

# Uncertain Supply Chain Management

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## Governance and financial stability: Evidence in banks in southeast Asia during the COVID-19 pandemic

Abdul Kharis Almasyhari<sup>a\*</sup>, Wulan Suci Rachmadani<sup>b</sup>, Samsul Rosadi<sup>c</sup>, Yeni Priatnasari<sup>d</sup>, Siti Malikhah<sup>b</sup> and Edy Suryanto<sup>b</sup>

<sup>a</sup>Faculty of Economics and Business, Universitas Muhammadiyah Semarang, Semarang City, Central Java, Indonesia

<sup>b</sup>Faculty of economics and business, Universitas Negeri Semarang, Semarang City, Central Java, Indonesia

<sup>c</sup>Department of Sharia Accounting, Faculty of Islamic Economics and Business, Universitas Islam Negeri (UIN) Raden Mas Said Surakarta, Sukoharjo City, Central Java, Indonesia

<sup>d</sup>Accounting Study Program, Politeknik Harapan Bersama, Tegal City, Central Java, Indonesia

### ABSTRACT

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The global economy, including the banking sector in the ASEAN region, has experienced significant impacts due to the COVID-19 pandemic. To understand its impact more deeply, this research aims to evaluate banking stability and performance during the pandemic period, with a focus on risk governance and financial factors. A total of 272 banks in the ASEAN region were included in this study, using specific criteria depicting risk governance and financial factors. The research findings indicate a positive relationship between risk governance factors (RC, RCS, RCM and CRO) towards Financial Sustainability. The implications of these findings not only have theoretical relevance in understanding banking dynamics during crisis periods but also have important practical implications for decision-makers in the banking sector and financial regulation. Further discussion on theoretical and practical implications is provided, offering a better understanding of the challenges and opportunities in maintaining financial sustainability in the context of uncertain economic situations, such as those brought about by the global pandemic.

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## 1. Introduction

COVID-19 has caused companies to experience substantial revenue declines and expenses increases; household industries could potentially experience job cuts and income reduction due to this pandemic (Barua, 2020). If this trend continues, businesses and individuals may struggle to meet their financial obligations on time leading to loan defaults (Bartik et al., 2020). These effects could also impact banks, leading to reduced earnings and an increase in non-performing assets that threatens their health, stability, and capital (Beck & Keil, 2020). An increase in banking services might also decrease non-interest revenue and adversely impact financial profitability metrics (Ozili & Arun, 2020). Banks could face increased credit risks and systemic vulnerabilities (Duan et al., 2021). One of the most significant impacts of recent market failures, even among experts of intricacies in financial risk management, has been the exposure of risks in corporate governance procedures (FSB, 2013; OECD, 2009). Aebi et al., (2012) conducted extensive studies during financial crises which demonstrated that Chief Risk Officers who report directly to boards rather than CEOs or other corporate departments experience greater stock returns and equity returns during crises periods. Banks must deal with different kinds of risks (like credit, operational, bankruptcy, and liquidity risks) when they are doing their work (Punagi & Fauzi, 2022).

The banking sector is characterized by heightened intricacy and reduced transparency in contrast to non-financial entities, largely owing to factors such as elevated leverage ratios and substantial asset-liability mismatches (Srivastav & Hagedorff, 2016; Abdelbadie & Salama, 2019). Risk committees operating independently have become more widespread in the banking industry, driven by heightened exposure to diverse risks and growing business intricacies (Andres & Vallelado, 2008). At banks, dedicated board-level risk committees play an essential role in identifying, mitigating and mitigating their various risks. They play this function

\* Corresponding author

E-mail address [neverstop999@gmail.com](mailto:neverstop999@gmail.com) (A. K. Almasyhari)

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through identification, management and mitigation efforts (Cerasi et al., 2020). Risk committees (RCs) played an important role in strengthening risk governance at the bank level through Enterprise Risk Management practices (ERM). An effective risk consultant provides invaluable insights and policy suggestions related to risk strategies, appetites and tolerance levels within an organization's culture of risk awareness (Malik et al., 2020). Battaglia & Gallo (2015) determine if risk committee existence or absence was indicative for effective corporate management and governance, with Brancato et al., (2006) support for findings that control committees help to reduce risk, increase profit and decrease costs. Lee & Hooy (2020) have found supervisory committees play an essential role in decreasing risk-taking within state-owned banks, while Mongiardino & Plath (2010) outline their impact in upholding banking stability while improving operational performance. Ellul & Yerramilli (2013) contend that establishing resilient and independent risk management functions aids in mitigating exposure to tail risk. Determining the optimal capital structure of a company poses a challenge, with the debate revolving around identifying the most effective composition of capital according to Modigliani and Miller's theorem (Modigliani & Miller, 1958). Capital structure theory describes the financial policies utilized when selecting the optimal capital structure of a company, which often comprises debt and equity investments to maximize value creation for their value creation efforts (Modigliani & Papademos, 1980). Research on financial sustainability has been extensive, yet there is still limited consideration of Risk Governance variables, which is one of the focuses of our research. In this study, we utilize Risk Governance variables considering the Asian context. Risk management in the banking industry has grown increasingly important since the 2008 financial crisis. Bankers must closely observe banks' risk taking and management practices. Nguyen & Dang (2022), for instance, discovered Risk Governance framework was instrumental in elevating the effectiveness of bank risk management, their research also underscores the necessity of having committed risk committees to strengthen bank risk management for better results. However, according to Qadri et al. (2023), both local and international banks experienced a decline in performance during and after the pandemic. Though this research does not directly explore the adverse ramifications of risk governance on financial sustainability, it highlights some of the challenges banks in this region encountered during the outbreak. Additionally, we consider control variables such as LDR, Expense, GDP, Inflation, and Covid. Therefore, this could be the most appropriate step to provide empirical evidence that a bank is likely to achieve good financial sustainability by considering the empirical evidence we have gathered.

This research seeks to examine the outcome of factors like Risk Committee Size, Meeting Frequencies and Chief Risk Officer on financial sustainability. We present empirical evidence in the banking sector involving 272 selected banks from Asian countries. We aim to complement previous research (Nguyen & Dang, 2022), which showed inconsistent research results. Our research focuses on several aspects. Firstly, our research uses a different governance theory compared to studies using agency theory by exploring Risk Governance variables more deeply. Secondly, we extend evidence to banks in the Asian region to obtain empirical evidence that before the emergence of financial health crises, banking is determined by several variables we explore. We offer empirical findings that can be considered by banks to maintain financial sustainability in the future.

This research can have direct consequences for public policy makers when developing regulatory frameworks that promote effective risk governance within the banking industry. Furthermore, this study builds upon previous findings by considering key elements that may alleviate negative financial sustainability effects within this industry. Overall, we argue that banks, as providers of credit and financial services, should be able to maintain financial sustainability with higher accounting profitability levels, placing themselves in a favorable position to prevent extreme loss shocks. Profitable banks often garner greater assessments and trust from investors, particularly in challenging circumstances. Therefore, this research is important to provide practical recommendations to prevent banks from incurring significant losses. Similarly, if a bank has good financial sustainability, risks can be lower. Additionally, our research emphasizes how risk committees, risk committee size, meetings of risk committees and chief risk officers contribute to increased financial stability. Taking these aspects into account, we assess whether these variables and stability can effectively alleviate any potential negative consequences.

## **2. Literature review**

### *2.1 Theoretical foundations*

Governance theory emerged as creating structures and processes that enable banks to operate effectively, sustainably, and responsibly in the interests of all stakeholders (Nikolić et al., 2022). In facing the complex risks encountered by banking, the role of board-level risk committees becomes crucial. These committees are tasked with identifying, managing, and minimizing the various risks faced by banks (Stulz James Tompkins Rohan Williamson Zhongxia Ye, 2022). Banks require reliable and autonomous risk management in order to navigate through financial aspect instability triggered by the presence of COVID-19. Governance theory has proven to be a strong foundation for analyzing the complex relationship between stakeholders and the mechanisms regulating their interactions. It has been applied in various contexts, including corporate governance, used to analyze the relationship between companies and their stakeholders, and to identify factors contributing to good governance practices (Gao et al., 2021).

### *2.2 Hypothesis development*

Effective risk management practices can curtail the tendency for engaging in overly risky behavior (Ellul & Yerramilli, 2013). Risk committees can also facilitate communication and collaboration between different departments within a bank to ensure a cohesive approach to risk management, potentially dissuading excessive risk-taking behavior from bank employees. Reducing legal risk due to bankruptcy (Pathan, 2009). Risk committees represent an indication of board commitment to responsibly manage risks. With risk committees in place, stakeholders can trust that the bank's risk exposure is being managed effectively (Bugalla et al., 2012). It has been proven through research that having a risk committee in place leads to higher performance ratings (Ames, 2015). Risk management has long been recognized for its effect on how companies react during crises (Brunnermeier, 2009). Experts discovered that strong risk oversight had a positive influence on financial health pre-Covid-19 (Alshehhi, 2023). Certain financial institutions have faced crises primarily due to their adoption of overly risky strategies (Addo et al., 2020). Risk governance mechanisms are essential for managing risks in bank operations. Banks that establish dedicated risk committees can reduce risks by eliminating risk aggregation and duplication, using natural hedges when applicable, improving information quality, and increasing transparency -

ultimately leading to improved risk management strategies and reduced bank overall risks (Farrell & Gallagher, 2015). Our analysis leads us to believe that the following hypotheses are valid.

**H<sub>1</sub>:** *The Risk Committee (RC) correlated positively into Financial Sustainability (FC).*

As per agency theory (Jensen, 1993), when the risk committee is overly large, it can create conflicts and free-rider challenges. This can result in poor communication, information fragmented and of low quality, as well as suboptimal decisions. While resource dependence theory, an extensive risk committee enhances monitoring efficiency by encompassing diverse perspectives, expertise, and effective decision-making methodologies (Malik et al., 2020). It has been found through research that having bigger boards and auditing committees is linked to increased financial stability, reliability, and reduced costs associated with debt financing (Anderson et al., 2004). In the same way, bigger risk committees demonstrate solid risk control (Hines & Peters, 2015; Malik et al., 2020), which leads to better risk communication and less information asymmetry. Our findings suggest that the stated hypotheses hold true.

**H<sub>2</sub>:** *The Risk Committee Size (RCS) was related negatively to Financial Sustainability (FC).*

How often board meetings occur shows how much the board is engaged in making important decisions. Hussain et al. (2018) stress the importance of board meetings for directors in gathering company-specific data and meeting their supervision responsibilities. A regular risk committee meeting allows its members to discuss and deliberate ideas regarding monitoring managers, risk reduction plans and ERM policies more carefully; ultimately reflecting how quickly and thoroughly this committee addresses any issues that may arise. Previously, Battaglia & Gallo (2015) found that having more risk committee meetings is linked to better bank market performance. This suggests that frequent meetings help with risk communication, monitoring, decision-making, and overall risk management. As a result, we suggest that:

**H<sub>3</sub>:** *The Risk Committee Meetings (RCM) and Financial Sustainability (FC) are positively correlated.*

Having a Chief Risk Officer (CRO) at the bank is essential. This person will oversee and manage any risks they face (Brancato et al., 2006). ERM literature says that implementing a risk management strategy requires the nomination within a company of risk ambassadors (Liebenberg & Hoyt, 2003). CROs act as risk champions and are responsible to implement and coordinate ERM practices (Liebenberg & Hoyt, 2003). Recognizing the value of ERM can result in enhanced financial success. Skillful risk management can solidify the connection between ERM adoption and the overall performance of a business (Malik et al., 2020). To enhance the effectiveness of ERM, we propose the CRO should be focused on major risks, improve coordination, communication, and risk management, also integrate risk management methods and reduce risks throughout the bank. Sun & Liu (2014) note that banks might also benefit by taking on excessive risk. Banks which have robust and well-defined governance structures for risk (Mollah et al., 2017), like the CRO position are better equipped to deal with increased risks, in order maximize profits and shareholder wealth (Aebi et al., 2012). In view of this, we put forward the suggestion that:

**H<sub>4</sub>:** *The Chief Risk Officer (CRO) is positively related to Financial Sustainability (FC).*

### 3. Methodology

#### 3.1 Data and Sample

This study comprises a total of 272 banks from Asia. Purposive sampling is used in this research, which selects samples based on criteria that reflect risk governance and financial sustainability. Data used is cross-sectional and was only collected between 2018 and 2023. The study sample starts in 2018 as it was the year prior to the Covid-19 outbreak. Table 1 contains the sample data that was used for the study.

**Table 1**  
Variables and measurements

Variables	Measurements	Source
<b>Dependent</b>		
Financial Sustainability		
ROA	Total profit divided by total assets	(Park et al., 2022)
ROE	Total profit divided by total equity	(Park et al., 2022)
NPL	Non-Performing Loans / Total Assets	(Ozili, 2023)
CAR	Capital/Risk Weighted Assets (Tier 1+ Tier 2)	(Korein et al., 2022)
<b>Independent</b>		
Risk Governance		
RC	The dummy variable is "1" if the bank has a dedicated board-level risk committee and "0" otherwise.	(Ding & Wei, 2023)
RCS	The number of members on the risk committee	(Fali et al., 2020)
RCM	The number of risk committee meetings held in a financial year.	(Chou & Buchdadi, 2017)
CRO	The dummy variable is coded "1" if the CRO position is present in a bank and "0" otherwise.	(Viljoen et al., 2019)
<b>Control</b>		
LDR	Loans / Total Funds Received	(Sunaryo, 2020)
Assets (LN_ASSETS)	Logarithm of Natural Total Asset Bank	(Sunaryo, 2020)
Expenses (LN_EXP)	Logarithm of Natural Total bank charges	(Drechsler et al., 2021)
GDP (LN_GDP)	GDP Growth Rate (Source: World Bank Database)	(Murungi et al., 2023)
Inflation	Inflation rate (Source: World Bank Database)	(Priyadi et al., 2021)
Covid	Non covid 2018-2019 score 1, Covid 2020-2021 score 2	(Piserà & Chiappini, 2024)

As we are focused on assessing risk governance in the context of Covid-19, our aim is to look at a small subset of Southeast Asia banks between 2018 and 2021. To ensure pre-pandemic conditions, we used samples from the years 2018-2019. The sample was chosen based on data from The Asian Banker, comprising 68 banks in Southeast Asia over 4 years with a total of 272 observations. Purposive sampling method was employed for sample selection.

Model Specification in this research employs regression model testing. Relationships were examined between dependent variables (ROA, ROE, NPL and CAR) and independent variables such as RCs RCSs RCMs CROs as well as control variables like LDR's, GDP Inflation Covid-19s etc. Furthermore, it evaluated control variables as an added control variable such as LDR. Below is the research model in its entirety:

$$ROA = \alpha + \beta_1 RC + \beta_2 RCS + \beta_3 RCM + \beta_4 CRO + \beta_5 LDR + \beta_6 LN\_ASSET + \beta_7 LN\_EXP + \beta_8 LN\_GDP + \beta_9 INF + \beta_{10} COVID + e$$

$$ROE = \alpha + \beta_1 RC + \beta_2 RCS + \beta_3 RCM + \beta_4 CRO + \beta_5 LDR + \beta_6 LN\_ASSET + \beta_7 LN\_EXP + \beta_8 LN\_GDP + \beta_9 INF + \beta_{10} COVID + e$$

$$NPL = \alpha + \beta_1 RC + \beta_2 RCS + \beta_3 RCM + \beta_4 CRO + \beta_5 LDR + \beta_6 LN\_ASSET + \beta_7 LN\_EXP + \beta_8 LN\_GDP + \beta_9 INF + \beta_{10} COVID + e$$

$$CAR = \alpha + \beta_1 RC + \beta_2 RCS + \beta_3 RCM + \beta_4 CRO + \beta_5 LDR + \beta_6 LN\_ASSET + \beta_7 LN\_EXP + \beta_8 LN\_GDP + \beta_9 INF + \beta_{10} COVID + e$$

(Note: for symbols and definitions of regression equation variables refers to previous section)

## 4. Results

### 4.1 Descriptive Statistics and Correlations

Financial performance metrics for 192 observations were outlined in Table 2. The ROA has an average of 1.05 and a median of 1.10, suggesting stability. In contrast, the ROE has a wider range of values, averaging 9.02 and ranging from -3.20 to 21.60, indicating greater variability.

**Table 2**  
Descriptive Statistics

	ROA	ROE	NPL	CAR	RC	RCS	RCM	CRO	LDR	LN EXP	LN ASSETS	LN GDP	COVID
Mean	1.05	9.02	2.48	18.30	0.99	7.32	9.45	0.92	90.96	6.05	10.16	27.00	1.49
Median	1.10	9.00	2.29	18.40	1.00	7.00	10.00	1.00	90.00	5.87	9.86	26.70	1.00
Maximum	2.80	21.60	5.54	35.80	1.00	16.00	32.00	1.00	146.40	8.40	12.89	27.80	2.00
Minimum	-0.40	-3.20	0.36	9.00	0.00	3.00	2.00	0.00	43.10	3.81	8.63	23.33	1.00
Std. Dev.	0.57	4.47	1.23	3.86	0.07	2.83	4.16	0.27	14.19	1.01	1.03	0.57	0.50
Observations	201	201	198	195	201	201	201	201	201	201	201	201	201

Financial performance metrics for a dataset consisting of 192 observations reveal diverse values across various key indicators. Specifically, ROA displays an average return on asset (ROA) ratio of 1.05 with a median performance level (MPV) score of 1.10, suggesting relatively stable performance. Conversely, ROE exhibits more variance, with an average ROE value averaging 9.02 and an array of minimum and maximum scores spanning from -3.20 up to 21.60. NPL has an average of 2.48 with a median of 2.29, indicating a moderate level of credit risk. CAR averages 18.30, with a standard deviance of 3.86, this is a good indicator of financial institution stability. RC remains relatively constant with an average of 0.99, while RCS and RCM show wider variability, indicating potential areas of concern. LDR is very high, averaging 90.96, indicating a significant reliance on financial institution loans. Additionally, the data includes metrics related to credit risk management, such as the CRO variable. Finally, this dataset incorporates macroeconomic factors, such as Loan to GDP Ratio (LN\_GDP) and COVID variables, providing a comprehensive overview of financial and economic conditions. Table 3 displays the multicollinearity test between independent variables. The correlation matrix provides insights into the relationships among various financial and economic indicators. ROE and ROA have a strong positive correlation (0.801), indicating that there is a close link between the profitability of a company and its overall asset performance. NPL, on the other hand, shows a correlation between ROE and ROA that is negative (-0.303 and -0.160), which suggests that as profitability grows, so will the likelihood of NPL.

CAR exhibits a positive correlation with ROE (-0.134) but no such relationship to ROA (0.275), suggesting an implied tradeoff between profitability and capital adequacy. Furthermore, risk concentration metrics exhibit strong positive correlations with several financial metric metrics, suggesting a relationship between this risk indicator and other measures of financial health.

LDR shows an intriguing correlation with ROE (0.052) and ROA (0.065), suggesting that institutions with higher loan-to-deposit ratios could experience increased profitability. Correlation between LN\_GDP Ratio (LNGDP) and indicators like CAR and RCS underscores potential macroeconomic effects on financial performance.

Furthermore, inflation exhibits positive correlations with several financial metrics like ROE (0.113) and ROA (0.162), suggesting it could impact certain metrics. This correlation matrix gives financial analysts and decision-makers valuable insight into key intersections within their dataset by outlining interconnections among key indicators within it.

**Table 3**  
Correlation Matrix

	ROE	ROA	NPL	CAR	RC	RCS	RCM	CRO	LN_EXP	LN_ASSETS	LDR	LN_GDP	INFLATION
ROE	1.000												
ROA	0.801	1.000											
NPL	-0.303	-0.160	1.000										
CAR	-0.134	0.275	0.220	1.000									
RC	-0.009	-0.006	0.090	0.038	1.000								
RCS	0.130	0.262	0.046	0.279	0.008	1.000							
RCM	-0.258	-0.158	0.152	0.130	-0.010	-0.206	1.000						
CRO	-0.016	-0.047	-0.283	-0.024	-0.021	0.101	0.088	1.000					
LN_EXP	0.148	0.145	0.018	-0.048	-0.013	-0.071	-0.015	0.027	1.000				
LN_ASSETS	0.089	-0.011	-0.147	-0.230	0.072	-0.188	0.048	-0.030	0.178	1.000			
LDR	0.052	0.065	0.099	0.053	0.052	0.061	-0.022	-0.169	-0.043	0.098	1.000		
LN_GDP	-0.028	0.228	0.263	0.496	0.051	0.505	-0.243	0.019	0.040	-0.251	0.200	1.000	
INFLATION	0.113	0.162	0.023	-0.106	0.042	0.158	-0.082	0.221	0.006	-0.137	-0.127	0.259	1.000

**Table 4**  
Regression result

Variables	ROA	ROE	NPL	CAR
RC	0.254** (2.122)	1.62** (2.322)	-0.126 (-0.250)	-0.545 (-0.803)
RCS	0.035 (1.210)	0.197 (0.845)	-0.058** (-2.358)	0.037 (0.713)
RCM	-0.005 (-0.452)	-0.159* (-1.661)	0.042 (1.557)	0.134** (2.001)
CRO	-0.135 (-0.588)	-0.031 (-0.021)	-1.279*** (-3.752)	-1.104** (2.034)
LN_EXP	0.037 (0.651)	0.417 (1.442)	0.024 (0.373)	0.44** (2.378)
LN_ASSETS	0.018 (0.342)	0.408 (1.439)	-0.234** (-2.246)	-0.361** (-2.505)
LDR	0.002 (0.645)	0.027 (1.141)	0.001 (0.175)	-0.052*** (-3.420)
LN_GDP	0.105 (1.172)	-0.523 (-1.097)	0.599** (2.165)	2.978** (2.039)
INFLATION	0.006 (0.331)	0.001 (0.004)	0.03 (0.559)	-0.216*** (-3.496)
COVID	-0.24*** (-3.325)	-1.859*** (-4.294)	0.299*** (2.595)	0.656*** (2.933)
C	-2.428 (-0882)	15.127 (1.081)	-10.699 (-1.511)	-56.911 (-1.500)
R2	0.185	0.177	0.131	0.224
Prob	0.000	0.000	0.000	0.000
Obs	201	201	198	195

Table 4 details the effects of each variable on t statistics, with notable positive and statistically-significant relationships being evident between RC (0.254) and ROE (1.622). This indicates that an increased risk concentration leads to higher returns on both assets and equity. RCS shows an important negative relationship (-0.058) between NPL and RCS, suggesting that greater concentration in specific industries could lead to less NPL. Furthermore, RCM shows a significant negative relationship with ROE (-0.159) but a positive relationship with CAR (0.134), hinting at potential implications for equity returns and capital adequacy. The presence of a CRO also proves statistically significant, with a negative influence on NPL (-1.279), suggesting that having a CRO may contribute to reducing non-performing loans. Macroeconomic factors like Loan to GDP Ratio (LN\_GDP) and Inflation display noteworthy relationships as well. LN\_GDP positively impacts ROA (0.105) but negatively affects ROE (-0.523), implying that a higher Loan to GDP Ratio may be linked to increased asset returns but decreased equity returns. On the other hand, Inflation is negatively associated with various financial indicators, including NPL (-0.216) and ROE (-1.859), indicating potential impacts on these metrics. Lastly, COVID also has an adverse impact on ROA (0.24%) and ROE (1.859), reflecting adverse financial effects during pandemic. In summary, these regression findings offer valuable statistical evidence for understanding the intricate relationship between key financial indicators and their determinants. Goodness-of-fit indicators (R2) and profitability values (Prob) affirm the model's statistical significance in explaining the variation in dependent variables, further strengthened by the substantial number of observations (Obs) in each regression analysis.

## 5. Discussion

This study emphasizes the crucial significance of robust risk governance mechanisms to banks during crises like COVID-19 pandemic outbreak. By showing their profound impacts in mitigating economic shocks, effective risk management practices need to be prioritized within banking institutions as an advocate of risk reduction practices. The findings, derived from an analysis of Southeast Asian banking data, reinforce the compelling case for investing in resilient risk governance frameworks to ensure long-term stability and success. First, descriptive stats provide an overview of the banks' financial performance. Metrics that indicate different performance levels and risks, such as the ROA, ROE, NPL and CAR, are used. LDR shows a strong dependence on the loan fund, which poses a challenge in managing liquidity. Banking operations are reliant on liquidity, and management is difficult for banks (Kparobo Gloria Aroghene & Ikeora, J.J.E, 2022). Effective liquidity management requires the ability to balance assets and liabilities and address maturity mismatches that may arise from such imbalances, making effective management essential for banking stability (Safitri & Primadhita, 2022). Second, correlation matrices reveal significant relationships between financial indicators and macroeconomic factors. For example, ROA and ROE show a strong positive correlation, as such a close relationship between profitability and asset performance is indicated. NPL, however, exhibits a correlation between ROA and ROE that is negative, showing how credit risk impacts profitability (Jolevski, 2017). When a bank's NPL ratio increases, it suggests difficulties in debt recovery, which can lead to a decrease in the ability to generate profits from assets and equity (Nwosu et al., 2020). Thirdly, using regression analysis, this study proves that having board-level risk committees is connected to better financial performance, as seen in higher ROA and ROE. Additionally, the presence of CROs correlates with NPLs, which indicates that risk management leaders are dedicated to helping reduce the proportion of problematic loans (Li et al., 2022). Effective risk management can help identify, manage, and reduce credit risks that may lead to non-performing loans (Haneef et al., 2012). Furthermore, inflation and macroeconomic variables such as the Loan-to-GDP Ratio, or LN\_GDP have also a major impact on performance of financial banks (Chip et al., 2023). A higher loan-to-GDP ratio tends to increase asset returns but decrease equity returns, showing the trade-off between profitability and leverage. On the other hand, inflation negatively affects various financial measures, indicating its harmful effects on bank performance (Pangeran, 2017).

### 5.1 Implications

Our findings offer significant implications and contributions that distinguish our research from existing literature. One key distinction lies in our systematic approach to banking risk evaluation by using control variables as we examine relationships between them and financial sustainability, yet these variables remain understudied despite playing such an essential role. While previous studies focused mainly on risk governance variables like LDR, Expense, GDP Inflation or COVID. We took it one step further by taking account of LDR, Expense, GDP Inflation, COVID which are all essential for financial sustainability and stability respectively. By doing so, we broaden the implications of our study to different macroeconomic conditions, including bank characteristics before the pandemic. This means that we not only focus on financial institution risks and systematic risks prior to COVID-19, but also consider the wider context. Our research sheds new light on the multifaceted nature of banking risks and provides valuable insights for policymakers and industry practitioners.

### 5.2 Suggestions for further research

This research has real-world implications that are important for banks, regulators and investors. Our study provides valuable lessons on the importance and size of risk panels, the frequency of meetings of risk panels, and the role played by the Chief Risk Officer in strengthening financial stability. Stakeholders can also develop strategies to reduce the impact of crises through the implementation of crucial policies that are focused on improving profitability. To better prepare for future crises, including those following a pandemic, key suggestions include improving risk management practices, optimizing capital structures, and incorporating sustainability finance principles.

## 6. Conclusion

Based on the study's statistical analysis, several key findings emerged: the presence of a board-level risk committee, the size of the risk committee, the frequency of risk committee meetings, and the existence of a Chief Risk Officer (CRO) are all positively associated with Financial Sustainability. These results contribute significantly to the literature by demonstrating how these factors influence financial stability in banking institutions. The study also considers other variables such as Loan-to-Deposit Ratio (LDR), expenses, GDP, inflation, and the impact of COVID-19, providing a comprehensive view of their effects on financial sustainability. Stakeholders, particularly in the banking sector, can use these insights to enhance their strategies for maintaining stability and resilience in the face of economic challenges. To ensure that future investigations are more comprehensive, the research conducted in the future should include a greater number of banks. This will also require a wider range of variables to be included, as well as a different theoretical framework. This research has implications that are different from previous research. Previous research was based on governance theory, and this research is based on a theoretical reconstruction of a banking sector. In essence, we found that effective risk governance mechanisms are critical to ensuring financial stability and resilience for the banking context. In this case, it is important to have a Chief-Risk officer and dedicated risk management committees. These entities are not only able to ensure a structured approach to risk, but they also promote a culture that encourages proactive risk assessment. By aligning their operations strategically with the macroeconomic conditions of the day, banks are able to navigate economic uncertainties effectively and minimize external shocks. The strategic alignment of their operations with macroeconomic conditions not only increases their ability to withstand adverse business conditions, but it also positions them for opportunities that may arise during stable economic periods. In addition, proactive risk management allows banks to operate in a stable and profitable manner over the long run. They can anticipate possible challenges, adjust strategies accordingly and maintain investor trust in a fluctuating economy.

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