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AN EMPIRICAL EXAMINATION OF BANKS IN THE ASIA-PACIFIC: UNRAVELING THE NEXUS BETWEEN ESG, PROFITABILITY, AND STABILITY

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ABSTRACT

Banks' ESG issues are gaining traction and public attention following the Paris Agreement 2015. As a result, many researchers are currently examining the influence of ESG pillar practices on banks' financial performance and stability. However, these results seem far from conclusive. Therefore, continuous studies need to be carried out. The objective of this research is to investigate the impact of ESG initiatives implemented by banks on their profitability (ROA, ROE, and Tobin's Q) and financial stability (Z-Score$_{(CAR)}$ and Z-Score$_{(EQTA)}$). Using a set of unbalanced panel data of 178 commercial banks from 12 countries in the Asia Pacific region, spanning from 2013 to 2022, this study performs panel regression analysis to explore the ESG and bank profitability and bank stability links. Our research findings support stakeholder theory and the resource-based view (RBV) as explanatory frameworks for connecting ESG pillars and bank profitability and financial stability. These include banks' environmental, social, and governance measures enhancing profitability and stability. The results are robust across different models and settings (e.g., ESG pillars vs. dimensions, different financial performance and financial stability proxies, and lagged ESG pillars and dimensions in the model).

Keywords: ESG, Asia-Pacific, Bank, Profitability, Financial Stability.

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1. INTRODUCTION

Public attention to ESG issues, ranging from climate change to social inequality and transparent corporate governance, has increased. The integration of ESG practices into business activities in the banking industry began in the 1980s, initially focused solely on environmental issues. This then evolved into responsible practices concerning providing loans (Weber, 2017), employees, communities, and corporate governance practices, enhancing the bank's reputation and risk management strategy (Galletta et al., 2023). After the Paris Agreement of 2015, ESG issues have broadened further.

While the ESG practices in developed countries have been relatively strong, the progress of ESG commitments in Asia-Pacific (APAC) countries varies significantly. Japan stands out as one of the countries with a rapid and extensive adoption of ESG initiatives, while some other nations in the region show slower adoption rates (OECD, 2022; Tan et al., 2023).

Meanwhile, banks play a crucial role in a country's economic growth and stability. If a single bank faces liquidity issues, it could trigger a domino effect that endangers the economic stability of a nation. Therefore, it is important to investigate the factors that can influence the profitability and stability of banks. Given the increasing government regulations on the banking industry to be responsible for ESG and the rising public expectations, the author is motivated to investigate the role of responsible banking practices in the environmental, social, and governance pillars concerning the profitability and stability of banks.

The ESG issues in banks today go beyond ethical considerations and have evolved into economic considerations due to their direct impact on the economic stability of a country. Banks that finance socially and environmentally responsible companies contribute to sustainable economic development, and vice versa. A stable financial system enables each bank to allocate resources effectively, reduce risks, and withstand financial turbulence (Shahriar et al., 2023). Following the global financial crisis, banks have intensified their focus on ESG activities to rebuild their market reputation by demonstrating socially responsible behavior (Shakil et al., 2019). Many prior studies have extensively explored ESG issues. Earlier research has delved into the impact of ESG performance on the financial performance of non-financial companies, yielding inconclusive results (Huang, 2021; Velte, 2022; Q. Wang et al., 2016). Unfortunately, research on ESG in the financial industry, specifically banks, remains limited (Boussaada et al., 2023). Even when there is research on ESG issues in the banking sector, a significant portion is conducted in developed countries such as the US or European nations (Di Tommaso & Thornton, 2020; Menicucci & Paolucci, 2023; Velte, 2017) or within a single country (Ramzan et al., 2021; Weber, 2017). There are very few studies exploring ESG in the Asia-Pacific region, despite its status as a region with leading growth and challenges that warrant extensive research (C. Wang & Lin, 2021).

Hence, this research aims to make two primary contributions. Firstly, it seeks to present evidence regarding the impact of ESG initiatives implemented by banks on their profitability. Secondly, it aims to provide evidence of the influence of ESG performance on the financial stability of banks. This study utilizes data from the Refinitiv database and gathers a sample set comprising 178 banks in the Asia-Pacific region, spanning from 2013 to 2022. Using the panel regression testing

procedure, this study employs a fixed-effect model with robust standard errors. Our findings support stakeholder theory by providing evidence that better responsible banking practices in environmental, social, and corporate governance pillars enhance banks' profitability and financial stability by meeting stakeholder expectations. These results align with the Resource-Based View (RBV) theory, demonstrating that sound responsible banking practices in the environment, social, and corporate governance spheres create a competitive advantage, ultimately improving profitability and stability. Our research outcomes remain robust after conducting additional tests to assess the model's reliability.

2. LITERATURE REVIEW

2.1. The Relationship between ESG, Bank Profitability, and Bank Stability Subheading

Aligned with the global attention to social and environmental issues and the growing adoption of ESG practices worldwide, many academics have explored the impact of implementing ESG practices on company performance. (Velte, 2022) and (Q. Wang et al., 2016) in their meta-analysis, concluded that, in general, ESG performance enhances financial performance. Meanwhile, in ASEAN, ESG pillars have proven to enhance the economic growth of a country (Sadiq et al., 2023). However, another meta-analysis (Huang, 2021) concluded that the relationship between the two is inconclusive. Banks, as financial institutions influencing a country's economy, must responsibly address ESG issues through their financial intermediary business operations, such as lending, investments, and capital utilization (Arun et al., 2022). Research investigating the influence of ESG pillar performance on bank stability is still very limited, and the results are inconclusive. (Ali et al., 2023) and (Ramzan et al., 2021) have found the interlink is positive, however (Salah Mahdi et al., 2023) have found the relationship is negative.

Researchers commonly employ several theories to elucidate the negative association between ESG investment and profitability and bank stability, including stakeholder theory and resource-based view (RBV). "Stakeholder theory" is based on the perspective (Freeman, 1984) that managers have a moral obligation to care for the company as a whole, connecting it to the company's goals and meeting the legitimate expectations of all stakeholders. In this case, meeting the desires of all stakeholders does not mean neglecting the interests of shareholders (Freeman et al., 2010). However, the company must have a broader perspective than creating corporate profits. (Crane et al., 2009) added an explanation that the company's value is influenced by the company's strategic actions to meet the expectations of internal (shareholders, employees, managers) and external (consumers, local communities, governments, the environment, and others) stakeholders.

“Resource-based view” was introduced by (Barney, 2001), argued that the company's tangible and intangible resources have the potential to create sustainable competitive advantages. To have valuable resources, these company resources must be valuable, rare, imperfectly imitable, and non-substitutable. (Garriga & Melé, 2004) argued that companies can allocate resources to achieve long-term social goals and create competitive advantages.

In this study, we believe that the ESG performance conducted by banks will benefit the banks in return. This benefit may take the form of a positive response from each company stakeholder, ultimately creating good profitability for the company. Additionally, the ESG performance of banks can create a good reputation for the bank and valuable and non-imitable resources that create a competitive advantage, ultimately leading to company profitability.

2.2. The Relationship between Environment Pillar, Bank Profitability, and Bank Stability

The environment pillar represents the bank's performance in environmental responsibility. The environmental pillar score assesses the bank's initiatives in emission reduction, resource use, and environmental innovation (London Stock Exchange Group, 2024). Banks can do so in their efforts to be environmentally responsible in both internal and external operations. The bank's environmental commitment can be examined from three perspectives: financing projects responsible for the environment, reducing loan risks for polluting industries, and the efficient use of banking resources (Bătae et al., 2021; Menicucci & Paolucci, 2023). As financial intermediaries, banks are crucial in funding projects that impact climate change. Therefore, the bank's commitment to providing green loans can signal to stakeholders to assess the bank's environmental commitment (Azmi et al., 2021).

Researchers found that the environmental performance of banks in emerging markets enhances ROE (Shakil et al., 2019) and Tobin's Q (Azmi et al., 2021). They attribute this to the positive impact of environmental responsibility practices undertaken by banks, to which stakeholders respond favorably. Stakeholders prefer banks to consider environmental issues when financing sustainable projects. Meanwhile, (Bătae et al., 2021) found that a bank's commitment to environmental responsibility is viewed positively and contributes to a good reputation, which can positively impact the bank's financial performance.

To explain the positive relationship between a bank's commitment to environmental responsibility and its profitability, as well as the financial stability of the bank, we will provide an example. A bank's activities in reducing water and electricity usage and minimizing paper-based correspondence may have implications for the bank's efficiency. Furthermore, when a bank engages in sustainable intermediation by financing environmentally-friendly companies, it could enhance public trust and create the image that the bank is responsibly addressing environmental issues. For instance, a bank that consistently supports companies committed to environmentally-friendly practices may be perceived as contributing to sustainable development. This positive image may attract environmentally conscious customers and investors, potentially leading to increased business and profitability.

Conversely, suppose a bank is found to be providing loans to companies with high carbon emissions and environmental damage. In that case, the public may view the bank as not taking responsibility for environmental concerns. This negative perception could lead to reputational damage, loss of customers, and potential financial risks. In summary, a bank's commitment to environmental responsibility can positively impact its efficiency, profitability, and financial stability by attracting environmentally-conscious stakeholders and fostering a positive public image.

(Ali et al., 2023) found that the more banks contribute to emission expenditures, the lower the level of bank stability. This study also reported that the negative impact of bank emission expenditures can be mitigated through ESG practices. (Salah Mahdi et al., 2023) in their examination of banks in the MENA region, found that environmental pillars significantly enhance bank stability. Therefore, based on stakeholder theory and the resource-based view, we develop the following hypotheses:

H1: The better the performance of a bank's responsibility in the environmental pillar, the higher bank's profitability.
H2: The better the performance of a bank's responsibility in the environmental pillar, the higher the bank's financial stability.

2.3. The Relationship between Social Pillar, Bank Profitability, and Bank Stability

A bank's social pillars and dimensions represent its performance in being responsible towards its workforce, community, human rights, and product responsibility (London Stock Exchange Group, 2024). A high score in social pillars reflect the bank strong commitment to social responsibility.

Previous studies have examined the relationship between corporate social responsibility and firm performance. (Setyowati et al., 2024) found that dimensions such as workforce commitment (such as providing equal career opportunities and training, offering good salaries and bonuses, providing health insurance, and creating a healthy working environment for employees) can enhance a company's efficiency. (Esteban-Sanchez et al., 2017) discovered that banks with good employee relations tend to have good financial performance. (Shakil et al., 2019) found a positive relationship between the social performance aspect of ESG and Return on Equity (ROE). Meanwhile, (Sadiq et al., 2023) found that social performance in the ESG aspect enhances the economic growth of ASEAN countries. However, previous research examining the effect of social pillars on bank financial stability found that, despite positive results, the impact of a bank's social responsibility practices on social pillars was not proven to significantly influence the financial stability of banks (Salah Mahdi et al., 2023).

As explained in stakeholder theory (Freeman et al., 2010), better bank profitability and stability can be achieved when a company meets stakeholders' expectations, including employees, customers, and the community. Meanwhile, based on the resource-based view (RBV) theory (Barney, 2001), a bank considers loyal employees and customers as intangible assets. These assets may be non-imitable, non-substitutable, and unique, generating a competitive advantage. In stakeholder theory, addressing the expectations and needs of employees, customers, and the community is crucial for sustaining positive financial performance and bank stability. On the other hand, RBV theory emphasizes the strategic importance of intangible assets like loyal employees and customers, suggesting that these assets contribute to a bank's competitive advantage, which may be difficult for competitors to replicate or replace.

When a bank meets the expectations of its employees, such as committing to gender, race, and religious equality, providing scholarship opportunities for employees and their families, and

offering fair salaries and bonuses, employees are likely to reciprocate with positive outcomes for the company, such as loyalty. Highly loyal employees tend to be more productive. For example, suppose a bank provides funding for companies with a social mission to create high-quality and affordable medicine or engages in charitable activities like establishing public toilets or setting up free schools in the community. In that case, it can enhance the bank's image among customers, ultimately leading to increased profitability.

Moreover, actions taken by the bank towards responsible practices with employees and the community can also strengthen the trust of depositors. Depositors are likelier to place their money in a bank that demonstrates positive social responsibility. Additionally, observing the bank's ESG practices that benefit employees and the community may increase lenders' willingness to meet their obligations promptly. This, in turn, can contribute to the bank's financial stability. Based on these explanations, we propose the following hypotheses:

H3: The better the performance of a bank's responsibility in the social pillar, the higher the bank's profitability.
H4: The better the performance of a bank's responsibility in the social pillar, the higher the bank's financial stability.

2.4. The Relationship between Governance Pillar, Bank Profitability, and Bank Stability

The corporate governance pillar demonstrates a company's commitment to ensuring transparency in its accountability (London Stock Exchange Group, 2024). In the financial industry, governance is crucial to government demands to maintain financial stability and manage risks (Mandas et al., 2023). (Menicucci & Paolucci, 2023) found that corporate governance significantly and positively influences the financial performance of Italian banks. Good corporate governance also reduces the capital costs of banks. (Velte, 2017) discovered that the pillars of corporate governance contribute to increased profitability of banks (ROA). (Esteban-Sanchez et al., 2017) found that banks with good corporate governance exhibit strong financial performance (ROE and ROA). They argue that banks with effective governance are more trusted, reduce agency problems with stakeholders, and ultimately enhance operational and financial performance. Meanwhile, previous research examining the impact of corporate governance on the financial stability of banks found a positive relationship, although statistically not significant (Salah Mahdi et al., 2023).

In terms of a bank's commitment to governance responsibility, to receive positive feedback from shareholders, the public, and the government, the bank must fulfill accountability and transparency, create appropriate CSR strategies, and be fair to shareholders. Shareholders and loyal customers are intangible and irreplaceable assets for a bank, as per stakeholder theory (Freeman et al., 2010) and the resource-based view (RBV) theory (J. B. Barney, 2001). When the public and customers trust a bank's governance, customers will not hesitate to deposit their money with the bank. Lenders will also respond positively by responsibly paying installments.

Moreover, a bank implementing good governance will be cautious in selecting lenders. Ultimately, sound governance practices enable the bank to make informed decisions in choosing strategies that

can enhance profitability and improve financial stability. Therefore, in this regard, we propose the following hypotheses:

H5: The better the performance of a bank's responsibility in the governance pillar, the higher the bank's profitability.
H6: The better the performance of a bank's responsibility in the governance pillar, the higher the bank's financial stability.

3. METHODOLOGY

This research utilizes Refinitiv as a data source for ESG pillars and bank financial variables. The Refinitiv ESG database comprises three pillars: environmental, social, and governance. This data source also provides ten dimensions as indicators for ESG pillars. For each pillar, a score ranging from 0 to 100 is assigned. A higher ESG pillar score indicates a greater commitment by the bank to ESG practices. This study also employs World Development Indicators (WDI) as a data source to obtain macroeconomic data such as GDP growth and inflation.

To investigate the relationship between bank ESG performance, bank performance, and bank risk, we utilize a sample from the Refinitiv Database consisting of 178 commercial banks in the APAC region during the period from 2013 to 2022, with a total of 1,136 bank-years of observation. Our data are unbalanced due to the limited availability and continuity of bank ESG performance information.

3.1. Dependent Variables

The dependent variables in this study consist of bank profitability and bank financial stability variables. Firstly, similar to previous studies, we employ three commonly used dependent variables for bank profitability: return on assets (ROA) and return on equity (ROE) representing accounting-based performance, and Tobin's Q representing market-based performance. Secondly, drawing on several previous studies, this research uses the Z-score as a measure to test bank financial stability. The Z-score assesses the likelihood of a bank facing default and is a widely used indicator in evaluating bank financial stability (Salah Mahdi et al., 2023). To calculate the Z score, we follow the approach of (Lepetit & Strobel, 2013; Yusgiantoro et al., 2019) which utilizes two Z-score measures.

3.2. Independent Variables

Following several previous studies (Di Tommaso & Thornton, 2020; Menicucci & Paolucci, 2023), we use the Refinitiv database to represent a bank's commitment to ESG. The independent variable is measured using three ESG pillars: the environmental pillar [ENV], the social pillar [SOC], and the governance pillar [GOV]. The Refinitiv database includes three dimensions related to the environmental pillar score (ENV): resource use efficiency (E_REUSE), emission and waste reduction (E_EMI), and environmental innovation (E_INV). Refinitiv also comprises three

dimensions related to the social pillar score (SOC): workforce (S_WORKF), human rights (S_HR), community (S_COMM), and product responsibility (S_PRODR). The governance pillar (GOV) includes three dimensions relevant to this research: management and oversight (G_MANJ), stakeholder rights (G_SHARE), and CSR strategy (G_CSR).

3.3. Control Variables

We incorporate a set of bank-level and country-level controls in our analysis. Firstly, we consider firm size, calculated using the natural logarithm of total assets. Secondly, we include bank leverage. Thirdly, the bank loan-to-deposit ratio is included. We include inflation (INF) and GDP growth to account for macroeconomic variations. To test hypotheses H1, H3, and H5, we construct the following equation 1, while to test hypotheses H2, H4, and H6, we construct the following equation 2:

$$Bank\_Profit_{i,t} = b_0 + b_{1-3}ESG\_pillars_{i,t} + b_{4-6}Bank\_characteristics_{i,t} + e_{i,t} \quad (\boldsymbol{Eq1})$$

$$Bank\_Stability_{i,t} = b_0 + b_{1-3}ESG\_pillars_{i,t} + b_{4-6}Bank\_characteristics_{i,t} + e_{i,t} \quad (\boldsymbol{Eq2})$$

where $Bank\_Perform_{i,t}$ represents the bank profitability, measured by three dependent variables: ROA, ROE, and Tobin's Q bank (i), in year (t). $Bank\_Stability_{i,t}$ represents the bank financial stability, measured by two dependent variables: Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$ bank (i), in year (t). $ESG\_pillars_{i,t}$ are the measures of environment, social, and governance performance of the bank (i) in year (t). While $Bank\_characteristics_{i,t}$ represent the control variables of the bank (i) in year (t) are represented by SIZE, LEV, LDR, GDP, and INF. b_0 represents the constant, b_{1-6} are the coefficients of the predictors and control variables; while $e_{i,t}$ represents the estimation error.

4. RESULTS AND DISCUSSION

In this subsection, we present the results of the analysis on the impact of ESG pillar initiation on the profitability and financial stability of banks. Firstly, we report the distribution of our sample across countries in Table 1. Japan, China, and India are the countries contributing the highest ESG performance data in the Asia-Pacific region, accounting for 19.72%, 19.54%, and 12.94% of our sample, respectively.

Table 1. Sample distribution across countries

Panel A: Sample Distribution by Country				**Panel B: Sample Distribution by Year**			
Country	**Freq.**	**Percent**	**Cum.**	**Year**	**Freq.**	**Percent**	**Cum.**
Australia	67	5.9	5.9	2013	86	7.57	7.57
China	222	19.54	25.44	2014	90	7.92	15.49
Hong Kong	38	3.35	28.79	2015	89	7.83	23.33
India	147	12.94	41.73	2016	91	8.01	31.34
Indonesia	65	5.72	47.45	2017	103	9.07	40.4
Japan	224	19.72	67.17	2018	107	9.42	49.82
Malaysia	84	7.39	74.56	2019	118	10.39	60.21
Philippines	44	3.87	78.43	2020	127	11.18	71.39
S. Korea	67	5.9	84.33	2021	150	13.2	84.6
Singapore	30	2.64	86.97	2022	175	15.4	100
Taiwan	83	7.31	94.28	**Total**	**1,136**	**100**	
Thailand	65	5.72	100				
Total	**1,136**	**100**					

Table 2 presents descriptive statistics for all variables after winsorizing extreme values at the 1% and 99% percentiles. The results of the descriptive analysis show that bank profitability, represented by ROA and ROE, on an accounting basis, has average values of 1.11 and 12.15, with standard deviations of 0.81 and 6.61, respectively. The profitability of banks based on market value, represented by Tobin's Q, indicates an average value of 1.02 with a standard deviation of 0.12. Meanwhile, bank stability measured by Z scores based on CAR shows a median value of 11.99 with a standard deviation of 5.67, and Z scores based on EQ/TA show a median value of 0.87 with a standard deviation of 0.61.

Our main predictors, the ESG pillars and dimensions, have average values of 46.67 for the environmental pillar, 51.80 for the social pillar, and 55.23 for the governance pillar. The environmental pillar and dimensions show the lowest results compared to the social and governance pillars. The lowest average value among the 10 dimensions is S_HR, at 26.37, indicating a relatively low commitment of banks in the Asia-Pacific region to human rights. Meanwhile, the highest average value among the 10 dimensions is S_WORKF, at 65.14, indicating a high commitment of banks in the APAC region to their responsibilities towards employees. Descriptive statistics for control variables show average values of 383,592 for total assets, 0.12 for leverage, 0.84 for LDR, 2.87 for GDP growth, and 2.39 for inflation (INF).

Table 3 presents the correlation matrix results for the three ESG pillars and control variables. Based on the Pearson correlation test, we found no relationships between variables exceeding 0.7. Additionally, we conducted multicollinearity testing using the Variance Inflation Factor (VIF) and found that the VIF value is 1.15, with no VIF values exceeding 2.5 or less than 4 (table not shown). Therefore, our model is free from multicollinearity issues.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Dependent Variables					
ROA	1136	1.11	0.81	-1.00	4.1
ROE	1136	12.15	6.61	-14.00	29.5
Tobin's Q	1136	1.02	0.12	0.91	1.7
Z-Score(ROA)	1136	11.99	5.07	0.44	39.97
Z-Score(EQ/TA)	1136	0.87	0.61	-0.68	3.1
Independent Variables					
ESG Pillars					
ENV	1136	46.47	25.68	0.00	92.62
SOC	1136	51.80	24.20	2.58	92.86
GOV	1136	55.23	23.19	7.97	95.83
ESG Dimensions					
E_REUSE	1136	45.37	29.94	0.00	97.82
E_EMI	1136	48.69	30.94	0.00	98.87
E_INV	1136	37.11	30.19	0.00	96.4
S_WORKF	1136	65.14	26.88	2.66	99.53
S_HR	1136	26.37	30.20	0.00	95.67
S_COMM	1136	48.01	30.83	2.04	99.38
S_PRODR	1136	55.69	34.29	0.00	99.78
G_MANJ	1136	57.48	30.54	2.49	99.59
G_SHARE	1136	51.76	28.50	1.44	98.78
G_CSR	1136	49.12	33.32	0.00	99.53
Control Variables					
TA	1136	383,592	740,832	5,381	4,169,356
LEV	1136	0.12	0.09	0.00	0.48
LDR	1136	0.84	0.23	0.04	1.69
GDP	1136	2.87	5.78	-26.76	10.75
INF	1136	2.39	1.98	-0.90	6.7

All variables are winsorized at the 1st and 99th percentiles.

Table 3. Correlation Matrix between Independent Variables and Control Variables

	SOC	ENV	GOV	LNTA	LEV	LDR	GDP	INF
SOC	1.00							
ENV	0.627***	1.00						
GOV	0.505***	0.434***	1.00					
LNTA	0.114***	0.396***	0.0808**	1.00				
LEV	-0.0206	0.0212	0.104***	0.114***	1			
LDR	0.289***	0.149***	0.225***	-0.219***	0.320***	1.00		
GDP	-0.0838**	-0.134***	-0.0666*	0.03	0.118***	0.03	1.00	
INF	0.161***	-0.01	0.06	-0.243***	-0.03	0.0682*	0.252***	1.00

4.1. Panel Regression Testing Results of ESG Pillars on Bank profitability

Table 4 presents information on testing the ESG pillars on bank profitability. Our research findings indicate that all ESG pillars positively impact the accounting-based profitability of banks, as measured by ROA and ROE (see models 1 and 2). Banking practices related to governance (GOV) significantly influence bank profitability at the 1% level. Environmental (ENV) and social (SOC) responsibility practices of banks on ROA have significance levels of 5% and 10%, respectively. Meanwhile, the environmental (ENV) and social (SOC) responsibility practices of banks on ROE have significance levels of 5%. In testing the impact of ESG pillars on Tobin's Q, we found that only the social (SOC) pillar has been proven to enhance Tobin's Q with a significance level of 5%. The other ESG pillars, namely the environmental and governance pillars, did not significantly affect market performance.

Based on these results, H1, H3, and H5 can be confirmed, stating that banks' commitment to environmental, social, and governance pillars has been proven to enhance the accounting performance of the company. In testing the impact of ESG pillars on market performance (Tobin's Q), we found that the social pillar has a strong influence on Tobin's Q. This finding supports previous research, such as (Velte, 2017), who conducted a study in Germany and found that environmental, social, and governance pillars influence ROA. According to (Azmi et al., 2021), bank responsibility practices in the environment enhance Tobin's Q.

Table 4. Panel Regression Analysis: ESG Pillars on Bank Profitability

VARIABLES	Model 1 (ROA)	Model 2 (ROE)	Model 3 (Tobin's Q)
ENV	0.0034**(0.0013)	0.0257**(0.0120)	0.0004(0.0003)
SOC	0.0039*(0.0023)	0.0401**(0.0164)	0.0008**(0.0004)
GOV	0.0081***(0.0022)	0.0528***(0.0194)	0.0007(0.0004)
LNTA	-0.1475**(0.0643)	-0.4807(0.3212)	-0.0178***(0.0064)
LEV	-0.4248(0.5458)	-6.3428(4.1068)	-0.0935(0.0690)
LDR	-0.3953(0.5390)	-2.658(2.6072)	0.005(0.0617)
GDP	0.0006(0.0024)	0.0116(0.0220)	-0.0002(0.0003)
INF	0.0458***(0.0156)	0.4162***(0.1560)	-0.0006(0.0023)
Constant	2.3011**(0.9800)	13.5753***(4.4356)	1.1478***(0.0941)
Observations	1,136	1,136	1,136
R-squared	0.4818	0.385	0.2807
Firm-effect	YES	YES	YES
Year-effect	YES	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

(Esteban-Sanchez et al., 2017) found that corporate governance and employee relations improve the bank's ROA and ROE. (Shakil et al., 2019) found that the environmental and social pillars significantly enhance ROA and ROE. Therefore, these findings strongly support stakeholder theory and RBV. One possible explanation for these findings is that bank responsibility practices in the environment, social aspects, and corporate governance have satisfied each company stakeholder.

For example, when a bank is responsible for the environment by reducing air emissions, waste, water usage, and more in its business operations; avoiding the exploitation of natural resources by reducing the use of non-renewable resources such as water, minerals, natural gas, and others; or providing credit to environmentally friendly companies, customers perceive the bank as having a good reputation for the environment.

Similarly, when a bank is responsible for its employees by ensuring no racial, gender, or religious disparity, providing fair wages, and being socially responsible in its surrounding environment, the bank appears more reputable. Additionally, governance practices of the bank within the company, such as transparent financial reporting to the public, fairness to shareholders, or reporting its CSR strategy to the public, make the bank appear to have strong fundamentals.

This means that when a bank commits to business operations that reduce air emissions, waste, water usage, and other factors, it proves to enhance the bank's financial performance. This implies the bank's responsibility in good ESG practices, which has become important for the public and customers. By being responsible for ESG practices, the bank's reputation regarding sustainability issues improves (Bătae et al., 2021). Certainly, this increases public trust in the bank. Bank customers become more loyal, choosing to increase their deposits, and borrowing customers are more likely to pay installments on time responsibly. Internal stakeholders, such as employees, become more satisfied and contribute their best productivity to the bank. The public and potential investors will see that the bank has increasingly good values for the future. Ultimately, this can enhance bank profitability, assessed through ROA, ROE, and Tobin's Q.

4.2. Regression Results of ESG Pillars on Bank Financial Stability

The regression results depicting the relationship between ESG pillars and the financial stability of banks are presented in Table 5. Two different indicators of bank financial stability are used as dependent variables: Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$. In Model 1, we find a significant relationship between the GOV pillar and the Z-Score$_{(CAR)}$. This indicates that banks investing more in governance pillar activities tend to achieve greater financial stability, aligning with the findings of (Salah Mahdi et al., 2023). Meanwhile, the ENV and SOC pillars show that the coefficient of Z-Score$_{(CAR)}$ is positive and insignificant.

The results from the Model 2 indicate that the coefficients of the ENV and GOV pillars are positive and significant for bank financial stability. However, the relationship between the SOC pillar and bank financial stability is positive and insignificant. Based on these findings, hypotheses H2 and H6 are accepted. Banks' commitment to the environmental and governance pillars has enhanced their financial stability. These findings support the research of (Dhafer & Sana Ben, 2020; Ramzan et al., 2021; Widi et al., 2021). Meanwhile, for the social pillar, this study supports the findings of (Salah Mahdi et al., 2023), which found a negative relationship between bank ESG practices and financial stability in MENA countries. Therefore, these findings reject hypothesis 4. It concludes that the environmental and corporate governance pillars enhance financial stability and support stakeholder theory (Freeman, 1984). Environmentally responsible banking activities (such as contributing to environmental sustainability by reducing emissions, minimizing the use of natural resources, and innovating for environmental conservation) satisfy stakeholder expectations.

Table 5. Panel Regression Analysis: ESG Pillars on Bank Financial Stability

VARIABLES	Model 1 (Z-Score$_{(CAR)}$)	Model 2 (Z-Score$_{(EQTA)}$)
ENV	0.0115(0.0136)	0.0025**(0.0010)
SOC	0.0127(0.0265)	0.0029(0.0018)
GOV	0.0338**(0.0135)	0.0061***(0.0016)
LNTA	-0.8348(0.6176)	-0.1127**(0.0487)
LEV	4.5284(4.0724)	-0.3206(0.4077)
LDR	-6.1992(4.9449)	-0.2829(0.4086)
GDP	0.0014(0.0165)	0.0005(0.0018)
INF	0.0539(0.0940)	0.0340***(0.0115)
Constant	23.2561**(9.5227)	1.7843**(0.7445)
Observations	1,136	1,136
R-squared	0.3123	0.4887
Firm-effect	YES	YES
Year-effect	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

The bank's responsibility for corporate governance pillars, such as transparent financial reporting, fairness to stakeholders, and publishing CSR strategies, will fulfill stakeholder requirements. Satisfied stakeholders with the bank's commitment to environmental and governance pillars will provide positive feedback to the bank. For example, bank customers may increase their deposits or repay their debts to the bank. A satisfied government could respond positively by providing a good sustainability rating for the bank, ultimately creating public trust.

Additionally, based on RBV theory (Barney, 2001), environmentally and corporately responsible banks will have a good reputation. This reputation is a valuable intangible asset for the company, not easily imitated, and irreplaceable. The value of a good reputation will create trust among stakeholders, ultimately providing positive feedback on the bank's financial stability. These findings confirm H5 that responsible initiatives by banks in management governance, such as effectively communicating corporate responsibility programs in environmental, social, and governance aspects to daily business operations, are considered favorable by the public and customers. As a result, they are not hesitant to add to their savings and deposits or become responsible borrowers, ultimately enhancing the bank's ROA and ROE. When banks implement responsible practices for shareholders, such as committing to equality of shareholder rights regardless of gender, race, or religion, providing equality in the right to vote on bank strategies, and more, these actions are well-received by the public and customers. The positive feedback occurs because the public and debtors perceive the bank as responsible to shareholders and having a good reputation. The public and customers consider such responsible practices favorable, making them more willing to add to their savings and deposits or be responsible borrowers, ultimately boosting the company's ROA.

4.3. Additional analyses and robustness checks

To enhance the robustness of our findings, we conducted a series of additional analyses and robustness checks. Firstly, we explored an alternative measure for bank financial performance and stability. We replaced our financial performance proxy with an alternative measure, considering both accounting-based (referred to as short-term profitability) indicators, namely ROA and ROE, as well as market value-based (referred to as long-term profitability) indicators, namely Tobin's Q (see Table 4). Additionally, we adopted an alternative measure for bank financial stability, namely z-score, as proposed by (Lepetit & Strobel, 2013; Yusgiantoro et al., 2019) (see table 5). The z-score is calculated using mean and standard deviation estimates of ROA calculated over the full sample, which are combined with CAR and EQ/TA current values. Secondly, we conducted additional tests on the relationship between ESG dimensions, bank financial performance, and financial stability (Tables 6 and 7).

Table 6. Panel Regression Analysis: ESG Dimensions on Bank Profitability

VARIABLES	Model 1 (ROA)	Model 2 (ROE)	Model 3 (Tobin's Q)
E_REUSE	0.0034(0.0025)	-0.0105(0.0167)	0.0008**(0.0004)
E_EMI	0.0028(0.0019)	0.0311*(0.0169)	0.0001(0.0003)
E_INV	0.0005(0.0012)	0.0118(0.0111)	-0.0001(0.0002)
S_WORKF	-0.0005(0.0020)	0.003(0.0174)	0.0001(0.0003)
S_HR	-0.0009(0.0017)	-0.0025(0.0151)	-0.0002(0.0003)
S_COMM	0.0025(0.0018)	0.0256(0.0175)	0.0002(0.0003)
S_PRODR	0.0014(0.0011)	0.0101(0.0110)	0.0004(0.0002)
G_MANJ	0.0048***(0.0012)	0.0307***(0.0102)	0.0002(0.0003)
G_SHARE	0.0029**(0.0014)	0.0171*(0.0094)	0.0008**(0.0003)
G_CSR	-0.0008(0.0012)	0.0027(0.0108)	-0.0002(0.0003)
LNTA	-0.1378**(0.0663)	-0.3878(0.3498)	-0.0137**(0.0067)
LEV	-0.341(0.5547)	-6.2362(4.2109)	-0.067(0.0665)
LDR	-0.4547(0.5367)	-2.7585(2.6503)	-0.0007(0.0600)
GDP	0.0002(0.0025)	0.0043(0.0231)	-0.0001(0.0003)
INF	0.0538***(0.0161)	0.4556***(0.1623)	0.0002(0.0024)
Constant	2.1809**(1.0024)	12.4975**(4.9031)	1.0773***(0.1029)
Observations	1,136	1,136	1,136
R-squared	0.4942	0.3936	0.3188
Firm effect	YES	YES	YES
Year effect	YES	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

Table 6, column 2, shows that the performance of responsible banking initiatives in the E_EMI dimension significantly affects ROE at 10%. Additionally, the E_REUSE dimension is significantly and positively related to Tobin's Q with a significance level of 5%. Therefore, this confirms the previous finding of H1. The testing of social dimensions indicates that none of the

four social dimensions significantly influence the financial performance of banks, be it in terms of ROA, ROE, or Tobin's Q. However, most of the existing relationships are positive. This aligns with our main findings on the social pillar, which reveal a significant positive relationship, albeit weak (p-value < 0.10). In examining corporate governance dimensions, we find that the G_MANJ dimension significantly and strongly influences ROA and ROE. Meanwhile, the G_SH dimension, which represents corporate governance and is responsible to shareholders, impacts financial performance in all models. This finding confirms hypothesis 5.

Table 7 tests the 10 ESG dimensions on bank financial stability. Our test results show that the performance of REUSE is found to have a significant positive relationship with ROA at 10%; thus, this finding confirms H2. Hence, improved policies and targets in resource use positively impact bank financial stability because they are associated with a higher level of ROA. The management (G_MANJ) and shareholder (G_SHARE) dimensions significantly positively predict Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$. This result confirms H6.

Table 7. Panel Regression Analysis: ESG Dimensions on Bank Financial Stability

VARIABLES	Model 1 (Z-Score$_{(CAR)}$)	Model 2 (Z-Score$_{(EQ/TA)}$)
E_REUSE	0.0386*(0.0209)	0.0027(0.0019)
E_EMI	-0.0068(0.0123)	0.0021(0.0014)
E_INV	-0.0004(0.0102)	0.0003(0.0009)
S_WORKF	0.0178(0.0147)	-0.0005(0.0015)
S_HR	-0.0056(0.0096)	-0.0007(0.0013)
S_COMM	0.0168(0.0111)	0.0018(0.0013)
S_PRODR	-0.0185(0.0164)	0.001(0.0008)
G_MANJ	0.0253**(0.0122)	0.0036***(0.0009)
G_SHARE	-0.0013(0.0108)	0.0022**(0.0010)
G_CSR	-0.0045(0.0220)	-0.0006(0.0009)
LNTA	-0.8732(0.6124)	-0.1060**(0.0501)
LEV	3.9515(3.9277)	-0.2557(0.4141)
LDR	-6.622(4.8172)	-0.33(0.4061)
GDP	0.0013(0.0147)	0.0002(0.0019)
INF	0.0875(0.1051)	0.0400***(0.0119)
Constant	23.7560**(9.3472)	1.7030**(0.7593)
Observations	1,136	1,136
R-squared	0.337	0.5016
Firm effect	YES	YES
Year effect	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

We also investigate the effect of prior-year ESG (lagged ESG pillars and lagged ESG dimensions) on bank financial performance and bank financial stability presented in tables 8 to 11, as done in

previous studies (Bătae et al., 2021; Menicucci & Paolucci, 2023). Table 8 presents the results of lagged of ESG pillars on bank profitability. The results show that prior-year performance in the environment pillar significantly impacts ROA and Tobin's Q with significance levels of 5 percent and 10%. Prior-year performance in the governance pillar has a significant positive impact on ROA and ROE. Therefore, these results further confirm hypotheses 1 and 5.

Table 8. Panel Regression Analysis: Lag Effects of ESG Pillars on Bank Profitability

VARIABLES	Model 1 (ROA)	Model 2 (ROE)	Model 3 (Tobin's Q)
L.ENV	0.0031**(0.0015)	0.0199(0.0136)	0.0005*(0.0003)
L.SOC	0.0016(0.0025)	0.0202(0.0184)	0.0006(0.0004)
L.GOV	0.0092***(0.0025)	0.0631***(0.0225)	0.0006(0.0005)
LNTA	-0.1485**(0.0743)	-0.4088(0.3744)	-0.0153**(0.0066)
LEV	-0.7153(0.6389)	-6.2601(4.7850)	-0.0594(0.0721)
LDR	-0.4291(0.6743)	-2.2643(3.3461)	-0.019(0.0679)
GDP	0.0034(0.0029)	0.0509*(0.0269)	-0.0003(0.0003)
INF	0.0309**(0.0148)	0.3377**(0.1534)	-0.0007(0.0015)
Constant	2.4852**(1.1921)	12.9649**(5.2871)	1.1448***(0.0952)
Observations	949	949	949
R-squared	0.4833	0.3589	0.2976
Firm effect	YES	YES	YES
Year effect	YES	YES	YES
Country effect	YES	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

Table 9. Panel Regression Analysis: Lag Effects of ESG Pillars on Bank Stability

VARIABLES	Model 1 (Z-Score$_{(ROA)}$)	Model 2 (Z-Score$_{(EQ/TA)}$)
L.ENV	0.0168(0.0133)	0.0022*(0.0011)
L.SOC	0.0077(0.0246)	0.0011(0.0019)
L.GOV	0.0428***(0.0160)	0.0069***(0.0019)
LNTA	-0.9416(0.6555)	-0.1141**(0.0563)
LEV	7.0156(4.9999)	-0.5488(0.4775)
LDR	-9.2115(5.8210)	-0.3082(0.5113)
GDP	0.0061(0.0167)	0.0025(0.0021)
INF	0.1143(0.0890)	0.0233**(0.0109)
Constant	26.3225**(10.8629)	1.9285**(0.9077)
Observations	949	949
R-squared	0.351	0.4924
Firm effect	YES	YES
Year effect	YES	YES
Country effect	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

Meanwhile, Table 9 provides information about lagged ESG pillars variables on bank financial stability. We found that the environment has a positive and significant coefficient at the 10% on the financial stability variable Z-Score$_{(EQ/TA)}$. At the same time, the corporate governance pillar has a significantly positive coefficient on Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$ at a highly satisfactory level.

Table 10 presents the results of testing the lagged 10 ESG dimensions on the financial performance of banks. Only the responsibility of banks in the use of natural resources (E_REUSE) is significantly and positively related to bank financial performance, namely ROA at the 10% and Tobin's Q at 5%. Meanwhile, none of the four social dimension variables have a significant impact on the financial performance of banks.

Table 10. Panel Regression Analysis: Lag Effects of ESG Dimensions on Bank Profitability

VARIABLES	Model 1 (ROA)	Model 2 (ROE)	Model 3 (Tobin's Q)
L.REUSE	0.0047*(0.0026)	0.0077(0.0197)	0.0008**(0.0004)
L.EMI	0.0015(0.0021)	0.0184(0.0184)	0.0002(0.0003)
L.ENINN	0.0000(0.0013)	0.0046(0.0118)	-0.0001(0.0002)
L.WORKF	-0.0012(0.0022)	-0.0087(0.0193)	0.0002(0.0004)
L.HR	-0.0014(0.0020)	-0.0061(0.0179)	-0.0004(0.0003)
L.COMM	0.0019(0.0022)	0.0213(0.0203)	0.0001(0.0003)
L.PRODR	0.0007(0.0012)	0.0064(0.0116)	0.0004*(0.0002)
L.MANJ	0.0051***(0.0014)	0.0352***(0.0124)	0.0001(0.0004)
L.SHARE	0.0039**(0.0015)	0.0277**(0.0107)	0.0008**(0.0004)
L.CSR	-0.0004(0.0013)	0.0035(0.0118)	-0.0003(0.0003)
LNTA	-0.1344*(0.0746)	-0.2993(0.3964)	-0.0099(0.0068)
LEV	-0.5659(0.6522)	-5.5149(4.9408)	-0.0238(0.0690)
LDR	-0.498(0.6657)	-2.6468(3.2469)	-0.0183(0.0654)
GDP	0.0038(0.0030)	0.0513*(0.0287)	-0.0003(0.0003)
INF	0.0374**(0.0155)	0.3683**(0.1580)	0.0006(0.0016)
Constant	2.2961*(1.2064)	11.6071**(5.6159)	1.0469***(0.1031)
Observations	949	949	949
R-squared	0.4996	0.3701	0.3467
Firm effect	YES	YES	YES
Year effect	YES	YES	YES
Country effect	YES	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

Finally, we found that two corporate governance variables, namely management governance, have a significant positive effect on the accounting performance of banks, namely ROA and ROE at 1%, and the SHARE dimension variable, which is the responsibility of banks to shareholders, has a significant positive impact on all proxy indicators of bank financial performance, namely ROA, ROE, and Tobin's Q at the 5% significance level.

Table 11 presents information regarding the results of testing the lagged 10 ESG dimensions on the financial stability of banks. The test results indicate that the previous performance of the bank in the use of natural resources has a positive impact on the stability performance of banks, both Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$, at the significance levels of 5 and 10 percent. Meanwhile, in the fifth row, we can see that the social performance variable of the bank in the community in the previous year proves to affect the Z-Score$_{(CAR)}$ performance in the subsequent year with a significance level of 10 percent. Finally, we also found that the corporate governance dimensions, namely G_MANJ and G_SHARE, have been proven to enhance the financial stability of banks in the subsequent

year with significance levels of 5 and 1 percent. Overall, these findings confirm the validity of the previous results regarding hypotheses H2, H4, and H6.

Table 11. Panel Regression Analysis: Lag Effects of ESG Dimensions on Bank Stability

VARIABLES	Model 1 (Z-Score$_{(CAR)}$)	Model 2 (Z-Score$_{(EQ/TA)}$)
L.REUSE	0.0430**(0.0194)	0.0036*(0.0020)
L.EMI	0.0019(0.0152)	0.0011(0.0016)
L.ENINN	-0.0024(0.0092)	-0.0001(0.0010)
L.WORKF	0.0147(0.0148)	-0.001(0.0016)
L.HR	-0.0109(0.0108)	-0.001(0.0015)
L.COMM	0.0238*(0.0123)	0.0014(0.0016)
L.PRODR	-0.0188(0.0177)	0.0005(0.0009)
L.MANJ	0.0327**(0.0141)	0.0039***(0.0010)
L.SHARE	-0.0046(0.0114)	0.0029**(0.0011)
L.CSR	-0.0131(0.0257)	-0.0003(0.0009)
LNTA	-0.9011(0.6446)	-0.1039*(0.0565)
LEV	6.5946(4.7787)	-0.4351(0.4870)
LDR	-9.7861*(5.7076)	-0.3623(0.5044)
GDP	0.0158(0.0217)	0.0027(0.0022)
INF	0.1804*(0.0930)	0.0281**(0.0114)
Constant	26.0474**(10.6732)	1.7959*(0.9164)
Observations	949	949
R-squared	0.3859	0.5091
Firm effect	YES	YES
Year effect	YES	YES
Country effect	YES	YES

Note: *, **, and *** indicate significance p-values at the 10%, 5%, and 1% levels, respectively.

5. CONCLUSION

Banks' ESG practices are gaining traction and increasing public attention following the Paris Agreement 2015. Consequently, some researchers are presently examining the influence of ESG pillar practices on banks' financial performance and stability. However, these results seem far from conclusive. Meanwhile, the Asia-Pacific region remains an intriguing area for study, offering a diverse landscape that provides valuable insights into global finance, sustainability, and economic development. Hence, this study examines the influence of three ESG pillars - environmental, social, and governance - on banks' profitability and financial stability.

We use three proxies for bank financial performance: ROA and ROE, representing short-term profitability, and Tobin's Q, representing long-term profitability. Additionally, we employ two commonly used financial stability proxies: Z-Score$_{(CAR)}$ and Z-Score$_{(EQ/TA)}$. Utilizing data from the ESG Refinitiv database, our sample includes 178 commercial banks across 12 countries in the Asia-Pacific region. We are currently conducting multivariate panel regression tests and implementing various stepwise procedures. To enhance the robustness of our results, we are currently performing additional tests, including regression tests on the 10 ESG dimensions

concerning bank profitability and financial stability, as well as lagged regression tests on ESG pillars and dimensions.

Our test results report that all ESG pillars positively influence ROA and ROE. The governance pillar exhibits strong statistical significance. The social pillar is reported to impact Tobin's Q. Meanwhile, significantly, we are also finding that the environmental pillar influences financial stability ($Z\text{-}Score_{(EQTA)}$), and the governance pillar is currently proving to strongly and positively impact all Z-Score proxies we use. Our research outcomes are robust after conducting additional tests to assess the model's reliability.

Our test results support stakeholder theory, stating that responsible corporate practices in environmental, social, and governance areas will meet stakeholder expectations, satisfying and motivating them to provide positive feedback to the bank. These stakeholders include internal (employees, managers, and shareholders) and external (government, consumers, prospective investors, and the general public) stakeholders. Our test results also align with the resource-based view (RBV) theory. Responsible banking practices in ESG pillars and dimensions create a positive bank reputation. This reputation is a competitive advantage for the bank, being highly valuable, inimitable, and irreplaceable by other assets. A good bank reputation creates trust among stakeholders, subsequently eliciting positive feedback for the bank.

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