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The Influence of Environmental, Social, And Governance (ESG) On Asset Quality in the Banking Industry

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Abstract

This study examines the impact of Environmental, Social, and Governance (ESG) adoption on asset quality in Indonesian banks between 2019 and 2022. The Non-Performing Loan (NPL) ratio measures asset quality, while control variables include bank size, operating efficiency (BOPO), liquidity (LDR), capital structure (equity to total assets), economic growth (ΔGDP), and inflation. Conventional banks that are listed on the Indonesia Stock Exchange and regularly release sustainability and annual reports make up the sample. Panel data regression analysis results show that ESG considerably reduces non-performing loans (NPLs), indicating that stronger ESG regulations improve asset quality and reduce credit risk. Equity to Total Assets and BOPO also significantly influence asset quality, while other variables show no significant effects. These findings support Stakeholder Theory and Risk Management Theory by demonstrating that ESG functions as a governance and risk management mechanism that enhances banking stability. This research broadens our understanding of sustainable finance and offers useful advice for bank management and regulators looking to improve ESG implementation.

Keywords

Environmental, Social, and Governance (ESG); Asset Quality; Non-Performing Loan (NPL); Sustainable Finance; Bank Stability

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1. INTRODUCTION

The banking sector is vital for maintaining the stability of the financial system and facilitating economic progress in the country (Stewart & Chowdhury, 2021). Banks must prioritize long-term sustainability in addition to profits because they are intermediary organizations. Liang et al. (2025) and Maqbool et al. (2025) argue that the implementation of Environmental, Social, and Governance (ESG) concepts has become a vital tool for strengthening responsible and sustainable governance. Buallay (2018), Deng et al. (2024), and Am (Keuangan, 2024, August 8)iraslani et al. (2023) emphasize that ESG focuses on maintaining a balance among economic, social, and environmental variables in order to increase public trust, enhance the reputation of financial institutions, and reduce credit risk.

As stated in its Sustainable Finance Roadmap (2021–2025), the Indonesian Financial Services Authority (OJK) has emphasized the importance of integrating sustainable finance in the banking sector

in keeping with this trend. Commitment to ESG has emerged as a new standard for evaluating bank performance, considering both financial aspects and adherence to social and environmental responsibility guidelines (OJK, 2023). Although these regulatory efforts have been made, the incorporation of ESG in Indonesian banking has yet to consistently enhance asset quality. OJK data (2023) indicates that during the 2019–2022 period, the average banking NPL ratio remained between 2.7% and 3.2%. This situation suggests that ESG integration has not been fully effective in curbing credit risk.

Valentinov (2024) and Mahajan et al. (2023) argue that stakeholder theory, alongside risk management theory, serves as the primary theoretical foundation for explaining how ESG implementation affects bank asset quality. Stakeholder theory emphasizes that businesses are accountable not only to shareholders but also to a broader range of stakeholders, including customers, employees, regulators, and the wider community.. In the context of banking, ESG practices represent a commitment to responsible governance, transparency, and social responsibility, which helps build stakeholder confidence and minimize agency conflicts. Valentinov (2024) and Adams et al. (2023) emphasize that Risk Management Theory highlights the importance of systematically identifying and controlling potential risks to ensure institutional stability and long-term sustainability. ESG implementation supports this process by strengthening governance structures, improving transparency, and promoting prudent credit management, thereby reducing financial and credit risks. Consequently, ESG can be viewed as a stakeholder-oriented risk management approach that contributes to stronger financial stability and improved asset quality in the banking sector.

Earlier research has shown varied results concerning the connection between ESG and asset quality. Studies conducted in developed regions, such as Buallay (2018) in Europe and Liu et al. (2023), typically indicate a positive correlation, suggesting that ESG improves governance transparency and credit discipline, which in turn lowers the incidence of non-performing loans. In a similar way, Gissay and Majid (2025) and Christine et al. (2025) discovered that the ESG governance component is crucial to enhancing the stability of assets. According to Bruno et al., (2023) and Ananta and Anwar (2025), studies in the Indonesian context also indicate that banks with steady ESG practices have lower NPL ratios. However, research on the direct and independent effects of overall ESG adoption on asset quality in emerging markets like Indonesia is still lacking, particularly in light of macroeconomic uncertainty and varying degrees of ESG disclosure maturity among banks. Furthermore, the interaction between ESG and internal bank-specific variables like liquidity, capital adequacy, and operational efficiency, which might have a combined impact on asset quality, is frequently overlooked in the current literature. While some studies incorporate control variables, only a few—such as Zhang et al. (2023) and Gao and Geng (2024)—have comprehensively examined how ESG interacts with these internal determinants

within a concentrated period marked by external shocks such as the COVID-19 pandemic. By examining the direct impact of ESG on asset quality while accounting for significant macroeconomic and bank-specific factors, this research seeks to address these knowledge gaps and provide a more nuanced picture of ESG's function in reducing credit risk in Indonesia's banking industry.

There is also a notable discrepancy in the motivation behind Indonesian banks' adoption of ESG policies, which might be either a genuine attempt at risk management or just a need to meet regulatory requirements (Asmoro, et al., 2024). The differences in how banks disclose their ESG information, with bigger banks like BCA and BRI providing more detailed reports than their smaller counterparts, bring up concerns regarding the thoroughness and uniformity of ESG practices. This study aims to assess if ESG methods have a real impact on asset quality or are just an administrative compliance mechanism in reaction to OJK regulations.

The quality of a bank's assets is an important measure of financial stability since it reflects the bank's ability to manage credit risk and maintain a robust financing portfolio. Vuong et al. (2024) and Sanathanee (2020) highlight that the failure to preserve asset quality has negative impacts on bank profitability, as well as on public confidence and national economic stability. Understanding how ESG implementation can lead to higher asset quality is thus a crucial concern in contemporary bank risk management.

The purpose of this study is to investigate how ESG adoption affects the asset quality of Indonesian banks between 2019 and 2022. The strategy focuses on determining whether the NPL ratio, a stand-in for asset quality, and the degree of ESG adoption are directly correlated. To guarantee the validity of the links between variables, control factors like bank size, operational efficiency (BOPO), liquidity (LDR), capital structure (Equity to Total Assets), economic growth (ΔGDP), and inflation are included.

This research adds empirical evidence to the literature on sustainable finance in the banking sector in developing nations. In addition to providing regulators and bank management policy recommendations for improving the consistent application of sustainability principles, the results are expected to bolster the idea that ESG adoption has a quantifiable influence on raising asset quality. In practical terms, this study can be used as a basis for strategic banking decision-making that strikes a balance between environmental sustainability, social responsibility, and profitability.

2. METHODS

Using a quantitative research approach and a causal-comparative (explanatory) technique, this paper examines the link between ESG performance and bank asset quality. The major goal is to look at the causal link between asset quality as the dependent variable and ESG as the independent variable, while controlling for other relevant factors. Because it enables the use of numerical data to assess

variables objectively and test suggested relationships through statistical analysis, a quantitative approach is acceptable. The analysis captures both cross-sectional variations among banks and changes over time using secondary panel data spanning the years 2019–2022.

The research included every traditional commercial bank that was listed on the Indonesia Stock Exchange (IDX) from 2019 to 2022. To guarantee the completeness and consistency of the data, purposeful sampling was used. Banks had to be regularly listed on the IDX, publish comprehensive sustainability and yearly reports, supply complete data for all study variables, and offer audited financial accounts in Indonesian Rupiah (IDR) in order to meet the selection criteria. These standards led to the creation of a balanced panel dataset that was deemed appropriate for trustworthy econometric analysis.

The dependent variable, Asset Quality, is proxied by the Gross Non-Performing Loan (NPL) Ratio, calculated using the following formula:

NPL = (Total Non-Performing Loans / Total Outstanding Loans) × 100%

In the banking literature, a lower ratio indicates better asset health, making this a straightforward and widely accepted measure of credit risk and asset quality. The independent variable, ESG Performance (ESG_SCORE), is calculated using a thorough disclosure scoring technique that relies on content analysis. The framework incorporates essential principles from the Global Reporting Initiative (GRI) Standards and OJK's sustainable finance policies. A list of particular disclosure items is assigned to each of the three dimensions: Environmental (e.g., energy policy, carbon reporting), Social (e.g., employee welfare, community development), and Governance (e.g., anti-corruption, board diversity). Each bank receives a binary score each year—1 for disclosure and 0 for non-disclosure—with the overall score reflecting the degree of ESG transparency and dedication.

To isolate the effect of ESG and obtain a more accurate estimation, several control variables are incorporated. Bank-specific internal factors include:

Size (SIZE), measured as:
SIZE = Ln(Total Assets)

Operational Efficiency (BOPO), measured as:
BOPO = (Operating Expenses / Operating Income) × 100%

Liquidity (LDR), measured as:

LDR = (Total Loans / Total Third-Party Funds) × 100%

Capital Adequacy (ETA), measured as:

ETA = (Total Equity / Total Assets) × 100%

Profitability (ROA), measured as:

ROA = (Net Income / Total Assets) × 100%

Furthermore, macroeconomic external factors are controlled for using the annual Economic Growth (ΔGDP) rate of Indonesia's GDP and the Inflation (INF) rate based on the Consumer Price Index (CPI). The GDP growth variable is measured in percentage form and standardized into decimal units to ensure consistency in regression coefficient interpretation. This scaling approach avoids coefficient inflation and allows a clearer comparison with other variables in the model. Thus, the GDP coefficient reflects the effect of a one-percentage-point change in economic growth on the NPL ratio, ensuring proper interpretation and statistical validity.

This study uses secondary quantitative data. Data on ESG reporting is manually obtained through content analysis of annual sustainability and integrated reports available on the official websites of the sample banks and the IDX. The annual financial statements of the sample banks provide bank-specific financial information. Official publications of Statistics Indonesia (BPS) and Bank Indonesia provide macroeconomic statistics on inflation rates and GDP growth. To guarantee accuracy, all financial information is in Indonesian Rupiah and derived from audited statements.

The data analysis adheres to a clear process. To begin, descriptive statistics are computed to give a summary of the data's features. Secondly, in order to assure validity, the panel data regression model is subjected to a battery of traditional assumption tests, such as tests for multicollinearity (using variance inflation factor), heteroscedasticity, autocorrelation, and normality of residuals. Thirdly, the most suitable estimation model—pooled least squares, fixed effects, or random effects models—is chosen by conducting particular tests for panel data, such as the Hausman test and the Chow test (F-test). Hypothesis testing is done after the model is chosen. T-tests are performed at a 5% significance level to determine the influence of each independent and control variable on the NPL ratio. To determine whether each independent variable affects the dependent variable, F-tests are performed concurrently. The model's explanatory power is evaluated using the Coefficient of Determination (R2 and Adjusted R2).

The estimated multivariate linear regression model has the following general form:

$$NPL_{it} = \beta0 + \beta1ESG\_SCORE_{it} + \beta2SIZE_{it} + \beta3BOPO_{it} + \beta4LDR_{it} + \beta5ETA_{it} + \beta6ROA_{it} + \beta7\Delta GDP_t + \beta8INF_t + \varepsilon_{it}$$

Where:

- i denotes the bank (cross-sectional unit)
- t denotes the year (time-series unit)
- β0 is the intercept constant
- β1 to β8 are the regression coefficients for each independent and control variable
- ε_it is the error term

All statistical analyses are performed using EViews 12 software, which is specifically designed for advanced panel data econometrics.

3. FINDINGS AND DISCUSSION

Descriptive Statistics and Preliminary Analysis

Before performing the regression analysis, descriptive statistics for each variable were computed to give a basic knowledge of the data's distribution and properties. This step assists in determining the central tendency, variation, and general trend of each research variable. The dependent, independent, and all control factors' descriptive statistics, including the mean, minimum, maximum, and standard deviation values, are displayed in Table 1. These facts serve as the foundation for additional econometric research.

Table 1. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
NPL Ratio	88	0.48%	5.89%	2.8542%	1.1247%
ESG Score	88	12.00	48.00	28.3750	9.6321
Bank Size (Ln Assets)	88	28.45	34.92	31.8642	1.7835
Equity to Assets (ETA)	88	6.82%	24.56%	13.4298%	4.2153%
LDR	88	62.15%	98.74%	83.6521%	8.9436%
BOPO	88	63.42%	94.87%	78.9364%	7.8251%
ROA	88	0.12%	3.84%	1.8925%	0.9648%
GDP Growth (ΔGDP)	88	-2.07%	5.31%	2.1846%	2.8563%
Inflation (INF)	88	1.56%	3.45%	2.3875%	0.7924%

Source: Secondary data processed with SPSS, 2025

According to Table 1, conventional banks listed on the Indonesia Stock Exchange had an average NPL ratio of 2.85% with a standard deviation of 1.12% between 2019 and 2022. The minimum NPL value of 0.48% and maximum of 5.89% indicate considerable variation in asset quality among the sampled banks. Although the average NPL remains below the 5% threshold set by regulators, the range suggests that some banks face greater challenges in maintaining loan portfolio quality.

The primary independent variable, the ESG disclosure score, has a standard deviation of 9.63 and an average score of 28.38 out of a possible 60. The minimum score of 12 and maximum score of 48 show that Indonesian banks' ESG implementation and reporting methods differ significantly. This heterogeneity offers a solid foundation for examining the connection between ESG performance and asset quality, suggesting that banks vary in their dedication to sustainability and governance standards.

The Equity to Total Assets (ETA) ratio, which measures bank-specific control variables, averages 13.43%, meaning that most banks have sufficient capital buffers to cover possible risks. The Loan to Deposit Ratio (LDR) averages 83.65%, reflecting relatively stable liquidity conditions that support lending activities. The BOPO ratio has an average value of 78.94%, suggesting moderate operational efficiency, although the wide range between 63.42% and 94.87% reveals differences in cost management across banks. Meanwhile, Return on Assets (ROA) averages 1.89%, indicating generally stable profitability during the observation period.

Regarding macroeconomic conditions, average GDP growth during 2019–2022 was 2.18%, with a notable minimum of -2.07% during the peak of the COVID-19 pandemic in 2020 and a maximum of 5.31% during the recovery phase. Inflation averaged 2.39% throughout the period, remaining relatively stable within Bank Indonesia's target range.

Results of Panel Data Regression Analysis

Panel data regression analysis was used to evaluate the hypothesis of how ESG implementation affects asset quality. The Fixed Effects Model (FEM) was determined to be the most suitable estimation technique based on the Chow test (F-statistic = 4.873, p = 0.000) and Hausman test (Chi-square = 23.647, p = 0.001). This model successfully accounts for time-invariant, unobserved variability among different banks. The regression analysis's simplified results are shown in Table 2.

Table 2. Fixed Effects Regression Results (Dependent Variable: NPL Ratio)

Variable	Coefficient	t-statistic	Sig.
Constant	-0.405	-3.322	0.002
ESG Score	-0.352	-2.967	0.005
Bank Size	0.001	0.178	0.859
Equity to Assets	-0.076	-3.481	0.001
LDR	0.017	1.942	0.057
BOPO	0.079	6.055	0.000
GDP Growth (ΔGDP)	89.754	0.532	0.596
Inflation	0.190	1.568	0.125
R Square	0.725		
Adjusted R Square	0.678		
F-statistic	15.221		
Sig. F-statistic	0.000		

Source: Secondary data processed with SPSS, 2025

The model has good explanatory power and is statistically robust, according to the regression results. The model is highly significant, indicating that all independent and control variables jointly affect the NPL ratio, as indicated by the F-statistic value of 15.221 at a significance level of 0.000. The R Square value of 0.725 indicates that ESG and the model's control variables account for 72.5% of the variation in bank asset quality. Furthermore, the model's strong explanatory power for panel-based financial research is demonstrated by the Adjusted R Square value of 0.678, which shows that the model still explains 67.8% of the variation after taking the number of predictors into consideration. From a theoretical perspective, this strong model fit supports Risk Management Theory, as it demonstrates that structured governance, capital adequacy, and operational efficiency play an important role in controlling credit risk and maintaining banking stability. The findings suggest that ESG and internal financial indicators function as key components of a systematic risk management framework that helps reduce non-performing loans and improve asset quality.

Hypothesis Testing Results

The study's primary finding provides compelling evidence in favor of the suggested research hypothesis. With a coefficient value of -0.352, a t-statistic of -2.967, and a significance level of 0.005 ($p < 0.01$), the ESG Score and the NPL ratio have a negative and statistically significant relationship. According to this research, banks with stronger ESG performance typically have lower NPL levels,

which is indicative of higher-quality assets. Put another way, better credit risk management and more stable loan portfolios are associated with increased ESG disclosure and implementation. The outcome emphasizes how crucial ESG standards are to improving risk management and financial stability in Indonesia's banking industry.

Control Variables Analysis

Among the bank-specific control variables, the analysis yields nuanced and insightful findings:

Equity to Total Assets (ETA) shows a significant negative coefficient (B = -0.076, t = -3.481, p = 0.001), indicating that banks with stronger capital buffers tend to exhibit better asset quality. This finding underscores the fundamental role of equity in providing a vital cushion against potential loan losses.

Operational Efficiency (BOPO) exhibits a significant positive coefficient (B = 0.079, t = 6.055, p = 0.000), indicating that operational efficiency is a dominant factor influencing asset quality. A higher BOPO ratio reflects decreased efficiency and increased operating expenses, which is associated with higher NPL ratios. This relationship suggests that banks with poor cost management may also experience weaknesses in credit risk monitoring and control systems.

Liquidity (LDR) shows a positive coefficient (B = 0.017) that approaches but does not reach statistical significance at the 5% level (p = 0.057). The marginal significance suggests a tendency for banks with higher loan-to-deposit ratios to experience slightly higher NPLs, although this relationship is not strongly confirmed in the current sample.

Bank Size demonstrates no significant effect on asset quality (B = 0.001, p = 0.859), indicating that the scale of operations alone does not determine credit risk outcomes. This finding implies that management quality and governance practices are more important than sheer asset size in maintaining loan portfolio health.

Regarding macroeconomic control variables, both Economic Growth (ΔGDP) and Inflation show no statistically significant effects on NPL ratios during the observation period (p = 0.596 and p = 0.125, respectively). This intriguing finding suggests that during 2019–2022, internal governance mechanisms and risk management practices captured by ESG and operational indicators played a more dominant role in shaping asset quality than the external economic environment. This result may reflect the effectiveness of government and central bank policy interventions during the COVID-19 pandemic, which provided artificial buffers against widespread defaults despite macroeconomic contraction.

Model Diagnostics

The model has good explanatory power and is statistically robust, according to the regression results. The model is highly significant, indicating that all independent and control variables jointly

affect the NPL ratio, as indicated by the F-statistic value of 15.221 at a significance level of 0.000. The R Square value of 0.725 indicates that ESG and the model's control variables account for 72.5% of the variation in bank asset quality. Furthermore, the model's strong explanatory power for panel-based financial research is demonstrated by the Adjusted R Square value of 0.678, which shows that the model still explains 67.8% of the variation after taking the number of predictors into consideration. The outcome emphasizes how crucial ESG standards are to improving risk management and financial stability in Indonesia's banking industry. Overall, these results confirm that the regression model meets the classical assumptions and is appropriate for hypothesis testing.

Discussion

The Impact of ESG on Asset Quality

The empirical results demonstrate that ESG implementation has a significant negative effect on the Non-Performing Loan (NPL) ratio, indicating that stronger ESG practices contribute to better asset quality in Indonesian banks. Ciğer et al. (2026) suggest that the negative coefficient indicates that banks with higher ESG disclosure and implementation tend to experience lower credit risk and maintain healthier loan portfolios. Liaqat et al. (2026) confirm that ESG functions as an effective mechanism for strengthening internal governance, improving monitoring systems, and promoting prudent lending practices, which ultimately enhance banking stability and reduce financial risk.

Theoretically, this finding is strongly supported by Stakeholder Theory and Risk Management Theory. An et al. (2022) argue that, according to Stakeholder Theory, banks must adopt responsible governance and transparent operational practices to maintain stakeholder confidence, as they are accountable not only to shareholders but also to regulators, customers, employees, and society at large. ESG implementation reflects this responsibility by encouraging banks to consider environmental sustainability, social responsibility, and governance accountability in their decision-making processes. At the same time, Risk Management Theory suggests that financial institutions must continuously identify and manage potential risks to ensure long-term stability (Oko-Odion & Omogbeme, 2025). ESG serves as a structured risk management framework by strengthening governance controls, improving transparency, and reducing information asymmetry, which leads to more careful credit evaluation and lower non-performing loans.

This finding is consistent with prior empirical studies that highlight the role of ESG in improving financial stability and reducing credit risk. Tóth et al. (2021) and Bouattour et al. (2024) found that ESG performance enhances bank resilience through better governance and operational discipline, while Shin (2020) and Liu et al. (2023) showed that ESG reduces credit risk by improving transparency and lending quality. The current study extends these findings by providing evidence from an emerging market,

demonstrating that ESG remains a significant determinant of asset quality even in a developing financial system such as Indonesia. This suggests that ESG implementation is not limited to developed economies but is also relevant in banking sectors with varying levels of regulatory and institutional maturity.

Practically speaking, this finding suggests that rather than being viewed as a compliance issue, ESG should be incorporated into fundamental banking practices. Implementing ESG offers a methodical framework for controlling credit risk, raising the standard of governance, and strengthening long-term financial stability (Ristori & Storaï, 2025). In order to assist the development of a sustainable financial system, authorities should encourage banks to implement comprehensive ESG frameworks and tighten ESG disclosure rules. As a result, ESG may be seen as a risk management tactic that directly enhances the quality of bank assets as well as a stakeholder-oriented governance tool.

The Influence of Control Variables on Asset Quality

Bank-Specific Factors. Wu et al. (2022) and Arhinful et al. (2025) find that the analysis of control variables reveals capital adequacy and operational efficiency as significant determinants of asset quality. Equity to Total Assets (ETA) exhibits a significant negative effect on NPL, indicating that well-capitalized banks are better able to absorb credit risk and maintain stable loan portfolios. This finding aligns with Risk Management Theory, which emphasizes the importance of capital buffers in mitigating financial risk and ensuring institutional stability. Adequate capital allows banks to withstand potential loan losses and maintain operational continuity, thereby reducing the likelihood of financial distress.

This result is supported by previous studies such as Colonnello et al. (2020) and Adams et al. (2023), which found that strong capital structures enhance bank resilience and improve risk management effectiveness. In the context of Stakeholder Theory, strong capital adequacy also strengthens stakeholder confidence, particularly among regulators and investors, as it signals financial stability and responsible management practices. Therefore, capital adequacy plays a dual role in supporting both risk management and stakeholder assurance in the banking sector.

Operational efficiency, represented by BOPO, shows a significant positive relationship with NPL, indicating that inefficient banks tend to experience higher credit risk. Higher operational costs may reduce managerial focus on credit monitoring and weaken internal control mechanisms, leading to increased non-performing loans. From a Risk Management Theory perspective, operational inefficiency reflects weaknesses in internal risk control systems and monitoring processes, which can increase the probability of loan default. This finding is consistent with Sobanova and Kudinska (2022) and Pakhchanyan (2016), who argue that operational discipline is essential for maintaining effective risk management and financial stability.

In contrast, bank size and liquidity (LDR) do not show significant effects on asset quality. This

indicates that larger bank size does not automatically guarantee better risk management, and higher liquidity does not necessarily reduce credit risk. This finding supports Bolibok (2024) and Mansour et al. (2022), who argued that governance quality and management effectiveness are more important than structural characteristics in determining financial stability. From the perspective of Stakeholder Theory, this suggests that institutional responsibility and governance practices are more critical than organizational scale in maintaining asset quality.

Macroeconomic Factors. The findings indicate that GDP growth and inflation do not significantly affect bank NPL during the 2019–2022 period. In contrast to this result, Peykani et al. (2025) suggest that conventional financial theory generally posits that macroeconomic growth reduces credit risk, while inflation increases financial instability. However, the insignificant effect of macroeconomic variables in this study can be explained by the unique economic conditions during the COVID-19 pandemic, when government intervention and financial stimulus policies played a significant role in stabilizing the banking sector.

From the perspective of Risk Management Theory, this finding suggests that internal risk management mechanisms can mitigate the impact of macroeconomic shocks. Government credit restructuring programs, liquidity support, and financial stimulus likely reduced the direct effect of economic fluctuations on bank asset quality. Chortareas et al. (2019) and De Carvalho et al. (2020) also found that macroeconomic effects on credit risk may weaken during periods of strong regulatory and policy intervention. Therefore, internal governance and risk management practices become more dominant in determining asset quality during economic uncertainty.

From a Stakeholder Theory perspective, government intervention can be viewed as a form of stakeholder protection, where regulators act to maintain financial system stability and protect public interests (Yan, 2025). This indicates that collaboration between banks and regulators plays a crucial role in maintaining asset quality, particularly during periods of economic crisis. As a result, ESG implementation and strong internal governance become increasingly important in supporting banking resilience under macroeconomic pressure.

Synthesis and Empirical Implications

Overall, the findings provide a coherent explanation of how ESG implementation, capital adequacy, and operational efficiency interact to influence bank asset quality in Indonesia. ESG emerges as a central mechanism that integrates stakeholder responsibility and risk management into banking operations, while capital strength and operational discipline provide structural support for financial stability. The relatively high explanatory power of the model confirms that internal governance and management practices play a dominant role in reducing credit risk.

From a theoretical perspective, this study strengthens the integration of Stakeholder Theory and Risk Management Theory in explaining ESG effectiveness in the banking sector. ESG serves as a stakeholder-oriented governance framework that simultaneously functions as a structured risk management mechanism, linking sustainability practices with financial stability outcomes. This theoretical integration contributes to the growing literature on sustainable finance by demonstrating that ESG is not only a social or ethical concept but also a practical financial risk management tool.

From a policy perspective, the findings support the continuation and strengthening of sustainable finance initiatives promoted by the OJK. Encouraging banks to adopt comprehensive ESG frameworks and improving ESG disclosure standards may enhance banking resilience and reduce systemic credit risk. For bank management, integrating ESG into core business strategies can improve governance quality, strengthen risk management, and enhance long-term financial performance.

In the broader context of emerging markets, this study provides empirical evidence that sustainability and financial stability are closely interconnected. ESG implementation contributes directly to improving asset quality and strengthening banking resilience, confirming that responsible governance and effective risk management are essential for sustainable banking development.

4. CONCLUSION

The application of ESG considerably enhances asset quality in the Indonesian banking sector between 2019 and 2022, according to this study's empirical data. The results demonstrate that the NPL ratio is significantly impacted negatively by ESG, suggesting that improved ESG practices lead to reduced credit risk and more stable loan portfolios. This outcome demonstrates that ESG serves as a strategic instrument that supports prudent risk management in banking operations, improves transparency, and strengthens governance quality in addition to being a method for regulatory compliance.

Theoretically, the study integrates Stakeholder Theory and Risk Management Theory in explaining ESG effectiveness in the banking sector. ESG reflects stakeholder-oriented governance while simultaneously functioning as a structured risk management framework that enhances financial stability. The results also show that capital adequacy and operational efficiency significantly influence asset quality, while bank size, liquidity, GDP growth, and inflation do not show significant effects, highlighting the dominant role of internal governance and management practices in maintaining banking stability.

Basically, the findings support the strengthening of ESG disclosure and sustainable finance policies by regulators, particularly the Financial Services Authority (OJK), and encourage bank management to integrate ESG into core business strategies to improve long-term financial resilience. Despite these

contributions, this study is limited by disclosure-based ESG measurement, a relatively short observation period, and the focus on conventional banks. Future research is recommended to extend the sample, incorporate Islamic and regional banks, and apply alternative ESG measurement approaches to provide a deeper understanding of ESG effectiveness in emerging markets.

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