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THE INFLUENCE OF ESG FACTORS ON FINANCIAL PERFORMANCE IN THE BANKING SECTOR DURING THE COVID-19 PANDEMIC

***Abstract.** Environmental performance, social responsibility, and corporate governance quality are aspects of ESG performance. This study examines the influence of ESG performance on the financial performance of 333 banks located in 53 countries in Europe, America, and Asia, before and during the Covid-19 pandemic (2019-2021). Our model design allows us to establish causality relationships. The main factors and financial data are collected from the Refinitiv database. The findings indicate that the bank environmental performance in 2019 has a negative influence on the return on equity during 2020, and that no other ESG factors are significant. Social responsibility expenditures and initiatives in 2020 positively influenced bank profitability in 2021. Furthermore, East Asian banks have higher stock market returns and earnings per share determined by the quality of corporate governance in the previous year. The environmental performance of 2020 has a negative influence on earnings per share in 2021, but only for the sample in East Asia. Implications for the banking sector and investors are proposed.*

***Keywords:** Banking sector, ESG performance, environmental performance, social responsibility, corporate governance quality, corporate financial performance, causality.*

JEL Classification: F64, G21, G30, M14, O16, O51, O52, O53

1. Introduction

Banks have a special role in society, financially and socially. They assist in creating new capital in a country, supporting the growth process (Levanti et al., 2021). Although the banking sector is one of the most regulated economic sectors, there are major differences between the various banking institutions, both in terms of financial performance and in other areas such as social responsibility, environmental impact and performance, or corporate governance quality.

This paper aims to identify the influence of the three ESG pillars (environmental, social, governance) on the financial performance of banks, using a large sample of banks located in Europe, the Americas and Asia, for the period 2019-2021. Two accounting performance indicators and two market performance indicators were selected as dependent variables so that we can take a complex look at the notion of financial performance. The main factors are collected from the Refinitiv database and measure the environmental performance, social responsibility, and corporate governance quality of the sample banks. The research design implies causality relationships, because the factors have a one-year lag from the dependent variables. The link between ESG performance and corporate financial performance has been thoroughly explored for banks (Uddin Ahmed et al., 2018; Bătae et al., 2020; Bătae et al., 2021; Buallay, 2019; Esteban-Sanchez et al., 2017; Gangi et al., 2018; Nițescu & Cristea, 2020) and in a broader economic context. However, previous scientific results were mixed and inconclusive, mainly due to the use of non-uniform calculation methodologies and indicators that were not adapted to this sector or to uncontrolled factors such as the pandemic crisis.

Our contribution focuses on the influence of ESG factors on the financial performance of 333 banks located in Europe, America, Asia, before and during the Covid-19 pandemic (2019-2021). Our research process was to review articles related to financial performance and ESG performance within the banking industry; propose hypotheses based on the most recent literature; establish dependent variables used to measure financial performance, and independent variables (predictors) that measure ESG; analyze the data using several regression models with control variables; discuss the causality relationships between the ESG pillars and financial performance; highlight the significance of the results and establish future directions, mentioning the limitations of the research.

2. Literature review and hypotheses

2.1. Environmental performance in the banking sector

Environmental performance refers to business impacts in both monetary and non-monetary terms (Dragomir, 2018). Although banks are one of the most environmentally friendly sectors (Jo et al., 2015), they have started to face pressure to change their business approach to meet the growing demands of stakeholders that place considerable value on environmental protection and conservation. *Green* financial products and services, such as climate products, environmental advisory services, and different socially responsible savings instruments, represent signs that

a bank is committed to environmental protection (Bătae et al., 2021). Uddin Ahmed et al. (2018) mention that the most common environmental criteria considered by banks when granting loans to their customers are location vulnerability and waste management, while more complicated environmental issues are usually ignored.

In the literature, there are numerous measures of environmental disclosure and performance (Dragomir, 2013), such as the environmental pillar score from Refinitiv Eikon or Bloomberg. Most of the previous studies in the banking literature show a positive and significant relationship between environmental performance and corporate financial performance. Shakil et al. (2019) report a positive association between environmental performance and bank financial performance in emerging countries. Furthermore, financing different environmental projects could become a factor of improved business performance in the banking sector (Nizam et al., 2019). In a study conducted on banks in 29 countries during the period 2002-2011, Jo et al. (2015) showed that lower environmental costs can enhance financial performance in a significant and positive way, more so in Europe and North America compared to the Asia Pacific region. They also find that a decrease in environmental costs is expected to take at least one or two years before results can be observed in operational efficiency measures, such as return on assets. When analyzing the performance of 108 European banks in the financial year 2018, Bătae et al. (2020) found that there were no significant differences in the environmental pillar score for developed versus emerging Europe.

Buallay (2019) finds that environmental disclosure is positively associated with return on equity and Tobin's ratio, which means that information on environmental issues increases bank financial and market profitability. On the one hand, increased profitability is well-regarded by stakeholders that consider environmental proactivity as a component of their investment decisions. Scholtens (2009) found that most banks perform environmental risk analysis as part of their lending policies; however, only one third of banks in his study offer products or services that focus on energy efficiency or carbon dioxide emission.

Environmental innovation is a component of the environmental pillar that is relevant to banks. Jo et al. (2015) mention that investments in corporate environmental responsibility, such as environmental innovation technology, can minimize both direct and indirect environmental costs of banks. In conclusion, banks can indirectly affect the natural environment through their decisions on project financing (Dragomir et al., 2022). Bătae et al. (2021) reported a positive relationship between emission reductions and financial performance when analyzing 39 European banks for the period 2010-2019. Therefore, stakeholder theory and the resource-based view were validated as banks turn their attention to resource efficiency, process digitization, and environmentally aware products.

Based on the previous literature on the banking sector, we observe that the results are inconclusive and are relevant only to the environmental performance

prior to the Covid-19 crisis. Thus, this research focuses on changes that occurred during pre-pandemic and pandemic periods, at the level of each of the three pillars of ESG. Therefore, our first hypothesis is as follows.

H₁: Current-year financial performance in the banking sector is influenced by the environmental performance in the previous year.

2.2. Social responsibility in the banking sector

Corporate social responsibility (CSR) refers to how banks treat their employees, customers (Badea et al., 2021), and communities (Miralles-Quirós et al., 2019). In the literature, there are different measures of operationalizing CSR performance, such as the social pillar score from Refinitiv Eikon or Bloomberg. Some studies focus on CSR at the aggregate level, an example being the study by Wu and Shen (2013), which discusses banks' motivations to engage in CSR. Strategic choices based on product differentiation are expected to reduce competition intensity and increase community approval. Banks work directly with people and communities for whom CSR actions are immediately visible and beneficial.

There are studies in the literature that show a positive and significant relationship between CSR and financial performance in the banking sector. The largest banks are the ones that pursue socially responsible activities to a significant degree compared to the small ones. According to Shen et al. (2016), socially responsible banks have a significant higher corporate financial performance compared to non-CSR focused banks. A positive correlation between social and corporate financial performance was reported in the case of Italian banks that succeeded in investing and controlling costs without ethical tradeoffs (Soana, 2011).

From the perspective of stakeholder theory, social performance should positively impact the corporate financial performance of banks (Gangi et al., 2018). On the contrary, according to agency theory, CSR should be negatively related to corporate financial performance because shareholders are deprived of funds redirected toward social goals. Indeed, the relevant literature reports several negative correlations between social performance and financial performance. Banks are forced to spend resources towards social performance, and they should not expect short-term benefits from these activities. Relevant results were obtained by Bătae et al. (2021) regarding European banks for which the prediction of stakeholder theory on the positive relationship between CSR and financial performance was rejected.

Most studies have focused on CSR at the aggregated level within the banking sector, while some contributions analyze various dimensions such as community, relations with employees, human rights (workforce), and product responsibility. Relationships with employees are presented as a measure of commitment and effectiveness in generating loyalty and trust within the bank's workforce (Esteban-Sanchez et al., 2017). Most studies found a positive influence of employee relations on corporate financial performance (Matei et al., 2021),

showing that good employee policies (e.g., health and safety, diversity, equal opportunities, employment quality) can generate competitive advantages, decrease staff rotation, increase efficiency, and reduce absenteeism. Gangi et al. (2018) found that motivation and retention of qualified employees represent an additional driver of competitiveness with respect to CSR. Outstanding CSR activities will make the bank look attractive to young candidates and improve its reputation (Jo et al., 2015; Tachiciu et al., 2020).

Previous studies are inconclusive and the relationships between bank financial performance and social responsibility may be negative or positive at the aggregated level. Furthermore, the uncertainty generated by the pandemic crisis has been a burden on the welfare of employees, customers, and communities. In this context, we consider the following hypothesis:

H₂: Current-year financial performance in the banking sector is influenced by the social responsibility initiatives recorded in the previous year.

2.3. Corporate governance quality in the banking sector

Corporate governance represents an important consideration for banks, guaranteeing transparency, compliance, and accountability (Miralles-Quirós et al., 2019). Bank executives and board members are expected to act in the best interest of bank investors. In this sense, corporate governance describes systems, processes, structures, board composition, and board functions, including the remuneration policy and performance criteria for the chief executive officer (CEO) and board members (Esteban-Sanchez et al., 2017).

In the literature, corporate governance quality can be measured on a corporate governance index such as the corporate governance pillar scores from Refinitiv Eikon or Bloomberg. In a study by Esteban-Sanchez et al. (2017) over the period 2005-2010, the results show that good corporate governance has a positive effect on financial performance. However, there are studies that reveal a negative relationship between corporate governance quality and bank financial performance. Soana (2011) concluded that governance quality has a negative relationship with return on average equity and return on average assets. Bătae et al. (2021) found that there is a negative association between corporate governance quality and accounting performance and market valuation for European banks analyzed during 2010-2019, providing evidence against agency theory.

In some emerging markets, the effect of corporate governance on bank performance is not present (Shakil et al., 2019). One reason might be the lack of public pressure coming from different regulatory bodies such as the central bank, security commission, and other public agencies or non-governmental organizations. However, in a study performed on banks from the United States and Europe, for a specific event represented by either an acquisition or a merger, Hagedorff et al. (2010) found that board independence and diversity improve the acquisition performance only if there are strict banking regimes.

Banking regimes refer to different situations in which the regulators have the authority to directly influence the type of activities that banks can engage in.

This involves increasing the level of regulatory capital to meet the legislative requirements; enforcing reversals of high-risk policies and veto takeover proposals; imposing a specific level of the minimum mandatory reserve of credit institutions; and requiring new board elections to be held within the banks. If there is a less strict regulatory regime, corporate governance is virtually irrelevant in improving bank financial performance. There is no consensus within the literature on the positive or negative impact of corporate governance quality on financial performance. The uncertainty generated by the pandemic crisis affected most industries, and banks were required in many countries to accept moratoria as a relief measure. Therefore, we propose the following hypothesis:

H₃: Current-year financial performance in the banking sector is influenced by the corporate governance quality measured for the previous year.

2.4. The combined ESG score as a factor of financial performance

In a study on 108 European banks for 2018, Bătae et al. (2020) found that there are no significant differences between developed and emerging Europe, in terms of the combined ESG score. The authors found similar results when comparing Eurozone versus non-Euro countries, while banks in southern European countries have a significantly higher combined ESG score compared to those located in western, northern, central, and eastern Europe. As there is a growing interest in ESG, banks need to be committed to supporting cleaner production efforts in non-banking industries (Bătae et al., 2021). Moreover, banks are an important contributor to the financial stability of the global economy. Thus, they also need to encourage their customers to transition to a cleaner business model. Previous literature on the banking sector shows that there is evidence of the relationship between the combined ESG score and financial performance; however, the results were inconclusive and referred only to the pre-pandemic period. Thus, this research focuses on changes that occurred during the pre-pandemic and pandemic period, with respect to the combined ESG score that considers the three pillars. Therefore, our hypothesis is as follows:

H₄: Current-year financial performance in the banking sector is influenced by the combined ESG score of the previous year.

3. Methods

Our study fills a knowledge gap in the literature by analyzing the influence of ESG performance on financial performance for banks located in three different continents. The population is represented by banks with headquarters in countries in Europe, Asia, and the Americas. This study is constructed from data collected from Refinitiv, except for a control variable collected from World Bank statistics.

The comprehensive list was compiled as follows: from the Refinitiv database, 1920 banks were included for the selected geographic regions. The selection criterion was the availability of environmental, social and governance (ESG) scores for 2019 and 2020, as well as financial information for 2019 – 2021.

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The ESG scores for 2021 were not available at the time of completing the present research. For all banks in the sample, the closing date is December 31st.

The final sample included 333 banks with a complete dataset, from 53 countries. Three regions were considered homogeneous in terms of macroeconomic and cultural characteristics: Europe (23 countries – 90 banks), the USA and Canada (91 banks), and East Asia (4 countries – 61 banks). The data for these regions were included in separate group analysis for robustness tests. The Refinitiv database was used in previous studies focused on the banking sector (Bătae et al., 2021; Esteban-Sanchez et al., 2017; Gangi et al., 2018; Shakil et al., 2019).

The ESG and financial data for 2019 reflect the pre-pandemic period. ESG scores for 2020 are influenced by management decisions taken by companies at the start of the Covid-19 pandemic and during the turbulent first year of the pandemic. The financial data for 2020 and 2021 indicate the performance of the sample banks during the pandemic period. Therefore, the data for each year in the sample have a different significance and will be discussed in these terms: *pre-pandemic* (2019) versus *the first pandemic year* (2020) versus *during the pandemic* (2021). The model design allows us to establish causality relationships. The variables used in this research are presented in Table 1. The explanations are in accordance with definitions provided by the European Banking Authority (EBA) for bank-specific indicators, within the EBA methodological guide. The current study uses a subset of the variables proposed by Bătae et al. (2021). The components of the ESG scores and the gross domestic product (GDP) are in line with the information provided on the official websites of Refinitiv and the World Bank for the respective years.

Table 1. Variables for the present study

Variable (abbreviation)	Description
Return on assets (ROA)	Dependent variable: The profitability of total assets. It is computed as net income after taxes divided by total assets.
Return on equity (ROE)	Dependent variable: The profitability of the invested equity at book value. It is calculated as net income after taxes divided by total equity.
Stock market returns (SMR)	Dependent variable: The change in the stock price over the analyzed period. It is computed as the (closing price at the end of t_1 minus the closing price at the end of t_0) divided by the closing price at the end of t_0 .
Earnings per share (EPS)	Dependent variable: A widely used metric for estimating corporate value. It is calculated as a company's net profit divided by the number of common shares outstanding.
ESG Combined from Refinitiv (ESGC)	Main predictor: The weighted average of the ESG scores and ESG controversies that provides a comprehensive evaluation of the sustainability impact and corporate conduct.

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Variable (abbreviation)	Description
Environmental score (E)	Main predictor: The relative sum of category weights for the environmental categories, such as resource use, emissions and waste reduction, and environmental innovation.
Social score (S)	Main predictor: The relative sum of category weights for the social responsibility categories, such as workforce, human rights, community involvement, and product responsibility.
Corporate governance quality (G)	Main predictor: The relative sum of category weights for the governance categories, such as management quality, shareholder rights, and social responsibility strategy.
Bank size (TA)	Control variable: The natural logarithm of total assets.
Leverage (LEV)	Control variable: The multiple of liabilities to equity as an indication of a bank's leverage. It is computed as total liabilities divided by total equity.
Loans to total deposits (LD)	Control variable: A bank-specific indicator that shows the proportion of loans that are funded by deposits. It is computed as net loans divided by total deposits.
Customer deposits to total liabilities (CDL)	Control variable: A bank-specific indicator that shows the relevance of customer deposits in the funding mix, measured as customer deposits divided by total liabilities.
GDP per capita (GDPC)	Control variable: A country-specific indicator that is calculated as the (sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies) divided by mid-year population.

This study considers ROA and ROE as accounting-based indicators of financial performance (FP), while SMR and EPS are market-based indicators. Based on previous research, it would be reasonable to use both market data and company profitability as performance indicators. Furthermore, the prior-year FP is expected to be the most significant predictor of the current-year FP. To identify the influence of ESG factors on future FP, before and during the pandemic crisis (2019-2021), the proposed econometric models are listed below.

Equation (1) uses the separate environmental, social and governance scores in 2019 as factors of financial performance for the year 2020:

$$FP_{2020} = \beta_0 + \beta_1 FP_{2019} + \beta_2 E_{2019} + \beta_3 S_{2019} + \beta_4 G_{2019} + \beta_{5-9} Controls_{2019}$$

Equation (2) uses the 2019 ESG combined score (pre-pandemic) as a factor of financial performance for the year 2020 (first pandemic year):

$$FP_{2020} = \beta_0 + \beta_1 FP_{2019} + \beta_2 ESGC_{2019} + \beta_{3-7} Controls_{2019}$$

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Equation (3) uses the separate environmental, social and governance scores in 2020 as factors of financial performance for the year 2021:

$$FP_{2021} = \beta_0 + \beta_1 FP_{2020} + \beta_2 E_{2020} + \beta_3 S_{2020} + \beta_4 G_{2020} + \beta_{5-9} Controls_{2020}$$

Equation (4) uses the 2020 ESG combined score as a factor of financial performance for the year 2021 (during the pandemic):

$$FP_{2021} = \beta_0 + \beta_1 FP_{2020} + \beta_2 ESGC_{2020} + \beta_{3-7} Controls_{2020}$$

Equation (5) is a particularization of equation (3) on each region i (Europe, the USA and Canada, and East Asia):

$$FP_{2021;i} = \beta_0 + \beta_1 FP_{2020;i} + \beta_2 E_{2020;i} + \beta_3 S_{2020;i} + \beta_4 G_{2020;i} + \beta_{5-9} Controls_{2020;i}$$

Multiple regression was estimated in the R (version 4.1.3) statistical environment. All variables were standardized as z -scores. Therefore, the beta coefficients of all regression estimations are standardized and directly comparable. Variables that had outliers were Winsorized by replacing low or high extreme values with the 5th or 95th percentile, respectively. Regression results were checked for multicollinearity (variance inflation factors should be less than 5), linearity (on the residuals versus fitted values plot), and homoscedasticity (on the scale-location plot). Additionally, the residual versus leverage plot was used to identify influential values that would alter the results of the regression analysis. For each model estimation, up to five influential values (less than 1.5% of the total sample) were removed, based on *Cook's distance*. Considering these tests and data corrections, the results presented below are considered sufficiently robust.

4. Results

The descriptive statistics in Table 2 are calculated on the raw (untransformed) data for the main dependent variables and factors. Sample banks have a wide range of scores for all ESG pillar scores and the combined score. The most restricted range is for the social pillar, but it is more than 50% of the theoretical range (0-100). This ensures that the factors have sufficient variability but no outliers. In addition, ESG scores are significantly correlated (see Table 3), but the correlations are not extremely high (above 0.80). Among the dependent variables, ROA and ROE are highly correlated, but the other indicators have more modest correlations (below .40). This indicates that financial performance ratios measure different aspects of bank performance.

Table 2. Descriptive statistics for the dependent variables and main predictors

Variables	M	SD	Min	Max	Skew.	Kurt.
ESGC ₂₀₁₉₋₂₀	52.61	15.78	11.37	86.61	-0.0953	-0.591
E ₂₀₁₉₋₂₀	42.51	29.44	16.10	96.62	0.1190	-1.258
S ₂₀₁₉₋₂₀	57.84	21.06	44.90	96.49	-0.2190	-0.774
G ₂₀₁₉₋₂₀	57.88	18.98	13.69	93.63	-0.2680	-0.705
ROA ₂₀₁₉₋₂₁	0.0083	0.0063	-0.0235	0.0330	-0.1170	3.487
ROE ₂₀₁₉₋₂₁	0.0836	0.0578	-0.2660	0.2540	-1.8200	7.897
SMR ₂₀₁₉₋₂₁	0.0787	0.1510	-0.5310	0.6120	-0.0799	1.916
EPS ₂₀₁₉₋₂₁	1.5840	2.3060	-1.6490	21.0100	3.1800	16.880

Notes. The statistical measures were calculated on the company averages over the analyzed period ($N = 333$).

Table 3. The correlation matrix for the dependent variables and main predictors

Variables	ESGC	E	S	G	ROA	ROE	SMR	EPS
ESGC ₂₀₁₉₋₂₀	-							
E ₂₀₁₉₋₂₀	.68**	-						
S ₂₀₁₉₋₂₀	.83**	.77**	-					
G ₂₀₁₉₋₂₀	.65**	.35**	.41**	-				
ROA ₂₀₁₉₋₂₁	.06	-.13	-.04	.01	-			
ROE ₂₀₁₉₋₂₁	.11	.02	.04	.01	.85**	-		
SMR ₂₀₁₉₋₂₁	-.05	-.07	-.04	-.01	.22**	.26**	-	
EPS ₂₀₁₉₋₂₁	.01	-.05	.01	.10	.15**	.22**	.32**	-

Notes. Pearson correlations were calculated between bank averages over the analyzed period ($N = 333$).

During the pre-pandemic period, the environmental score for 2019 negatively influenced ROE for 2020 (see Table 4). The social responsibility score and corporate governance quality for 2019 had no significant effect on any of the dependent variables for 2020. The positive effect of ROA from the previous year was stronger than the effect of LEV on ROA in 2020, while LD and CDL in 2019 negatively influenced ROA and ROE for 2020. Also, the positive effect of SMR in 2019 was stronger than the effect of bank size on SMR in 2020. EPS in 2020 was negatively influenced by bank size and LD for 2019. Therefore, H_2 and H_3 are not supported by the results, meaning that financial performance in the first pandemic year was not influenced by pre-pandemic social responsibility initiatives and corporate governance quality. Considering that ROE in 2020 was negatively influenced by pre-pandemic environmental performance, H_1 is supported for the model specification of Equation (1).

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Table 4. Regression estimates of Equation (1)

	Dependent variables			
	ROA ₂₀₂₀	ROE ₂₀₂₀	SMR ₂₀₂₀	EPS ₂₀₂₀
Factors	Std. β (SD)	Std. β (SD)	Std. β (SD)	Std. β (SD)
Intercept	0.0125 (0.0261)	0.0310 (0.0252)	-0.0001 (0.0516)	0.0127 (0.0144)
ROA₂₀₁₉	0.7195** (0.0472)			
ROE₂₀₁₉		0.7066** (0.0396)		
SMR₂₀₁₉			0.1797** (0.0668)	
EPS₂₀₁₉				0.7843** (0.0199)
E₂₀₁₉	-0.0516 (0.0406)	-0.0978* (0.0393)	-0.0330 (0.0799)	-0.0041 (0.0224)
S₂₀₁₉	-0.0206 (0.0376)	0.0149 (0.0365)	-0.1083 (0.0740)	0.0016 (0.0209)
G₂₀₁₉	0.0083 (0.0253)	-0.0028 (0.0244)	-0.0341 (0.0503)	-0.0160 (0.0140)
TA₂₀₁₉	-0.0651 (0.0360)	-0.0509 (0.0344)	0.1480* (0.0709)	-0.0600** (0.0198)
LEV₂₀₁₉	0.1148** (0.0435)	0.0829* (0.0340)	0.0574 (0.0682)	0.0331 (0.0186)
LD₂₀₁₉	-0.5132* (0.2169)	-0.4974* (0.2086)	0.3454 (0.4322)	-0.3048* (0.1202)
CDL₂₀₁₉	-0.1025* (0.0398)	-0.0905* (0.0382)	-0.0361 (0.0780)	-0.0335 (0.0219)
GDPC₂₀₁₉	0.0031 (0.0277)	0.0029 (0.0266)	0.0634 (0.0562)	0.0294 (0.0179)
N (df)	331 (321)	328 (318)	331 (321)	329 (319)
F	42.11**	39.11**	2.742**	255.2**
Adj. R²	.5286	.5120	.0453	.8746

Notes. * $p < .05$; ** $p < .01$. All coefficient estimates (β) are standardized.

Considering the econometric model presented in Equation (2), the combined ESG of pre-pandemic year 2019 score was a non-significant factor of financial performance in 2020 and H_4 is not supported. ROA in 2020 was negatively influenced by bank size ($\beta = -.0946$, $p = .0057$), LD ($\beta = -.5393$, $p = .0144$) and CDL ($\beta = -.0859$, $p = .0284$) for 2019, and positively influenced by ROA ($\beta = .7164$, $p < .0001$) and LEV ($\beta = 0.1121$, $p = .0099$) for 2019. Among the control variables, bank size and LD for 2019 had a significant negative effect on ROE ($\beta = -.0883$, $p = .0072$, respectively $\beta = -.5136$, $p = .0162$) and EPS ($\beta = -.0676$, $p = .0003$, respectively $\beta = -.3110$, $p = .0106$) in 2020. Also, SMR₂₀₁₉ had a positive effect on SMR₂₀₂₀ ($\beta = 0.1821$, $p = .0066$).

During the pandemic, the social responsibility score for 2020 positively influenced ROA, ROE, and EPS in 2021 (see Table 5). The environmental score and corporate governance quality for 2020 did not have a significant effect on any of the dependent variables for 2021. Among the control variables, the results show that LEV in 2020 had a significant negative effect on ROA in 2021. Therefore, H_2 is confirmed by the results, which means that financial performance during the pandemic is positively influenced by the social responsibility initiatives in the first year of the pandemic. H_1 and H_3 are not confirmed by the results. This shows that the negative relationship between current-year financial performance and environmental performance in the previous year is not a robust result.

Table 5. Regression estimates of Equation (3)

	Dependent variables			
	ROA ₂₀₂₁	ROE ₂₀₂₁	SMR ₂₀₂₁	EPS ₂₀₂₁
Factors	Std. β (SD)	Std. β (SD)	Std. β (SD)	Std. β (SD)
Intercept	-0.02291 (0.0245)	-0.0197 (0.0254)	0.0116 (0.0439)	-0.0400** (0.01349)
ROA ₂₀₂₀	0.5841** (0.0409)			
ROE ₂₀₂₀		0.6546** (0.0396)		
SMR ₂₀₂₀			-0.0758 (0.0468)	
EPS ₂₀₂₀				0.9731** (0.0213)
E ₂₀₂₀	-0.0351 (0.0367)	0.0197 (0.0381)	0.0947 (0.0657)	-0.0280 (0.0201)
S ₂₀₂₀	0.0945** (0.0332)	0.1007** (0.0345)	0.0882 (0.0595)	0.0587** (0.0182)
G ₂₀₂₀	-0.0005 (0.0238)	-0.0134 (0.0245)	0.0120 (0.0427)	-0.0064 (0.0131)
TA ₂₀₂₀	-0.0105 (0.0323)	-0.0233 (0.0331)	0.0112 (0.0584)	0.0541 (0.0177)
LEV ₂₀₂₀	-0.2942** (0.0351)	-0.0214 (0.0330)	-0.0041 (0.0563)	-0.0251 (0.0172)
LD ₂₀₂₀	0.1051 (0.2134)	0.0992 (0.2197)	0.5490 (0.3819)	0.07440 (0.1178)
CDL ₂₀₂₀	-0.0132 (0.0364)	0.0105 (0.0375)	0.2629** (0.0643)	0.0205 (0.0199)
GDPC ₂₀₂₀	0.0165 (0.0260)	0.0477 (0.0267)	0.3897** (0.0467)	0.0969 (0.0167)
N (df)	331 (321)	328 (318)	331 (321)	329 (319)
F	69.48**	34.99**	12.06**	372.6**
Adj. R ²	.6513	.4833	.2318	.9107

Notes. * $p < .05$; ** $p < .01$. All coefficient estimates (β) are standardized.

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During the pandemic, the results show that the combined ESG score for 2020 positively influenced ROE and SMR for 2021 (see Table 6). Both measures of financial performance indicate how equity financing is transformed into profits. Investors believe that the combined ESG score is a good indication of a bank's ability to use equity funding and other equity to create profits. The combined ESG score is a fast and comprehensive measure of company performance throughout the year, on an intuitive scale of 0-100, normalized by industry. Our results show that it also has predictive value in relation to financial performance. In relation to the control variables, ROA in 2021 was positively influenced by ROA in 2020 and negatively influenced by LEV in the same year. ROE in 2020 had a positive influence on ROE in 2021. The results show that H_4 is confirmed, which means that the combined ESG score for the first pandemic year positively influenced the financial performance of sample banks in the second pandemic year (2021).

Table 6. Regression estimates of Equation (4)

	Dependent variables			
	ROA ₂₀₂₁	ROE ₂₀₂₁	SMR ₂₀₂₁	EPS ₂₀₂₁
Factors	Std. β (SD)	Std. β (SD)	Std. β (SD)	Std. β (SD)
Intercept	-0.0235 (0.0246)	-0.0198 (0.0257)	0.0073 (0.0440)	-0.0393** (0.0136)
ROA ₂₀₂₀	0.5768** (0.0412)			
ROE ₂₀₂₀		0.6407** (0.0402)		
SMR ₂₀₂₀			-0.0883 (0.0465)	
EPS ₂₀₂₀				0.9760** (0.0216)
ESGC ₂₀₂₀	0.0462 (0.0235)	0.0700** (0.0244)	0.1326** (0.0421)	0.0141 (0.0130)
TA ₂₀₂₀	-0.0027 (0.0306)	0.0023 (0.0315)	0.0525 (0.0547)	0.0602** (0.0168)
LEV ₂₀₂₀	-0.3004** (0.0350)	-0.0220 (0.0331)	0.0066 (0.0561)	-0.0291 (0.0173)
LD ₂₀₂₀	0.0947 (0.2149)	0.0792 (0.2230)	0.4601 (0.3826)	0.0938 (0.1194)
CDL ₂₀₂₀	-0.0176 (0.0356)	-0.0069 (0.0370)	0.2239** (0.0626)	0.0220 (0.0196)
GDPC ₂₀₂₀	0.0147 (0.0258)	0.0409 (0.0266)	0.3951** (0.0464)	0.0915** (0.0168)
<i>N</i> (<i>df</i>)	331 (323)	328 (320)	331 (323)	329 (321)
<i>F</i>	87.38**	42.57**	15.05**	466.3**
Adj. <i>R</i> ²	.6469	.4709	.2296	.9085

Notes. * $p < .05$; ** $p < .01$. All coefficient estimates (β) are standardized.

Equation (5) was used to obtain results in robustness tests, from three subsamples: European banks, North American banks, and East Asian banks.

In Europe (subsample of 90 companies, results not tabulated), during the pandemic, the environmental score, the social responsibility score, and the quality of corporate governance for 2020 did not have a significant effect on any of the dependent variables for 2021. ROA, ROE, and EPS for 2020 positively influenced the respective financial indicators for 2021, while SMR 2021 was negatively correlated with the SMR for 2020. The ROA indicator in 2021 was negatively influenced by LEV from the previous year ($\beta = -.1993, p = .0035$). As such, H_1 , H_2 and H_3 are not supported by the results, meaning that environmental performance, social responsibility initiatives and corporate governance quality recorded in the first year of the pandemic did not have a significant effect on the financial performance during the pandemic, for the subsample of European banks.

In the United States of America and Canada (subsample of 91 companies, results not tabulated), during the pandemic, the environmental score, the social score, and corporate governance quality for 2020 did not have a significant effect on any of the dependent variables for 2021. ROA in 2021 was negatively influenced by LEV for 2020 ($\beta = -.2800, p = .0283$), while ROE and SMR in 2021 were positively influenced by the same variable. The results do not support H_1 , H_2 and H_3 , meaning that environmental performance, social responsibility initiatives and corporate governance quality from the first year of the pandemic had no significant influence on the financial performance during the pandemic, for the United States and Canada.

In East Asia (subsample of 63 companies, see Table 7), during the pandemic, the environmental score for 2020 negatively influenced EPS for 2021, while the quality of corporate governance was a positive factor for SMR and EPS in 2021. The social responsibility score for 2020 did not have a significant effect on any of the dependent variables for 2021, contrary to the results for the entire sample in Table 5. SMR 2021 was negatively influenced by bank size and positively influenced by LEV for 2020. EPS in 2021 was positively influenced by EPS and LD for 2020. H_1 is confirmed, as the environmental performance from the first pandemic year had a negative influence on EPS during the pandemic, H_2 is not supported by the results, while H_3 is confirmed for the SMR and EPS of East Asian banks.

The main explanation for these results is that small effects can become significant in larger samples. Standardized coefficients indicate the comparative magnitude of the effect, and in most cases, the influence of ESG variables on financial performance is the weakest in the list of significant coefficients. An implication of these results is that some ESG factors, while significant, improve financial performance by a very small margin. In the banking sector, the social pillar appears to be the most relevant ESG factor because direct environmental impacts are negligible and corporate governance is highly standardized. Banks are

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expected to pay attention to community involvement during and after the Covid-19 pandemic, to improve their tarnished reputation from the financial crisis of 2008.

Table 7. Regression estimates of Equation (5) for East Asia

	Dependent variables			
	ROA ₂₀₂₁	ROE ₂₀₂₁	SMR ₂₀₂₁	EPS ₂₀₂₁
Factors	Std. β (SD)	Std. β (SD)	Std. β (SD)	Std. β (SD)
Intercept	-0.3303** (0.0317)	-0.3658** (0.0451)	-0.3730** (0.1112)	-0.1070** (0.0196)
ROA₂₀₂₀	1.1300** (0.0738)			
ROE₂₀₂₀		0.9229** (0.1023)		
SMR₂₀₂₀			-0.0323 (0.0806)	
EPS₂₀₂₀				0.9818** (0.0255)
E₂₀₂₀	-0.0299 (0.0292)	0.0129 (0.0422)	0.1179 (0.1055)	-0.0391* (0.0185)
S₂₀₂₀	0.0287 (0.0209)	0.0416 (0.0307)	0.0952 (0.0764)	0.0253 (0.0131)
G₂₀₂₀	-0.0014 (0.0192)	0.0055 (0.0282)	0.1744* (0.0673)	0.0302* (0.0117)
TA₂₀₂₀	-0.0307 (0.0234)	-0.0707* (0.0346)	-0.2513** (0.0820)	0.0035 (0.0147)
LEV₂₀₂₀	0.0408 (0.0314)	0.1075** (0.0350)	0.1833* (0.0825)	0.0015 (0.0146)
LD₂₀₂₀	0.4028* (0.1782)	0.4658 (0.2583)	-0.1613 (0.6024)	0.3139** (0.1165)
CDL₂₀₂₀	0.0147 (0.0292)	0.0008 (0.0431)	-0.0909 (0.1034)	0.0288 (0.0195)
GDPC₂₀₂₀	-0.0417 (0.0444)	-0.1792* (0.0785)	-0.1256 (0.1248)	-0.0384 (0.0233)
N (df)	63 (53)	63 (53)	63 (53)	63 (53)
F	100.7**	44.56**	5.363**	387.6**
Adj. R²	.9354	.8634	.3878	.9825

Notes. * $p < .05$; ** $p < .01$. All coefficient estimates (β) are standardized.

5. Conclusions

The present study uses ESG performance indicators extracted from Refinitiv Eikon to identify causal relationships between the three pillars of ESG and the financial performance of banks located in Europe, the Americas, and Asia, before and during the Covid-19 pandemic. Causality is demonstrated by the fact that the ESG factors precede by one year the financial performance of the sample banks. This research design has proven to be effective in separating the effects of

ESG performance on different aspects of financial performance at the beginning and during the pandemic.

Bank environmental performance in 2019 has a negative influence on the return on equity during 2020, and no other ESG factors are significant. This indicates that banks with a more pronounced involvement in environmental protection (directly or indirectly) generated a lower return on net assets. However, this relationship is not robust in other specifications. Therefore, it is assumed that the ESG performance of banking institutions in 2019 is a non-significant factor of financial performance in the first year of the pandemic. These results point to the fact that any amount of preparation in the ESG domain could not offset the negative effects of the pandemic crisis. These results are limited to the banking sector.

The second series of models capture the effect of ESG performance on financial performance during the pandemic. For the entire sample, social responsibility expenditures and initiatives in 2020 positively influenced bank profitability in 2021. This result is robust because the causal relationship is confirmed for ROA, ROE, and EPS. However, this significant result cannot be found in any of the sub-samples for Europe, USA and Canada, and East Asia. In addition, banks in East Asia have a higher SMR and EPS determined by the quality of corporate governance in the previous year. The environmental performance of 2020 has a negative influence on EPS in 2021, but only for the sample in East Asia. These results point to structural differences at the global level, which need to be further investigated for the year 2022 and beyond.

The main implication of the results is that there seems to be an improvement in 2021 over 2020. Our research offers an optimistic outlook for the implementation of ESG principles in banks around the world. Financial institutions are beginning to develop internal ESG assessment criteria and allocate increasing budgets for this activity. The effect of ESG factors on financial performance would become more pronounced if customers and markets learn to rely on these indicators. ESG measurement is still not mature enough to generate confidence at the market level. Therefore, customers and investors must understand ESG assessment and scoring so that these factors have a discernible impact on the financial performance of banks. Future research can aim to pinpoint exactly what components of social responsibility are most valued by bank customers and investors.

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