

The Impact of Sustainable Practices on Bank Returns

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Abstract

Given their important role as intermediaries in financial transactions and executors of monetary policies, banks are being asked to be key players in implementing sustainable practices. However, empirical research has shown conflicting results on the relationship between environmental, social, and governance (ESG) scores and banks' profitability and value. Therefore, this study aims to verify whether sustainable practices impact banks' returns and value creation. In addition, it identifies whether there are differences between the effects of individual ESG dimensions on financial institutions in developed and emerging countries. To this end, a sample of 195 publicly traded commercial banks from 69 countries is considered - 39 developed and 30 emerging. The data are obtained from the Bloomberg and World Bank databases for the period 2013 to 2022. They are analyzed using a logistic regression model. As a result, it is found that sustainable practices impact banks' returns and that this effect is different between developed and emerging countries. Developed countries show positive short-term returns, especially in social practices. However, in the long term, they do not recognize the economic sustainability or value creation of ESG actions, particularly in the corporate governance dimension.

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1. Introduction

Sustainability trends are changing the way companies conduct their operations. They have realized that their actions affect all stakeholders - not just their shareholders. This sustainability agenda is supported by international organizations such as the United Nations (UN), Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), World Business Council for Sustainable Development (WBCSD) and Principles for Responsible Investment (PRI). These institutions define principles, guidelines and best practices for companies to manage their functions and assets in a more sustainable manner, together with their stakeholders (Chen et al., 2023; Gerged et al., 2023).

A priori, sustainable proxies focused primarily on the social and governance dimensions, which were reflected in the concept of Corporate Social Responsibility (CSR). Subsequently, the environmental dimension began to gain greater prominence, giving rise to environmental, social, and governance (ESG) practices. The disclosure of ESG scores has been receiving increasing attention, as this metric signals the level of companies' effective commitment to sustainability issues. Empirical studies seek to understand the relationship between such practices and the financial performance and value of companies (Gao et al., 2022; Yoo and Managi, 2022).

There are those who present a positive relationship between sustainable practices and the profitability or value of companies (Wong et al., 2021; Pulino et al., 2022). The authors argue that such practices are associated with a reduction in risks and costs, improved image, and attraction of consumers and investors aligned with this profile. Others point to a negative relationship (Menicucci and Paolucci, 2023). For these, investments in sustainable practices divert resources from partners to activities that generate unnecessary expenses, expropriating their wealth. Finally, there are those who do not identify a statistical significance in this relationship (Azmi et al., 2021).

Banks are intermediaries for financial flows between investors and people who need money. Therefore, they are essential to maintaining the soundness and stability of the financial system and the economic development of countries. Currently, there is an increase in investor demand for sustainable products. Associated with this, there is pressure from regulatory bodies on the need for banks to present an action plan focused on managing ESG risks. One possible way for banks to communicate their commitment to these demands is by integrating an environmental agenda into their credit policies and by offering “green” products and services – e.g., environmental consulting, climate products, socially responsible savings instruments, etc. (Polyzos et al., 2021; Menicucci and Paolucci, 2023).

In addition to voluntary adherence, commercial banks are also encouraged to adopt sustainable practices in order to comply with the standards established by central banks, securities commissions, and accounting entities. In the case of Brazil, for example, the Brazilian Central Bank published resolutions no. 4,943/2021 (BCB, 2021a) and no. 945/2021 (BCB, 2021b), which deal with management, risk

reporting, and social, environmental, and climate responsibility policies. In turn, the Brazilian Securities and Exchange Commission published resolution no. 193/2023 (BSEC, 2023). It clarifies that publicly traded companies may voluntarily disclose their sustainability report from January 1, 2024, and mandatorily from January 1, 2026. With this, Brazil becomes the first country to adopt the report of financial information related to sustainability issued by the International Sustainability Standards Board (ISSB).

Similar empirical studies - in developed countries - identify that the relationship between sustainable practices and bank returns is diverse, and can be: i. positive (Buallay, 2019; Batae et al., 2021; Dragomir et al., 2022; El Khoury et al., 2023), ii. negative (Buallay et al., 2021) or without statistical significance (Menicucci and Paolucci, 2023). The same variety of results occurs in the case of emerging countries, being: i. positive (Azmi et al., 2021; Gutiérrez-Ponce and Wibowo, 2023) or ii. negative (Buallay et al. 2021). Thus, it can be seen that despite the macroeconomic differences between both types of economies, the results point to the lack of consensus on the subject, motivating the continuation of this investigation.

Therefore, this study aims to verify whether sustainable practices – general ESG scores – impact banks' returns. In addition, it intends to identify whether the impact of individual ESG dimensions – environmental, social and governance – is different on the returns of banks from developed and emerging countries. To this end, a sample composed of 195 publicly traded commercial banks from 69 countries is considered – 39 developed and 30 emerging. The data are obtained from the Bloomberg and World Bank databases for the period from 2013 to 2022. They are analyzed using a logistic regression model.

This study differs from others by analyzing possible differences in the impact of specific ESG dimensions in developed and emerging countries. In addition, the sample includes commercial banks from 39 countries, 20 of which are developed and 19 are emerging. The results of the study contribute to academia by confirming the hypotheses and theories that support them. Identifying a negative relationship between overall ESG scores and banks' returns can help them seek to better redirect their sustainable policies. The goal is for them to obtain financial benefits, rather than simply comply with a standard.

Identifying differences between specific ESG dimensions – between developed and emerging countries – can help governments and regulators adapt their policies, encouraging economies to adopt global sustainability standards. Finally, these results can help investors make more assertive decisions about how to invest their resources, opting for banks that are attentive to their long-term continuity and committed to environmental, social and governance issues.

2. Literature review

The literature review presents the main concepts related to the topic of this study, the theories that support its hypotheses, as well as the results of similar empirical studies.

2.1 Sustainable practices and the role of banks

The acronym ESG encompasses the corporate management of three pillars - environmental, social and governance. The environmental pillar is related to the organization's ecosystem management, involving the control of greenhouse gas emissions, pollution, waste treatment - including water - use of renewable energy, etc. The social pillar seeks to measure how the company conducts relations with all its stakeholders, ensuring the application of human rights and offering equal opportunities to its workforce. Finally, the governance pillar aims to ensure the full functioning of the company's corporate governance structure. Among its mechanisms, the following stand out: executive compensation policies and dividend distribution to shareholders, implementation of internal controls and compliance rules, among other aspects (Alsayegh et al., 2020; De Giuli et al., 2024).

Companies with good sustainable performance have better financial performance and fewer risks arising from their business activities. Furthermore, they obtain economic benefits, due to the recognition of their legitimacy before stakeholders (Eliwa et al., 2021). Gregory (2022) complements this perception by stating that companies with better ESG performance are more resilient to exogenous shocks. In turn, Bofinger et al. (2022) understand that, due to these aspects, such companies attract more investors - especially institutional ones. These, in turn, act as monitors capable of disciplining the managers of these companies, through their right to vote. By exercising this right, investors have the power to threaten exclusion or effectively replace executives who are not aligned with their interests focused on sustainable practices (Edmans and Holderness, 2017).

In turn, one of the main functions of the banking industry is to mediate financial flows between savers and those who need money. However, banks are not limited to promoting investments and capturing deposits; they also act as socially responsible agents. Therefore, they are a fundamental part of the success of a country's environmental, social, and economic development. To this end, they need to overcome the challenge of operating in a business model that promotes sustainable development, without compromising their own long-term continuity (Scholtens and Klooster, 2019; Batae et al., 2021; Barak and Sharma, 2023).

In fact, the sustainability agenda has also been gaining increasing importance in the banking sector. Companies expect the financial industry to assist them in the transition process to a more sustainable economy. This demand can be met by adopting a strategic agenda with goals and actions to be planned and fulfilled in the medium and long term. However, the adoption of sustainable practices, as well as the integration of ESG factors into their products and services, may not provide banks with the desired financial results in the short term (Dragomir et al., 2022; Nobanee and Ellili, 2022; Menicucci and Paolucci, 2023).

2.2 Finance theories and sustainable practices

Stakeholder theory states that companies must meet the expectations of all their stakeholders, not just their shareholders (Freeman, 1984). Therefore, by implementing sustainable practices, banks communicate to the market their alignment with this theory. This positioning makes it possible to mitigate potential disputes between related parties, as well as to identify opportunities that aim to improve their financial performance (Gangi et al., 2018).

However, Batae et al. (2021) obtained conflicting results. They identified a statistically positive (insignificant) relationship between the environmental (social) dimension and the financial performance of European banks. For the authors, banks seek efficiency by offering environmentally conscious products and services, confirming the stakeholder theory. However, investors do not value their involvement in social responsibility initiatives - which could reduce the risk of their portfolio. This argument corroborates that of Friedman (1970), who claims that the social responsibility of companies is to increase their profits - shareholder theory.

In turn, agency theory states that companies are a set of contracts in which agents (managers) must represent the interests of the principals (shareholders) – e.g., wealth creation or long-term profit maximization. However, there is sometimes a conflict of interests between the two, requiring the use of costly controls to mitigate them – known as agency costs (Jensen and Meckling 1976). Therefore, this theory supports, above all, the governance dimension that, through its supervision tools, promotes the alignment of interests between managers and investors (Zehri and Zgarni 2020; El Khoury et al., 2023).

However, the relationship between governance and banks' financial performance is controversial. El Khoury et al. (2023) identify a concave function between both constructs. Therefore, it is up to banks to define their inflection point. In other words, it is necessary to detect at what point the use of these tools becomes excessive, reducing banks' returns. Batae et al. (2021) find a result that opposes agency theory, finding a negative relationship between governance scores and banks' performance. They conclude that banks do not endorse the adoption of best governance practices. Regarding the information asymmetry theory, it states that in a transaction, one of the parties holds more information than the other (Akerlof, 1978). In the case of companies, for example, managers have more knowledge about their operations than other stakeholders. When analyzing the relationship between sustainable practices and the financial performance of banks, Azmi et al. (2021) found a positive relationship between ESG and banks' cash flows and net interest margin. They understand that this is due to the reduction of information asymmetry between managers and the market. Bolognesi and Burchi (2023) ratify this position. For them, by incorporating information about sustainable practices in their recommendation reports, financial analysts reduce information asymmetry between investors and companies. Despite this, studies such as those by Buallay et al. (2021) find that ESG practices reduce banks' accounting results, contradicting the information asymmetry theory.

Regarding the legitimacy theory, it clarifies that institutions seek to obtain and maintain society's support and approval for their activities and existence. Therefore, it can be understood as a social license for companies to operate effectively and acceptably (Suchman, 1995). When a bank is perceived as legitimate, its stakeholders are more likely to support its activities, trust its practices, and maintain stable relationships with the financial institution. Such facts can lead to improved financial performance. For Buallay et al. (2021), the disclosure of sustainable practices motivates employees, generates competitiveness, and increases the transparency, reputation, and legitimacy of companies. By verifying that sustainable practices increase the value of banks, they ratify the legitimacy theory.

Regarding the resource-base view theory, it argues that sustainable competitive advantage derives from the development of superior capabilities and resources (Barney, 1991). Thus, by focusing on the efficient use of resources, process digitalization, and the provision of environmentally sustainable products and services, banks reinforce the existence of a positive relationship between sustainable practices and financial performance. Furthermore, those that adopt solid ESG policies seek to enhance their reputation, minimize risks, and attract socially conscious investors.

Batae et al. (2021) corroborate this perception. For them, non-polluting environmental practices, for example – whether their own or their customers' – can be profitable for banks. Actions of this nature positively reinforce their image before society, in addition to avoiding potential litigation. Still in line with the resource-base view theory, socially responsible policies help banks distinguish themselves from their competitors and increase customer loyalty. Their long-term continuity depends on the trust and credibility attributed by society. Thus, by adopting a socially responsible stance, banks consolidate their position in the market, demonstrating interest in the efficiency and diversity of their resources – especially human resources.

However, there are opposing arguments. According to El Khoury et al. (2023), spending resources to achieve social and environmental goals – such as reducing pollution, increasing employee salaries and benefits, and community donations and sponsorships – increases costs, reducing banks' profitability. Dragomir et al. (2022) point out that banks – when forced to spend resources on social practices – should not expect short-term benefits from these activities.

In summary, the aforementioned theories support a positive relationship between sustainable practices and the financial performance of banks. However, empirical studies that seek to confirm this relationship, based on these theories, obtain antagonistic results. This fact supports the following hypothesis:

H1 - ESG scores impact banks' returns.

2.3 Sustainable practices of banks in developed and emerging countries

The implementation of sustainable practices by banks in developed and emerging countries occurs differently. In the case of emerging countries, there are fewer governance mechanisms and more market uncertainty, which leads banks to have a higher level of equity reserves. Furthermore, due to the nature of their activities, banks move more resources than other types of companies. Therefore, they are under greater pressure to maintain legitimacy in society. In the event of bankruptcy, for example, they have regulatory mechanisms that offer them financial support to mitigate possible contagion effects. Such facts mean that banking activities are constantly monitored by regulatory bodies, markets, and the media. Thus, their sustainability reports communicate even more powerful signals, given the extent of their impact (Azmi et al., 2021).

Table 1 presents a summary of the differences between studies related to banks operating in developed and emerging countries. In all of them, the dependent variable is their financial performance. In the case of developed countries, the study by Miralles-Quirós et al. (2019) identifies that there is a positive relationship in the governance dimension. The authors understand that this is due to the greater demand from stakeholders regarding transparency of information, which ends up mitigating the asymmetry with managers. In contrast, Buallay et al. (2021) find a negative relationship between ESG scores and banks' ROE. By directing resources to sustainable actions, banks reduce their competitive advantage over those that do not. As for the study by Menicucci and Paolucci (2023), the results show a positive relationship between emission and waste reductions, as well as between management tools and the financial performance of banks. However, more socially responsible products reduce their accounting result.

Regarding studies conducted with samples from emerging countries, Buallay et al. (2021) identify the same negative relationship between ESG and banks' ROE – similar to the sample with developed countries. These results contradict stakeholder and legitimacy theories that predict the achievement of financial benefits through banks' commitment to their social performance. The study by Azmi et al. (2021), on the other hand, presents a positive relationship between the overall ESG score and the environmental dimension, in relation to banks' ROE. They signal to their stakeholders that they are committed to community development and less willing to engage in practices that harm them. Finally, the study by Gutiérrez-Ponce and Wibowo (2023) does not obtain statistically significant results. For the authors, bank managers adopt sustainable actions, aiming only at their own benefit. However, these practices impose costs on banks that do not translate into greater profit later. Given the heterogeneity of the results of the aforementioned studies, it follows that:

H2 - ESG scores have a distinct impact on the return of banks in developed and emerging countries

Table 1: Summary of results of empirical studies

Variables	Developed countries						Emerging countries					
	Miralles-Quirós <i>et al.</i> (2019)		Buallay <i>et al.</i> (2021)		Menicucci and Paolucci (2023)		Buallay <i>et al.</i> (2021)		Azmi <i>et al.</i> (2021)		Gutiérrez-Ponce and Wibowo (2023)	
	Sign	SS	Sign	SS	Sign	SS	Sign	SS	Sign	SS	Sign	SS
ESG	NA	NA	-	1%	NA	NA	-	1%	+	10%	+	NS
ENV	+	NA	NA	NA	+	10%	NA	NA	+	10%	-	NS
SOC	+	NA	NA	NA	-	10%	NA	NA	+	NS	-	NS
GOV	+	1%	NA	NA	+	10%	NA	NA	+	NS	+	NS
SIZ	-	1%	NA	NA	+	5%	NA	NA	NA	NA	-	NS
EFF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LDR	NA	NA	NA	NA	+	5%	NA	NA	NA	NA	NA	NA
CAR	NA	NA	NA	NA	+	NS	NA	NA	NA	NA	NA	NA
GRL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WGI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: SS – Statistical significance, NS – No statistical significance, NA – Not applicable.

Definition 2.1 *This is a text of a definition.*

$$ax + by + c = 0$$

3. Methodology

The final sample consists of 195 publicly traded commercial banks (SIC codes 6021, 6022, 6029, 6035, and 6038) from 39 countries, 20 of which are developed and 19 are emerging. The data are obtained from the Bloomberg and World Bank databases for the period from 2013 to 2022. The data in this study are analyzed using descriptive statistics and correlation analysis. Hypotheses H1 and H2 are verified using a logistic regression model – see Equation 1. The classification of developed and emerging countries is defined by the World Bank. Developed countries have a gross national income (GNI) per capita above US\$ 13,846. Emerging countries are those with GNI per capita between US\$ 1,136 and US\$ 13,845 (World Bank, 2024). The coefficients of the logistic regression (logit) model are estimated using the maximum likelihood method. The goodness-of-fit of the model can be assessed in two ways – by pseudo coefficient of determination (R²) and by predictive accuracy. The basic measure of how well the maximum likelihood estimation procedure fits is the likelihood value, which is similar to the sums of squares values used in multiple regression. These measures of fit are: i. Likelihood value or likelihood value (Prob > chi²), ii. Pseudo R² and iii. Hosmer-Lemeshow goodness-of-fit test (sensitivity, specificity and correctly classified). The description of the variables is presented in Table 2 (Favero and Belfiore, 2019; Wooldridge, 2019; Gujarati and Porter, 2021).

$$P(R_i=1|x) = F(\alpha_0 + \beta_1 ESG_i + \beta_2 \text{Bank controls}_i + \beta_3 \text{Country controls}_k) \quad (1)$$

In which:

R = Bank return (ROE, PE); ESG = ESG scores; Bank controls = SIZ, EFF, LDR, CAR, GRL;
Country controls = WGI, P = Probabilidade; $F(z) = \exp(z)/[1+\exp(z)]$; i = bank; k = país

Table 2: Variables description

Acro	Name	ES	Formula	Components	Source	Ref.
Dependent variables – Bank return						
ROE	Return on equity	n/a	ROE = NI/TE (*)	NI = Net income TE = Total equity	Bloom	(a)
PE	Price earnings ratio	n/a	PE = SP/EA (*)	SP = Stock price EA = Earnings per share	Bloom	(b)
Independent variables – ESG scores						
ESG	Score geral ESG	+/-	ESG disclosure score	Scores varies from 1 to 100	Bloom	(c)
ENV	Environmental score	+/-	Environmental disclosure score	Scores varies from 1 to 100	Bloom	(d)
SOC	Social responsibility score	+/-	Social responsibility disclosure score	Scores varies from 1 to 100	Bloom	(d)
GOV	Corporate governance score	+/-	Corporate governance disclosure score	Scores varies from 1 to 100	Bloom	(d)
Bank’s control variables						
SIZ	Size	+	SIZ = ln (TA)	ln = Neperian logarithm TA = Total assets	Bloom	(d)
EFF	Efficiency ratio	-	EFF = OE/OI	OE = Operating expenses OI = Operating income	Bloom	(f)
LDR	Loan-to-deposit ratio	+	LDR = TL/TD	TL = Total loans TD = Total deposits	Bloom	(g)
CAR	Capital adequacy ratio	+	CAR = TA/RWA	TA = Total assets RWA = Risk-weighted sum of assets	Bloom	(i)
GRL	Growth rate of loan	+	GRL = (TL _t /TL _{t-1}) - 1	TL _t = Total loans of the current year TL _{t-1} = Total loans of the last year	Bloom	(j)
Country’s control variables						
WGI	Worldwide Governance Indicator	+	WGI = It varies between -2.5 and 2.5. The higher the regulatory environment index, the better	The index is derived from the average six-dimensional estimate - control of corruption, government effectiveness, political stability and absence of violence/terrorism, regulatory quality, rule of law and voice and accountability. The estimate gives the country score, for each dimension, in units of a standard normal distribution.	World Bank	(k)

Notes: Acro = Acronym, ES = Expected sign, Bloom = Bloomberg, Ref. = References, (*) For logistic regressions, this variable was converted into a dummy, where: 1 = if values are equal to or above the median and 0 = if on the contrary

References

- (a) Chalabi (2020); Batae et al. (2021); Dragomir et al. (2022); Menicucci and Paolucci (2023)
- (b) Tóth et al. (2021); Dragomir et al. (2022); Bolognesi and Burchi (2023)
- (c) Batae et al. (2021); Tóth et al. (2021); Liao and Li (2022); Bolognesi and Burchi (2023)
- (d) Buallay (2019); Batae et al. (2021); Bolognesi and Burchi (2023)
- (e) Azmi et al. (2021)
- (f) Ercegovac et al. (2020); Uralov (2020)
- (g) Dragomir et al. (2022); El Khoury et al. (2023); Menicucci and Paolucci (2023)
- (h) Azmi et al. (2021)
- (i) El Khoury et al. (2023); Menicucci and Paolucci (2023)
- (j) Le (2020); Nguyen and Le (2022)
- (k) Buallay (2019); El Khoury et al. (2023)

4. Main Results

4.1 Descriptive statistics

Table 3 presents the descriptive statistics of the total sample, as well as of the subsamples of developed and emerging countries. Regarding the dependent variables, the average return on equity (ROE) of emerging countries (13%) is higher than that of developed countries (9%). This may be related to the lower level of maturity and competitiveness of the former, which allows them to obtain higher profit margins than in already consolidated markets. On the contrary, the average price earnings ratio (PE) of developed countries (13%) is higher than that of emerging countries (10%). In emerging countries, there is a greater concentration of shareholder ownership. This is associated with an increase in dividend distribution and, consequently, a reduction in profit retention and new investments, which may reduce the PE of these companies (Arora and Srivastava, 2021).

Concerning the independent variables, it can be seen that the number of observations of environmental (ENV - 1.260) and social (SOC - 1.515) scores is lower than that of governance (GOV - 1.644). In fact, corporate governance practices have been regulated by the countries' security exchange commissions (SEC) for longer than environmental and social practices. Another aspect to be highlighted is that the average score for the GOV dimension (77.43) is higher than for ENV (23.62) and SOC (25.81). One possible explanation for this is the fact that banks – due to the nature of their business – are subject to stricter governance controls. Furthermore, according to Buallay et al. (2021), regulators are less forceful in requiring banks to disclose information about the impact of their actions on the environment.

About the banks' control variables, it can be seen that banks in developed countries (1.96) have a worse efficiency ratio (EFF) than those in emerging countries (1.57). This may be related to their larger volume of assets and credit operations (Belasri et al., 2020). Regarding the loan-to-deposit ratio (LDR), banks in developed countries have a higher average (96%) than those in emerging countries (87%). These results confirm the lower level of maturity of emerging countries and, therefore, a greater growth potential - growth rate of loan (GRL) of 11%. Concerning the capital adequacy ratio (CAR), while banks in developed countries

have an average of 2.02, that of emerging countries is 1.68. The CAR is a measure whose higher value indicates that the bank has lower risk-weighted assets and, therefore, lower credit risk.

Finally, regarding the country control variables, it can be seen that the worldwide governance indicator (WGI) of emerging countries (-0.01) is far from the governance index of developed countries (1.10). According to Belasri et al. (2020), in developed countries, investor protection is greater, with a high degree of orientation of banks to serve the interests of their stakeholders.

Table 3: Descriptive statistics

Var	Observations			Mean			Standard Dev.			Minimum			Maximum		
	T	D	E	T	D	E	T	D	E	T	D	E	T	D	E
ROE	1,76	897	865	0.11	0.09	0.13	0.05	0.05	0.06	0.00	0.00	0.01	0.64	0.64	0.44
PE	1,76	897	865	11.4	12.9	10.0	5.25	4.96	5.15	0.57	0.57	1.37	29.69	29.49	29.6
ESG	1,64	830	811	39.8	39.8	39.8	12.7	12.6	12.9	3.25	4.09	3.25	81.12	75.16	81.1
ENV	1,26	582	678	23.6	24.9	22.5	17.2	17.4	16.9	0.33	0.33	0.33	81.49	76.77	81.4
SOC	1,51	766	749	25.8	23.1	28.5	13.4	13.7	12.5	0.00	2.57	0.00	68.68	61.98	68.6
GOV	1,64	830	814	77.4	80.6	74.1	15.1	14.1	15.5	0.00	12.0	0.00	100.0	100.0	97.0
SIZE	1,76	897	865	13.4	12.3	14.6	3.08	3.23	2.45	6.16	6.16	10.5	21.41	20.31	21.4
EFF	1,74	887	858	1.76	1.96	1.57	1.15	1.15	1.12	0.30	0.45	0.30	9.50	9.50	9.10
LDR	1,65	824	834	0.92	0.96	0.87	0.27	0.32	0.22	0.09	0.35	0.09	2.78	2.78	1.71
CAR	1,68	880	805	1.86	2.02	1.68	0.87	1.12	0.44	0.69	0.69	0.99	9.47	9.47	3.90
GRL	1,49	742	751	0.10	0.09	0.11	0.12	0.13	0.12	-0.8	-0.7	-0.8	0.90	0.90	0.81
WGI	1,76	897	865	0.56	1.10	-0.01	0.86	0.32	0.88	-1.2	-0.2	-1.2	1.86	1.86	1.83

Notes: T = Total sample, D = Developed countries, E = Emerging countries

4.2 Correlation analysis

In turn, Table 4 presents the correlation analysis between the variables in Equation 1. It is worth noting the existence of a negative – and statistically significant – correlation between the ESG scores and the dependent variables (ROE and PE) – with the exception of SOC/ROE and GOV/PE. Thus, a priori, sustainable practices do not favor banks' returns in the short (ROE) and long (PE) terms. As for the accounting metric (ROE), the dimension that contributes most to this negative result is governance (-20%). According to Batae et al. (2021), this suggests that fewer controls favor higher returns to shareholders.

Regarding the market value of banks (MV), social practices are those least valued by their investors (-21%). For Yuen et al. (2022), this relationship confirms the trade-off hypothesis. The adoption of sustainable practices requires additional spending on social and environmental dimensions, mainly reducing banks' profits.

Regarding the banks' control variables, the expected negative (positive) correlation between the efficiency ratio - EFF (growth rate of loan - GRL) and their ROE is confirmed. Furthermore, there is a positive correlation between EFF and ESG scores. It is possible that the implementation of sustainable practices leads to additional operating expenses, compromising their efficiency.

About the country control variables, the negative (positive) correlation between the worldwide governance indicator - WGI and banks' ROE stands out. Contrary to expectations, countries with high levels of regulatory quality and effective governments compromise banks' financial results in the short term. However, this result may be influenced by some elements that have greater weight in the index. The study by Halac et al. (2024) points out that, in emerging countries, the WGI components that most contribute to reducing banks' profitability are government effectiveness and its rule of law.

Table 4: Correlation matrix

	ROE	PE	ESG	ENV	SOC	GOV	SIZE	EFF	LDR	CAR	GRL	WGI
ROE	1.00											
PE	-0.22 0.00	1.00										
ESG	-0.12 0.00	-0.18 0.00	1.00									
ENV	-0.09 0.00	-0.09 0.00	0.86 0.00	1.00								
SOC	-0.00 0.92	-0.21 0.00	0.84 0.00	0.67 0.00	1.00							
GOV	-0.20 0.00	-0.03 0.18	0.65 0.00	0.31 0.00	0.260 .00	1.00						
SIZE	0.02 0.39	-0.26 0.00	0.26 0.00	0.13 0.00	0.39 0.00	-0.07 0.00	1.00					
EFF	-0.35 0.00	0.08 0.00	0.13 0.00	0.15 0.00	0.16 0.00	0.07 0.01	0.00 0.91	1.00				
LDR	-0.11 0.00	0.10 0.00	0.12 0.00	0.18 0.00	0.13 0.00	-0.01 0.63	0.00 0.81	0.04 0.13	1.00			
CAR	-0.09 0.00	-0.07 0.00	0.23 0.00	0.17 0.00	0.20 0.00	0.07 0.00	0.13 0.00	0.09 0.00	0.14 0.00	1.00		
GRL	0.29 0.00	-0.04 0.10	-0.14 0.00	-0.05 0.09	-0.08 0.00	-0.13 0.00	-0.08 0.00	-0.09 0.00	-0.10 0.00	-0.14 0.00	1.00	
WGI	-0.25 0.00	0.18 0.00	0.15 0.00	0.19 0.00	-0.13 0.00	0.31 0.00	-0.16 0.00	-0.12 0.45	0.15 0.00	0.13 0.00	-0.09 0.00	1.00

Notes: The upper values are the correlation coefficients, while the lower ones are their level of statistical significance.

4.3 Logistic regressions

Tables 5 and 6 present the logistic regression results for the dependent variables ROE and PE, respectively – see Equation 1. The tests refer to the total sample (Models 1 and 2), developed countries (Models 3 and 4) and emerging countries (Models 5 and 6). Each sample presents two models. The first one analyzes the overall ESG score (Models 1, 3 and 5). The second one checks the individual scores of each of its dimensions (Models 2, 4 and 6). In all Models (1 to 6), robust standard errors are applied to deal with possible heteroscedasticity problems.

Models (1 to 6) in both Tables (5 and 6) are statistically significant - Prob > chi2 (0.0000). It is also observed that the Pseudo R² in Table 5 is higher than that in Table 6. This indicates that the explanatory variables measure a better quality of fit of the model to historical returns or to accounting values (ROE), than to future returns or to the market value (PE) of the banks. This same result can be observed in relation to the percentage of assertiveness (correctly classified) of Models (1 to 6) in Table 5(6), which is above 70% (60%).

It can also be seen that, in Table 5, the accuracy percentage of cases in which banks - which adopt sustainable practices - have high returns (sensitivity) is higher than that in Table 6, with the exception of Models 3 and 4. For this measure, it follows that the regression model with the dependent variable PE is more accurate for the subsample of developed countries. As for the forecasting capacity of companies that do not have a high return (specificity), Table 5 again presents higher percentages than Table 6 - with the exception of Models 5 and 6. For this metric, the subsample of emerging countries - of the regression model with the dependent variable PE - is more accurate, presenting a percentage higher than that of Table 5. In summary, it follows that the models whose dependent variable is based on market (accounting) value have a better quality of fit (sensitivity) for the subsamples of developed (emerging) countries.

4.4 Book or historical value return (ROE)

At Table 5, it can be seen that Models 3 and 5 indicate the significance of general ESG scores as predictors of high ROEs for banks. However, it is important to highlight that, while for developed countries this relationship is positive, for emerging countries, it is negative. In the case of the subsample of developed (emerging) countries, for each increase of 1 general ESG score for banks, there is an increase (reduction) of 4.47% (2.84%) in the chances of having a high level in their ROE. Given this opposition of results, in the total sample (Model 1), this relationship does not present statistical significance.

Furthermore, it is found that environmental practices (ENV) do not impact banks' ROE, while social practices (SOC) are positively significant only for banks in developed countries (Model 4). About the corporate governance dimension (GOV), there is a negative relationship with banks in the total sample (Model 2) and in emerging countries (Model 6), especially. Because it has existed for longer than other sustainable practices, GOV has the highest coefficient in the subsample of

emerging countries. Thus, an increase of 1 GOV score reduces the chances of a high ROE index for banks by 4.32% [$100 * (0.9568 - 1)$]. This result may be related to a lower level of maturity in these markets.

These results confirm *H1 - ESG scores impact banks' returns* and *H2 - ESG scores have a distinct impact on the return of banks in developed and emerging countries*, in line with those obtained by Buallay et al. (2021) for emerging countries - see Table 1. Regarding H1, the negative results contradict the theories of legitimacy and stakeholders; however, they are in line with the arguments presented by other empirical studies that high levels of sustainability do not bring immediate benefits. On the contrary, they can compromise banks' returns, due to the additional costs of their implementation.

Moreover, these investments can be perceived as short-term strategies, being more focused on meeting market expectations than on creating lasting financial benefits El Khoury et al. (2023). Regarding the banks' control variables, the consistently negative (positive) result of efficiency ratio - EFF (growth rate of loan - GRL) stands out. As for the countries' control variable, worldwide governance indicator (WGI), it presents statistical significance only for the total sample, with a relationship opposite to that expected.

Table 5: Logistic regression – ROE dependent variable

Variables	Total sample		Developed countries		Emerging countries	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
ESG	-0.0005 (0.9994)		0.0438*** (1.0447)		-0.028*** (0.97168)	
ENV		0.0054 (1.0054)		0.0124 (1.0125)		0.0116 (1.0117)
SOC		0.0120 (1.0121)		0.0355* (1.0361)		-0.0044 (0.9956)
GOV		-0.022*** (0.9777)		0.0029 (1.0029)		-0.044*** (0.9568)
SIZE	0.0333* (1.0339)	-0.0191 (0.9810)	-0.0726** (0.9299)	-0.1611*** (0.8511)	0.0559 (1.0575)	0.1150*** (1.1218)
EFF	-1.276*** (0.2789)	-1.265*** (0.2821)	-2.326*** (0.0976)	-2.676*** (0.06883)	-0.788*** (.4545)	-0.807*** (0.4458)
LDR	-0.4094* (0.6639)	-0.4923* (0.6111)	-0.5347* (0.5857)	-0.6959* (0.4985)	0.0197 (1.0199)	-0.3422 (0.7101)
CAR	0.0890 (1.0931)	0.0854 (1.0892)	-0.0039 (0.9960)	-0.0635 (1.0656)	0.4542 (1.5749)	0.4592 (1.5828)
GRL	2.9369*** (18.8576)	4.1068*** (60.7527)	1.0590 (2.8837)	1.9753 (7.2087)	5.3054*** (201.4297)	5.0760*** (160.1388)
WGI	-0.441*** (0.6433)	-0.2550* (0.7748)	-0.5121 (0.5992)	-0.4564 (0.6335)	-0.0325 (0.9679)	-0.0701 (0.9322)
_cons	1.7677*** (5.8575)	3.6949*** (40.2444)	3.3670*** (28.9923)	5.4464*** (231.9296)	0.7302 (2.0756)	2.3082 (10.0569)
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R ²	0.1879	0.2069	0.2780	0.3563	0.1301	0.1648
Robust standard erros-vce(robust)	Yes	Yes	Yes	Yes	Yes	Yes
Sensitivity	0.7356	0.7694	0.6398	0.7257	0.8796	0.8680
Specificity	0.6974	0.7043	0.8437	0.8529	0.4440	0.5447
Correctly classified	0.7158	0.7360	0.7720	0.8067	0.7102	0.7361

Notes: The upper values refer to the variable's coefficient, while the lower values (in parentheses) refer to its odds ratio. The statistical significance levels of the coefficients are 1% (***), 5% (**) and 10% (*).

4.6 Market or future value return (PE)

Table 6 shows that there is an inversion in the sign of the coefficient of the overall ESG score for the subsample of developed countries (Model 3). This indicates that the market understands that current investments in sustainability may compromise the results and, consequently, the share price of banks in the future. This perception also occurs for the total sample (Model 1). For emerging countries, however, these actions do not impact the banks' PE. As for the individual scores, it is clear that environmental practices (ENV) continue to be statistically insignificant, as well as social practices (SOC) for all samples. Again, these results corroborate *H1 - ESG scores impact banks' returns* and *H2 - ESG scores have a distinct impact on the return of banks in developed and emerging countries*.

Corporate governance practices also have a negative relationship, including for developed countries. An increase of 1 GOV score reduces the chances of a high PE ratio for banks, in general, by 1.29% [$100 * (0.9871 - 1)$]. In light of stakeholder theory, sustainability practices reflect the bank's commitment to meeting the expectations of the stakeholders involved. By adopting combined ESG actions, the bank signals its purpose in reconciling the interests of all stakeholders. However, specific investments in the GOV dimension can generate short-term expenses, without financial compensation. The costs of governance initiatives - such as greater transparency and control - can be considered excessively onerous. Thus, these efforts, although positive for other stakeholders, can be detrimental to the creation of wealth for their shareholders (El Khoury et al., 2023).

From an agency theory perspective, more austere governance policies can be seen as an attempt to better align managers' interests with those of shareholders. However, this can result in immediate costs. Improvements in governance – such as increased transparency, internal control, and accountability – can limit managers' flexibility, increasing banks' operating costs and reducing their financial performance. Furthermore, if investors perceive that governance practices are not mitigating agency conflicts effectively, this can have a negative impact on banks' PE (Zehri and Zgarni 2020; Dragomir et al., 2022).

Finally, regarding the control variables of the banks, the highlights are size (SIZE) and loan-to-deposit ratio (LDR). A priori, a positive relationship between both and the banks' PE was expected. In the case of SIZE, this relationship is negative at Models 1 to 4. Large banks can bear high fixed operating costs, reducing their future profits and value. Concerning the country control variables, WGI shows a positive relationship with dependent variables at Models 1 to 4. Countries with better regulatory quality contribute to the creation of value of entities in the long term.

Table 6: Logistic regression – PE dependent variable

Variables	Total sample		Developed countries		Emerging countries	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
ESG	-0.0268*** (0.9735)		-0.032*** (0.9682)		-0.0077 (0.9922)	
ENV		-0.0093 (0.9907)		0.0078 (1.0078)		-0.0009 (0.9990)
SOC		0.0069 (1.0070)		0.0021 (0.9978)		0.0081 (1.0082)
GOV		-0.0129** (0.9871)		-0.031*** (0.9687)		-0.0025 (0.9974)
SIZE	-0.141*** (0.8677)	-0.109*** (0.8959)	-0.196*** (0.8219)	-0.214*** (0.8071)	0.0425 (1.0435)	0.0472 (1.0483)
EFF	0.0950* (1.0996)	0.0348 (1.0354)	-0.215*** (1.2400)	0.1632* (1.1773)	-0.0958 (0.9085)	-0.1309 (0.8772)
LDR	0.9212*** (2.5123)	0.6720*** (1.9583)	0.4509 (1.5697)	0.1596 (1.1731)	1.0941** (2.9865)	0.7498 (2.1166)
CAR	-0.1044 (0.9008)	0.0762 (0.9266)	0.0443 (0.9565)	-0.1012 (0.9037)	-0.3518 (0.7034)	-0.3050 (0.7370)
GRL	-0.9915**	-2.250*** (0.1053)	0.5081 (1.6622)	-0.4280 (0.6517)	-2.660*** (0.0698)	-3.239*** (0.0391)
WGI	0.3199***	0.2047** (1.2272)	0.7722*** (2.1645)	1.1278*** (2.7045)	-0.2370** (0.7889)	-0.325*** (0.7218)
_cons	2.1514*** (8.5974)	1.9413*** (6.9680)	2.7586*** (15.7780)	4.2532*** 70.3313	-0.7771 (0.4597)	-0.8883 (0.4113)
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004
Pseudo R ²	0.0860	0.0415	0.1303	0.0887	0.0424	0.0472
Robust standard errors-vce(robust)	Yes	Yes	Yes	Yes	Yes	Yes
Sensitivity	0.6573	0.4482	0.8671	0.7917	0.1532	0.1292
Specificity	0.6788	0.7808	0.4256	0.5207	0.9019	0.9074
Correctly classified	0.6679	0.6320	0.7079	0.6694	0.6231	0.6250

Notes: The upper values refer to the variable's coefficient, while the lower values (in parentheses) refer to its odds ratio. The statistical significance levels of the coefficients are 1% (***), 5% (**) and 10% (*).

5. Conclusion

Banks act as mediators of financial transactions between savers and those who need credit. Therefore, they are essential to preserve the stability, solidity and economic growth of countries. In addition, banks are also responsible for meeting the demands of their stakeholders – customers, investors and regulators – by offering sustainable products. However, existing empirical studies – in developed and emerging countries – present conflicting results on the relationship between ESG scores and the profitability and value of banks.

Therefore, this study aims to verify whether sustainable practices impact the return of financial institutions. In addition, it intends to identify whether there are differences between the effects of individual ESG dimensions on banks in developed and emerging countries. To this end, a sample composed of 195 publicly traded commercial banks from 69 countries is considered - 39 developed and 30 emerging. The data are obtained from the Bloomberg and World Bank databases for the period from 2013 to 2022. They are analyzed using a logistic regression model, the results of which are presented in Tables 5 and 6. Table 5 analyzes the impact of sustainable practices on the historical accounting return of banks (ROE), while Table 6 verifies the future value of their share price (PE).

The results in Tables 5 and 6 confirm H1 - ESG scores impact banks' returns. In the case of Table 5, in the subsamples of developed (emerging) countries, for every 1 more general ESG score of the banks, there is an increase (decrease) of 4.47% (2.84%) in the probability of having a high level of ROE (Models 3 and 5). In the case of Table 6, there is an inversion in the sign of the coefficient of the general ESG score for the subsample of developed countries (Model 3). Therefore, it is clear that the market understands that investments in sustainability can compromise the current return of shareholders, as well as the stock price in the future. Also in Table 6, this perception also occurs for the total sample (Model 1).

H2 is also confirmed - ESG scores have a distinct impact on the return of banks in developed and emerging countries. In Table 5, the ESG scores of the social dimension (SOC) - for the subsample of developed countries (Model 4) - show a positive relationship with ROE. The scores of the governance dimension (GOV) have a negative relationship for the total sample (Model 2) and the subsample of emerging countries (Model 6). Table 6 also shows negative relationships between GOV and PE for the total sample (Model 2) and the subsample of developed countries (Model 4). Among sustainable practices, regulations on corporate governance were implemented longer ago than the other dimensions.

In general terms, the negative results contradict corporate finance theories – agency, information asymmetry, legitimacy, stakeholders and resource-base view – but they corroborate those obtained by other similar empirical studies. Some authors understand that companies are not obliged to solve social or environmental problems by adopting sustainability practices. In other words, any action that benefits other stakeholders – employees, customers or the community – should only be implemented if it also contributes to maximizing shareholder wealth.

Reallocating shareholder resources to create value for other stakeholders – through ESG practices – incurs high organizational costs and may constitute a potential wealth transfer mechanism. Implementing sustainable actions requires shifting resources to other, less profitable assets, which may reduce banks' financial performance and growth capacity. Furthermore, commitment to ESG practices may restrict the diversity of banks' investment portfolios to less profitable options, including charging lower interest rates to sustainable clients and projects.

Among the limitations of this study, we highlight the fact that there are fewer banks that present ESG scores, which limits the sample size. In addition, the criteria for measuring these scores vary among the companies that estimate them. Therefore, choosing other bases may eventually produce different results. Furthermore, for the purposes of developing this research, we suggest analyzing specific submetrics of each ESG dimension. It is interesting to identify which sustainability components are most valued by bank customers and investors. Finally, we recommend analyzing the profitability of banks established in countries where disclosure of sustainable practices is mandatory or voluntary.

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References

- [1] Akerlof, G. A. (1978). "The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84, 3, pp. 488-500. <https://doi.org/10.1016/B978-0-12-214850-7.50022-X>.
- [2] Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9), pp. 3910. <https://doi.org/10.3390/su12093910>.
- [3] Arora, R. K., & Srivastava, A. (2021). Ownership concentration and dividend payout in emerging markets: Evidence from India. *Global Business Review*, 22(5), pp. 1276-1288. <https://doi.org/10.1177/0972150918824953>.
- [4] Azmi, W., Hassan, M. K., Houston, R., & Karim, M. S. (2021). ESG activities and banking performance: International evidence from emerging economies. *Journal of International Financial Markets, Institutions and Money*, 70, pp. 101277. <https://doi.org/10.1016/j.intfin.2020.101277>.
- [5] Barak, M., & Sharma, R. K. (2023). Investigating the impact of intellectual capital on the sustainable financial performance of private sector banks in India. *Sustainability*, 15(2), pp. 1451. <https://doi.org/10.3390/su15021451>
- [6] Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), pp. 99–120. <https://doi.org/10.1177/014920639101700108>.

- [7] Batae, O.M., Dragomir, V.D., & Feleaga, L. (2021). The relationship between environmental, social, and financial performance in the banking sector: A European study. *Journal of Cleaner Production*, 290, pp. 125791. <https://doi.org/10.1016/j.jclepro.2021.125791>.
- [8] Belasri, S., Gomes, M., & Pijourlet, G. (2020). Corporate social responsibility and bank efficiency. *Journal of Multinational Financial Management*, 54, pp. 100612. <https://doi.org/10.1016/j.mulfin.2020.100612>.
- [9] Bolognesi, E., & Burchi, A. (2023). The impact of the ESG disclosure on sell-side analysts' target prices: The new era post Paris agreements. *Research in International Business and Finance*, 64, pp. 101827. <https://doi.org/10.1016/j.ribaf.2022.101827>.
- [10] Bofinger, Y., Heyden, K. J., & Rock, B. (2022). Corporate social responsibility and market efficiency: Evidence from ESG and misvaluation measures. *Journal of Banking & Finance*, 134, pp. 106322. <https://doi.org/10.1016/j.jbankfin.2021.106322>.
- [11] Brazil Central Bank (BCB) (2021a). Resolution no. 4943. Provides for the risk management structure, the capital management structure and the information disclosure policy. <https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Resolu%C3%A7%C3%A3o%20CMN&numero=4943>.
- [12] Brazil Central Bank (BCB) (2021b). Resolution n. 4945. Provides for the Social, Environmental and Climate Responsibility Policy (PRSAC) and actions aimed at ensuring its effectiveness. <https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Resolu%C3%A7%C3%A3o%20CMN&numero=4945>.
- [13] Brazilian Securities and Exchange Commission (BSEC) (2023). Resolution no. 193. Preparation and disclosure of financial information reports related to sustainability, based on international standards. <https://conteudo.cvm.gov.br/legislacao/resolucoes/resol193.html>
- [14] Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*, 30(1), pp. 1477-7835. <https://doi.org/10.1108/MEQ-12-2017-0149>.
- [15] Buallay, A., Fadel, S. M., Alajmi, J., & Saudagaran, S. (2021). Sustainability reporting and bank performance after financial crisis: Evidence from developed and developing countries. *Competitiveness Review: An International Business Journal*, 31(4), pp. 747-770. <https://doi.org/10.1108/CR-04-2019-0040>.
- [16] Chalabi, F. (2020). The impact of innovation on banking performance: Evidence from Lebanese banking sector. *Journal of Applied Finance and Banking*, 10(6), pp. 175-202. <https://doi.org/10.47260/jafb/1069>.

- [17] Chen, L., Khurram, M.U., Gao, Y., Abedin, M.Z., & Lucey, B. (2023). ESG disclosure and technological innovation capability of the Chinese listed Companies. *Research in International Business and Finance*, 65, pp. 101974. <https://doi.org/10.1016/j.ribaf.2023.101974>.
- [18] De Giuli, M. E., Grechi, D., & Tanda, A. (2024). What do we know about ESG and risk? A systematic and bibliometric review. *Corporate Social Responsibility and Environmental Management*, 31(2), pp. 1096-1108. <https://doi.org/10.1002/csr.2624>.
- [19] Dragomir, V.D., Batae, O. M., Ionescu, B.S., & Ionescu-Feleaga, L. (2022). The influence of ESG factors on financial performance in the banking sector during the Covid-19 pandemic. *Economic Computation & Economic Cybernetics Studies & Research*, 56(4), pp. 71-88. <https://doi.org/10.24818/18423264/56.4.22.05>.
- [20] Edmans, A., & Holderness, C. G. (2017). Blockholders: A survey of theory and evidence. *The handbook of the economics of corporate governance*, 1, pp. 541-636. <https://doi.org/10.1016/bs.hecg.2017.11.002>.
- [21] Ercegovac, R., Klinac, I., & Zdrilic, I. (2020). Bank specific determinants of EU banks profitability after 2007 financial crisis. *Management: Journal of Contemporary Management Issues*, 25(1), pp. 89-102. <https://doi.org/10.30924/mjcmi.25.1.5>.
- [22] Eliwa, Y., Aboud, A., & Saleh, A. (2021). ESG practices and the cost of debt: Evidence from EU countries. *Critical Perspectives on Accounting*, 79, pp. 102097. <https://doi.org/10.1016/j.cpa.2019.102097>.
- [23] El Khoury, R., Nasrallah, N., & Alareeni, B. (2023). ESG and financial performance of banks in the MENAT region: Concavity–convexity patterns. *Journal of Sustainable Finance & Investment*, 13(1), pp. 406-430. <https://doi.org/10.1080/20430795.2021.1929807>.
- [24] Favero, L. P., & Belfiore, P. (2019). *Data science for business and decision making*. Academic Press.
- [25] Freeman, R.E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing Inc., Boston.
- [26] Friedman, M., (1970). The social responsibility of business is to increase its profits. In: Zimmerli, W.C., Holzinger, M., Richter, K. (Eds.), *Corporate Ethics and Corporate Governance*. Springer Berlin Heidelberg, Berlin, Heidelberg, pp. 173 e 178. https://doi.org/10.1007/978-3-540-70818-6_14.
- [27] Gangi, F., Mustilli, M., & Varrone, N. (2018). The impact of corporate social responsibility (CSR) knowledge on corporate financial performance: Evidence from the European banking industry. *Journal of Knowledge Management*, 23(1), pp. 110-134. <https://doi.org/10.1108/JKM-04-2018-0267>
- [28] Gao, W., Li, M., & Zou, C. (2022). Analysis of the impact of ESG on corporate financial performance under the epidemic based on static and dynamic panel data. *Wireless Communications and Mobile Computing*, 2022, pp. 1-12. <https://doi.org/10.1155/2022/6851518>.

- [29] Gerged, A. M., Salem, R. and Beddewela, E., “How does transparency into global sustainability initiatives influence firm value? Insights from Anglo-American countries”, *Business Strategy and the Environment*, vol. 32, no. 7, 2023, pp. 4519-4547. <https://doi.org/10.1002/bse.3379>.
- [30] Gerged, A. M., Salem, R., & Beddewela, E. (2023). How does transparency into global sustainability initiatives influence firm value? Insights from Anglo-American countries. *Business Strategy and the Environment*, 32(7), pp. 4519-4547. <https://doi.org/10.1002/bse.3379>.
- [31] Gujarati, D. N., Porter, D. C. (2021). *Essentials of econometrics*. McGraw-Hill Irwin.
- [32] Gutiérrez-Ponce, H., & Wibowo, S. A. (2023). Do sustainability activities affect the financial performance of banks? The case of Indonesian Banks. *Sustainability*, 15(8), pp. 6892. <https://doi.org/10.3390/su15086892>.
- [33] Halac, U., Durak, M. G., & Celik, İ. (2024). The effect of institutional quality on banking performance in emerging countries. *Panoeconomicus*, 00, pp. 1-27. <https://doi.org/10.2298/PAN220106016H>.
- [34] Le, T. D. (2020). The interrelationship among bank profitability, bank stability, and loan growth: Evidence from Vietnam. *Cogent Business & Management*, 7(1), pp. 1840488. <https://doi.org/10.1080/23311975.2020.1840488>.
- [35] Liao, C. S., & Li, X. (2022). The effects of ownership structure on bank efficiency for taiwan: Is there a non-linear relationship? *Journal of Applied Finance & Banking*, 12(5), pp. 59-84. <https://doi.org/10.47260/jafb/1254>.
- [36] Meckling, W. H., & Jensen, M. C. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, pp. 305-360.
- [37] Menicucci, E., & Paolucci, G. (2023). ESG dimensions and bank performance: An empirical investigation in Italy. *Corporate Governance: International Journal of Business in Society*, 23(3), pp. 563-586. <https://doi.org/10.1108/CG-03-2022-0094>.
- [38] Miralles-Quirós, M. M., Miralles-Quirós, J. L., & Redondo Hernández, J. (2019). ESG performance and shareholder value creation in the banking industry: International differences. *Sustainability*, 11(5), pp. 1404. <https://doi.org/10.3390/su11051404>.
- [39] Nobanee, H., & Ellili, N.O.D. (2022). Voluntary corporate governance disclosure and bank performance: Evidence from an emerging market. *Corporate Governance: The International Journal of Business in Society*, 22(4), pp. 702-719. <https://doi.org/10.1108/CG-12-2020-0535>.
- [40] Nguyen, D. T., & Le, T. D. (2022). The interrelationships between bank profitability, bank stability and loan growth in Southeast Asia. *Cogent Business & Management*, 9(1), pp. 2084977. <https://doi.org/10.1080/23311975.2022.2084977>.

- [41] Polyzos, S., Samitas, A., & Kampouris, I. (2021). Economic stimulus through bank regulation: Government responses to the Covid-19 crisis. *Journal of International Financial Markets, Institutions and Money*, 75, pp. 1-23. <https://doi.org/10.1016/j.intfin.2021.101444>.
- [42] Pulino, S.C., Ciaburri, M., Magnanelli, B.S., & Nasta, L. (2022). Does ESG disclosure influence firm performance? *Sustainability*, 14(13), pp. 7595. <https://doi.org/10.3390/su14137595>.
- [43] Scholtens, B., & Van't Klooster, S. (2019). Sustainability and bank risk. *Palgrave Communications*, 5(1), pp. 1-8. <https://doi.org/10.1057/s41599-019-0315-9>.
- [44] Suchman, M.C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), pp. 571-610. <https://doi.org/10.5465/amr.1995.9508080331>.
- [45] Tóth, B., Lippai-Makra, E., Szládek, D., & Kiss, G. D. (2021). The contribution of ESG information to the financial stability of European banks. *Pénzügyi Szemle/Public Finance Quarterly*, 66(3), pp. 429-450. https://doi.org/10.35551/PFQ_2021_3_7.
- [46] Uralov, S. (2020). The determinants of bank profitability: A case of central European countries. *Management*, 8(3), pp. 8-16. https://www.isroset.org/pdf_paper_view.php?paper_id=2086&2-ISROSET-WAJM-04399.pdf.
- [47] Wong, W.C., Batten, J.A., Mohamed-Arshad, S.B., Nordin, S., & Adzis, A. A. (2021). Does ESG certification add firm value? *Finance Research Letters*, 39, pp. 101593. <https://doi.org/10.1016/j.frl.2020.101593>.
- [48] Wooldridge, J.M. (2019). *Introductory econometrics: A modern approach*. Cengage Learning.
- [49] World Bank. (2024). World Bank Group country classifications by income level for FY24 (July 1, 2023- June 30, 2024). https://blogs.worldbank.org/en/opendata/new-world-bank-group-country-classifications-income-level-fy24#_ftn2.
- [50] Yoo, S., & Managi, S. (2022). Disclosure or action: Evaluating ESG behavior towards financial performance. *Finance Research Letters*, 44, pp. 102108. <https://doi.org/10.1016/j.bir.2022.10.012>.
- [51] Yuen, M. K., Ngo, T., Le, T. D., & Ho, T. H. (2022). The environment, social and governance (ESG) activities and profitability under COVID-19: evidence from the global banking sector. *Journal of Economics and Development*, 24(4), pp. 345-364. <https://doi.org/10.1108/JED-08-2022-0136>.
- [52] Zehri, F., & Zgarni, I. (2020). Internal and external corporate governance mechanisms and earnings management: An international perspective. *Accounting and Management Information Systems*, 19(1), pp. 33-64. <http://dx.doi.org/10.24818/jamis.2020.01002>.