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The effects of ESG on bank risk and performance and the moderating role of ESG disclosure

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Abstract

In this paper, the impact of environmental, social, and governance (ESG) scores on bank risk and performance and the potential moderating effect of ESG disclosure are examined. Using a sample of 695 banks, I find that there is no evidence of a relationship between ESG scores and bank risk and the association between ESG and bank risk does not depend on ESG disclosure. Furthermore, evidence suggests neither a nonlinear relationship between ESG and bank performance nor a linear relationship, and ESG disclosure does not moderate the relationship between ESG and bank performance. If policymakers want banks to behave more socially responsible they have to make policies to force them since I find no provable benefits of ESG activities.

Table of Contents

1	Introduction.....	3
2	Literature review	5
2.1	ESG factors	5
2.2	ESG performance and bank risk and performance.....	6
2.3	ESG disclosure and bank risk and performance.....	9
3	METHODOLOGY.....	10
3.1	Data Collection	10
3.2	Variables Definitions and Operationalization.....	12
3.2.2	<i>Bank Performance</i>	12
3.2.3	<i>ESG Performance and Disclosure</i>	13
3.2.4	<i>Control Variables</i>	13
3.3	Model	14
4	Results	15
4.1	Descriptive Statistics	15
4.2	ESG and bank risk.....	18
4.3	ESG and bank performance	20
4.4	Robustness	23
5	Discussion and Conclusion	23
6	References.....	25
7	Appendix.....	28

1 Introduction

In recent years, there have been debates about whether or not companies should engage in socially responsible behaviour. Traditional economic arguments suggest that companies should maximize the wealth of shareholders (Friedman, 1962). On the other hand, some scholars (Freeman, 1984) have argued that companies have a duty to society that goes beyond the maximization of shareholders' wealth. The stakeholder theory argues that companies should strive to maximize value for all stakeholders, including employees, consumers, and the environment. For companies, socially responsible behaviour is often operationalized through the practice of corporate social responsibility (CSR). CSR is a management concept that integrates environmental, social, and ethical aspects of business operations into decision-making processes (Ioannou and Serafeim, 2017). The level of CSR can be measured by the environmental, social, and governance (ESG) performance of a company.

The integration of ESG practices has become increasingly relevant for the banking industry, especially the environmental dimension in light of climate change. On the one hand, banks play an active role in shaping the wider economy by having the ability to provide capital and select investment projects. By incorporating ESG considerations into their lending practices banks are able to achieve a "multiplier effect" (Gangi et al., 2019). On the other hand, incorporating ESG activities in business models can help banks rebuild trust after they lost stakeholders' confidence because of the global financial crisis. Furthermore, banks can achieve their own strategic goals when they include ESG practices in their business models, such as reducing their vulnerability to sustainability risks and related financial risks.

Despite the importance of incorporating ESG activities into business practices, various studies (Ersoy et al., 2022; Neitzert & Petras, 2022) report that the average ESG performance of banks is quite modest, indicating that there is still a lot of room left for improvement. Here the role of research comes into play, by empirically investigating theories about ESG, companies can make more thoughtful choices. On the one hand, there are theories such as risk mitigation theory or stakeholder theory that predict a risk-reducing and a performance-increasing effect of ESG activities. On the other hand, there are theories like the overinvestment theory or agency theory that suggest a risk-increasing and performance-decreasing effect of ESG performance.

There has been previous research in the banking industry that provide evidence that ESG activities are associated with reduced bank risk (Neitzert & Petras, 2022; Di Tommaso & Thornton, 2020; Gangi et al., 2019). Furthermore, there has been research on the association between ESG performance and bank performance. However, the results on this subject are quite mixed. Di Tommaso & Thornton (2020) for example find that ESG and bank performance are negatively associated, while Bolton (2013); Wu & Shen (2013) report a positive relation, and Ersoy et al. (2022); Azmi et al. (2021) present a nonlinear relationship.

The aim of this study is to investigate whether ESG scores affect bank risk and performance for 695 worldwide banks from 2012 to 2021. I also examine the impact of ESG disclosure on the relationship between ESG scores and bank risk and performance. This paper contributes to the banking and ESG literature in several ways. First, there are several studies on ESG and firm risk and performance, but only a limited number of studies have focused on the banking sector. Thus, this study has extended the existing literature by examining the banking sector. Second, this is one of the few papers that takes the possibility of a nonlinear relationship between ESG and bank performance into account. As far as I know, only Ersoy et al. (2022) and Azmi et al. (2021) have investigated this before. Furthermore, to the best of my knowledge, this is the first study to investigate the potential interaction effect of ESG disclosure on the association between ESG and firm risk and performance in the banking industry.

This study finds no evidence in support of a relationship between the overall ESG score and bank risk. However, when I break the overall ESG score into subcomponents the social scores are negatively associated with bank risk. Moreover, there is no evidence for the interaction effect of ESG disclosure on ESG performance and bank risk. Furthermore, I find no support for either a quadratic relationship between ESG performance and bank performance or a linear relationship. The evidence suggests no interaction of ESG disclosure on the association between ESG and bank performance as well.

The findings of this paper provide important practical implications for the banking industry, managers, and other stakeholders. Managers who want to minimize bank risk should consider the negative association between the social score and bank risk and if they what to maximize bank performance, they do not have to consider ESG engagement. Besides, the empirical results

of this research help stakeholders and regulators better understand the effects of ESG performance on bank risk and performance. Furthermore, policymakers should take into account that there are no identifiable benefits of ESG scores and ESG disclosure if they want banks behave in a more responsible way and to disclose more ESG information.

The rest of the paper is organized as follows. In the next section, we review the relevant literature and develop our hypotheses. Section 3 presents our methodology and data. Section 4 reports our empirical results and Section 5 concludes.

2 Literature review

2.1 ESG factors

ESG factors refer to the three dimensions of Environmental, Social, and Governance that are used to evaluate a company's level of corporate social responsibility. ESG activities should contribute to society and the environment. The environmental dimension of ESG focuses on the impact that companies have on the natural environment, including their pollution, emission, and resource consumption. The social aspects look at the company's relationship with internal and external stakeholders and include topics such as good labor practices, customer relations, and community engagement. The last dimension of ESG is governance, which is defined by (Shleifer and Vishny (1997) as a set of mechanisms that enable companies to provide a return on capital to the suppliers of capital, more specifically it refers to the systems and processes through which a company is governed and include topics such as board diversity and corporate transparency.

ESG factors are related to firm risk and performance in various ways. First, there are physical risks from climatic events such as sea-level rise, increased incidence of drought, floods, and wildfires. These events pose a risk to companies because they may cause financial losses due to damaged assets, disruptions in operations and processes, or challenges in the supply chain (Neitzert & Petras, 2022). Second, there are regulatory risks, these risks result from potential regulatory changes implemented. More stringent policies may increase companies' operating and investment costs (Sakhel, 2017). Third, neglecting ESG activities bears the risk of reputational damage. Reputational damage can lead to lower customer loyalty and to a loss of investor

confidence, which should be reflected in lower sales and higher funding costs (Gangi et al., 2019; Porter & Kramer, 2006). Additionally, Gangi et al. (2019) provide evidence that corporate reputation has a positive effect on firms' profitability and risk. Furthermore, the financial crisis provides an example of the consequences of falling governance structures. Companies were unable to effectively monitor and control risk, and incentive payment structures promoted too much risk-taking (Bolton, 2013).

2.2 ESG performance and bank risk and performance

Risk mitigation theory is the first theory supporting a relationship between ESG performance and firm risk and performance. Risk mitigation theory argues that companies with high ESG performance are less risky and have better financial performance than companies with low ESG performance (Neitzert & Petras, 2022; Drago et al., 2019). The reasoning behind this theory is that ESG activities help companies to mitigate the above-mentioned risks related to the ESG dimensions. Emission reductions for example reduce the risk of a change in regulations that price the emissions of carbon (Sakhel, 2017). Therefore, companies with better ESG performance are less exposed to risks related to risks related to ESG.

A second theory supporting this association between ESG performance and firm risk and performance is the stakeholder theory by Freeman (1984). Stakeholder theory suggests a shift from shareholder maximization to stakeholder maximization, where the interests of stakeholders and companies are aligned. Companies can mitigate potential conflicts with stakeholders and generate a good reputation among stakeholders through ESG activities. ESG activities should therefore be seen as a source of opportunity and competitive advantage, rather than a cost (Menicucci & Paolucci, 2023; Azmi et al., 2021; Miralles-Quirós et al., 2019).

In contrast, the overinvestment theory explains that investments in ESG activities divert scarce resources from the maximization of shareholders' wealth. As a consequence, socially responsible companies incur higher costs and make lower profits, which put them at a disadvantage compared to other companies that focus on generating value for the shareholders (Azmi et al., 2021; Di Tommaso & Thornton, 2020; Miralles-Quirós et al., 2019). Complementary to this view, the agency theory argues that managers engage in ESG activities to improve their own reputation

at the expense of shareholders (Azmi et al., 2021; Di Tommaso & Thornton, 2020; Drago et al., 2019).

Most of the previous research on the relationship between ESG performance and firm risk relates to nonfinancial companies. For example, Oikonomou et al. (2012) find in a sample of S&P 500 firms that corporate social responsibility is negatively but weakly related to systematic firm risk and that corporate social irresponsibility is positively and strongly related to financial risk. This is supported by the findings of El Ghoul et al. (2011), who found that US companies with good ESG performance face lower costs of capital, indicating that they are perceived to be less risky than firms with poor ESG performance. Consistently Drago et al. (2019) find that ESG activities are associated with lower CDS spreads in European firms. In contrast, Magnanelli & Izzo (2017) show a positive relation between ESG activities and a firm's cost of debt, and Menz (2010) finds that the risk premium paid by socially responsible firms is higher than for non-socially responsible firms.

Specifically, in the financial sector, Neitzert & Petras (2022) and Gangi et al. (2019) find in a worldwide sample that ESG activities are associated with lower risk, measured by the z-score. Furthermore, Drago et al. (2019) report evidence that an increase in ESG performance is associated with a significant decrease in CDS spread, indicating lower risk. These results are supported by Di Tommaso & Thornton (2020), who find that European banks with high ESG performance face lower CDS spreads, have a lower z-score, and have a lower ratio of nonperforming loans, in contrast to banks with low ESG performance.

Based on the empirical findings in the banking sector, the first hypothesis regarding the relationship between ESG performance and bank risk is consistent with the risk mitigation view and the stakeholder view. The first hypothesis is formulated as follows:

H1: ESG performance has a reducing effect on bank risk for a sample of worldwide banks for the period 2012-2021.

The empirical evidence on the relationship between ESG performance and firm performance is also mixed. Tahmid et al. (2022) find a positive impact of ESG initiatives on firm performance as

measured by Tobin's Q for European firms. Harjoto & Laksmana (2018) have the same findings for a sample of US firms. Ikram et al. (2019) provide evidence that ESG has a positive effect on firm performance by showing that ESG activities have a positive impact on both financial performance and nonfinancial performance such as employee commitment and corporate reputation. On the other hand, Crisóstomo et al. (2011) find a strong negative relation between ESG performance and firm performance for Brazilian firms.

In the banking sector, Di Tommaso & Thornton (2020) find a negative association between ESG activities and bank value for European banks. Whereas Bolton (2013) and Wu & Shen (2013) report a positive relationship for banks located in the USA. Ersoy et al. (2022) and Azmi et al. (2021) document a nonlinear relationship between ESG activities and bank performance. More specifically, they report an inverted U-shaped relationship indicating that low levels of ESG activity positively affect bank performance and that high levels of ESG activity exhibit diminishing returns to scale.

In light of the above discussion, I develop two alternative hypotheses about the association between ESG and bank performance. In line with Bolton (2013) and Wu & Shen (2013), I express the first hypothesis as follows:

H2A: ESG performance has a positive linear effect on bank performance for a sample of worldwide banks for the period 2012-2021.

In line with Ersoy et al. (2022) and Azmi et al. (2021), the second hypothesis is developed as follows:

H2B: ESG performance has a negative quadratic effect on bank performance for a sample of worldwide banks for the period 2012-2021.

2.3 ESG disclosure and bank risk and performance

The origin of ESG disclosure can be tracked down to the 1960s and 1970s when a form of voluntary sustainability reporting was established driven by a growing demand for corporate accountability and transparency regarding environmental and social impact. In 1997, the Global Reporting Initiative (GRI) was launched with the goal of developing comprehensive sustainability guidelines (Ioannou and Serafeim, 2017). The GRI's guidelines are now widely recognized and have been adopted by many companies around the world. More recently, the International Integrated Reporting Council (IIRC) tried to set an international standard by launching the International Integrated Reporting Framework in 2013 (Fatemi et al., 2018). Growing social and environmental challenges led to increasing demand from shareholders for companies to adopt a more systematic approach toward risk management and sustainability reporting.

Advocators of sustainability reporting believe that the disclosure of ESG will benefit both the company and stakeholders. They argue that disclosure will lead to superior external and internal decision-making and greater transparency (Buallay, 2019). According to signalling theory, companies have an incentive to inform investors and other stakeholders of their ESG activities. By disclosing ESG information, they can reveal their ESG engagement, which is sometimes not directly observable (Clarkson et al., 2008). In doing so, companies can improve their reputation and reduce information asymmetry for investors and other stakeholders. A potential benefit is that companies will be rewarded by investors and other stakeholders.

For example, El Ghouli et al. (2011) find that more extensive ESG reporting is associated with lower costs of capital. This is supported by Dhaliwal et al. (2014), who found that there is a negative association between ESG disclosure and the cost of equity capital and that this relationship is more pronounced in stakeholder-oriented countries. Furthermore, (Ioannou and Serafeim) show that increases in sustainability disclosure are associated with increases in firm performance as measured by Tobin's Q.

On the contrary, Fatemi et al. (2018) find a negative association between ESG disclosure and Tobin's Q. They further find that in the presence of ESG strengths (good performance), ESG disclosure weakens the positive effect of ESG performance on firm performance. A possible explanation for this finding is that the market may interpret disclosure as an attempt to justify an

overinvestment in ESG activities. Furthermore, disclosure also weakens the negative impact of ESG concerns (poor performance) on firm performance as disclosure helps firms to legitimate their behavior and convince stakeholders of their commitment.

Based on the results of Fatemi et al. (2018) the following hypotheses are formulated:

H3: The relationship between ESG performance and bank risk is moderated by ESG disclosure for a sample of worldwide banks for the period 2012-2021.

H4: The linear relationship between ESG performance and bank performance is moderated by ESG disclosure for a sample of worldwide banks for the period 2012-2021.

3 METHODOLOGY

3.1 Data Collection

To empirically investigate the hypotheses, I start by collecting data on 695 banks from 64 countries covering the period 2012 to 2021. This period is chosen because 2021 is the most recent year for which data ESG data is available. Table 1 reports the distribution of the sample across countries. A significant portion of the sample banks are headquartered in the USA. The sample is restricted to banks for which ESG data is available in Refinitiv Eikon. Refinitiv Eikon has been widely used in previous ESG studies (e.g., Neitzert & Petras, 2021; Di Tommaso & Thornton, 2020, Gangi et al., 2019). It offers one of the most comprehensive ESG databases in the world, covering over 12,500 public and private companies around the world, with history dating back to 2002. Refinitiv Eikon is also used to collect bank-specific financial information such as risk- and performance measures. Furthermore, data on CDS spreads is collected from Bureau van Dijk. In addition, country-specific data is collected from the World Bank.

TABLE 1. SAMPLE DISTRIBUTION BY COUNTRY

Country	Observations	Percentage	Country	Observations	Percentage
Argentina	6	0.86	Mexico	5	0.72
Australia	8	1.15	Morocco	4	0.57
Austria	3	0.43	Netherlands	2	0.29
Bahrain	8	1.15	New Zealand	1	0.14
Brazil	7	1.01	Nigeria	4	0.57
Canada	9	1.29	Nigeria	4	0.57
Chile	4	0.57	Norway	7	1.01
China	46	6.61	Oman	7	1.01
Colombia	5	0.72	Pakistan	8	1.15
Cyprus	1	0.14	Peru	3	0.43
Czech Republic	2	0.29	Philippines	8	1.15
Denmark	7	1.01	Poland	9	1.29
Egypt	7	1.01	Portugal	2	0.29
Finland	3	0.43	Qatar	6	0.86
France	3	0.43	Romania	2	0.29
Germany	5	0.72	Russian Federation	3	0.43
Greece	5	0.72	Saudi Arabia	10	1.44
Hong Kong	7	1.01	Singapore	3	0.43
Hungary	1	0.14	Slovakia	2	0.29
Iceland	2	0.29	Slovenia	1	0.14
India	30	4.31	South Africa	6	0.86
Indonesia	16	2.30	Spain	6	0.86
Ireland	3	0.43	Sweden	5	0.72
Israel	4	0.57	Switzerland	12	1.72
Italy	11	1.58	Taiwan	12	1.72
Japan	25	3.59	Thailand	9	1.29
Jordan	7	1.01	Turkey	10	1.44
Kazakhstan	1	0.14	Uganda	1	0.14
Korea South	9	1.29	United Arab Emirates	17	2.44
Kuwait	8	1.15	United Kingdom	11	1.58
Lebanon	1	0.14	United States	255	36.64
Malaysia	9	1.29	Vietnam	2	0.29

3.2 Variables Definitions and Operationalization

3.2.1 Bank Risk

To analyse the relationship between ESG score and bank risk, the Z-score is taken as a proxy to measure bank risk. The Z-score is commonly used in the banking literature (e.g., Neitzert & Petras, 2021; Di Tommaso & Thornton, 2020; Gangi et al., 2019; Laeven & Levine, 2009) and is calculated as follows:

$$Z - score = \frac{(ROA + CAR)}{\sigma(ROA)}$$

where ROA measures the return on total assets; CAR is the capital assets ratio (equity on total assets) and $\sigma(ROA)$ is the standard deviation of ROA. the z-score is defined as the number of standard deviations the ROA has to drop below its mean until equity is entirely depleted. A higher value of the z-score means that a bank is less risky and more stable. A drawback from the Z-score is that it may suffer from measurement bias as banks may engage in earnings management practices (Gangi et al., 2019). Therefore, this study uses two additional measures of bank risk for robustness, namely CDS spread and the ratio of nonperforming loans.

The ratio of nonperforming loans is also used by Di Tommaso & Thornton (2020) and Schulte & Winkler (2019) as a measure of bank risk. It is calculated by dividing the nonperforming loans by the total loans. A higher ratio of nonperforming loans implies a higher risk for banks.

Another proxy for bank risk that is used in the literature is the CDS spread (Di Tommaso & Thornton, 2020; Drago et al., 2019). The CDS spread is the premium paid to the seller quoted in basis points per year of the contract's notional amount. CDS spreads are higher for firms with greater default risk in comparison to firms with lower default risk, to compensate the seller for the additional risk. Therefore we can conclude that banks with higher CDS spreads are more riskier than banks with lower CDS spreads (Drago et al., 2019).

3.2.2 Bank Performance

To analyse the association between ESG score and bank value, a widely used proxy is Tobin's Q (e.g., Di Tommaso & Thornton, 2020; Azmi et al., 2021; Miralles-Quirós et al., 2019; Rastogi & Singh, 2022). Tobin's Q is calculated as follows:

$$Tobin's Q = \frac{Equity\ Market\ Value + Liabilities\ Market\ value}{Equity\ book\ Value + Liabilities\ Book\ value}$$

A ratio smaller than one indicates that the cost to replace a firm's assets is greater than the value of a company. This implies that a company is undervalued and a value bigger than one implies that a company is overvalued. In literature, Tobin's Q is preferred over return on assets (ROA) and return on equity (ROE) because it is less sensitive to earnings management (Azmi et al., 2021). However, both ROA and ROE are included for robustness as alternate measures of bank performance. They are respectively calculated as total return divided by total assets, and total return divided by total equity.

3.2.3 ESG Performance and Disclosure

This study uses the ESG score that is provided by Refinitiv to test the hypotheses Refinitiv calculates the overall ESG score by looking at more than 630 company-level ESG measures, out of which 186 are selected to drive the overall company assessment and scoring process. These are grouped into 10 categories, which are further divided into the three pillar scores e.g., environmental, social, and corporate governance. The ESG score is a relative sum of the category weights, which vary per industry for the environmental and social pillars. It ranges from a minimum of 0 to a maximum of 100.

To test the interaction effect of ESG disclosure on the association between ESG performance and bank risk and performance, a dummy variable is included. The dummy variable takes a value of 0 when a bank does not disclose ESG information through a CSR report, and it takes a value of 1 when a bank does disclose ESG information through a CSR report.

3.2.4 Control Variables

Previous research showed that bank risk can be explained by several bank-and country-specific characteristics. Based on a combination of Neitzert & Petras (2022) and Di Tommaso & Thornton (2020), I control for size through the natural logarithm of total assets; leverage through the ratio of the total book value of liabilities to total assets; profitability through the ratio of earnings before interest and taxes to total assets; capital structure through the ratio of tier 1 capital to

risk-weighted assets; liquidity through the ratio of deposits to total assets. Last, GDP per capita is included to control for macroeconomic variation.

In the model for bank performance, there are some control variables as well. I control for size; capitalization through the total equity to total assets; efficiency through the total expenses to total income; bank risk through the ratio of non-performing loans; liquidity; and also for GDP per capita. A summary of the variables can be found in Table 2.

3.3 Model

In order to study the effect of ESG performance on bank risk, a multivariate analysis is performed. The following typical model of bank risk is estimated:

$$(1) \quad R_{i,t} = \beta_0 + \beta_1 R_{i,t-1} + \beta_2 ESG_{i,t} + \beta_3 ESG_Disclosure_{i,t} + \beta_4 X_{i,t} + D_i + D_t + \varepsilon_{i,t}$$

where $R_{i,t}$, the dependent variable, measures the risk of bank i in period t ; $R_{i,t-1}$ is the one-year lagged dependent variable; $ESG_{i,t}$, the independent variable, measures a company's ESG performance; $ESG_Disclosure_{i,t}$ indicates whether banks disclose ESG information through a CSR report or not; the vector $X_{i,t}$ contains bank-specific variables; D_i captures bank fixed effects; D_t captures time fixed effects and $\varepsilon_{i,t}$ is the idiosyncratic error term. I include bank-specific fixed effects to account for bank-specific factors that may affect bank risk. Moreover, my benchmark specification includes time-specific fixed effects to capture effects that change over time and effect all banks equally.

To test the effects of ESG performance on bank performance, I use the first equation where the dependent variable is replaced by a performance measure. I estimated the following baseline model:

$$(2) \quad P_{i,t} = \beta_0 + \beta_1 P_{i,t-1} + \beta_2 ESG_{i,t} + \beta_3 ESG_Disclosure_{i,t} + \beta_4 X_{i,t} + D_i + D_t + \varepsilon_{i,t}$$

TABLE 2. VARIABLE DEFINITIONS

Variable	Definitions	Source
Dependent variables		
<i>Z-score</i>	Return on assets plus the capital asset ratio divided by the standard deviation of asset returns at given year	<i>Refinitiv</i>
<i>Nonperforming loans</i>	The ratio of nonperforming loans to total loans at given year	<i>Refinitiv</i>
<i>CDS spread</i>	Premium paid to seller quoted in basis points per year of the contract's notional amount at given year	<i>Bureau van Dijk</i>
<i>Tobin's Q</i>	The market capitalization of common stock + book value liabilities divided by the book value of total assets at given year	<i>Refinitiv</i>
<i>ROA</i>	The ratio of return to total assets at given year	<i>Refinitiv</i>
<i>ROE</i>	The ratio of return to total equity to given year	<i>Refinitiv</i>
Independent variables		
<i>ESG score</i>	Equal-weighted rating, based on the information in Refinitiv's economic, environmental, social, and corporate governance pillars at given year	<i>Refinitiv</i>
<i>ESG disclosure</i>	A binary variable that equals to 1 when a company provide a ESG report, and 0 otherwise at given year	<i>Refinitiv</i>
Control variables		
<i>Size</i>	The natural log of the sample company's total assets at given year	<i>Refinitiv</i>
<i>Leverage</i>	The ratio of total book value of liabilities to total assets at given year	<i>Refinitiv</i>
<i>Profitability</i>	The ratio of earnings before interest and taxes to total assets at given year	<i>Refinitiv</i>
<i>Capital</i>	The ratio of tier 1 capital to risk-weighted assets at given year	<i>Refinitiv</i>
<i>Liquidity</i>	The ratio of deposits to total assets at given year	<i>Refinitiv</i>
<i>Capitalization</i>	The ratio of equity to total assets of given year	<i>Refinitiv</i>
<i>Efficiency</i>	The ratio of operating expenses to total operating income at given year	
<i>Risk</i>	The ratio of nonperforming loans to total loans at given year	<i>Refinitiv</i>
<i>GDP per capita</i>	Total GDP of a country divided by the population at given year	<i>World Bank</i>

4 Results

4.1 Descriptive Statistics

Table 3 reports descriptive statistics of all variables employed in this study. The first dependent variable of this study is captured by Z-score, Non-performing loans, and CDS spread. The means are 10.06, 3.39, and 1.47, respectively. The second dependent variable is captured by Tobin's Q, ROA, and ROE, they have average values of 1.02, 10.39, and 1.25. The average ESG score is about

44, this suggests that there is room for improvement. Furthermore, the table shows that in 55% of the cases, ESG information was disclosed by a CSR report. This indicates that disclosing ESG information has become a common practice among banks. The significant differences observed between the maximum and minimum values of both dependent and independent variables reveal that there is serious variation in terms of these variables between banks in the sample.

The Pearson correlations were calculated between all the independent and control variables in order to check for multicollinearity. Table 4 displays the results of the correlation analysis conducted for the risk model, while Table 5 presents the correlation between the variables for the performance model. As can be observed, all of the correlation coefficients are lower than 0.7. This result displays that multicollinearity will not be a serious problem in terms of explanatory variables for multivariate analysis.

TABLE 3. DESCRIPTIVE STATISTICS

Variable	n	mean	median	sd	min	max
Z-score	5,705	10.06	6.61	14.92	-287.30	243.76
Non-performing loans	6,105	3.39	1.67	5.84	0.01	100.00
CDS spread	945	1.47	0.96	1.68	0.10	15.75
Tobin's Q	6,706	1.02	1.01	0.10	0.05	2.79
ROA	6,585	10.39	10.13	12.17	-225.70	267.70
ROE	5,954	1.25	1.14	1.11	-11.15	14.19
ESG	4,234	44.21	42.38	18.66	1.53	91.78
ESG disclosure	4,246	0.55	1.00	0.50	0.00	1.00
Size	6,710	18.32	18.05	3.31	6.21	28.17
Leverage	6,707	0.90	0.90	0.62	0.05	51.70
Profitability	5,988	0.02	0.01	0.01	-0.11	0.13
Capital	5,848	0.14	0.13	0.06	-0.07	1.69
Efficiency	6,460	3.87	2.78	22.67	-576.27	882.74
Capitalization	6706	0.10	0.97	0.05	-0.04	0.95
Liquidity	6673	0.71	0.75	0.15	0.02	0.96
GDP per Capita	6,950	38,130.80	44,195.82	24,714.18	753.68	102,913.45

TABLE 4. PEARSON CORRELATION MATRIX - RISK

	ESG	ESG disclosure	Size	Leverage	Profitability	Capital	Liquidity	GDP per Capita
ESG	1							
ESG disclosure	0.670***	1						
Size	0.406***	0.535***	1					
Leverage	0.145***	0.201***	-0.028**	1				
Profitability	0.040**	0.024	0.007	-0.374***	1			
Capital	0.059***	0.079***	-0.057***	-0.588***	0.161***	1		
Liquidity	-0.314***	-0.420***	-0.308***	0.035***	-0.172***	-0.146***	1	-
GDP per capita	-0.269***	-0.393***	-0.544***	-0.019	-0.147***	0.014	0.207***	1

Note: This table shows the Pearson pair-wise correlation matrix of independent variables.* Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE 5. PEARSON CORRELATION MATRIX - PERFORMANCE

	ESG	ESG disclosure	Size	Capitalization	Efficiency	Risk	Liquidity	GDP per Capita
ESG	1							
ESG disclosure	0.670***	1						
Size	0.406***	0.535***	1					
Capitalization	-0.156***	0.218***	-0.238***	1				
Efficiency	0.031*	0.029*	0.042***	0.017	1			
Risk	0.103***	0.143***	0.044***	-0.003	-0.013	1		
Liquidity	-0.314***	-0.420***	-0.308***	-0.022*	0.012	-0.124***	1	-
GDP per capita	-0.269***	-0.393***	-0.544***	0.034***	--0.042***	-0.229***	0.207***	1

Note: This table shows the Pearson pair-wise correlation matrix of independent variables.* Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

The models are estimated by employing a fixed effects regression according to Hausman test statistics. Moreover, standard errors at the bank level are clustered based on the results of heteroskedasticity (Breusch-Pagan test) and autocorrelation (Breusch-Godfrey test) tests. Moreover, all explanatory variables included in the regression models are lagged one year in order to mitigate endogeneity by a potential reverse causality or simultaneity bias.

4.2 ESG and bank risk

Table 6 summarizes the results of panel regressions of ESG score on bank risk. The estimations of the baseline model are presented in columns (1), (3), and (5). Only the adjusted R^2 in column 2 is positive, indicating that the estimation in column (2) is better able to describe the data than columns (1) and (5), which both have a negative R^2 . Therefore, I draw my conclusions about the relationship between ESG and bank risk from column (3).

Before I discuss the effect of ESG, I briefly go into the impact on bank risk of the conditioning variables. I note that some variables are significant and in line with previous research. For example, higher levels of capital and liquidity are associated with lower bank risk, since they provide buffers for banks. I expected that profitability was also associated with a reduction in bank risk since it is easier for profitable banks to accumulate capital. However, the coefficient for profitability is not significant. Furthermore, previous research showed that high-leveraged banks are riskier than low-leveraged banks. However, the coefficient is not statistically significant. Last, the coefficient for GDP per capita is not significant, indicating that the macroeconomic environment does not influence bank risk.

Turning to my main variable of interest: the ESG score does not appear to influence bank risk. The effect is negative and different from zero as expected, but statistically insignificant. The results do not support the view that high ESG scores are associated with reduced bank risk-taking, that is, they do not support H1. This also implies that there is no support for either the risk mitigation- and stakeholder view of ESG or the overinvestment- and agency costs view. Furthermore, the coefficient on the ESG disclosure is negative as expected, but not statistically significant.

To gather more information on how ESG disclosure might condition the effects of ESG on bank risk-taking, I expand the baseline estimates to include an interaction variable, that is, by multiplying the ESG score by the ESG disclosure dummy variable. These results are reported in columns (2), (4), and (6) of Table 6. I draw my conclusions from column (4), as columns (2) and (6) have negative adjusted R^2 . The outcomes are the same as in column (3) regarding the control variables and ESG and ESG disclosure. Furthermore, there is no evidence in support of hypothesis 3, indicating that the association between ESG and bank risk is not moderated by ESG disclosure.

TABLE 5. FE ESTIMATES OF ESG PERFORMANCE ON BANK RISK

<i>Dependent variable: Performance</i>						
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.138*** (0.051)	0.138*** (0.051)	0.562*** (0.040)	0.562*** (0.040)	0.134*** (0.037)	0.131*** (0.036)
ESG	0.009 (0.028)	0.022 (0.041)	-0.007 (0.009)	-0.007 (0.008)	-0.0002 (0.002)	-0.008* (0.005)
ESG disclosure	0.326 (0.944)	0.385 (0.950)	-0.235 (0.207)	-0.237 (0.187)	-0.157 (0.108)	-0.129 (0.097)
ESG*ESG disclosure		0.016 (0.042)		-0.001 (0.010)		0.008 (0.005)
Size	1.430 (1.161)	1.454 (1.159)	0.721** (0.303)	0.720** (0.309)	0.011 (0.240)	0.023 (0.241)
Leverage	29.721 (21.059)	29.448 (21.059)	5.686 (17.892)	5.694 (17.954)	8.889** (4.375)	8.860** (4.385)
Profitability	105.120*** (36.241)	105.048*** (36.304)	-14.887 (13.572)	-14.889 (13.579)	11.027** (5.355)	10.932** (5.318)
Capital	-23.395 (18.864)	-23.758 (18.699)	-12.017* (6.328)	-12.005* (6.438)	-3.091** (1.393)	-3.140** (1.380)
Liquidity	-3.233 (4.979)	-3.241 (4.972)	-10.765*** (3.692)	-10.763*** (3.681)	-0.676 (0.537)	-0.752 (0.527)
GDP per Capita	-0.0003*** (0.0001)	-0.0003*** (0.0001)	0.00000 (0.00002)	0.00000 (0.00002)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,706	2,706	2,864	2,864	685	685
R ²	0.045	0.045	0.383	0.383	0.104	0.106
Adjusted R ²	-0.189	-0.189	0.236	0.236	-0.076	-0.075
F Statistic	11.474***	10.334***	159.576***	143.557***	7.324***	6.742***
Hausman test	439.83***	437.12***	187.56***	194.05***	206.7***	224.09***
Breusch-Pagan test	128.02***	127.56***	337.09***	337.72***	131.12***	131.57***
Breusch-Godfry test	13.58***	13.423***	29.234***	29.145***	0.1168	0.116

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

4.3 ESG and bank performance

The results of the estimation of the linear association between ESG scores and bank performance are reported in Table 7. Columns (1), (3), and (5) of Table 7 show the results of the baseline model for different measures of performance. The adjusted R^2 is negative in columns (3) and (5), and positive in column (1). Therefore, I draw my conclusions about the linear relationship between ESG and bank performance from column (1).

First I take a look at the control variables. What catches the attention is that almost all control variables are statistically insignificant and not in line with the literature on bank performance. For example, capitalization negatively impacts performance, where a positive relationship was expected since higher capitalization provides more financial flexibility.

Regarding my main variable, column (1) shows that the coefficient of the ESG score is negative but statistically insignificant. This outcome does not support hypothesis 2A. In line with the results on bank risk, there is no support for either the risk mitigation- and stakeholder view of ESG or the overinvestment and agency costs view.

Columns (2), (4), and (6) show the estimations for the baseline model where an interaction term is included. As before, (2) has a positive R^2 , and (4) and (6) a negative one. Resulting, that the conclusions are being drawn from column (2). The explanatory and control variables have the same effect on bank risk as in the model without the interaction. Furthermore, the interaction is not statistically significant, showing that there is no evidence in support of hypothesis 4.

In order to gain more insight into the relationship between ESG and bank performance, the baseline model is expanded by including the squared term of ESG scores. The results are summarized in Table 8. Again, only columns (1) and (2) report a positive adjusted R^2 and are therefore used to draw conclusions from. The results are similar to the results presented in Table 7. Interestingly, however, there is now weak evidence that ESG performance has a small negative effect on bank performance. The coefficient is -0.001, indicating that an increase of ESG score by 1 results in a decrease of Tobin's Q by 0.001. However, the coefficient for the squared term of ESG scores is not statistically significant. Therefore, there is no evidence in support of hypothesis 2A. Furthermore, the interaction between ESG performance and ESG disclosure stays insignificant.

TABLE 7. FE ESTIMATES OF ESG PERFORMANCE ON BANK PERFORMANCE

	<i>Dependent variable: Performance</i>					
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.474*** (0.048)	0.473*** (0.048)	0.082** (0.037)	0.083** (0.037)	0.148*** (0.043)	0.149*** (0.044)
ESG	-0.0002 (0.0001)	-0.0002 (0.0002)	0.013 (0.015)	0.050** (0.021)	-0.0004 (0.002)	0.003 (0.002)
ESG disclosure	-0.004 (0.005)	-0.003 (0.005)	-0.273 (0.428)	-0.444 (0.422)	-0.060 (0.051)	-0.077 (0.049)
ESG*ESG disclosure		0.0001 (0.0002)		-0.050** (0.022)		-0.005** (0.003)
Size	-0.011 (0.009)	-0.011 (0.009)	-4.189*** (0.824)	-4.217*** (0.822)	-0.325*** (0.103)	-0.327*** (0.104)
Capitalization	-0.507*** (0.122)	-0.507*** (0.122)	-56.115*** (15.740)	-56.110*** (15.719)	-6.869*** (2.188)	-6.877*** (2.196)
Efficiency	0.00000 (0.00002)	0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0002 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.021 (0.064)	-0.023 (0.065)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.006 (0.026)	-0.007 (0.026)	16.815*** (5.775)	16.917*** (5.745)	-0.074 (0.595)	-0.071 (0.591)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00003 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.298	0.299	0.080	0.082	0.069	0.071
Adjusted R ²	0.143	0.142	-0.125	-0.123	-0.155	-0.154
F Statistic	127.423***	114.701***	25.979***	23.906***	20.022***	18.544***
Hausman test	627.19***	628.31***	1898.2***	1889.3***	537.9***	349.46***
Breusch-Pagan test	257.1***	265.47***	258.1***	259.12***	200.87***	204.49***
Breusch-Godfrey test	13.948***	14.444***	2.7589*	2.8398*	48.664***	48.496***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE 8. FE ESTIMATES OF ESG² PERFORMANCE ON BANK PERFORMANCE

	<i>Dependent variable: Performance</i>					
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.472*** (0.048)	0.472*** (0.048)	0.082** (0.037)	0.083** (0.037)	0.148*** (0.044)	0.149*** (0.044)
ESG	-0.001* (0.0004)	-0.001* (0.0004)	0.048*** (0.041)	0.016 (0.044)	0.007** (0.005)	0.004 (0.006)
ESG ²	0.00001 (0.00000)	0.00001 (0.00001)	-0.0004*** (0.0004)	0.0005 (0.001)	-0.0001** (0.00005)	-0.00001 (0.0001)
ESG disclosure	-0.003 (0.005)	-0.003 (0.005)	-0.330 (0.434)	-0.433 (0.422)	-0.071 (0.050)	-0.077 (0.049)
ESG*ESG disclosure		-0.0002 (0.0003)		-0.069** (0.030)		-0.005 (0.003)
Size	-0.010 (0.009)	-0.010 (0.009)	-4.211*** (0.826)	-4.199*** (0.824)	-0.329*** (0.105)	-0.327*** (0.105)
Capitalization	-0.509*** (0.121)	-0.509*** (0.121)	-56.130*** (15.765)	-56.088*** (15.685)	-6.850*** (2.184)	-6.873*** (2.193)
Efficiency	-0.00000 (0.00002)	0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0002 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.021 (0.064)	-0.023 (0.065)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.007 (0.026)	-0.007 (0.026)	16.859*** (5.781)	16.899*** (5.739)	-0.074 (0.593)	-0.071 (0.591)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00003 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.299	0.300	0.080	0.082	0.070	0.071
Adjusted R ²	0.143	0.143	-0.125	-0.123	-0.155	-0.154
F Statistic	115.148***	104.747***	23.464***	21.800***	18.315***	16.856***
Hausman test	631.54***	638.87***	1904.8***	1875.3***	971.09***	540.27***
Breusch-Pagan test	259.2***	266.85***	257.68***	262.39***	202.93***	202.6***
Breusch-Godfrey test	13.941***	14.795***	2.6439	3.403*	48.5***	50.433***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

4.4 Robustness

My results are robust to several different measures of bank risk and performance. In order to further test the robustness several robustness checks are performed. First, I re-estimate my aforementioned results by substituting all the variables of interest by the same variables without any time lag, respectively with a 2-year time lag. This should ensure that the effects measured do not depend on the specific time lag considered. The results are provided in Tables A1-A6. As illustrated, the results do not significantly change the relationship between ESG performance and bank risk and performance. However, there is weak evidence for the non-linear relationship between ESG and bank performance in the model where ESG is not lagged.

Furthermore, it might be that some types of ESG engagement matter in different ways for risk-taking and performance (e.g., Bird et al., 2007). As a further robustness test, I examine whether the different dimensions of ESG have a different impact on bank risk-taking and performance. The Refinitiv Eikon measure of ESG score comprises three main sub-components: environmental engagement governance, and social. Tables B1-B3 show the results for the environmental dimension of ESG, Tables B4-B6 report the results for the social pillar of ESG, and Tables B7-B9 provide results for the governance dimension. In contrast to my earlier findings Table B4 shows that the social scores have a negative impact on bank risk.

Third, the sample contains 255 banks from the US (37% of the total sample). To ensure the results are not driven solely by banks in the US, I rerun the models using the total sample excluding the US banks. The results are reported in Tables C1-C3, they do not significantly differ from the main results.

5 Discussion and Conclusion

There is only very limited empirical literature on the impact of ESG performance on bank risk and performance. Most of the studies relate a linear relationship between ESG and bank value. Furthermore, there is even less literature examining the impact of ESG disclosure on the relationship between ESG performance and bank risk and performance. In this paper, I have tried to contribute to closing these gaps in the literature by investigating the impact of ESG

performance on risk-taking and performance of worldwide banks for the period 2012 to 2021, and by examining the potential interaction effect of ESG disclosure.

This paper reports several main findings. First, high ESG scores are not associated with a reduction in bank risk. Second, the impact of ESG scores on bank risk is not conditional on ESG disclosure. Third, there is no significant linear relationship found between ESG scores and bank performance. Furthermore, I find that ESG disclosure does not have an impact on the association between ESG scores and bank performance. Last, empirical results of nonlinear models do not suggest an inverted U-shaped relationship between ESG scores and bank performance. The results are robust to a variety of measures of bank risk and bank performance, to using a sample where US headquartered banks are excluded, and to using different lags for the independent variables. Interestingly, some of the results do not hold for each of the sub-components of ESG. For example, to some extent, social scores have a negative impact on bank risk.

These findings have some practical implications for both management and policymakers. Managers who want to minimize bank risk should consider the negative association between the social score and bank risk. Furthermore, if they want to maximize bank performance they do not have to consider ESG performance in either a positive or negative way. These findings have practical implications for policymakers as well. If they want banks to behave in a more socially responsible way, they should come up with regulations to force them, since I find no provable benefits of ESG engagement.

This study has a number of shortcomings. In particular, there are more elaborated ways to capture ESG disclosure. It is suggested that future studies use these measures and incorporate the disclosure score for each of the sub-components of ESG. Moreover, it would be interesting to investigate the individual effect of each ESG component on bank risk and performance since my robustness check reveal different effects for the subcomponents.

6 References

- Azmi, W., Hassan, M. K., Houston, R., & Karim, M. S. (2021). ESG activities and banking performance: International evidence from emerging economies. *Journal of International Financial Markets, Institutions and Money*, 70, 101277.
- Bolton, B. J. (2013). Corporate social responsibility and bank performance. Available at SSRN 2277912.
- Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*, 30(1), 98-115.
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, organizations and society*, 33(4-5), 303-327.
- Crisóstomo, V. L., de Souza Freire, F., & De Vasconcellos, F. C. (2011). Corporate social responsibility, firm value and financial performance in Brazil. *Social responsibility journal*, 7(2), 295-309.
- Dhaliwal, D., Li, O. Z., Tsang, A., & Yang, Y. G. (2014). Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. *Journal of accounting and public policy*, 33(4), 328-355.
- Di Tommaso, C., & Thornton, J. (2020). Do ESG scores effect bank risk taking and value? Evidence from European banks. *Corporate Social Responsibility and Environmental Management*, 27(5), 2286-2298.
- Drago, D., Carnevale, C., & Gallo, R. (2019). Do corporate social responsibility ratings affect credit default swap spreads?. *Corporate Social Responsibility and Environmental Management*, 26(3), 644-652.
- El Ghouli, S., Guedhami, O., Kwok, C. C., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital?. *Journal of banking & finance*, 35(9), 2388-2406.
- Ersoy, E., Swiecka, B., Grima, S., Özen, E., & Romanova, I. (2022). The Impact of ESG Scores on Bank Market Value? Evidence from the US Banking Industry. *Sustainability*, 14(15), 9527.
- Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role

- of disclosure. *Global finance journal*, 38, 45-64.
- Freeman, R. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman Publishing.
- Friedman, M. (1962). *Capitalism and freedom*. Chicago: University of Chicago Press.
- Gangi, F., Meles, A., D'Angelo, E., & Daniele, L. M. (2019). Sustainable development and corporate governance in the financial system: are environmentally friendly banks less risky?. *Corporate Social Responsibility and Environmental Management*, 26(3), 529-547.
- Harjoto, M., & Laksmana, I. (2018). The impact of corporate social responsibility on risk taking and firm value. *Journal of Business Ethics*, 151, 353-373.
- Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. Harvard Business School research working paper, (11-100).
- Ikram, M., Sroufe, R., Mohsin, M., Solangi, Y. A., Shah, S. Z. A., & Shahzad, F. (2019). Does CSR influence firm performance? A longitudinal study of SME sectors of Pakistan. *Journal of Global Responsibility*, 11(1), 27-53.
- Laeven, L., & Levine, R. (2009). Bank governance, regulation and risk taking. *Journal of financial economics*, 93(2), 259-275.
- Magnanelli, B. S., & Izzo, M. F. (2017). Corporate social performance and cost of debt: The relationship. *Social Responsibility Journal*, 13(2), 250-265.
- Menz, K. M. (2010). Corporate social responsibility: Is it rewarded by the corporate bond market? A critical note. *Journal of business ethics*, 96(1), 117-134.
- Menicucci, E., & Paolucci, G. (2023). ESG dimensions and bank performance: An empirical investigation in Italy. *Corporate Governance: The International Journal of Business in Society*, 23(3), 563-586.
- Miralles-Quirós, M. M., Miralles-Quirós, J. L., & Redondo Hernández, J. (2019). ESG performance and shareholder value creation in the banking industry: International differences. *Sustainability*, 11(5), 1404.
- Neitzert, F., & Petras, M. (2022). Corporate social responsibility and bank risk. *Journal of Business Economics*, 92(3), 397-428.
- Oikonomou, I., Brooks, C., & Pavelin, S. (2012). The impact of corporate social performance on financial risk and utility: A longitudinal analysis. *Financial Management*, 41(2), 483-515.

- Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard business review*, 84(12), 78-92.
- Rastogi, S., & Singh, K. (2022). The impact of ESG on the bank valuation: evidence of moderation by ICT. *Journal of Global Responsibility*, (ahead-of-print).
- Sakhel, A. (2017). Corporate climate risk management: Are European companies prepared?. *Journal of Cleaner Production*, 165, 103-118.
- Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.
- Schulte, M., & Winkler, A. (2019). Drivers of solvency risk—Are microfinance institutions different?. *Journal of Banking & Finance*, 106, 403-426.
- Tahmid, T., Hoque, M. N., Said, J., Saona, P., & Azad, M. A. K. (2022). Does ESG initiatives yield greater firm value and performance? New evidence from European firms. *Cogent Business & Management*, 9(1), 2144098.
- Wu, M. W., & Shen, C. H. (2013). Corporate social responsibility in the banking industry: Motives and financial performance. *Journal of Banking & Finance*, 37(9), 3529-3547.

7 Appendix

TABLE A1. FE ESTIMATES OF ESG PERFORMANCE ON BANK RISK WITH 0-YEAR LAG

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.142*** (0.051)	0.141*** (0.051)	0.313*** (0.121)	0.313*** (0.121)	0.137*** (0.038)	0.134*** (0.037)
ESG	0.005 (0.026)	-0.069 (0.044)	-0.009 (0.007)	-0.013* (0.007)	0.003 (0.002)	-0.006 (0.004)
ESG disclosure	-1.257 (0.979)	-0.866 (0.997)	-0.189 (0.217)	-0.168 (0.199)	-0.178 (0.126)	-0.154 (0.122)
ESG*ESG disclosure		0.095** (0.047)		0.006 (0.009)		0.010** (0.004)
Size	1.024 (1.105)	1.216 (1.106)	0.891*** (0.305)	0.903*** (0.308)	-0.065 (0.229)	-0.053 (0.230)
Leverage	41.637* (21.709)	39.934* (21.795)	-3.353 (14.561)	-3.450 (14.564)	8.575* (4.440)	8.702* (4.431)
Profitability	104.248*** (38.017)	106.618*** (38.198)	-29.263* (17.162)	-29.156* (17.194)	10.391* (5.366)	10.697** (5.358)
Capital	-19.195 (19.124)	-21.035 (19.126)	-16.573** (6.670)	-16.683** (6.674)	-3.187** (1.364)	-3.230** (1.351)
Liquidity	-4.360 (5.031)	-4.477 (5.026)	-10.941*** (4.207)	-10.966*** (4.199)	-0.625 (0.564)	-0.685 (0.559)
GDP per Capita	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.00003 (0.00003)	-0.00003 (0.00003)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,942	2,942	3,156	3,156	687	687
R ²	0.049	0.051	0.206	0.206	0.104	0.107
Adjusted R ²	-0.183	-0.182	0.021	0.021	-0.077	-0.075
F Statistic	13.586***	12.617***	73.767***	66.399***	7.342***	6.814***
Hausman test	327.55***	332.6***	1004.5***	1007.2***	190.12***	198.49***
Breusch-Pagan test	41.93***	44.25***	574.48***	575.16***	123.5***	123.03***
Breusch-Godfry test	12.11***	12.284***	26.725***	26.724***	1.4255***	1.4313***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE A2. FE ESTIMATES OF ESG PERFORMANCE ON BANK RISK WITH 0-YEAR LAG

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.375*** (0.063)	0.374*** (0.063)	0.089** (0.035)	0.089** (0.035)	0.152*** (0.043)	0.152*** (0.042)
ESG	-0.00004 (0.0001)	-0.0003 (0.0002)	0.026* (0.014)	0.035 (0.031)	0.001 (0.002)	0.001 (0.003)
ESG disclosure	-0.006 (0.005)	-0.005 (0.005)	-0.697 (0.452)	-0.752* (0.420)	-0.105 (0.066)	-0.106* (0.061)
ESG*ESG disclosure		0.0003 (0.0002)		-0.012 (0.031)		-0.00002 (0.003)
Size	-0.023*** (0.009)	-0.023*** (0.009)	-3.879*** (0.757)	-3.888*** (0.760)	-0.267*** (0.094)	-0.267*** (0.094)
Capitalization	-0.474*** (0.121)	-0.472*** (0.121)	-45.826*** (14.012)	-45.846*** (14.026)	-5.722*** (2.170)	-5.722*** (2.165)
Efficiency	-0.00002 (0.00003)	-0.00002 (0.00003)	-0.003 (0.006)	-0.003 (0.006)	-0.0004 (0.001)	-0.0004 (0.001)
Risk	0.0004 (0.0003)	0.0004 (0.0003)	-0.004 (0.047)	-0.004 (0.048)	-0.006 (0.004)	-0.006 (0.004)
Liquidity	-0.007 (0.028)	-0.009 (0.027)	13.997*** (5.249)	14.077*** (5.280)	-0.202 (0.556)	-0.202 (0.553)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.0001*** (0.00002)	0.0001*** (0.00002)	0.00001*** (0.00000)	0.00001*** (0.00000)
Observations	3,630	3,630	3,615	3,615	3,289	3,289
R ²	0.220	0.221	0.075	0.076	0.060	0.060
Adjusted R ²	0.048	0.049	-0.129	-0.129	-0.168	-0.168
F Statistic	93.157***	84.366***	26.826***	24.174***	18.654***	16.783***
Hausman test	1163.4***	1178.3***	1113.6***	1091.9***	1164.9***	1161.9***
Breusch-Pagan test	281.1***	280.19***	186.36***	187.47***	206.02***	208.53***
Breusch-Godfrey test	24.43***	24.928***	6.1074**	5.8656***	31.849***	32.219***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE A3. FE ESTIMATES OF ESG² PERFORMANCE ON BANK RISK WITH 0-YEAR LAG

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.375*** (0.063)	0.375*** (0.063)	0.089** (0.035)	0.089** (0.035)	0.150*** (0.043)	0.146*** (0.043)
ESG	-0.001** (0.0003)	-0.001* (0.0004)	0.061** (0.061)	0.062** (0.058)	0.010 (0.006)	0.013** (0.006)
ESG ²	0.00001** (0.00000)	0.00000 (0.00000)	-0.0003** (0.001)	-0.0004 (0.001)	-0.0001 (0.0001)	-0.0002** (0.0001)
ESG disclosure	-0.005 (0.005)	-0.005 (0.005)	-0.766* (0.417)	-0.761* (0.415)	-0.123** (0.061)	-0.111* (0.059)
ESG*ESG disclosure		0.0001 (0.0003)		0.002 (0.029)		0.007* (0.004)
Size	-0.023*** (0.009)	-0.023*** (0.009)	-3.894*** (0.760)	-3.894*** (0.761)	-0.271*** (0.095)	-0.271*** (0.095)
Capitalization	-0.473*** (0.120)	-0.472*** (0.120)	-45.907*** (14.069)	-45.911*** (14.065)	-5.705*** (2.158)	-5.644*** (2.129)
Efficiency	-0.00002 (0.00003)	-0.00002 (0.00003)	-0.003 (0.006)	-0.003 (0.006)	-0.0004 (0.001)	-0.0004 (0.001)
Risk	0.0004 (0.0003)	0.0004 (0.0003)	-0.003 (0.048)	-0.003 (0.048)	-0.006 (0.004)	-0.006 (0.004)
Liquidity	-0.009 (0.028)	-0.009 (0.027)	14.105*** (5.281)	14.098*** (5.282)	-0.179 (0.552)	-0.199 (0.548)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.0001*** (0.00002)	0.0001*** (0.00002)	0.00001*** (0.00000)	0.00001*** (0.00000)
Observations	3,630	3,630	3,615	3,615	3,289	3,289
R ²	0.221	0.221	0.076	0.076	0.061	0.063
Adjusted R ²	0.050	0.049	-0.129	-0.130	-0.166	-0.164
F Statistic	84.508***	76.842***	24.228***	22.019***	17.317***	16.191***
Hausman test	1178.***	1177.3***	1116.3***	1457.9***	1173.6***	1179.6***
Breusch-Pagan test	281.14***	278.99***	188.21***	189.45***	208.5***	208.2***
Breusch-Godfrey test	24.433***	25.702***	6.2202**	5.7457**	31.815***	32.529***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE A4. FE ESTIMATES OF ESG PERFORMANCE ON BANK RISK WITH 2-YEAR LAG

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.138*** (0.047)	0.138*** (0.047)	0.609*** (0.080)	0.609*** (0.080)	0.112*** (0.039)	0.112*** (0.039)
ESG	0.015 (0.030)	-0.106* (0.055)	0.004 (0.006)	-0.007 (0.009)	-0.003 (0.002)	-0.005 (0.006)
ESG disclosure	0.355 (1.020)	0.635 (1.029)	-0.418* (0.249)	-0.383 (0.243)	-0.014 (0.076)	-0.011 (0.074)
ESG*ESG disclosure		0.121** (0.054)		0.015 (0.010)		0.002 (0.006)
Size	0.234 (1.480)	0.442 (1.473)	0.789* (0.437)	0.815* (0.444)	0.225 (0.339)	0.227 (0.341)
Leverage	61.113** (29.306)	59.518** (29.231)	-5.986 (8.983)	-6.284 (8.940)	11.965** (5.450)	11.910** (5.517)
Profitability	131.216*** (37.084)	129.819*** (37.407)	-4.281 (14.511)	-4.453 (14.480)	16.003** (6.947)	15.806** (7.056)
Capital	-23.290 (25.006)	-26.028 (25.035)	-17.026*** (6.331)	-17.368*** (6.395)	-2.962* (1.643)	-2.968* (1.644)
Liquidity	-8.117 (5.983)	-8.295 (5.958)	-9.143*** (3.020)	-9.192*** (3.028)	-1.085 (0.702)	-1.090 (0.698)
GDP per Capita	-0.0002* (0.0001)	-0.0002* (0.0001)	0.00000 (0.00002)	0.00000 (0.00002)	-0.00001 (0.00001)	-0.00001 (0.00001)
Observations	2,261	2,261	2,381	2,381	604	604
R ²	0.050	0.053	0.415	0.416	0.084	0.084
Adjusted R ²	-0.215	-0.212	0.255	0.255	-0.118	-0.120
F Statistic	10.361***	9.860***	147.256***	132.805***	5.024***	4.516***
Hausman test	333.94***	344.53***	187.86***	189.11***	321***	320.31***
Breusch-Pagan test	136.72***	136.62***	245.75***	246.68***	140.21***	140.41***
Breusch-Godfrey test	25.481***	0.2097	147.256***	0.1890	29.913***	29.92***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. The explanatory variables are lagged by two years and all control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE A5. FE ESTIMATES OF ESG PERFORMANCE ON BANK PERFORMANCE WITH 2-YEAR LAG

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(1)	(2)	(1)	(2)
$P_{i,t-1}$	0.448*** (0.043)	0.448*** (0.043)	0.053 (0.042)	0.052 (0.043)	0.111** (0.048)	0.109** (0.049)
ESG	-0.00003 (0.0001)	0.00004 (0.0002)	0.002 (0.015)	0.038 (0.028)	-0.001 (0.002)	0.004 (0.004)
ESG disclosure	-0.005 (0.004)	-0.005 (0.004)	-0.819* (0.486)	-0.945* (0.514)	-0.085 (0.060)	-0.100 (0.063)
ESG*ESG disclosure		-0.0001 (0.0002)		-0.049 (0.030)		-0.007* (0.004)
Size	-0.007 (0.008)	-0.007 (0.009)	-4.422*** (0.959)	-4.454*** (0.960)	-0.391*** (0.142)	-0.395*** (0.144)
Capitalization	-0.532*** (0.143)	-0.531*** (0.143)	-63.932*** (19.999)	-63.667*** (19.933)	-5.135** (2.316)	-5.077** (2.321)
Efficiency	-0.00000 (0.00002)	-0.00000 (0.00002)	-0.006 (0.008)	-0.006 (0.008)	-0.0004 (0.001)	-0.0004 (0.001)
Risk	-0.0003 (0.0003)	-0.0003 (0.0003)	-0.022 (0.096)	-0.025 (0.097)	0.004 (0.009)	0.004 (0.009)
Liquidity	0.009 (0.026)	0.009 (0.026)	16.903** (7.293)	16.889** (7.224)	0.356 (0.563)	0.337 (0.547)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00003 (0.00004)	-0.00003 (0.00004)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,742	2,742	2,736	2,736	2,515	2,515
R ²	0.283	0.283	0.067	0.068	0.055	0.059
Adjusted R ²	0.102	0.102	-0.169	-0.168	-0.202	-0.199
F Statistic	96.048***	86.452***	17.376***	16.008***	12.881***	12.303***
Hausman test	986.78***	975.35***	1671.1***	1643.1***	1002.7***	1003.1***
Breusch-Pagan test	288.52***	288.86***	206.08***	207.11***	186.84***	187.72***
Breusch-Godfrey test	42.272***	42.633***	1.3311***	1.3299***	12.709***	12.368***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. The explanatory variables are lagged by two years and all control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level

TABLE A6. FE ESTIMATES OF ESG² PERFORMANCE ON BANK PERFORMANCE WITH 2-YEAR LAG

<i>Dependent variable: Performance</i>						
	Tonin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.447*** (0.043)	0.447*** (0.042)	0.053 (0.042)	0.052 (0.043)	0.111** (0.049)	0.108** (0.049)
ESG	-0.0002 (0.0003)	-0.0003 (0.0003)	-0.005 (0.061)	-0.046 (0.064)	0.006 (0.007)	0.002 (0.007)
ESG ²	0.00000 (0.00000)	0.00000 (0.00000)	0.0001 (0.001)	0.001 (0.001)	-0.0001 (0.0001)	0.00002 (0.0001)
ESG disclosure	-0.005 (0.004)	-0.005 (0.004)	-0.809 (0.507)	-0.900* (0.516)	-0.094 (0.061)	-0.099 (0.063)
ESG*ESG disclosure		-0.0003 (0.0002)		-0.095** (0.040)		-0.007 (0.005)
Size	-0.007 (0.009)	-0.007 (0.008)	-4.417*** (0.965)	-4.395*** (0.958)	-0.396*** (0.145)	-0.394*** (0.146)
Capitalization	-0.532*** (0.143)	-0.531*** (0.143)	-63.936*** (19.985)	-63.483*** (19.858)	-5.148** (2.316)	-5.067** (2.307)
Efficiency	-0.00000 (0.00002)	-0.00000 (0.00002)	-0.007 (0.008)	-0.007 (0.008)	-0.0004 (0.001)	-0.0004 (0.001)
Risk	-0.0003 (0.0003)	-0.0003 (0.0003)	-0.022 (0.097)	-0.029 (0.099)	0.004 (0.009)	0.003 (0.009)
Liquidity	0.009 (0.026)	0.009 (0.026)	16.897** (7.311)	16.779** (7.171)	0.352 (0.561)	0.335 (0.547)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	-0.00003 (0.00004)	-0.00003 (0.00004)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,742	2,742	2,736	2,736	2,515	2,515
R ²	0.283	0.284	0.067	0.070	0.057	0.059
Adjusted R ²	0.102	0.102	-0.170	-0.166	-0.202	-0.199
F Statistic	86.441***	78.754***	15.634***	14.913***	11.830***	11.187***
Hausman test	985.21***	978.39***	1673.9***	1626.1***	1022.5***	1017.6***
Breusch-Pagan test	288.59***	289.07***	206.24***	208.83***	187.78***	186.08***
Breusch-Godfrey test	42.513***	42.674***	1.3237	1.4823***	12.518***	13.267***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. The explanatory variables are lagged by two years and all control variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B1. FE ESTIMATES OF E PERFORMANCE ON BANK RISK

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.135*** (0.050)	0.133*** (0.050)	0.562*** (0.040)	0.562*** (0.040)	0.133*** (0.037)	0.131*** (0.037)
E	0.106*** (0.025)	0.217*** (0.040)	0.003 (0.005)	0.007 (0.005)	0.005* (0.003)	0.0005 (0.003)
ESG disclosure	-1.506 (0.968)	-2.861** (1.132)	-0.366* (0.216)	-0.417* (0.226)	-0.237** (0.113)	-0.250** (0.116)
E*ESG disclosure		-0.176*** (0.044)		-0.007 (0.008)		0.006 (0.004)
Size	1.933* (1.126)	2.789** (1.138)	0.666** (0.309)	0.701** (0.307)	-0.003 (0.247)	0.016 (0.250)
Leverage	26.257 (20.556)	16.669 (20.281)	5.565 (17.932)	5.188 (18.005)	8.446* (4.430)	8.524* (4.409)
Profitability	113.379*** (37.050)	125.182*** (38.067)	-15.004 (13.566)	-14.597 (13.471)	10.905** (5.397)	10.707** (5.360)
Capital	-32.226 (20.100)	-30.107 (19.618)	-12.821** (6.131)	-12.777** (6.146)	-3.386** (1.416)	-3.448** (1.415)
Liquidity	-2.018 (5.039)	-2.875 (5.136)	-10.804*** (3.735)	-10.833*** (3.735)	-0.553 (0.558)	-0.555 (0.556)
GDP per Capita	-0.0002** (0.0001)	-0.0001* (0.0001)	0.00000 (0.00002)	0.00000 (0.00002)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,706	2,706	2,864	2,864	685	685
R ²	0.061	0.075	0.383	0.383	0.110	0.113
Adjusted R ²	-0.169	-0.152	0.236	0.236	-0.068	-0.067
F Statistic	15.707***	17.709***	159.359***	143.555***	7.831***	7.231***
Hausman test	465.47***	489.71***	200.01***	204.41***	208.35***	210.42***
Breusch-Pagan test	127.74***	135.48***	338.03***	338***	128.57***	128.15***
Breusch-Godfrey test	15.707***	14.63***	28.938***	29.025***	0.0789***	0.1239***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B2. FE ESTIMATES OF E PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.471*** (0.050)	0.472*** (0.050)	0.082** (0.037)	0.081** (0.037)	0.149*** (0.044)	0.147*** (0.044)
ESG	0.0001 (0.0001)	0.00001 (0.0001)	-0.002 (0.009)	-0.010 (0.011)	0.0005 (0.001)	-0.001 (0.001)
ESG disclosure	-0.007 (0.005)	-0.006 (0.005)	-0.083 (0.428)	-0.001 (0.466)	-0.073 (0.062)	-0.064 (0.061)
ESG*ESG disclosure		0.0001 (0.0001)		0.013 (0.018)		0.002 (0.002)
Size	-0.012 (0.008)	-0.013 (0.008)	-4.036*** (0.740)	-4.107*** (0.766)	-0.329*** (0.095)	-0.337*** (0.095)
Capitalization	-0.514*** (0.121)	-0.520*** (0.120)	-55.583*** (15.761)	-56.439*** (15.922)	-6.882*** (2.212)	-6.954*** (2.222)
Efficiency	-0.00000 (0.00002)	-0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0003 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.022 (0.064)	-0.021 (0.064)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.008 (0.026)	-0.007 (0.027)	16.981*** (5.806)	17.052*** (5.802)	-0.075 (0.601)	-0.065 (0.599)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00004 (0.00003)	0.00003 (0.00003)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.298	0.298	0.080	0.080	0.069	0.070
Adjusted R ²	0.142	0.142	-0.125	-0.125	-0.155	-0.155
F Statistic	127.220***	114.635***	25.865***	23.354***	20.043***	18.145***
Hausman test	624.39***	623.86***	1906.4***	1894.5***	399.71***	2229.7***
Breusch-Pagan test	266.92***	267.64***	257.65***	262.13***	202.85***	201.69***
Breusch-Godfrey test	13.769***	13.939***	3.1074*	3.2894*	51.163***	51.777***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B3. FE ESTIMATES OF E² PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.474*** (0.049)	0.474*** (0.049)	0.081** (0.036)	0.081** (0.037)	0.148*** (0.045)	0.147*** (0.044)
E	-0.0002 (0.0002)	-0.0002 (0.0002)	-0.031** (0.018)	-0.031* (0.017)	-0.001 (0.002)	-0.001 (0.002)
E ²	0.0000** (0.00000)	0.00000 (0.00000)	0.0004 (0.0002)	0.0004 (0.0003)	0.00002 (0.00002)	0.00001 (0.00003)
ESG disclosure	-0.007 (0.005)	-0.007 (0.006)	-0.061 (0.429)	-0.077 (0.460)	-0.072 (0.063)	-0.066 (0.059)
E*ESG disclosure		-0.0001 (0.0002)		-0.003 (0.020)		0.001 (0.002)
Size	-0.014* (0.008)	-0.014* (0.008)	-4.222*** (0.783)	-4.218*** (0.784)	-0.339*** (0.102)	-0.341*** (0.100)
Capitalization	-0.531*** (0.123)	-0.530*** (0.122)	-57.656*** (16.074)	-57.602*** (16.052)	-6.978*** (2.201)	-6.987*** (2.203)
Efficiency	-0.00000 (0.00002)	-0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0003 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.023 (0.064)	-0.023 (0.064)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.006 (0.027)	-0.006 (0.027)	17.116*** (5.820)	17.110*** (5.814)	-0.068 (0.601)	-0.064 (0.600)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00003 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.300	0.300	0.081	0.081	0.070	0.070
Adjusted R ²	0.144	0.144	-0.124	-0.125	-0.155	-0.156
F Statistic	115.343***	104.839***	23.595***	21.445***	18.129***	16.508***
Hausman test	629.68***	625.9***	1916.5***	1899***	1578***	2228.8***
Breusch-Pagan test	268.06***	271.6***	258.76***	262.52***	203.82***	203.37***
Breusch-Godfrey test	13.056***	13.064***	3.0795*	3.442*	52.242***	52.188***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B4. FE ESTIMATES OF S PERFORMANCE ON BANK RISK

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.136*** (0.051)	0.136*** (0.051)	0.560*** (0.039)	0.560*** (0.039)	0.123*** (0.037)	0.122*** (0.036)
S	0.062** (0.027)	0.038 (0.039)	-0.016** (0.008)	-0.017** (0.006)	-0.010*** (0.004)	-0.013** (0.005)
ESG disclosure	-0.729 (0.914)	-0.542 (0.943)	-0.140 (0.204)	-0.147 (0.177)	-0.054 (0.104)	-0.040 (0.090)
S*ESG disclosure		0.035 (0.039)		-0.001 (0.009)		0.004 (0.006)
Size	0.506 (1.198)	0.493 (1.199)	0.826*** (0.313)	0.826*** (0.312)	0.253 (0.250)	0.257 (0.252)
Leverage	32.157 (21.248)	31.958 (21.233)	5.244 (17.760)	5.253 (17.789)	8.660** (4.073)	8.796** (4.092)
Profitability	106.287*** (37.085)	105.562*** (37.173)	-15.096 (13.718)	-15.081 (13.690)	12.365** (5.293)	12.247** (5.309)
Capital	-31.140 (19.842)	-32.662* (19.775)	-11.111* (6.279)	-11.062* (6.471)	-2.308 (1.464)	-2.386 (1.478)
Liquidity	-5.017 (5.083)	-5.323 (5.071)	-10.534*** (3.662)	-10.523*** (3.637)	-0.402 (0.467)	-0.444 (0.451)
GDP per Capita	-0.0003*** (0.0001)	-0.0003*** (0.0001)	0.00000 (0.00002)	0.00000 (0.00002)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,706	2,706	2,864	2,864	685	685
R ²	0.048	0.048	0.384	0.384	0.120	0.120
Adjusted R ²	-0.185	-0.186	0.238	0.237	-0.056	-0.057
F Statistic	12.196***	11.042***	160.274***	144.187***	8.610***	7.785***
Hausman test	438.93***	436.73***	204.45***	208.2***	218.41***	221.77***
Breusch-Pagan test	127.63***	126.43***	337.65***	338.97***	132.27***	132.61***
Breusch-Godfry test	13.648***	13.723***	29.212***	29.242***	0.0903	0.1082

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B5. FE ESTIMATES OF S PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.473*** (0.048)	0.472*** (0.048)	0.082** (0.037)	0.083** (0.037)	0.148*** (0.043)	0.149*** (0.043)
ESG	-0.0002** (0.0001)	-0.0004** (0.0002)	0.006 (0.013)	0.035** (0.017)	-0.0004 (0.002)	0.002 (0.002)
ESG disclosure	-0.002 (0.005)	-0.0004 (0.004)	-0.204 (0.450)	-0.485 (0.460)	-0.060 (0.052)	-0.084* (0.050)
ESG*ESG disclosure		0.0002 (0.0002)		-0.042** (0.019)		-0.004 (0.002)
Size	-0.009 (0.009)	-0.009 (0.009)	-4.136*** (0.833)	-4.066*** (0.831)	-0.324*** (0.109)	-0.317*** (0.108)
Capitalization	-0.493*** (0.123)	-0.499*** (0.123)	-56.138*** (15.843)	-55.178*** (15.851)	-6.856*** (2.191)	-6.769*** (2.206)
Efficiency	0.00000 (0.00002)	0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0003 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.020 (0.064)	-0.022 (0.064)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.001 (0.026)	-0.004 (0.026)	16.807*** (5.696)	17.157*** (5.695)	-0.068 (0.598)	-0.039 (0.598)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00004 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.300	0.300	0.080	0.081	0.069	0.071
Adjusted R ²	0.144	0.145	-0.125	-0.124	-0.155	-0.155
F Statistic	128.154***	115.752***	25.892***	23.783***	20.021***	18.338***
Hausman test	631.38***	651.58***	1910.7***	1880.1***	344.18***	1633.4***
Breusch-Pagan test	255.56***	263.49***	257.11***	256.42***	200.61***	201.01***
Breusch-Godfrey test	13.999***	14.008***	2.7498*	2.9342*	48.679***	48.355***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B6. FE ESTIMATES OF S^2 PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.472*** (0.048)	0.472*** (0.048)	0.082** (0.037)	0.083** (0.037)	0.148*** (0.043)	0.149*** (0.043)
S	-0.001* (0.0003)	-0.001* (0.0003)	0.011 (0.029)	-0.014 (0.030)	0.003 (0.004)	0.002 (0.004)
S^2	0.00000 (0.00000)	0.00000 (0.00000)	-0.00005 (0.0003)	0.001* (0.0004)	-0.00004 (0.00004)	-0.00000 (0.00005)
ESG disclosure	-0.001 (0.004)	-0.001 (0.004)	-0.215 (0.451)	-0.561 (0.463)	-0.067 (0.051)	-0.083 (0.051)
S*ESG disclosure		0.0001 (0.0002)		-0.076*** (0.025)		-0.004 (0.003)
Size	-0.009 (0.009)	-0.009 (0.009)	-4.127*** (0.840)	-4.141*** (0.839)	-0.316*** (0.107)	-0.316*** (0.107)
Capitalization	-0.498*** (0.122)	-0.499*** (0.123)	-56.096*** (15.808)	-55.021*** (15.766)	-6.798*** (2.191)	-6.769*** (2.205)
Efficiency	0.00000 (0.00002)	-0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0003 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.021 (0.064)	-0.021 (0.065)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.005 (0.027)	-0.005 (0.027)	16.846*** (5.706)	16.854*** (5.663)	-0.042 (0.596)	-0.039 (0.596)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00004 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.301	0.301	0.080	0.083	0.070	0.071
Adjusted R ²	0.145	0.145	-0.126	-0.123	-0.155	-0.155
F Statistic	115.842***	105.320***	23.297***	21.935***	18.164***	16.664***
Hausman test	640.13***	665.43***	1894***	1888.8***	2792.9***	1975***
Breusch-Pagan test	259.72***	263.52***	256.46***	260.98***	201.08***	202.33***
Breusch-Godfrey test	13.997***	14.015***	2.8067*	3.1286*	47.631***	48.701***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B7. FE ESTIMATES OF G PERFORMANCE ON BANK RISK

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(3)	(4)	(5)	(6)
$R_{i,t-1}$	0.138*** (0.052)	0.138*** (0.052)	0.561*** (0.040)	0.561*** (0.040)	0.134*** (0.038)	0.134*** (0.038)
G	-0.039** (0.019)	-0.032 (0.024)	-0.006 (0.004)	-0.005 (0.004)	-0.003* (0.002)	-0.004 (0.003)
ESG disclosure	0.424 (0.859)	0.415 (0.863)	-0.290 (0.190)	-0.292 (0.189)	-0.122 (0.095)	-0.118 (0.092)
G*ESG disclosure		-0.012 (0.027)		-0.003 (0.007)		0.001 (0.004)
Size	1.551 (1.134)	1.531 (1.133)	0.691** (0.298)	0.686** (0.301)	0.032 (0.254)	0.031 (0.254)
Leverage	30.908 (20.944)	31.256 (20.925)	5.888 (17.927)	5.957 (17.998)	9.170** (4.374)	9.138** (4.370)
Profitability	106.781*** (35.570)	106.381*** (35.433)	-14.983 (13.574)	-15.127 (13.535)	11.238** (5.305)	11.242** (5.308)
Capital	-21.820 (19.250)	-21.547 (19.081)	-12.257** (6.096)	-12.191** (6.162)	-2.736** (1.380)	-2.749** (1.383)
Liquidity	-2.452 (5.021)	-2.428 (5.007)	-10.751*** (3.684)	-10.734*** (3.664)	-0.630 (0.555)	-0.637 (0.562)
GDP per Capita	-0.0002*** (0.0001)	-0.0002*** (0.0001)	0.00000 (0.00002)	0.00000 (0.00002)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,706	2,706	2,864	2,864	685	685
R ²	0.047	0.047	0.383	0.383	0.107	0.107
Adjusted R ²	-0.186	-0.187	0.237	0.236	-0.071	-0.073
F Statistic	11.988***	10.800***	159.775***	143.771***	7.611***	6.840***
Hausman test	445.63***	442.68***	184.32***	186.89***	200.94***	203.73***
Breusch-Pagan test	128.45***	128.26***	336.9***	337.46***	129.33***	130.03***
Breusch-Godfrey test	13.511***	13.321***	29.42***	29.412***	0.0716***	0.0792***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B8. FE ESTIMATES OF G PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.473*** (0.048)	0.473*** (0.048)	0.082** (0.037)	0.082** (0.037)	0.148*** (0.043)	0.148*** (0.044)
G	-0.0001 (0.0001)	-0.00003 (0.0001)	0.005 (0.009)	0.021* (0.011)	-0.001 (0.001)	0.002 (0.001)
ESG disclosure	-0.005 (0.005)	-0.005 (0.005)	-0.135 (0.442)	-0.103 (0.443)	-0.061 (0.056)	-0.054 (0.056)
G*ESG disclosure		-0.0001 (0.0001)		-0.028* (0.016)		-0.004** (0.002)
Size	-0.012 (0.009)	-0.012 (0.009)	-4.070*** (0.728)	-4.092*** (0.730)	-0.324*** (0.095)	-0.327*** (0.096)
Capitalization	-0.515*** (0.121)	-0.516*** (0.121)	-55.491*** (15.732)	-55.990*** (15.752)	-6.879*** (2.203)	-6.976*** (2.201)
Efficiency	0.00000 (0.00002)	0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0002 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.021 (0.064)	-0.024 (0.065)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.007 (0.026)	-0.007 (0.026)	16.920*** (5.826)	17.062*** (5.816)	-0.065 (0.600)	-0.060 (0.594)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00003 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.298	0.298	0.080	0.081	0.070	0.073
Adjusted R ²	0.142	0.142	-0.125	-0.124	-0.155	-0.152
F Statistic	127.193***	114.557***	25.894***	23.690***	20.098***	18.890***
Hausman test	623.36***	621.26***	1909.1***	1906.8***	706.22***	1030.8***
Breusch-Pagan test	259.2***	264.28***	256.7***	256.21***	200.07***	205.86***
Breusch-Godfrey test	13.84***	14.469***	2.870*	2.805*	48.735***	48.678***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE B9. FE ESTIMATES OF G^2 PERFORMANCE ON BANK PERFORMANCE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.471*** (0.047)	0.471*** (0.047)	0.083** (0.037)	0.083** (0.037)	0.148*** (0.044)	0.148*** (0.044)
G	-0.001 (0.0005)	-0.001 (0.0005)	-0.037 (0.032)	-0.049 (0.032)	-0.001 (0.003)	-0.002 (0.003)
G^2	0.00001 (0.00000)	0.00001 (0.00001)	0.0004 (0.0003)	0.001** (0.0003)	-0.00000 (0.00003)	0.00004 (0.00003)
ESG disclosure	-0.006 (0.005)	-0.005 (0.005)	-0.156 (0.448)	-0.127 (0.446)	-0.061 (0.056)	-0.055 (0.056)
G*ESG disclosure		-0.0003 (0.0002)		-0.042** (0.017)		-0.005*** (0.002)
Size	-0.012 (0.009)	-0.012 (0.009)	-4.047*** (0.729)	-4.061*** (0.729)	-0.324*** (0.096)	-0.326*** (0.096)
Capitalization	-0.519*** (0.120)	-0.524*** (0.119)	-55.526*** (15.693)	-56.324*** (15.642)	-6.879*** (2.203)	-7.010*** (2.207)
Efficiency	-0.00000 (0.00002)	0.00000 (0.00002)	-0.002 (0.006)	-0.002 (0.006)	-0.0003 (0.001)	-0.0002 (0.001)
Risk	0.0003 (0.0003)	0.0003 (0.0003)	-0.021 (0.064)	-0.026 (0.065)	-0.009* (0.005)	-0.010* (0.005)
Liquidity	-0.010 (0.027)	-0.010 (0.026)	16.724*** (5.815)	16.772*** (5.768)	-0.065 (0.600)	-0.073 (0.594)
GDP per Capita	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00004 (0.00002)	0.00003 (0.00002)	0.00000 (0.00000)	0.00000 (0.00000)
Observations	3,296	3,296	3,282	3,282	3,002	3,002
R ²	0.300	0.302	0.081	0.083	0.070	0.073
Adjusted R ²	0.145	0.146	-0.125	-0.122	-0.156	-0.152
F Statistic	115.693***	105.846***	23.499***	22.066***	18.081***	17.292***
Hausman test	634.88***	632.23***	1917***	1913.2***	716.07***	974.37***
Breusch-Pagan test	258.85***	264.58***	258.02***	259.88***	200.02***	207.89***
Breusch-Godfrey test	13.81***	14.716***	2.7107*	2.9269*	49.519***	50.332***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE C1. FE ESTIMATES OF ESG PERFORMANCE ON BANK RISK FOR SUB-SAMPLE

	<i>Dependent variable: Risk</i>					
	Z-score		Non-performing loans		CDS spread	
	(1)	(2)	(1)	(2)	(1)	(2)
$R_{i,t-1}$	0.207*** (0.044)	0.207*** (0.044)	0.556*** (0.041)	0.557*** (0.041)	0.128*** (0.040)	0.124*** (0.039)
ESG	-0.076 (0.029)	-0.068 (0.044)	-0.009 (0.010)	-0.006 (0.013)	0.0004 (0.003)	-0.009 (0.006)
ESG disclosure	0.302 (0.944)	0.198 (1.043)	-0.541* (0.285)	-0.577** (0.228)	-0.225* (0.117)	-0.143 (0.099)
ESG*ESG disclosure		-0.010 (0.040)		-0.003 (0.014)		0.010 (0.006)
Size	6.627*** (1.521)	6.636*** (1.517)	1.315** (0.517)	1.316** (0.517)	0.004 (0.265)	0.019 (0.267)
Leverage	-40.447* (22.575)	-40.404* (22.586)	5.362 (27.228)	5.392 (27.274)	10.169** (4.986)	10.267** (5.002)
Profitability	141.108*** (39.060)	141.256*** (38.982)	-15.640 (19.185)	-15.624 (19.180)	12.191** (5.768)	12.127** (5.734)
Capital	-23.675 (22.439)	-23.689 (22.448)	-16.510* (9.091)	-16.513* (9.090)	-3.002** (1.528)	-3.036** (1.508)
Liquidity	1.514 (4.743)	1.529 (4.729)	-12.631*** (4.214)	-12.617*** (4.198)	-0.671 (0.581)	-0.763 (0.570)
GDP per Capita	0.0001 (0.0001)	0.0001 (0.0001)	0.00001 (0.00003)	0.00001 (0.00003)	-0.00000 (0.00001)	-0.00000 (0.00001)
Observations	1,624	1,624	1,705	1,705	586	586
R ²	0.112	0.112	0.401	0.401	0.109	0.112
Adjusted R ²	-0.096	-0.097	0.269	0.269	-0.077	-0.076
F Statistic	18.465***	16.609***	103.982***	93.524***	6.595***	6.078***
Hausman test	213.85***	211.76***	125.33***	133.17***	171.91***	187.3***
Breusch-Pagan test	379.54***	379.66***	202.45***	202.92***	108.82***	109.13***
Breusch-Godfrey test	52.471***	52.616***	20.267***	20.114***	0.05806	0.05857

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE C2. FE ESTIMATES OF ESG PERFORMANCE ON BANK PERFORMANCE FOR SUB-SAMPLE

<i>Dependent variable: Performance</i>						
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.548*** (0.042)	0.548*** (0.042)	0.081** (0.038)	0.081** (0.039)	0.176*** (0.050)	0.176*** (0.050)
ESG	-0.0001 (0.0001)	-0.00004 (0.0002)	0.019 (0.018)	0.021 (0.031)	-0.001 (0.002)	0.00001 (0.004)
ESG disclosure	-0.007 (0.006)	-0.008 (0.005)	0.024 (0.532)	0.002 (0.598)	-0.040 (0.065)	-0.048 (0.066)
ESG*ESG disclosure		-0.0001 (0.0002)		-0.002 (0.032)		-0.001 (0.004)
Size	-0.012 (0.011)	-0.012 (0.011)	-7.252*** (1.145)	-7.250*** (1.145)	-0.517*** (0.142)	-0.515*** (0.140)
Capitalization	-0.375** (0.151)	-0.375** (0.151)	-58.877*** (19.194)	-58.870*** (19.181)	-8.723*** (2.702)	-8.722*** (2.704)
Efficiency	0.00001 (0.00002)	0.00001 (0.00002)	-0.003 (0.007)	-0.003 (0.007)	-0.001 (0.001)	-0.001 (0.001)
Risk	0.00002 (0.0003)	0.00002 (0.0003)	-0.021 (0.067)	-0.021 (0.067)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.037 (0.030)	-0.037 (0.030)	15.965** (6.565)	15.970** (6.580)	-0.254 (0.657)	-0.254 (0.656)
GDP per Capita	-0.00000* (0.00000)	-0.00000* (0.00000)	-0.0001** (0.00003)	-0.0001** (0.00003)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,174	2,174	2,162	2,162	1,976	1,976
R ²	0.360	0.360	0.118	0.118	0.119	0.119
Adjusted R ²	0.236	0.236	-0.053	-0.053	-0.068	-0.069
F Statistic	113.728***	102.327***	26.989***	24.277***	24.470***	22.017***
Hausman test	274.95***	282.07***	1629.6***	1595***	888.95***	880.1***
Breusch-Pagan test	210.6***	227.29***	165.28***	167.97***	177.36***	179.73***
Breusch-Godfrey test	12.151***	12.52***	1.0232	1.2721	32.124***	33.063***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.

TABLE C3. FE ESTIMATES OF ESG² PERFORMANCE ON BANK PERFORMANCE FOR SUB-SAMPLE

	<i>Dependent variable: Performance</i>					
	Tobin's Q		ROA		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
$P_{i,t-1}$	0.546*** (0.041)	0.547*** (0.041)	0.080** (0.038)	0.081** (0.039)	0.176*** (0.050)	0.177*** (0.050)
ESG	-0.0005 (0.0005)	-0.001 (0.001)	-0.032 (0.060)	-0.040 (0.061)	-0.001 (0.007)	-0.001 (0.007)
ESG ²	0.00000 (0.00000)	0.00001 (0.00001)	0.0005 (0.001)	0.001 (0.001)	-0.00000 (0.0001)	0.00001 (0.0001)
ESG disclosure	-0.006 (0.006)	-0.009* (0.005)	0.155 (0.554)	-0.090 (0.580)	-0.040 (0.064)	-0.049 (0.066)
ESG*ESG disclosure		-0.0003 (0.0003)		-0.032 (0.037)		-0.001 (0.004)
Size	-0.012 (0.011)	-0.012 (0.011)	-7.255*** (1.145)	-7.221*** (1.147)	-0.517*** (0.142)	-0.515*** (0.141)
Capitalization	-0.377** (0.150)	-0.378** (0.150)	-58.902*** (19.121)	-58.821*** (19.094)	-8.723*** (2.702)	-8.727*** (2.704)
Efficiency	0.00001 (0.00002)	0.00001 (0.00002)	-0.003 (0.007)	-0.003 (0.007)	-0.001 (0.001)	-0.001 (0.001)
Risk	0.00002 (0.0003)	0.00001 (0.0003)	-0.021 (0.068)	-0.022 (0.068)	-0.009* (0.005)	-0.009* (0.005)
Liquidity	-0.037 (0.030)	-0.037 (0.030)	15.942** (6.576)	15.995** (6.564)	-0.254 (0.657)	-0.252 (0.658)
GDP per Capita	-0.00000* (0.00000)	-0.00000* (0.00000)	-0.0001** (0.00003)	-0.0001** (0.00003)	-0.00000 (0.00000)	-0.00000 (0.00000)
Observations	2,174	2,174	2,162	2,162	1,976	1,976
R ²	0.360	0.361	0.119	0.119	0.119	0.119
Adjusted R ²	0.236	0.237	-0.053	-0.053	-0.069	-0.069
F Statistic	102.492***	93.394***	24.382***	22.224***	22.009***	20.007***
Hausman test	276.04***	294.4***	1632***	1589.7***	889.11***	874.15***
Breusch-Pagan test	213.38***	230.04***	165.35***	169.88***	177.82***	178.42***
Breusch-Godfrey test	12.29***	12.596***	0.99216	1.6252	32.093***	34.762***

Note: The table shows the coefficients and standard errors (in parenthesis) of multivariate robust FE regressions. All explanatory variables are lagged by one year. Robust standard errors are reported in the parentheses. * Statistically significant at 10% level. ** Statistically significant at 5% level. *** Statistically significant at 1% level.