COVID-19 (dummy)	-0.197***	-0.201***	-0.192***	-0.192***
	(0.0282)	(0.0327)	(0.0294)	(0.0277)
Firm Age	-0.000391	-0.000239	9.19e-06	-0.000746
	(0.000476)	(0.000596)	(0.000526)	(0.000548)
ROA	0.478***	0.339**	0.574***	0.551***
	(0.119)	(0.163)	(0.114)	(0.110)
Size	-0.0680***	-0.102***	-0.0814**	-0.0250**
	(0.0233)	(0.0363)	(0.0324)	(0.0103)
Revenue Growth	0.258***	0.265***	0.253***	0.254***
	(0.0483)	(0.0551)	(0.0483)	(0.0474)
ln(Cash Ratio)	0.0114	0.0109	0.0175*	0.00742
	(0.00811)	(0.0102)	(0.00950)	(0.00811)
ln(R&D)	0.0206***	0.0251***	0.0166**	0.0193***
	(0.00558)	(0.00699)	(0.00666)	(0.00583)
One-year lagged ln(Tobin's q)	0.872***	0.866***	0.864***	0.884***
	(0.0139)	(0.0174)	(0.0172)	(0.0130)
Constant	0.915**	1.524**	1.053**	0.218
	(0.372)	(0.604)	(0.487)	(0.189)
Kleibergen-Paap rk LM	15.126	15.126	15.664	45.436
Statistic (p value)	(p = 0.000)	(p = 0.000)	(p = 0.000)	(p = 0.000)
Hansen J (chi-sq^2)	0.1818	0.1818	0.4805	0.8493
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	1,662	1,662	1,662	1,662
Adjusted R-Squared	0.884	0.849	0.869	0.879

Note: This table provides the results of the second stage of the 2SLS regression for the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022, with *Firm Visibility* and *Board Gender Diversity* as instrumental variables. A positive coefficient indicates a positive impact on ln(Tobin's q). The null hypothesis of the Kleibergen-Paap *rk* LM statistic is that the equation is under-identified. Instruments are seen as weak if the Kleibergen-Paap *rk* Wald *F* statistics fall beneath the critical values tabulated by Stock & Yogo. The null Hypothesis of the Hansen J test posits the validity of the instruments. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.

Table 14: Overview of the sensitivity analysis sample excluding R&D intensity

Panel A: Sample distribution	
Selection	Number
Initial sample – firm year observations	13,240
Firm-year observations in the oil & gas, ordnance & armament, and financial industry	3,025
Firm-year observations with missing data	6,726
Final sample – firm-year observations	7,190

Panel B: Sample distribution by industry		
Industry	Number	Percentage
Agriculture	54	0.75
Construction	262	3.64
Manufacturing	3351	46.61
Mining	312	4.34
Retail Trade	709	9.86
Services	1563	21.74
Transportation	703	9.78
Wholesale Trade	236	3.28

Panel C: Sample distribution by year		
Year	Number	Percentage
2018	1178	16.37
2019	1406	19.54
2020	1525	21.20
2021	1595	22.17
2022	1491	20.72

Panel D: Sample distribution by country		
Year	Number	Percentage
Austria	97	1.35
Belgium	124	1.72
Czech Republic	5	0.07
Denmark	175	2.43
Finland	146	2.03
France	350	4.86
Germany	476	6.62
Greece	10	0.14
Hungary	15	0.21
Ireland	48	0.67
Italy	229	3.18
Luxembourg	15	0.21
Netherlands	132	1.83
Norway	187	2.60
Poland	48	0.67
Portugal	26	0.36
Slovenia	5	0.07
Spain	118	1.64
Sweden	500	6.95
Switzerland	280	3.89
United Kingdom	972	13.51
Europe	1,926	55.08
United States	3,232	44.92
Total	**7,190**	**100.00**

Note: This table provides a comprehensive breakdown of the sensitivity analysis sample, comprising 7,190 firm-year observations over the period 2018-2022. The data consists of listed companies from Europe and the US, and industries categorized according to the Standard Industrial Classification (SIC) codes classification (SICCODE, 2023). Within this classification, the *Agriculture* sector also encompasses *Forestry* and *Fishing*, while *Transportation* also includes *Public Utilities.* Panel A delineates the transition from the initial to the final sample. Panels B,C, and D respectively detail the sample distribution by industry, year, and country.

Table 15: Regression results omitting R&D intensity: ESG and Financial Firm Performance

Variables	(1) Tobin's q	(2) Tobin's q	(3) Tobin's q	(4) Tobin's q
Overall ESG score	0.00223*** (0.000385)			
Environmental		0.00182*** (0.000293)		
Social			0.00173*** (0.000346)	
Governance				0.000418 (0.000356)
COVID-19	0.214*** (0.0240)	0.200*** (0.0174)	0.199*** (0.0230)	0.181*** (0.0251)
Post-COVID-19	-0.139*** (0.0291)	-0.119*** (0.0208)	-0.140*** (0.0285)	-0.117*** (0.0309)
Overall ESG * COVID-19	-0.00141*** (0.000391)			
Overall ESG * Post-COVID-19	0.000461 (0.000459)			
ENscore * COVID-19		-0.00124*** (0.000295)		
ENscore * Post-COVID-19		0.000212 (0.000341)		
SOscore * COVID-19			-0.000990*** (0.000354)	
SOscore * Post-COVID-19			0.000527 (0.000426)	
CGscore * COVID-19				-0.000584 (0.000391)
CGscore * Post-COVID-19				0.000209 (0.000468)
Firm Age	-0.000367 (0.000233)	-0.000339 (0.000231)	-0.000310 (0.000233)	-0.000238 (0.000232)
ROA	0.694*** (0.0642)	0.691*** (0.0643)	0.708*** (0.0643)	0.702*** (0.0649)
Size	-0.0184*** (0.00333)	-0.0172*** (0.00320)	-0.0165*** (0.00316)	-0.00720*** (0.00265)
Revenue Growth	0.233*** (0.0211)	0.232*** (0.0211)	0.232*** (0.0212)	0.232*** (0.0214)
ln(Cash Ratio)	0.00839** (0.00368)	0.00840** (0.00369)	0.00846** (0.00366)	0.00816** (0.00366)
ln(R&D)	0.0314*** (0.00450)	0.0328*** (0.00447)	0.0305*** (0.00458)	0.0319*** (0.00459)
One-year lagged ln(Tobin's q)	0.851*** (0.00741)	0.852*** (0.00741)	0.850*** (0.00744)	0.853*** (0.00740)
Constant	0.0422 (0.0749)	0.0437 (0.0724)	0.0193 (0.0736)	-0.102 (0.0677)
Industry effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Observations	5,508	5,508	5,508	5,508
Number of Companies	1,599	1,599	1,599	1,599
Adjusted R-Squared	.880	.880	.880	.879

Note: This table provides the results of the random effects regression with clustered errors of the overall ESG score and the individual pillars, on financial firm performance over the period 2018-2022, without *R&D intensity* as control variable. A positive coefficient indicates a positive impact on ln(Tobin's q). The periods are defined as pre-COVID-19 (*Period* = 0), during COVID-19 (*Period* = 1) and post-COVID-19 era (*Period* = 2). The regressions control for industry and country effects. The robust standard errors are enclosed in the parentheses. Significance levels are represented as: * for 10%, ** for 5%, and *** for 1%.