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Examining the Impact of Environmental, Social, and Corporate Governance Factors on Long-Term Financial Stability of the European Financial Institutions: Dynamic Panel Data Models with Fixed Effects

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Abstract: Modern economies are progressively acknowledging the need to assess environmental, social, and corporate governance (ESG) elements to identify possible risks and possibilities. The financial sector, exerting significant influence over the economy, is essential for sustaining economic stability via the lending mechanism. Our study focuses on examining the influence of ESG factors on the financial stability of European financial institutions. To attain this goal, we utilized fixed-effects and random-effects dynamic panel models, analyzing 352 financial institutions across many European nations from 2019 to 2021. The study's findings reveal a complex scenario. The findings indicate that ethical and corporate responsibility practices significantly impact the financial performance of European financial institutions. Nonetheless, the execution of policies pertaining to ESG ethics seems markedly inadequate. Our research reveals substantial evidence of a direct correlation between ethical practices and profit stability, diverging from other studies. This newly established group directly influences the financial performance of financial institutions in Europe. These findings enhance the comprehension of the interaction between ESG variables and financial stability, illuminating both the beneficial effects and the current deficiencies in ethical behaviors within the European banking sector.

Keywords: financial stability; ESG; financial sector; panel data analysis; fixed-effects model

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1. Introduction

The term "sustainability" gained prominence in the 1980s, evolving from its initial focus on environmental concerns to encompassing a broader spectrum of issues. But because ESG issues are becoming more important for businesses, are more people investing in these areas (Dinh et al., 2024; Sreenivasan & Suresh, 2024; Schaltegger et al., 2012)? This shift reflects a broader recognition of the interconnectedness between business practices, societal well-being, and environmental health in the pursuit of long-term, responsible economic growth. A growing understanding of the significance of ESG factors, along with the associated risks and opportunities, is becoming more noticeable in the world of financial institutions. Despite its early stages and continuous development, this specific discipline is characterized by complex and interconnected risks (Henisz & McGlinch, 2019; Ignatov, 2023; Jang et al., 2022).

The existing data sets and models related to these risks are now in the nascent phase of their development. Therefore, one may perceive the effective handling of risks associated with ESG issues as a complex undertaking (Ling et al., 2023; Zhao & Cai, 2023; Salvi et al., 2024). Nonetheless, adopting a motionless stance and participating in a passive state of anticipation is not a feasible approach. The subjects of climate change and climate risk are currently experiencing a resurgence of interest, as the COVID-19 epidemic has propelled matters of sustainability and social responsibility to the forefront. However, the growing acknowledgment of these issues is swiftly transforming the market environment. Investors' escalating interest reveals a discernible surge in the worldwide market for sustainable financial solutions. The sustainability and corporate behavior of financial institutions impacts their reputation and economic success. As a result, the pursuit of sustainability has the potential to significantly reshape the global financial industry (Alatawi et al., 2024; Ramírez-Orellana et al., 2023).

Our research was motivated by the scarcity of studies that investigate the impact of ESG factors on the financial stability of European financial institutions. Thus, the primary objectives of this investigation are twofold: (i) to investigate the ESG performance of all European financial institutions and (ii) to determine which ESG factors influence their financial stability. Financial ratios, including return on assets, return on equity, and Tobin's Q, are typically the primary focus of academicians who address this issue (Andrey, 2023). This study is distinctive in that it examines the impact of various ESG factors on the stability of financial profits by utilizing the earning stability variable, which is directly associated with the financial performance and stability of European banks. To achieve this research objective, authors employed dynamic panel regression estimation methods to investigate the relationship between stable earnings and ESG factors, with a particular emphasis on the years 2019–2021. Furthermore, to enhance readership, the authors employed ArcGIS Desktop (ArcMap) 10.8. 2, a geographical information systems tool, to map the ESG performance of financial institutions. The primary findings of the investigation indicate that the earning stability of European banks during this period is significantly influenced by ethics and corporate social responsibility (CSR) (Cheng et al., 2023; Lins et al., 2017; Mion et al., 2023). Additionally, it is crucial to emphasize that our methodology not only expands upon prior research by emphasizing a particular set of ESG factors, but it also employs state-of-the-art methodologies, including dynamic panel regression and geographic information systems, to provide a more comprehensive understanding of the impact of ESG factors on financial stability of the European banking sector.

The paper is organized as follows. In Section 2, we demonstrate the correlation between the ESG scores and provide a brief examination of the significance of ESG factors in enhancing the stability of European financial institutions. In this study, the financial stability of European financial institutions is examined in relation to ESG factors using the externality model, as detailed in Section 3. Moreover, Section 4 illustrates the empirical estimates that were derived from the three econometric models. In the final section of this research work, Section 5, the findings are analyzed, the study's constraints are acknowledged, potential avenues for further research are suggested, and the paper is ultimately concluded.

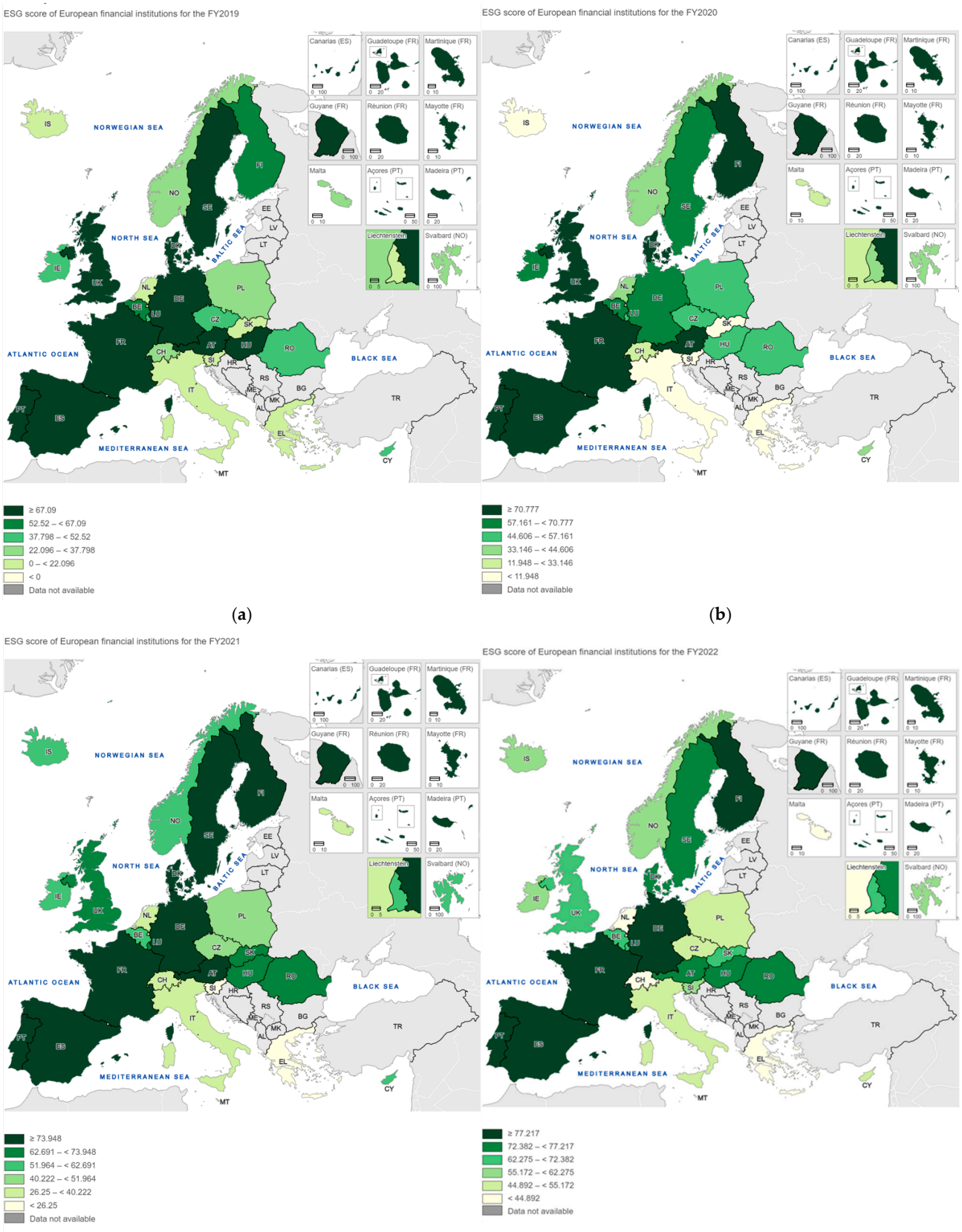
2. ESG: A Call to Action for European Financial Institutions to Attain Financial Stability

Beyond skepticism, the year 2020 witnessed a heightened focus on issues related to the environment, society, and corporate governance. The Business Roundtable's proclamation in 2019 signaled a notable shift in this pattern, as there has been a steady rise in the amount of endorsement for corporate social responsibility. Given the COVID-19 pandemic, economic disruptions, social turmoil, and ongoing climate change, there is a

pressing need for governments and companies to prioritize ESG challenges more than ever. Financial services organizations are increasingly quantifying and disclosing their efforts to serve all stakeholders, which helps provide a strong foundation for developing a more holistic perspective. Financial institutions should broaden their outlook on ESG factors and implement a deliberate approach to tackle these matters within their businesses (Caldeira dos Santos & Pereira, 2022; Garcia et al., 2017). In the current era, the industry has a great opportunity to leverage advanced technology and form new partnerships to address important social issues, establish new market possibilities, and generate financial profits in collaboration with other stakeholder groups. Furthermore, this proactive strategy also promotes the reestablishment of trust in institutions.

Also, the financial sector has a crucial role in facilitating the transition towards a low-carbon, resource-efficient, and sustainable economy, as well as in effectively managing financial risks associated with ESG aspects (Kopnina & Bedford, 2024). The establishment of a resilient banking sector and the maintenance of comprehensive financial stability will be crucial prerequisites for facilitating a smooth and organized transition (Cheng et al., 2023; Wu et al., 2024; Friede et al., 2015). Financial institutions also assist in the management of risks and the raising of funds for sustainable projects because of their distinctive role in facilitating capital transfers through activities such as lending, investing, and advisory services. Financial institutions also assist in the management of risks and the raising of funds for sustainable projects because of their distinctive role in facilitating capital transfers through activities such as lending, investing, and advisory services. Additionally, the concept that the banking sector's financial performance is enhanced by the establishment of a strong corporate governance framework has been endorsed by Yang et al. (2024a). They specifically mentioned the existence of numerous components of corporate governance and their influence on financial performance. The initial element that researchers examined to determine the impact of corporate governance on bank financial stability was one of ESG's primary pillars. The researchers asserted that managerial ownership enhances the company's operations to resolve agency issues within the corporate governance framework. According to other researchers, directors of a company, who also own a portion of the company, will consistently prioritize actions that are advantageous to all shareholders. As a result, they anticipate a direct correlation between the firm's performance, risk management, and managerial ownership (Yang et al., 2024a, 2024b).

Before analyzing and determining the ESG factors that have the most significant effects on the financial stability of the 352 financial institutions that make up the sample of the current study effort, we utilized ArcGIS software to present their ESG performance. The maps that were developed are shown in Figure 1. Financial institutions in the Iberian Peninsula are indicated as those which invest a lot on the application of ESG practices, and this can be confirmed by their excellence ESG performance. Specifically, Spanish banks illustrate the path to financial stability. The recent difficulties that regional US banks have endured serve as a reminder of the value of a strong financial industry. Spain is a shining example of how the global financial crisis's lessons have strengthened the banking industry and made it more sustainable in Europe. Consolidation, initiatives to lower debt burdens, and increased financial stability are behind Spain's excellent development. In comparison to their European competitors, this has given Spanish banks a better position. Spanish banks have earned praise for their achievements, and properly so. Moreover, the Nordic region may be a global leader in sustainable finance too by 2030. The Nordic financial model, which is a distinctive approach to development that lays a high premium on social solidarity and good governance enabling sustainable growth, is a well-known idea in economics and sociology. As a result, the region has become a fertile ground for concepts like sustainable finance and ESG, which have blossomed in this climate.



(**a**) (**b**)

(**c**) (**d**)

Figure 1. (**a**–**d**) ESG score of the European financial institutions for the FY 2019–2022.

The case of the United Kingdom is of particular interest, as it pertains to the performance of British financial institutions in terms of ESG factors. Analysis of the fiscal years 2019 to 2020 reveals a commendable level of ESG performance. However, subsequent

fiscal years indicate a decline in this performance. The primary factor contributing to the aforementioned reduction can be attributed to the COVID-19 epidemic. The COVID-19 pandemic resulted in an unparalleled humanitarian and public health emergency. The implementation of containment measures led to an economic recession. According to the most recent Global Financial Stability Report, there was a significant and notable impact on the financial system, and it is highlighted that the heightened escalation of the crisis had repercussions on global financial stability. Also, except from the pandemic of COVID-19, it is vital to consider the emerging trends that are expected to influence the future landscape in the following years. The significance of the energy crisis cannot be exaggerated and poses a formidable obstacle to ESG's trajectory. Due to the United Kingdom's and Europe's limited energy security and the prevailing cost of living crisis, there is apprehension among influential individuals within the economy that the pursuit of transitioning to a sustainable green economy, thereby expanding the ESG agenda, may be deprioritized. The probable consequence of this situation may prompt investors to reassess their ESG priorities, particularly in the event of an increased need for capital investment in fossil-fuel-related activities.

The field of sustainable finance has experienced significant growth in recent years, owing to the heightened recognition of climate change and the perceived financial benefits that it offers. The current state of affairs indicates that sustainable finance is poised to become a prominent and enduring feature of the European banking sector. Specifically, the performance of the financial institutions and the overall stability of the financial system may be significantly influenced by environmental, social, and governance concerns. The occurrence of the pandemic of COVID-19, the European energy crisis, and the global financial crises was partly attributed to deficiencies in governance inside banks and enterprises. Policymakers may be inclined to excessively encourage household borrowing for spending due to social issues, such as inequality, which might potentially result in medium-term financial instability(Jum'a et al., 2021; Lins et al., 2017; Mion et al., 2023). Environmental disasters have resulted in significant financial losses for both companies and insurance providers. The issue of climate change holds significant importance within the realm of sustainable finance. In this context, there exist two primary avenues via which risks manifest. Physical hazards encompass the potential for harm arising from adverse weather occurrences and the wider patterns of climate change. Transition risks are a consequence of fluctuations in the value of stranded assets, which encompass resources like coal and oil that will no longer be utilized in the context of the fossil fuel phase-out. These risks pertain to the potential economic disturbances resulting from climate-related policies, technological advancements, and market sentiment as societies adapt to a lower-carbon economy.

However, the quantification of financial risks associated with climate change poses challenges, prevailing research consistently indicates that the economic and financial costs might reach billions of dollars. Insurance claims resulting from climate-related natural disasters, including droughts, floods, and wildfires, have experienced a fourfold increase during the 1980s. It is possible that asset prices have not yet completely included climate risk and the shift towards a more sustainable economy. Also, the failure to promptly acknowledge these risks may result in a critical juncture when investors abruptly insist on including this risk into asset valuations, potentially leading to adverse implications for financial stability. Moreover, the lack of investigations on the impact of ESG factors on financial stability is another crucial issue that needs to be further addressed by the research community (Alatawi et al., 2024; DasGupta, 2022).

In light of the existing gap and the dynamic nature of ESG regulations in the European financial industry, this study aims to examine the influence of ESG scores on the enduring financial stability of publicly traded European financial institutions. It is important to note

that the theoretical framework described above serves as the primary justification for the ongoing empirical study. Therefore, the overarching hypothesis presented by this study might be stated as the following:

Hypothesis (H1). *The incorporation of ESG elements has a favorable impact on the financial stability of European financial institutions that are publicly listed.*

3. Results

Table 1 presents the summary statistics of the variables. The dataset consists of a collection of observations, together with important statistical metrics, including the mean, standard deviation, minimum, and maximum values. The subsequent step in the analysis involves examining the correlation matrix (Table A3 in the Appendix A) of all independent ESG variables that could potentially impact earnings. Figure 2 presents the correlogram, a visual depiction of the correlation matrix that aids in pinpointing the most strongly associated variables within a data table. The above can be characterized as quite beneficial. Additionally, the graphic shows correlation coefficients, assigning a color to each coefficient according to its value. You can rearrange the correlation matrix according to the degree of correlation between the variables. In addition, the highly correlated independent variables may lead to improper model estimation. For example, the correlation coefficient between the variables "ENVIRONMENTAL_PILLAR" and "ESG" is 0.8295554, which is quite close to 1 in absolute magnitude. Thus, only the following nine (9) variables are kept for consideration in this analysis: ESG, environmental innovation, responsibility, ESG controversies, green buildings, e-waste, whistleblower, ethics, and CO_2. Also, the limited number of time points (four) for each business section makes it impractical to conduct the panel stationarity test using the Levin, Lin, and Chu method (Table A1). So, we will consider the panel data stationary.

Table 1. Summary statistics of panel data variables.

Variable	Min	1st Qu	Median	Mean	3rd Qu	Max
ESG	0.00	27.94	48.50	45.97	66.70	95.49
ENVIRONMENTAL_INNOVATION	0.00	0.00	19.09	32.27	67.43	99.52
CO2_EMISSION	244.6	139.9	1406.1	27,507.9	10,296.2	2,640,090.0
RESPONSIBILITY	0.00	0.00	0.00	21.40	81.09	91.94
ESG_CONTROVERSIES	0.00	85.96	100.00	81.44	100.00	100.00
GREEN_BUILDINGS	0.00	0.00	0.00	23.80	80.17	90.74
E_WASTE	0.00	0.00	0.00	21.14	0.00	90.38
WHISTLEBLOWER	0.00	0.00	0.00	29.61	64.71	79.87
ETHICS	0.00	0.00	58.09	32.47	62.46	69.66
EARNINGS (Constant)	1.51	0.00	0.33	2.40	1.75	66.15

Table 2 displays the results of panel regression models with two variables, as shown in Equation (2). Based on the data presented in this table, it can be concluded that the effects of ETHICS (Policy Business Ethics Score) and RESPONSIBILITY (Corporate Responsibility Award Score) have a positive statistically significant impact on EARNINGS (earning stability). The Hausman tests indicate that the random-effects model is suitable for each of these hypotheses.

Therefore, variables related to ethics are highlighted as the most crucial factors that can affect financial performance of financial institutions in Europe. General ethical norms include principles such as candor, honesty, integrity, respect for others, fairness, and justice. They encompass several facets of existence, encompassing realms such as commerce and finance. Financial ethics is a branch of ethics that falls within the broader scope of general

ethics (Mökander et al., 2021; Song & Thakor, 2022). Adhering to ethical principles is crucial for preserving stability and harmony in social interactions among individuals. Recognition of the needs and ambitions of others, justice, and collaborative attempts to address shared concerns are examples of elements of social conduct that promote social stability. Throughout the course of social evolution, humans have not only acquired an innate inclination to prioritize their own well-being but have also developed a moral sense of responsibility towards the welfare of others. Nevertheless, circumstances may occur in which the imperative to prioritize self-care clashes with the imperative to prioritize the well-being of others. In such circumstances, it is imperative to have ethical standards that guide our conduct (Attig et al., 2013; Hansen, 2024).

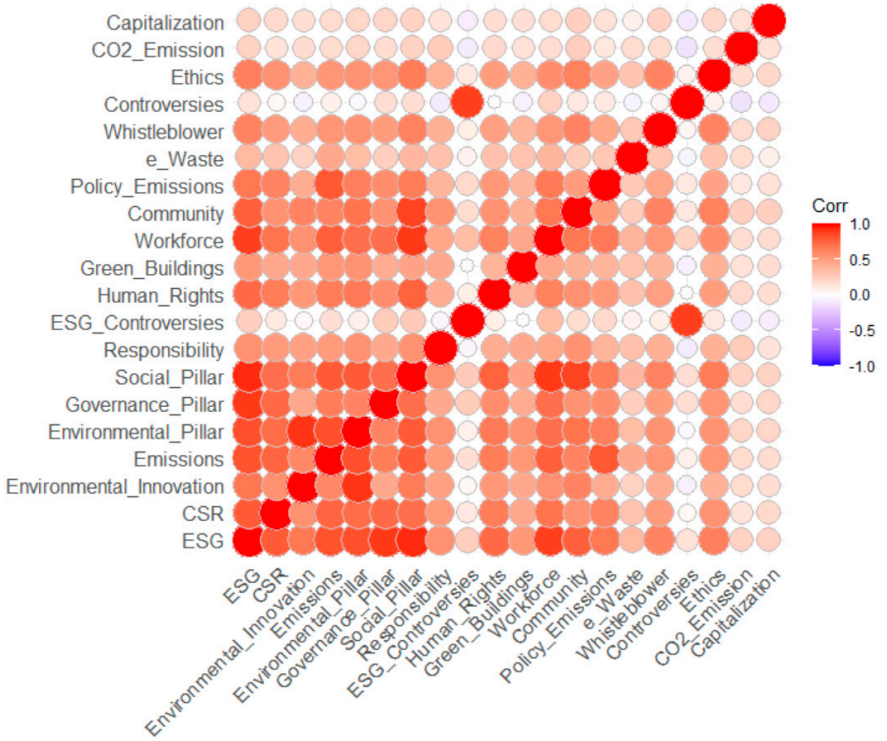


Figure 2. Correlogram plot.

Table 2. Results of random-effects model with "two-ways" effect.

Estimate	Std.	Error	z-Value	Pr(>|z|)
(Intercept)	25.236	0.498	50.706	0.000 ***
ESG	−0.012	0.009	−13.438	0.179
ENVIRONMENTAL_INNOVATION	−0.007	0.005	−13.143	0.189
RESPONSIBILITY	0.010	0.003	30.631	0.002 **
ESG_CONTROVERSIES	−0.000	0.003	−0.127	0.899
GREEN_BUILDINGS	0.000	0.004	0.031	0.975
E_WASTE	0.004	0.003	13.733	0.170
WHISTLEBLOWER	0.002	0.004	0.373	0.709
ETHICS	0.010	0.005	19.102	0.050
CO2_EMISSION	−1.600	0.000	−0.141	0.888

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05.

Although ethical factors have a beneficial effect on the stability of earnings and, consequently, the financial success of European financial institutions, the current research suggests that only a few of these institutions have truly grasped this lesson. Specifically, there are 352 businesses operating in the financial services sector. The objective is to emphasize the alterations in the financial performance of European banks, particularly

regarding ESG concerns. Their scores, which indicate their dedication to business ethics and corporate responsibility, have only slightly improved. In general, the financial industry demonstrates limited competence in developing and adjusting ethical norms, achieving an average score of about 33 out of 100 for its ethical endeavors and approximately 22 out of 100 for corporate responsibility. Thus, the findings emphasize the challenge of establishing ethics and corporate responsibility in the financial sector, potentially stemming from high-profile corporate scandals that have had a worldwide influence over the past decade, as well as the limited resources and lack of expertise among executives in implementing ESG criteria. Therefore, the enhancement of ethical codes within the financial institutions has risen as a crucial and important issue that has to be addressed promptly.

4. Materials and Methods

4.1. Data and Sample

This study utilizes micro-panel data collected from Refinitiv Eikon powered by Thomson Reuters, a globally recognized financial market database. The database comprises the top 352 European financial institutions that are listed under the ESG performance score of Refinitiv Eikon. The rationale behind choosing this unit of analysis is based on the availability of ESG scores for these financial institutions within a balanced panel dataset. The current research considers a sample of 1,408 firm-year data points, obtained by multiplying 352 financial organizations across a nine-year time period (2019–2021). Table A1 (see Appendix A) presents data on the distribution of enterprises across various European countries. The top five financial hubs, namely the United Kingdom, Switzerland, Germany, Italy, and Sweden, collectively account for over 68% of the total sample analyzed, indicating a strong representation of these countries.

4.2. Variable Measurements

The relationship between social and environmental sustainability and financial market stability has been the subject of scholarly research, attracting the interest of policymakers and market regulators. The motivation for this interest arises from the urgent need for sustainability and stability, especially in response to the 2008 global financial crisis and the continuous deterioration of the global environment in recent times (DasGupta, 2022; Rahmawati et al., 2023; Zournatzidou & Floros, 2023). Researchers in academia have tried to figure out how investments in ESG issues affect making publicly traded companies more responsible to the environment. Additionally, there has been a deliberate effort to determine the capacity of ESG investment to alleviate financial instability. To attract the interest of ESG-focused funds, it is crucial for a publicly listed company to provide an ESG report that transparently reveals its ESG performance. The present paper functions as a pivotal information resource for investors focused on ESG factors, facilitating their decision-making endeavors pertaining to ESG investments. ESG investing possesses the capacity to alleviate information asymmetry and foster transparency in the exchange of information between publicly listed corporations and investors, thereby reducing the uncertainty linked to financial assets (Ragazou, 2021; Ragazou & Sklavos, 2021; Zournatzidou et al., 2024).

In accordance with the existing scholarly literature, our research endeavors to examine the influence of ESG variables on the financial stability of European financial institutions, but from another perspective. Specifically, usually scholars who have tried to examine the impact of ESG factors on the financial stability of organizations or businesses use the return on assets, the return on equity, or Tobin's q ratio as dependent variables. Nevertheless, the current research is unique in that it employs earning stability as the dependent variable to address the research question, which is one of the novelties of the current study. Even today, the most widely used and prevalent metric of financial performance is the attainment of

a consistent income. A substantial majority of experts in the field believed that earnings were the most critical financial stability measure that they disclosed to external parties. Additionally, the stability of earnings is essential for the effective support of strategic decision-making processes, including share valuations, management performance incentive systems, and merger and acquisition discussions. Moreover, it is straightforward to calculate and comprehend this, and management is commended when earnings increase in a positive manner. Managers prioritize earning stability when their compensation is contingent upon the company's financial performance.

Although the examination of the hypothesis in the current paper uses the variable of earning stability, which has been obtained from the Refinitv Eikon database, the approach of investigating the impact of ESG factors on the financial stability of European financial institutions with the examination of earning stability is presented for the first time based on the existing literature. The concept of earning stability refers to the extent to which earnings have been consistently generated over a given period, while the prevention of uncertainty and volatility can be facilitated by stabilizing an organization's earnings and thus promoting the attainment of financial stability. The independent variables included in our econometric model are ESG, ENVIRONMENTAL_INNOVATION, RESPONSIBILITY, ESG_CONTROVERSIES, GREEN_BUILDINGS, E_WASTE, WHISTLEBROWER, and ETHICS, CO2_EMISSIONS. Table A2 provides a comprehensive overview of the variables examined in the current investigation, together with their respective scholarly definitions and the supporting literature. The financial sector's earning stability in Europe can be affected positively or adversely by all chosen independent factors. ESG conflicts may pertain to current or historical incidents when the activities and/or products of financial institutions adversely affect governance, social, and/or environmental matters. Examples of such activities include workplace harassment, data breaches, product safety issues, and accounting scandals. Moreover, investors are susceptible to the consequences of disputes, which may lead to reputational damage, legal issues, and adverse publicity. These elements can substantially influence a company's fiscal stability and market performance. Thus, this element may affect the financial stability and profit consistency of financial institutions, according to the theory of ESG debates. The selection of the whistleblowing variable may be seen as a factor that might lead to financial loss. There are losses in both expenses and attrition. Whistleblowing often incurs unforeseen costs. In most instances, the whistleblower, the firm, or both may be obligated to pay penalties following the ruling.

4.3. Construction of the Empirical Model

Given the presentation of the research hypothesis (H1) and the explanation of the dependent and independent variables, the model can be defined as follows in a panel design (Equation (1)):

$$y_{jit} = a_j + x'_{it}\beta_j + \theta_i + \epsilon_{jit} \quad (1)$$

where y_{jit} is the dependent variable, α is the intercept, x'_{it} is a K-dimensional row vector of time-varying explanatory variables, β is a K-dimensional column vector of parameters, θ_i is an individual-specific effect, and ϵ_{jit} is an idiosyncratic error term. We will assume throughout this handout that each individual i is observed in all time periods t. Considering the above, the equation of the current developed econometric model will take the form of (Equation (2)):

$$\begin{aligned} y_{jit} = a_j + \beta_j \mathrm{ESG}_{it} \quad & + \beta_j \mathrm{ENVIRONMENTAL\_INNOVATION}_{it} + \beta_j \mathrm{RESPONSIBILITY}_{it} \\ & + \beta_j \mathrm{ESG\_CONTROVERSIES}_{it} + \beta_j \mathrm{GREEN\_BUILDINGS}_{it} + \beta_j \mathrm{E\_WASTE}_{it} \\ & + \beta_j \mathrm{WHISTLEBROWER}_{it} + \beta_j \mathrm{ETHICS}_{it} + \beta_j \mathrm{CO2\_EMISSIONS}_{it} + \theta_i + \epsilon_{jit} \end{aligned} \quad (2)$$

where y_{jit} denotes the dependent variable of earning stability (EARN_STAB); β coefficients are the slope parameters of the explanatory variables ESG, ENVIRONMENTAL_INNOVATION, RESPONSIBILITY, ESG_CONTROVERSIES, GREEN_BUILDINGS, E_WASTE, WHISTLEBROWER, ETHICS, and CO2_EMISSIONS; the θ_i coefficient represents the random effect of each cross-section; and the ϵ_{jit} coefficient is the random error term.

Based on the above, a random regression model is employed to test H1. Typically, we disregard the fixed effects and concentrate solely on the independent variables. Thus, we can employ random effects to examine the impact of the independent variables on the dependent variable, earning stability. The outcomes of the model used to validate hypothesis H1 will be presented in Table 1. A collinearity check is conducted using a variance inflation factor (VIF) study.

4.4. Method and Model Robustness

The estimations included in our study are derived from dynamic panel data approaches. One of the benefits of utilizing panel data is their ability to account for differences in both cross-sectional and time-series dimensions. By minimizing temporal flaws in the data, the likelihood of accurately generalizing the results is diminished. The fixed-effects model is used to estimate the parameter for each cross-sectional unit, which in this case refers to companies. On the other hand, the random-effects model assumes that firm-specific components are randomly distributed. As a result, this model demonstrates enhanced efficiency and eliminates the necessity of estimating individual parameters for each financial institution. The subsequent phase involved the determination of either the fixed- or random-effects model using the Hausman test statistic. This statistical measure is quite beneficial in discerning the suitable selection between a fixed-effects model and a random-effects model. The utilization of the random-effects model is ultimately applied to assess and quantify the impact of ESG variables on the financial performance of enterprises. This assessment is conducted by means of the Hausman test statistic. Additionally, to evaluate the stationarity of each variable, the analysis begins by employing the Levin–Lin–Chu (LLC) panel unit root tests, as suggested by Levin, Lin, and Chu in 2002. In the context of regression analysis, the selection of a suitable level or beginning difference is made. The descriptive statistics of the variable series are calculated, in addition to the correlation coefficients among other financial variables.

5. Discussion

The current research is motivated by the necessity of understanding the impact of ESG issues on the financial performance of financial institutions in Europe. The study specifically demonstrates statistically significant positive correlations between consistent profits and ESG criteria, such as ethics and accountability. Researchers frequently employ the return on assets, return on equity, or Tobin's q ratio as dependent variables to investigate the impact of ESG concerns on the financial health of firms or organizations. Nevertheless, this study sets itself apart from prior research by employing wage stability as the dependent variable to investigate the research problem, which is one of the unique elements of this study. In contemporary times, achieving consistent income is often regarded as the predominant and most utilized measure of financial achievement. Earnings are typically considered by industry experts as the most crucial financial stability measure that they disclose to external parties. Furthermore, consistent financial gains are crucial for making strategic decisions such as determining the value of shares, establishing performance-driven compensation schemes for managers, and conducting negotiations for mergers and acquisitions. In addition, computation is readily comprehensible and clear, and management receives

commendation when there is an increase in profits. When managers' remuneration is tied to the financial performance of the organization, they inherently prioritize the preservation of consistent earnings. This study examines the hypothesis by utilizing the earning stability variable acquired from the Refinitv Eikon database. This study introduces a different approach to analyzing the influence of ESG issues on the financial stability of European financial institutions. Specifically, it focuses on assessing the coherence of earnings, a subject that has not been examined in previous research. Earning stability pertains to the degree of steady earnings produced throughout a specific timeframe. Enhancing an organization's profit stability can effectively mitigate uncertainty and volatility, thus fostering financial stability.

Business proprietors and financial institutions have the common goal of optimizing financial performance. Nevertheless, the crucial question is the degree to which companies are willing to sacrifice their beliefs to attain financial benefits. Remarkably, certain corporations seek profits above all other factors and frequently overlook ethical considerations, including financial institutions (Alatawi et al., 2024; Ozdemir et al., 2023). While initially providing short-term benefits, neglecting ethical principles can ultimately harm the reputation of any organization in the long run. In the corporate setting, ethics pertains to the practice of making decisions that align with the values and social norms upheld by the majority. These aspects include creating a conducive work environment for employees, offering a product that is of exceptional quality and value, and giving utmost importance to the safety of consumers and society. Ethical business practices involve making informed decisions and carrying out company activities in a way that is widely seen as ethically acceptable by humans (Song & Thakor, 2022). While moral viewpoints may vary among individuals, the moral border is generally identifiable. As a business owner, it is within their authority to determine whether to violate that barrier. Some organizations perceive a clear division between ethical considerations and financial benefit, causing them to favor the latter. While opting for an unethical decision may sometimes lead to increased financial profits, it can also have adverse consequences for the company's long-term standing. If clients view a company as morally reprehensible, they may become hesitant to endorse it, ultimately resulting in a substantial decrease in earnings over a prolonged period (Attig et al., 2013).

The present analysis indicates a robust positive correlation between financial prosperity and ethical conduct within financial institutions. The European financial industry places significant priority on ethics due to its profound impact on corporate reputation and success. By integrating ethical practices, a bank showcases its adherence to concepts such as fairness, integrity, social responsibility, transparency, and adherence to regulations. Ethical financial institutions uphold principles of openness, cultivate strong communities, and establish a system of principles and beliefs that guide the distribution of resources (Lins et al., 2017; Mion et al., 2023). This method improves their profitability and, consequently, their financial performance. Moreover, European banks that follow this strategy sometimes serve as the last chance for several start-ups to obtain the necessary funds needed to begin their operations. Hence, financial institutions that uphold ethical standards have the potential to enhance the broader market by exerting a favorable influence on the financial performance of all enterprises. However, in the face of ethical uncertainties and substantial pressure, banks may engage in behaviors that put their reputation at risk and lead to financial peril. Financial institutions unequivocally reject any involvement in bribery, whether it comes to approving loans, dealing with related companies, or misrepresenting clients.

Moreover, the banks are unable to fully conform to the forthcoming ethical requirements in their business. The banking sector faces numerous antagonistic challenges, principally arising from the widespread occurrence of bribery and corruption. Honesty and

transparency are greatly esteemed in the financial industry. The bank's continued existence depends entirely on its ability to consistently perform and deliver reliable services. To overcome these obstacles, it is necessary to develop a carefully crafted strategy plan that follows ESG principles and incorporates triple capital accounting. The combination of these two concepts aims to evaluate, reveal, and improve the financial, social, and environmental performance of financial institutions over a specific timeframe. This requires a thorough overhaul in seven crucial domains, encompassing markets, principles, openness, life-cycle technology, collaborations, temporal outlook, and corporate governance.

Corporate responsibility is especially highlighted by the current study as the second variable that has a strong relationship with the financial performance of European financial institutions. The relationship between earnings and corporate responsibility is notably stronger than the one between earnings and ethics. In this study, corporate responsibility has been measured by the Corporate Responsibility Award Score variable, which describes if a company has received an award for its social, ethical, community, or environmental activities or performance. For every financial institution, the analysis of financial returns is crucial when incurring costs or making investments. A smart investment is one that yields future advantages. To comprehensively assess the impact of implementing the CSR concept on the firm, it is necessary to make a connection with the potential future advantages or disadvantages it may have on the company's financial performance. Hence, the correlation between CSR and corporate financial performance is a significant subject in the field of business management literature. Empirical data support a direct correlation between CSR and financial performance. Positive financial performance yields positive social performance, since organizations that generate more profits possess greater resources to allocate towards social initiatives.

Conversely, increased investment in social activities garners additional and superior resources, mindful consumers, and an enhanced reputation, creating a stronger competitive edge over rival enterprises. In contemporary business, firms consider reputation to be a highly significant element that necessitates constant preservation and safeguarding. Emphasizing CSR enhances the company's attractiveness to investors and subsequently results in improved financial performance since existing investors recognize the significance of social, environmental, and economic issues. Additionally, several scholars contend that corporations with superior social performance attract greater investments. Similarly, Eccles et al. assert that investing in CSR is significant. Companies that prioritize these actions experience enhanced financial performance, resulting in increased value for their shareholders. This is due to the acquisition of loyal customers and a more dedicated workforce. Conversely, Singha et al. emphasize that dedicated employees and upper-level executives, in conjunction with sustainable environmental management techniques, improve the company's environmental performance, which subsequently has a beneficial impact on its competitive advantage.

Although there is a strong correlation between ethical factors and the financial performance of financial institutions, the current research findings highlight how weak their performance in this area is. Nevertheless, what is the cause behind the inadequate adherence to ethical standards in financial institutions in Europe? Additionally, what measures can be taken to rectify the situation? The present study aims to emphasize the disparity between business ethics and professional management and proposes that business ethicists themselves may bear significant responsibility for this divergence. Ethical dilemmas are intricate and encompass a multitude of interconnected aspects. This might present challenges for managers in effectively implementing ESG goals. Moreover, there is a dearth of defined measures for assessing the ethical performance of firms, specifically in relation to the implementation of ESG policies. Moreover, another difficulty lies in the fact that

ethical concerns are always undergoing changes and developments. Consequently, financial institutions must demonstrate flexibility and adaptability in their approach to ESG matters. They must possess the capability to promptly adapt to evolving situations and rising hazards. Implementing an ESG strategy to address ethical concerns necessitates a substantial allocation of time and resources. To effectively adopt an ESG strategy, it is imperative for financial institutions to demonstrate a strong dedication to sustainability and ethical business practices (Peng et al., 2023; Qin et al., 2024; Erhemjamts et al., 2024; Asif et al., 2023).

The current study has practical implications for the banking sector, suggesting that ESG may influence investment strategies and risk management methods within the industry. Banks must enhance ESG data management, integrate data throughout their ecosystem, and render it actionable for effective response. They must also guarantee that the employed technology enhances energy efficiency. Financial institutions exhibit a robust commitment to promoting the interests of their clients and investors. By implementing a well-designed and efficiently implemented ESG data and technology strategy, organizations may successfully close this gap. This will assist financial institutions in enhancing the efficacy of their ethical procedures. However, the banking sector may have considerable challenges in adopting ESG practices to enhance profitability stability. A multitude of reporting systems, complex regulations, and advanced data management may represent some of these issues. The current challenge is the lack of established standards or structure for ESG reporting. This is a significant challenge for multinational firms, as they may be required to adhere to many reporting formats. The two predominant reporting frameworks are the Global Reporting Initiative (GRI) and the Sustainable Accounting Standards Board (SASB) standards. ESG reporting is frequently executed through the publication of a sustainability report; however, a growing number of firms are disclosing data through webpages that showcase their ESG performance in conjunction with conventional reports. Also, sustainability reporting regulations may sometimes be confusing. There is an evident trend towards more rigorous regulation characterized by more comprehensive criteria, underpinned by accurate and dependable information. It endures throughout its growth (Oh et al., 2024; Ignatov, 2023).

To summarize, firms may encounter difficulties when implementing an Environmental Social Governance (ESG) approach. Several challenges arise in this context, such as identifying the appropriate framework; assessing and monitoring performance; obtaining governance data and insights; monitoring stakeholder sentiment and organizational reputation; and visualizing and managing risk mitigation, the absence of standardized metrics for evaluating companies' ESG performance, ever-changing ESG issues, and the substantial investment of time and resources. Notwithstanding these difficulties, it is imperative for firms to embrace ESG policies and practices that foster sustainability and ethical corporate conduct.

6. Conclusions

The present research underscores the paramount significance of ethics in ensuring effective financial performance and favorable earnings within European financial institutions. Specifically, ethics and the financial sector are intricately linked, with ethics serving as the bedrock of trust. In the absence of trust, the system becomes dysfunctional, unstable, or both, as recent events have vividly demonstrated. Establishing strong corporate governance frameworks, putting in place strong risk management systems, and encouraging a healthy risk culture are some of the ways that regulatory and supervisory reform can help build trust. However, regulation alone is insufficient without a sturdy ethical framework. As the saying goes, we build trust slowly, but we can lose it quickly. So, banking regulators

must be cognizant of these concerns and actively participate in the process. Moreover, this research contributes to the existing body of knowledge and enhances current studies exploring the correlation between corporate responsibility, ethics, and financial performance. A key finding of this empirical study is that ethics and corporate responsibility exert a positive impact on a company's revenue growth and profitability. These results hold significance for both scholars and professionals, providing them with the insight to develop deliberate ethics programs based on ESG principles that influence stakeholders in the expectation that these efforts will ultimately enhance financial performance. The study also underscores the importance of governance structures and their impact on earnings.

This empirical research not only broadens the boundaries of knowledge but also stimulates further discussions on the subject. There is a general scarcity of information concerning the correlation between ethics and financial performance in European financial institutions. Hence, the findings of this study contribute to the existing body of literature. While the study's applicability extends to enterprises in the financial sector, its relevance to other sectors of the economy may be limited. Further, future research should prioritize identifying additional pathways that contribute to the influence of CSR on organizations' financial performance. Also, because this study only looked at data from a certain time period, future studies need to look at data from longer periods of time to obtain a full picture of the dynamics at play. After a period of three years, further research may require a longer duration to obtain deeper insights. The ongoing research has meticulously examined and documented the disparities in the correlation between ESG factors and financial performance. It underscores the substantial link between ethical practices and corporate responsibility, contributing to a positive impact on earning stability and overall financial performance. But we still do not fully understand how ethics, bank stability, and the changing nature of financial globalization as a global framework for banking operations and regulatory growth are connected. As a result, one possible area of future research could be looking into the cause-and-effect connection between CSR, banks' financial stability and profits, and the process of financial globalization in the European banking sector, which is known for having a lot of cross-border financial integration.

To help the growth of sustainable financing, there are also a number of suggestions for combining regulatory incentives with risk management strategies. Improving regulatory frameworks is crucial for creating a stable and predictable environment for green investments. Governments must emphasize the creation and enforcement of clear rules and standards for green finance to reduce ambiguity and bolster investor confidence. Regulatory oversight and requirements for transparency help lower possible risks and make sure that activities related to green finance are in line with sustainability goals. Also, regulatory frameworks need to be able to change with the times and adapt to new trends and technological advances in green finance, which includes digital finance and new financial products. Governments can provide financial incentives and risk guarantees, while private sector partners can supply capital, expertise, and innovation for ecologically friendly projects. Working together could lead to the creation of new financial products and services that meet the needs of green finance. These could include hybrid financing structures and green insurance options. By fostering strong collaborations between the public and private sectors, developing nations may enhance the reach and effectiveness of green funding programs.

Moreover, there is a notable scarcity of studies on the selection of an appropriate financial institution in alignment with ethical principles. The literature often treats the ethical dimension as an element of social criteria, giving it insufficient emphasis. Ethics forms the foundation for essential concepts such as integrity, fairness, and transparency in procurement. The ethical components of a financial institution play a pivotal role in

assessing its business reputation. So, in the future, researchers should look into the moral issues that come up when evaluating financial institutions by reading a lot of existing research and talking to people who work in the field. The European financial industry employs the AHP-TOPSIS approach to apply the established criteria. As with any research, it is important to acknowledge the limitations of this study. The selected time frame can be considered a limitation of this study. However, the authors plan to update the database until FY 2024 and investigate the same issue using TOPSIS and AHP multicriteria methods in their future research plans.

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Appendix A

Table A1. Firms included in the sample per country. Source: authors' own elaboration.

Country	Number of Companies
United Kingdom	130
Switzerland	36
Germany	26
Italy	23
Sweden	22
France	13
Norway	12
Poland	12
Denmark	11
Spain	9
The Netherlands	8
Belgium	6
Greece	6
Russia	6
Austria	5
Finland	5
Ireland	4
Cyprus	2
Czech Republic	2
Lithuania	2
Luxembourg	2
Portugal	2
Romania	2
Slovakia	2
Hungary	1
Iceland	1
Malta	1
Slovenia	1
Total	**352**

Table A2. Description of the variables of the study. Source: authors' own elaboration.

Type of Variable	Name of Variable (Acronym)	Measurement
Dependent	Earning Stability (EARN_STAB)	Earning stability refers to the extent to which earnings have been consistently generated over a given period of time. Industries characterized by a more predictable development pattern tend to have stable profit growth (Kałdoński et al., 2020).
Independents	Target Emissions (EMISSIONS)	This variable pertains to whether the organization has established specific aims or objectives with regards to reducing emissions.
	Policy Emissions (POLICY_EMISSIONS)	This variable pertains to whether the firm has implemented a policy aimed at enhancing the reduction in emissions.
	ESG Score (ESG)	The comprehensive evaluation of a company's performance, derived from the self-disclosed data pertaining to the environmental, social, and corporate governance dimensions.
	CSR Strategy Score (CSR)	The communication of a company's integration of the economic (financial), social, and environmental components into its day-to-day decision-making processes is indicative of its practices.
	Environmental Innovation Score (ENVIRONMENTAL_INNOVATION)	This variable highlights the ability of a corporation to mitigate environmental costs and burdens for its consumers, resulting in the emergence of fresh market prospects facilitated by the use of novel environmental technologies, processes, or eco-designed goods.
	Emission Score (CO2_EMISSION)	The metric evaluates the level of dedication and efficiency exhibited by a corporation in mitigating environmental emissions during its manufacturing and operational activities.
	Environmental Pillar Score (ENVIRONMENTAL_PILLAR)	The metric assesses the influence of an organization on both biotic and abiotic components of natural systems, including atmospheric, terrestrial, and aquatic domains, as well as entire ecological networks.
	Governance Pillar Score (GOVERNANCE_PILLAR)	This variable assesses the efficacy of a company's systems and procedures in promoting the fiduciary duty of its board members and executives towards the long-term shareholders' best interests.
	Social Pillar Score (SOCIAL_PILLAR)	This metric assesses an organization's ability to cultivate trust and loyalty among its employees, customers, and society by implementing optimal management strategies.
	Corporate Responsibility Award Score (RESPONIBILITY)	This metric describes if a company has received an award for its social, ethical, community, or environmental activities or performance.
	ESG Controversy Score (ESG_CONTROVERSIES)	This metric measures a corporation's susceptibility to environmental, social, and governance problems and adverse occurrences as portrayed in worldwide media.
	Human Rights Score (HUMAN_RIGHTS)	This variable measures a company's effectiveness towards respecting the fundamental human rights conventions.
	Green Building Score (GREEN BUILDINGS)	This variable describes if the company reports about environmentally friendly or green sites or offices.
	Workforce Score (WORKFORCE)	This variable assesses a company's efficacy in promoting job happiness, fostering a healthy and safe work environment, upholding diversity and equal chances, and providing growth prospects for its employees.
	Community Score (COMMUNITY)	This variable measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics.
	e-Waste Reduction Score (E_WASTE)	This metric presents if the company reports on initiatives to recycle, reduce, reuse, substitute, treat, or phase out e-waste.
	Whistleblower Protection Score (WHISTLEBLOWER)	This metric refers to the ability of the company to have a provision or comply with regulations protecting whistleblowers.
	Bribery, Corruption, and Fraud Controversy Score (CONTROVERSIES)	This metric describes if the company is linked under the spotlight of the media because of a controversy with bribery and corruption phenomena, political contributions, improper lobbying, money laundering, parallel imports, or any tax fraud.
	Policy Business Ethics Score (ETHICS)	This metric strives to maintain the highest level of general business ethics in the code of conduct.
	Company Market Capitalization (CAPITALIZATION)	This metric represents the sum of market value for all relevant instrumentlevel share types.

Table A3. Correlation matrix of the independent variables.

	ESG	**CSR**	**Env_Innov**	**Emissions**	**Env_Pil**	**Gover_Pil**	**Soci_Pillar**	**Respon**	**ESG_Contr**	**Human_Righ**	**Green_Build**	**Work**	**Commun**	**Policy_Emis**	**e_Waste**	**Whistle**	**Controv**	**Ethics**	**CO2_Emission**	**Capitaliz**
ESG	1	0.79	0.68	0.82	0.83	0.9	0.93	0.56	0.25	0.73	0.52	0.88	0.77	0.68	0.36	0.62	0.15	0.64	0.23	0.23
CSR	0.79	1	0.56	0.75	0.72	0.73	0.71	0.51	0.11	0.65	0.45	0.69	0.55	0.62	0.31	0.51	0.03	0.56	0.14	0.19
Env_Innov	0.68	0.56	1	0.6	0.91	0.45	0.65	0.48	0.03	0.52	0.44	0.56	0.61	0.43	0.23	0.42	−0.05	0.4	0.18	0.16
Emissions	0.82	0.75	0.6	1	0.83	0.65	0.79	0.51	0.16	0.65	0.52	0.77	0.62	0.8	0.44	0.54	0.07	0.54	0.18	0.18
Env_Pil	0.83	0.72	0.91	0.83	1	0.61	0.79	0.56	0.07	0.66	0.55	0.71	0.69	0.64	0.34	0.55	−0.02	0.55	0.21	0.21
Gover_Pil	0.9	0.73	0.45	0.65	0.61	1	0.71	0.44	0.26	0.57	0.43	0.71	0.55	0.57	0.25	0.5	0.17	0.54	0.17	0.21
Soci_Pillar	0.93	0.71	0.65	0.79	0.79	0.71	1	0.55	0.27	0.76	0.47	0.9	0.87	0.65	0.37	0.62	0.17	0.65	0.23	0.23
Respon	0.56	0.51	0.48	0.51	0.56	0.44	0.55	1	−0.03	0.42	0.44	0.46	0.55	0.39	0.32	0.41	−0.08	0.4	0.26	0.14
ESG_Contr	0.25	0.11	0.03	0.16	0.07	0.26	0.27	−0.03	1	0.08	0.01	0.34	0.18	0.19	0.06	0.08	0.88	0.11	−0.08	−0.07
Human_Righ	0.73	0.65	0.52	0.65	0.66	0.57	0.76	0.42	0.08	1	0.39	0.63	0.56	0.52	0.32	0.49	0.01	0.5	0.19	0.17
Green_Build	0.52	0.45	0.44	0.52	0.55	0.43	0.47	0.44	0.01	0.39	1	0.45	0.41	0.38	0.31	0.38	−0.05	0.4	0.15	0.16
Work	0.88	0.69	0.56	0.77	0.71	0.71	0.9	0.46	0.34	0.63	0.45	1	0.68	0.66	0.38	0.53	0.23	0.57	0.17	0.18
Commun	0.77	0.55	0.61	0.62	0.69	0.55	0.87	0.55	0.18	0.56	0.41	0.68	1	0.5	0.26	0.61	0.11	0.63	0.25	0.24
Policy_Emis	0.68	0.62	0.43	0.8	0.64	0.57	0.65	0.39	0.19	0.52	0.38	0.66	0.5	1	0.28	0.46	0.11	0.47	0.11	0.15
e_Waste	0.36	0.31	0.23	0.44	0.34	0.25	0.37	0.32	0.06	0.32	0.31	0.38	0.26	0.28	1	0.28	−0.04	0.3	0.18	0.07
Whistle	0.62	0.51	0.42	0.54	0.55	0.5	0.62	0.41	0.08	0.49	0.38	0.53	0.61	0.46	0.28	1	0.04	0.61	0.18	0.23
Controv	0.15	0.03	−0.05	0.07	−0.02	0.17	0.17	−0.08	0.88	0.01	−0.05	0.23	0.11	0.11	−0.04	0.04	1	0.06	−0.11	−0.09
Ethics	0.64	0.56	0.4	0.54	0.55	0.54	0.65	0.4	0.11	0.5	0.4	0.57	0.63	0.47	0.3	0.61	0.06	1	0.17	0.2
CO2_Emission	0.23	0.14	0.18	0.18	0.21	0.17	0.23	0.26	−0.08	0.19	0.15	0.17	0.25	0.11	0.18	0.18	−0.11	0.17	1	0.15
Capitaliz	0.23	0.19	0.16	0.18	0.21	0.21	0.23	0.14	−0.07	0.17	0.16	0.18	0.24	0.15	0.07	0.23	−0.09	0.2	0.15	1

Table A4. Levin–Lin–Chu test.

```
#########################################################################
# Table A1 # Panel stationarity test by Levin–Lin–Chu

d04<-d03[,setdiff(colnames(d03), 'Countries')]
d04p<-pdata.frame(d04, index = c("Companies", "year"))
# purtest(d04p$Earnings, pmax = 4, exo = "none", test = "levinlin")

#########################################################################
```

Table A5. Random-effects model with "twoways" effect.

```
# because the random.method='"swar' is not applicable, so 'amemiya' is used
random01 <- plm(form03,data = d04, model = "random", effect = "twoways",random.method='amemiya') summary(random01)
## Twoways effects Random Effect Model
## (Amemiya's transformation)
##
## Call:
## plm(formula = form03, data = d04, effect = "twoways", model = "random", ## random.method = "amemiya")
##
## Balanced Panel: n = 352, T = 4, N = 1408 ##
## Effects:
## var std.dev share
## idiosyncratic 4.1580 2.0391 0.103
## individual 35.9908 5.9992 0.891
## time 0.2650 0.5148 0.007
## theta: 0.8325 (id) 0.7934 (time) 0.7571 (total) ##
## Residuals:
## Min. 1st Qu. Median 3rd Qu. Max.
## -14.91016 -0.61678 -0.29794 0.24946 21.78942
##
## Coefficients:
## Estimate Std. Error z-value Pr(>|z|)
## (Intercept) 2.5236 4.9769 5.0706 3.965 ***
## ESG -1.2480 9.2869 -1.3438 0.17901
## Environmental_Innovation -6.6081 5.0280 -1.3143 0.18876
## Responsibility 1.0293 3.3602 3.0631 0.00219 **
## ESG_Controversies -3.4225e-04 2.6881 -0.1273 0.89869

## Green_Buildings 1.1332 3.6605 0.0310 0.97530
## e_Waste 4.5485 3.3121 1.3733 0.16966
## Whistleblower 1.6363 4.3898 0.3728 0.70933
## Ethics 1.0178 5.3281 1.9102 0.05611 .
## CO2_Emission -1.6138 1.1431 -0.1412 0.88773
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Total Sum of Squares: 5935.2
## Residual Sum of Squares: 5853.8
## R-Squared: 0.013711
## Adj. R-Squared: 0.0073618
## Chisq: 19.4349 on 9 DF, p-value: 0.021739
```

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