

Nexus Between Credit Risk, Liquidity Risk, Corporate Governance and Bank Performance During Times of Crisis

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Bank-specific risks along with corporate governance mechanisms are an important consideration for measuring bank performance. Therefore, this study aims to explore the role of credit and liquidity risk along with bank governance for the performance of banks. The present study included a sample of 116 banks operating within Asian emerging nations, spanning the period from 2012 to 2022. It utilizes static and dynamic panel methods for testing the main hypothesis and for confirming robustness. This study finds that credit risk (Z-score, Non-performing loans), liquidity risk (Current ratio, Loan to deposit ratio) and corporate governance (Board size and CEO duality) significantly influence the performance of banks in Asian emerging economies. Banking management should maintain procedures for loan granting and timely repayment of loan instalments from consumers to control credit risk. Managers of banks should keep a close eye on their banks' liquidity conditions and implement appropriate governance systems to help them operate and earn better.

Keywords: *credit risk; liquidity risk; corporate governance; bank performance; Asian emerging economies*

Financial institutions play a crucial function in a country's economic prosperity. Similarly, banks supply financial information on the economy. Banks, in particular, exist to generate profit to continue operating, growing and expanding. Bank stability has been threatened over the previous two decades due to political involvement, nonperforming loans (NPLs), and interest rate changes. For banks and other financial institutions, risk and return management is critical to being profitable in the long run. Abdelaziz, Rim and Helmi (2020) risks into three categories: financial, operational, and strategic. Hussain and Al-Ajmi (2012) asserted that credit and liquidity are the most severe concerns that banking institutions experience.

Since the GFC of 2008, the risk of liquidity has emerged as one of the most pressing concerns for decision-makers as well as scholars. As a response to the need to prevent the recurrence of such a crisis, regulators have adopted many steps to strengthen bank liquidity and capital. These new changes are being implemented to maintain stability in the financial sector (Hamdi & Hakimi, 2019; Hunjra *et al.*, 2020a). The poor quality of assets has been at the centre of catastrophic financial crises in economies both in the developing world and the industrialised world (Nikolaidou & Vogiazas, 2017). It is generally believed that credit risk, which is measured by the loans that are considered to be nonperforming (NPLs), is the

primary factor in determining whether or not a bank would collapse, which in turn led to a crisis in the banking industry (Reinhart & Rogoff, 2011; Hunjra *et al.*, 2020b). Banks that have a high percentage of non-performing loans (NPLs) may pose a danger to the stability of the banking sector as a whole as well as the whole financial system. According to Cornett *et al.*, (2011), liquidity is an essential component of banking operations, and credits are one of the most important assets in terms of the amount of profit they bring in for the bank (Lassoued, 2018).

Credit and liquidity risks, according to Hussain and Al-Ajmi (2012), are the most difficult ones for financial institutions to manage. According to Naili and Lahrichi (2022), well-performing companies are suddenly exposed to enormous losses as a result of credit risks. Borrowers are the primary cause of commercial banks' default risk. Because credit risk is considered as the most difficult challenge in the banking sector. Credit risk loss, according to Hassan, Khan and Paltrinieri (2019), is more severe than other categories of risk. Banks may be able to prevent credit risk losses by assessing credit risk and making appropriate preparations for questionable debts. Because of this, banks must effectively monitor and manage the credit risk they face. Ryu, Webb and Yu (2022) claim that a bank's ability to pay its debts quickly diminishes over time. To ensure long-term viability, banks must successfully manage liquidity risk.

In addition to credit and liquidity risk, the GFC of 2007–09 has prompted serious questions regarding the efficiency of board characteristics in a bank's internal supervision (González-Fernández & González-Velasco, 2020). Bank's board of directors has a significant influence on its success. However, banking institutions experienced particular governance issues that set them apart from other types of companies. Adverse selection and high levels of regulation in the financial sector are some of the issues that are faced by the banking industry (Becht *et al.*, 2011; Laeven, 2013). These challenges may hinder bank boards from completing their responsibilities to appropriately supervise management operations, while maximising shareholders' and other stakeholders' interests, resulting in associated agency conflicts (Acharya *et al.*, 2009; John *et al.*, 2016).

Theoretically, an effective bank board places a strong emphasis on coordinating the interests of the company's management with those of its shareholders (Coles *et al.*, 2008). According to agency theory, a bank board will be more efficient if it has a relatively small number of directors, a larger share of outside directors, and separate persons holding the post of CEO and chairman (Fama, 1980; Fama & Jensen, 1983). This notion, however, is not entirely tested in economies that are still in the process of emerging and in financial institutions where concentrated ownership structures are very usual (La Porta *et al.*, 1999). The resource dependency hypothesis is an alternate viewpoint that says larger boards will have more resources, will be more informed, and will have more incredibly competent directors. This position suggests that larger boards will have more highly competent directors (Pfeffer & Salancik, 1978). The twin roles of CEO and chairman are supported by the stewardship idea, which proposes that both roles should be combined into a single critical point of leadership for management and governance (Donaldson & Davis, 1991). Because these varied theoretical rationales give contradicting insights into the efficiency of certain features of board governance, scholars have been motivated to study the significance of bank boards and the accompanying agency problems. This in turn implies the necessity to research

how board governance influences the success of banking firms, particularly the various consequences that different board attributes have on bank performance.

The majority of the research that has been done up until this point has concentrated on a single category of risk (Munangi & Bongani, 2020). According to Hussain and Al-Ajmi (2012), the three kinds of risks that are the most significant for financial institutions to deal with credit and liquidity risks. It is entirely up to the management of the bank to deal with any risks related to credit, liquidity, or operations because these are all regarded to be bank-specific hazards that apply to banks in their capacity as enterprises. Because of this, it is essential to combine the investigation of these three categories of risk and the influence that they have on the operation of the bank in a single research, particularly in emerging economies of Asia. Banks' risk vulnerability is exacerbated further by poor corporate governance. According to Raouf and Ahmed (2020), financial institutions with effective corporate governance systems strengthen control through proper risk-taking incentives to maximise shareholder value. An ideal risk level, according to Stulz (2015), allows banks with sound governance procedures to maximise shareholder value. Emerging nations' corporate governance systems, despite increased regulatory and governance changes following the 2008 financial crisis, remain mostly inadequate (Mehmood *et al.*, 2019). Some researchers find that the marketplaces of emerging economies are appealing because they provide prospects for investing in such areas. However, they are also associated with a wide variety of hazards, both for the company and the country. Because it serves as a vital conduit for economic expansion and progress in emerging nations, the banking industry is of paramount significance to the overall economy in these nations.

The objective of this research to determine the impact of credit and liquidity risk and corporate governance on bank performance in selected Asian emerging economies. This study has chosen listed commercial banks of 10 emerging economies in Asia such as China, India, Pakistan, Philippines, Lebanon, Indonesia, Malaysia, Turkey, Thailand, and Vietnam. All of the selected countries have rather advanced financial systems. In addition to this, these nations frequently face unpredictability as a result of economic and political instability, which affects the expectations of investors and lenders, particularly banks. This research aims to resolve the issue of the credit and liquidity risks that are encountered by banks. Also, it considers the role of banks' governance in the performance of banks in emerging Asian nations. In two respects, the present research distinguishes itself from earlier research and adds to the existing literature. To begin, the study selected from a diverse pool of Asian emerging economies banks. In extent studies, banks in one nation have been the centre of attention. The second aspect is that the study looks at credit risk, liquidity risk, and corporate governance together at once. Most prior studies have only evaluated one of these factors in their examination of the bank performance.

Literature Review

Credit risks and liquidity risks are the primary forms of risk that are encountered by financial organisations. Credit risk is a risk that is faced by banks since the majority of banks' asset portfolios are mostly comprised of illiquid loans. Information asymmetries theorists argue that achieving purposeful monitoring has become crucial when it comes to collecting authentic data from potential new borrowers. Because of these issues, banks have a significant accumulation of accounts that are considered to be nonperforming. According to Richard *et al.*, (2008), difficulties start to occur at the level of the application and continue to do so throughout the phases of approval, monitoring, and controlling because credit risk

management rules are either inadequate or lacking in some way. Hughes *et al.*, (2019) reveal that smaller community banks have a lower capacity for efficient credit appraisal and loan management, which leads to a higher percentage of nonperforming loans (NPLs). Tan and Floros (2018) provide evidence that Chinese banks have been effective in strengthening their competence and abilities to verify, monitor, and manage loans, and that this improvement has led to increased profitability. The unsustainable growth of credit, concerns with the quality of lending, and incorrect management of credit risk were the primary causes of the global financial crisis that happened in 2008 and 2009. Leung *et al.*, (2015) provide evidence that during the economic crisis that occurred in 2008–2009, financial institutions that had lower profitability had greater levels of risk.

To effectively manage credit risk, banks must first create an appropriate environment for credit risk management. This environment must guarantee dependable credit granting as well as proper credit administration, which includes monitoring and controls over credit risk. According to Derban *et al.*, (2005), monitoring the behaviour of borrowers is of utmost significance to address the moral hazard issue. Problems with asymmetry of information need to be addressed by implementing a practical solution that ensures borrowers will repay loans and minimises losses brought on by loans, both of which contribute to the long-term performance of financial institutions. When it comes to mitigating the financial damage that can be caused by credit, banks make use of a variety of strategies, including loan structuring, security, conditions, loan syndication, and credit rationing.

A major concern for regulators and investors in fixed income is credit risk (Boubaker *et al.*, 2016). Banks have a particularly difficult time mitigating credit risk since their success is dependent on both effective management and precise monitoring. Bank loans are viewed as a source of revenue that has a beneficial impact on their bottom line. Asia's banking sector catalyses growth and development in both the private and governmental sectors (Gadzo *et al.*, 2019). Credit risk management is therefore crucial for Asian banks to avoid bank failure. The literature shows that banks' financial performance is significantly impacted by credit risk (Saleh & Abu Afifa, 2020). NPLs have a adverse effect on the financial health of Chinese banks. Additionally, Munangi and Bongani (2020) show that the NPLs ratio has a negatively related to banks' performance. Therefore, the study hypothesises that:

H1: Credit risk significantly impacts bank performance in Asian emerging economies.

Several banks failed because they were overly dependent on short-term borrowing and used ineffective liquidity management practices. Liquidity risk is becoming increasingly important for many institutions in the wake of this catastrophe. An asset diversification model based on the notion of balanced portfolios claims that policy actions may assist ensure that every asset in a portfolio is held at the optimal level (Elton *et al.*, 2009). Various criteria are taken into consideration, including the portfolio's size, and the risk associated with each asset's ownership. Portfolio diversification and the makeup of the desired portfolio are critical considerations for commercial banks when making investment decisions (Atemkeng & Nzongang, 2006). Consequently, banks must be careful in managing their liquidity. Banks might face liquidity risk if they are unable to meet their financial commitments when they are due. Due to the dangers posed by this risk, bank management need to make sure sufficient funds at a reasonable cost are available to meet the future requirements of both depositors and

borrowers. A bank's liquidity position is critical because it allows them to increase customer loans when the market presents appealing possibilities.

Many business possibilities are squandered because of banks' liquidity issues. This might have a detrimental impact on the bank's reputation and performance. Depositors may lose faith in the bank if funds are not available on time. The bank's reputation may be on the line in such instances. Liquidity risk, according to Dahir *et al.*, (2018), is at the root of a bank's ability to fail. Some studies suggest that liquidity risk adversely affect banks' performance (Ly, 2015; Chen *et al.*, 2018). Likewise, financial performance is adversely affected by liquidity risk (Adelopo *et al.*, 2018). Liquidity risk is measured by the loan-to-deposit (LTD) ratio, and Marozva (2015) shows that the LTD ratio has significant detrimental influence on banks' financial performance. Liquid assets are thought to have a beneficial impact on a bank's financial results. As a result, the study provides a second hypothesis:

H2: Liquidity risk significantly impacts bank performance in Asian emerging economies.

Traditional finance literature has identified several approaches for addressing corporate governance issues (Jensen & Meckling, 1976). Corporation governance systems are classified into two categories: internal and external. In terms of substance and efficacy, there is some disagreement, though. Because the field of corporate governance mechanisms is so large and diverse, no single article can cover all of the various governance mechanisms that have been established in the literature, and instead, each study focuses on a particular governance mechanism. Therefore, this study considered board size and CEO duality as governance mechanisms to explore their relationship with bank performance in Asian emerging economies perspective.

In general, there are two approaches to board size: the first suggests that larger boards can raise the board diversity needed to relieve the associated risks, while the second suggests that smaller boards are more successful. As a result, board size affects the effectiveness of the board by making it easier to distribute responsibilities among a larger number of directors, leading to better board choices (Adams & Mehran, 2012). It is suggested that board size has an adverse effect on the board's decision-making capacity, and this is due to misunderstandings and miscommunications caused by big director groups, which weaken corporate governance and lower performance (Yermack, 1996). Adams and Mehran (2012) found that the size of a bank's board of directors had a beneficial impact on the bank's financial performance. In contrast, a study by Naushad and Abdul (2015) found a negative correlation between board size and bank performance metrics, showing that smaller board sizes improve Gulf banks' profitability. According to another study by Batra and Wondem (2016), bank performance measurements are negatively correlated with the board size of a bank (ROA and ROE). In Kenya, Nyamongo and Temesgen (2013) and Nigeria, Hassan and Farouk (2014) have also corroborated this. However, Elbannan and Elbannan (2014) have shown that big boards of directors impede resource allocation and decision-making.

The CEO of a bank typically also serves as the board chairman. This is referred to as "CEO duality." There are two distinct schools of thought that compete with one another over CEO duality. The stewardship hypothesis asserts that effective leadership would be to the company's advantage, while the agency theory, on the other hand, asserts that having two CEOs would strengthen the organization's ability to oversee performance. Claiming that an

individual who occupies these two prominent positions would offer a centralised authority that provides strong leadership for the bank, and it is predicted that the bank would reap the rewards of uniformity of central control as a result of this claim (Donaldson & Davis, 1991). Naushad and Malik (2015) demonstrate that having two CEOs at a bank is beneficial to the institution's overall performance. In a similar vein, Chang, Chou and Huang (2014) report a strong positive connection between CEO duality and bank performance. They argue that banks with CEO duality would be supposed to perform more effectively than banks where the two positions are dominated by different persons due to the increased speed with which decisions can be made in the former. However, agency theory asserts that the connection between the CEO and the chairman improves the performance of the bank owing to greater monitoring and control, and that role of duality probably decreases the capacity of the board to supervise management, which results in increased agency costs. On the other hand, several researchers, including Elbannan and Elbannan (2014), Batra and Wondem (2016), and Nyamongo and Temesgen (2013), have investigated this connection and conclude that CEO duality has no substantial bearing on bank performance as assessed by ROA and ROE. As a result of the information presented above, the following hypothesis is made:

H3: Bank governance significantly impacts bank performance.

Method

This research uses of panel data, and to accomplish the aforementioned aim, the study selected 116 banks located in Asian emerging nations and obtained the data from DataStream for the years 2012 through 2022. The performance of banks in terms of their finances serves as the dependent variable, while credit risk, liquidity risk, and corporate governance serve as the independent factors. In addition, it employs bank size, age, and growth all of which have an impact on the performance of banks as control variables. As a representation of a Bank's financial performance, this study uses the accounting measurements known as return on assets (ROA) and return on equity (ROE). The Z-score and the percentage of NPLs to total loans are two additional accounting metrics of credit risk that Iutilise. Kabir et al., (2015) make use of the Z-score to determine the number of standard deviations away from depleting the capital base a bank currently is. The Z-score is determined by the following formula:

$$Z - Score = \frac{(ROA + CAR)}{SD \text{ of } ROA} \quad (1)$$

Where ROA stands for return on assets, CAR stands for capital-to-asset ratio and SD of ROA is for the standard deviation of ROA. CAR is computed by dividing total equity by total assets. Because of the inverse relationship that exists between Z-scores and the likelihood of a bank going bankrupt, it can be deduced that a bank is more secure when its Z-score is higher. Following the methodology employed by Noman *et al.*, (2015), the study makes use of the NPL ratio when calculating credit risk. To get an accurate picture of the liquidity risk, present study uses the current (CR) and the long-term debt ratios. Measures of corporate governance in this study include board size and CEO duality. Board size refers to the total number of directors, while CEO duality assigns a value of 1 if the CEO also serves as the chairman of the board or else 0. The description of the variables can be found in Table 1.

Table 1
Variables Description

Variables	Abvr.	Formula	Reference
Dependent Variable: Bank Performance			
Return on Assets	ROA	Operating profit/average total assets	Hunjra et al. (2020a)
Return on Equity	ROE	Net profit/average total equity	Zou and Li (2014); Hunjra et al. (2020a)
Independent Variables			
Credit Risk			
Z-Score	ZS	Natural logarithm of return on assets (ROA) ÷ capital-to-asset ratio / SD of ROA	Kabir et al. (2015); Hunjra et al. (2020b)
Non-Performing Loan Ratio	NPLs	Nonperforming loans/total loans	Noman et al. (2015); Hunjra et al. (2020b)
Liquidity Risk			
Current Ratio	CR	Current assets/current liabilities	Alzorqan (2014), Hunjra et al. (2020a)
Loan to Deposit Ratio	LTD	Loans/deposits	Marozva (2015), Hunjra et al. (2020a)
Corporate Governance			
Board size	BS	Total No. of the board of directors of the organization	Abed et al. (2012); Hunjra et al. (2020b)
CEO Duality	CEOD	If the CEO is also the board chairman, this dummy variable will be 1, otherwise it will be 0.	De Massis et al. (2013); Hunjra et al. (2020b)
Control Variables			
Bank Size	BSZ	Natural log of total assets	De Massis, Kotlar, Campopiano and Cassia (2013), Coad et al. (2013)
Bank Age	BA	Natural logarithm of bank age since incorporation	
Growth	GR	Annual percentage change in sales	Lemma, Negash and Miilo (2013)
GDP Growth	GDPG	Annual change in GDP	Egbunike and Okerekeoti (2018); Khan et al. (2023)
Inflation Rate	INF	Annual change in consumer price index	Egbunike and Okerekeoti (2018); Khan et al. (2023)

This study uses the following equation to analyze the results:

$$BP_{i,t} = \alpha_0 + \beta_1(ZS)_{i,t} + \beta_2(NPL)_{i,t} + \beta_3(CR)_{i,t} + \beta_4(LTD)_{i,t} + \beta_5(BS)_{i,t} + \beta_6(CEOD)_{i,t} + \beta_7(BSZ)_{i,t} + \beta_8(BA)_{i,t} + \beta_9(GR)_{i,t} + \beta_{10}(GDPG)_{i,t} + \beta_{11}(INF)_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where *BP* is bank performance, α_0 is a constant, and *ZS* and *NPL* are the credit risk proxies. Liquidity risk is assessed with *CR* and the *LTD* ratio. *BS* and *CEOD* represent board size and CEO duality proxies used for measuring bank governance. *BSZ* is bank size, *BA* is bank age, *GR* is bank growth, *GDPG* is GDP growth, *INF* is inflation rate, and ε is the error term. This study uses descriptive statistics to determine whether or not the data are normally distributed, and correlation analysis to determine whether or not there is multicollinearity among the independent variables. The project used panel regression to analyze the connection between credit risk, liquidity risk, and CG and the financial viability of the banking sector. In panel regression, the most common models are those with fixed and random effects. Since the p-values from the Hausman test were somewhat high, it was decided to use a fixed-effect model for the data analysis. In addition, current study examines the soundness of the hypotheses by employing the generalised method of moments (GMM), which checks for robustness. because this method is capable of performing reliable parameter estimation over a

broad cross-section in a short amount of time. Arellano and Bond (1991) argue that the GMM estimators enable asymptotically efficient inferences because they employ a relatively minimal set of assumptions when performing their estimations.

Results

Table 2 contains the findings that have been obtained by the descriptive statistics. According to the average value of the banks' financial performance, the banks are doing well and making profits. In addition, the banks' Z-scores indicate that, on average, they are a long way from being in default. The mean values of NPLs have only a very small portion, which indicates that the intensity of the credit risk they face is relatively low. According to the results of the CR, the banks have enough current resources to fulfil their current obligations. In addition, the fact that the banks have a relatively low risk of failing to meet their required levels of funding is demonstrated by the median value of the LTD ratio. On the other hand, this also indicates that the banks are not earning as much money as they possibly could be. The number of board members can range anywhere from six to thirteen, with nine being the typical number. The CEO of a bank does not typically serve as the board's chairman.

Table 2
Descriptive Statistics

Variables	Mean	Median	Std. Dev.	Maximum	Minimum	VIF
ROA	0.012	0.010	0.012	0.057	-0.059	---
ROE	0.107	0.101	0.175	0.465	-2.047	---
ZS	3.553	3.053	1.182	6.423	-2.819	1.22
NPL	0.092	0.087	0.071	0.196	0.012	1.17
CR	1.108	1.080	0.088	1.366	0.663	1.19
LTD	0.735	0.702	0.118	1.119	0.301	1.15
BS	9.028	8.643	0.039	13	6	1.14
CEOD	0.342	0.307	0.483	1	0	1.12
BSZ	7.395	6.904	1.806	13.245	0.936	1.09
BA	3.593	3.504	0.864	5.037	0.693	1.08
GR	9.442	8.963	0.178	1.089	-0.890	1.05
GDPG	0.058	0.054	0.026	0.012	0.004	1.18
INF	0.065	0.061	0.035	0.215	-0.029	1.15

Note: ZS and NPL are the credit risk proxies. Liquidity risk is measured with CR and the LTD ratio. BS and CEOD represent board size and CEO duality proxies used for measuring bank governance. BSZ is bank size, BA is bank age, GR is bank growth, GDPG is GDP growth, and INF is inflation rate

The correlation matrix, as well as the multicollinearity diagnostic tests, are presented in Table 3. Both the correlation analysis and the values for the variance inflation factor (VIF) that are presented in Table 2 are providing evidence that there is no problem with multicollinearity.

Table 3
Correlation Matrix

Var.	ROA	ROE	ZS	NPL	CR	LTD	BS	CEOD	BSZ	BA	GR	GDPG	INF
ROA	1												
ROE	0.757	1											
ZS	0.154	0.091	1										
NPL	-0.415	0.249	-0.047	1									
CR	0.357	0.098	0.228	-0.051	1								
LTD	-0.086	0.075	-0.229	-0.031	0.079	1							
BS	-0.038	0.044	-0.059	-0.042	0.055	0.054	1						
CEOD	0.119	0.018	0.041	-0.034	0.047	-0.027	0.085	1					
BSZ	0.041	0.028	0.024	-0.251	0.022	-0.023	0.431	0.028	1				
BA	0.095	0.036	0.038	-0.021	0.017	0.029	0.034	0.004	0.304	1			
GR	0.152	0.102	0.016	-0.112	0.032	0.062	0.027	-0.091	0.071	0.317	1		
GDPG	0.181	0.286	-0.086	0.281	0.116	0.083	0.075	0.192	-0.057	0.058	0.142	1	
INF	-0.218	-0.193	0.275	-0.098	-0.195	0.157	-0.096	0.143	0.183	0.127	0.068	0.046	1

Note: ZS and NPL are the credit risk proxies. Liquidity risk is measured with CR and the LTD ratio. BS and CEOD represent board size and CEO duality proxies are used for measuring bank governance. BSZ is bank size, BA is bank age, and GR is bank growth, GDPG is GDP growth, and INF is inflation rate.

Table 4 makes it quite evident that the fixed-effect model is better than the random effect models when applied to panel data based on Hausman test. This table provides a concise summary of the findings obtained from this research. The outcome of the Hausman test determines fixed-effect model serves as the basis for subsequent research. The results provide that p-values of the Hausman test are less than 0.05, therefore, the study uses the fixed-effect model as applied by Abbassi et al., (2021). All of the models that have an adjusted R2 that is higher than 0.60 show that the explanatory variables relate to banks' performance.

Table 4
Results of Fixed Effect Estimation

Variables	ROA		ROE	
	Model I	Model II	Model III	Model IV
ZS	0.358** (2.184)	---	0.914** (2.278)	---
NPL	---	-0.286*** (-4.186)	---	-0.398*** (-3.791)
CR	0.005* (1.758)	---	0.161*** (3.185)	---
LTD	---	-0.174*** (-3.294)	---	-0.321*** (-3.085)
BS	-0.618*** (-3.316)	---	-0.495*** (-3.828)	---
CEOD	---	0.564*** (3.877)	---	0.198*** (3.109)
BSZ	0.021** (2.114)	0.007*** (3.142)	0.038*** (4.125)	0.002** (2.103)
BA	0.137*** (3.216)	0.184*** (3.120)	0.218*** (3.153)	0.175*** (4.395)
GR	0.295*** (4.364)	0.171*** (3.356)	0.154*** (3.459)	0.139*** (3.012)

GDPG	0.513* (1.813)	0.279** (2.165)	0.415* (1.751)	0.516* (1.912)
INF	-0.086*** (-5.036)	-0.186** (-2.296)	-0.176** (-2.318)	-0.076*** (-4.925)
C	0.416** (2.411)	-0.759* (-1.897)	-0.286*** (-4.213)	0.713** (2.154)
Country Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
R-squared	0.648	0.614	0.636	0.628
Adj. R-squared	0.624	0.607	0.604	0.601
F-statistic	14.578	15.165	14.105	15.489
Prob. (F-statistic)	0.0000	0.0000	0.0000	0.0000

Note: ZS and NPL are the credit risk proxies. Liquidity risk is measured with CR and the LTD ratio. BS and CEOD represent board size and CEO duality proxies used for measuring bank governance. BSZ is bank size, BA is bank age, and GR is bank growth, BSZ is bank size, BA is bank age, and GR is bank growth, GDPG is GDP growth, and INF is inflation rate. The model I estimates the role of ZS, CR and BS on ROA. Model II assesses NPL, LTD's and CEOD's influence on ROA. Model III determines ZS, CR and BS influence on ROE. Model 4 evaluates NPL, LTD, and CEOD's impact on ROE.

The findings show that banks' financial performance is highly impacted by credit risk. The model I and Model II are estimated with ROA and Model III and Model IV is estimated with ROE. Further, Models I and III are estimated using Z-score, Current ratio and board size. While Model II and Model IV are estimated using NPL, Loan deposit ratio and CEO duality. Models I to Model IV show that the Z-score has a positive effect on bank financial performance, supporting Hypothesis 1. Banks in this continent have strict regulations concerning loans so that debtors are in a position to revert loans to banks on time and follow their terms and conditions. As a result, banks are enforcing their loan policies and customers are adhering to them. As a result, banks are making money off of their savings. Both models show that the NPL ratio has a negative impact on a bank's financial performance, supporting H1 of present study. A decrease in bank performance might be caused by increased provisioning for non-performing loans (NPLs). To prevent unwanted choices and moral hazards caused by information asymmetry, banks must monitor their customers to avoid credit risk. H1 of the study is supported by all of the findings. These outcomes are aligned with findings from the studies documented by Gadzo *et al.*, (2019), and Munangi and Bongani (2020).

The economic performance of banks is seen to be significantly affected by liquidity risk. Banks' financial performance is positively influenced by the CR. It suggests that banks can effectively manage liquidity risk and improve their performance if they have adequate current assets. Furthermore, in both models, the LTD ratio negatively influences banks' performance, supporting our H2. Based on this research, it is clear that banks need to apply a balanced portfolio theory to satisfy the needs of their customers. Keeping a proper balance between loans and savings is also helped by this. In addition, banks must stay updated on their liquidity situation, which is critical. According to hypothesis of this study, liquidity risk has a considerable impact on the performance of banks and validates findings obtained by Chen *et al.*, (2018), Onsongo *et al.*, (2020), and Hunjra *et al.*, (2022).

Further, the outcomes of BS and CEOD indicate a substantial impact on banks' performance where board size negatively influences bank performance and CEO duality is positively associated with the performance of banks in Asian emerging economies. These outcomes support the views of agency theory of Jensen and Meckling (1976) that small boards are more efficient in improving the performance of banks due to less possibility of agency problems and are aligned with the studies of Nyamongo and Temesgen (2013),

Hassan and Farouk (2014), and Yameen et al., (2019), while findings of CEO duality and bank performance are in line with the study of Bunget et al., (2020). Thus, third hypothesis is accepted. Bank growth has significant and positive influence on performance which is consistent to the findings of Mehmood *et al.* (2019). Further analyses reveal that GDP growth significantly improves financial performance as found by Trujillo-Ponce (2013), whereas inflation rate significantly and inversely affects financial performance of banks which are aligned with study of Egbunike and Okerekeoti (2018).

Table 5
Robustness Test with GMM Estimation

Variables	ROA		ROE	
	Model I	Model II	Model III	Model IV
L1	-0.042** (-2.395)	0.084*** (4.261)	-0.104*** (-3.844)	-0.048*** (-4.485)
L2	-0.278** (2.441)	0.812*** (3.416)	-0.395*** (-3.776)	-0.084** (-2.275)
ZS	0.351** (2.152)	---	0.751** (2.395)	---
NPL	---	-0.356*** (-4.132)	---	-0.381*** (-3.772)
CR	0.017* (1.825)	---	0.192** (2.431)	---
LTD	---	-0.161*** (-3.234)	---	-0.316*** (-2.986)
BS	-0.524*** (-3.112)	---	-0.425*** (-4.249)	---
CEOD	---	0.506*** (3.436)	---	0.228*** (3.042)
BSZ	0.014** (2.142)	0.007*** (3062)	0.037*** (4.457)	0.012* (1.913)
BA	0.108*** (3.269)	0.157** (2.175)	0.227*** (3.689)	0.216*** (4.397)
GR	0.238*** (4.490)	0.139*** (3.184)	0.141*** (3.175)	0.158** (2.377)
GDPG	0.158** (2.261)	0.315* (1.759)	0.248* (1.826)	0.155** (2.325)
INF	-0.251** (-2.416)	-0.051*** (-5.765)	-0.153*** (-3.895)	-0.578** (-2.185)
C	0.495** (2.276)	-0.827** (-2.162)	-0.325*** (-4.128)	0.718** (2.213)
Sargan (<i>P-value</i>)	8.586 (0.157)	8.037 (0.161)	7.412 (0.169)	7.824 (0.165)
AR ₁ (<i>P-value</i>)	0.039	0.025	0.037	0.014
AR ₂ (<i>P-value</i>)	0.421	0.427	0.341	0.467
Country Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

Note: ZS and NPL are the credit risk proxies. Liquidity risk is measured with CR and the LTD ratio. BS and CEOD represent board size and CEO duality proxies used for measuring bank governance. BSZ is bank size, BA is bank age, and GR is bank growth, GDPG is GDP growth, and INF is inflation rate. The model I estimates the role of ZS, CR and BS on ROA. Model II assesses NPL, LTD's and CEOD's influence on ROA. Model III determines ZS, CR and BS influence on ROE. Model 4 evaluates NPL, LTD, and CEOD impact on ROE.

The testing of hypotheses for the whole sample of banks in Asian emerging economies is presented in Table 5, and it is done using a two-step dynamic panel regression. This is done to ensure the robustness of the results. The Sargan test is used to determine whether or not the instruments are reliable. Because the conclusions of this study are negligible, the tools that I employed to conduct it are legitimate. The study continues by putting the Arellano–Bond test to use to validate autocorrelation. AR1 is found to be

considerable, whereas AR2 is shown to be insignificant. This suggests that there is no autocorrelation.

Findings show that credit risk affects banks' financial performance. Models I to IV show the Z-score improves bank performance, supporting Hypothesis 1. This continent's banks have strict loan regulations so debtors can repay loans on time and follow terms. Banks are enforcing loan policies, and customers are complying. Banks profit from their savings. Both models show that NPL ratios hurt bank performance, supporting H1 of current study. Increased provisioning for non-performing loans may reduce bank performance (NPLs). Banks must monitor their customers to avoid credit risk caused by information asymmetry. Study findings support H1. The findings of this research are consistent with other emerging regions (Gadzo *et al.*, 2019). Liquidity risk affects bank performance. In both models, CR positively affects bank financial performance, supporting H2 of this study. With enough CR, banks can successfully control liquidity risk and improve their performance. In both models, the LTD ratio hurts bank performance, corroborating H2 of present study. A lower LTD ratio suggests that banks are liquid and can handle unexpected financial needs. Banks withhold deposits to reduce liquidity risk and enhance financial performance. According to this research, banks must use a balanced portfolio theory to satisfy clients. This helps balance debts and savings. Critically, banks must monitor their liquidity. Hypothesise that liquidity risk affects financial performance, which verifies Chen *et al.*, (2018) and Onsongo *et al.*, (2020). Board size negatively affects bank performance, but CEO duality favourably affects bank performance in Asian emerging economies. These results support the assumption that small boards are more effective in increasing bank performance due to fewer agency difficulties. They are in line with the research of Nyamongo and Temesgen (2013) and Hassan and Farouk (2014), and Yameen *et al.*, (2019), while findings of CEO duality and performance are consistent with results of Bunget *et al.*, (2020). Therefore, third hypothesis of this study is also approved. Bank growth and GDPG rate have significant and positive, while inflation has significant and negative effects on financial performance of banks.

Conclusion

Financial institutions are often regarded as being among the most important players in the expansion of any nation's economy. In a similar vein, banks, which are a subset of financial institutions, contribute significantly to the functioning of an economy. In economies that are still in the process of growing and developing, the financial sector is essential to the economy's overall growth and progress. However, the operation of banks is not without its challenges because the financial risk is one of the most significant obstacles that must be overcome by financial institutions for them to remain in business. If the bank is unable to maintain its operations, it will have repercussions that are seen across the economy.

As a result, this study investigates the effect that two bank-specific risks and corporate governance have on the financial performance of the banks. These risks include credit and liquidity concerns and board characteristics. This study evaluates listed banks in ten Asian nations that are still growing economies. To analyse the data, it uses a static and dynamic panel model with two steps. According to the findings, credit risks and liquidity risks all significantly impact the financial performance of banks. When it comes to credit risk, the Z-score positively while the NPL ratio negatively impacts the performance of banks. However, when it comes to the risk of liquidity, the CR positively and the LTD ratio negatively influence the performance of banks. Likewise, board size is negatively related to bank performance while CEO duality positive impacts bank performance.

A key finding from this study is that Asian nations' banking systems should focus on lending and liquidity, as well as corporate governance mechanisms for better outcomes. For the benefit of all stakeholders, bank management must assess, manage, and mitigate bank-specific risks. To properly manage credit risk, banks' top management must issue clear and understandable rules to risk managers. Furthermore, the study documents that bank management provide timely monitoring and supervision of long-term borrowers to prevent credit risk. Banking administration and practitioners and policymakers are also encouraged to set clear procedures for providing loans and timely repayments by clients. A liquidity crisis might ensue if banks fail to properly manage their long-term debtors. Managers of banks should monitor their liquidity situation frequently to ensure that they have enough current assets to pay for the bank's current liabilities and that the ratio of loans to deposits stays in the proper range. As a result, the banks' liquidity positions will improve. Management will be able to avoid the negative consequences of credit and liquidity risk by properly implementing these policies, and they may even boost their financial performance. Risk management is critical in emerging economies, where the financial environment is more unpredictable, therefore, it is challenging for banks to sustain profitability and avert bank failure.

Although current study presents broad analyses concerning risk, governance and financial performance of banks in Asian emerging economies, it might be noted that there are still some rooms available for future research. It may be worthwhile to conduct the same research comparing developed and developing nations in the future, as the focus of this study is on developing countries. Research might be done to analyse bank risk by comparing it to other financial institutions. Using the same factors, a conventional and Islamic banking comparison may provide different outcomes. Further, independent directors may be added with other corporate governance proxies because they play effective roles in monitoring the acts of board.

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Appendix

China			
Sr.	Bank Name	Sr.	Bank Name
1	Bank of China Limited	5	Huishang Bank Co Ltd
2	Bank of Jiangsu Co. Ltd.	6	ICBC
3	China Construction Bank Corp.	7	Haitong Securities Co. Ltd
4	Chonging Rural Commercial Bank		
India			
Sr.	Bank Name	Sr.	Bank Name
1	Allahabad Bank	11	ICICI Bank Limited
2	Bank of Baroda	12	Kotak Mahindra Bank Limited
3	Canara Bank	13	Lakshmi Vilas Bank
4	Central Bank of India	14	Mahindra & Financial Services Ltd
5	Choalam Investment & Finance Co.	15	South Indian Bank
6	City Union Bank	16	Standard Chartered India
7	Corporation Bank Ltd.	17	Syndicate Bank
8	Decb Bank	18	UCO Bank
9	Federal Bank Ltd. (The)	19	Union Bank of India
10	HDFC Bank Ltd	20	YES BANK
Indonesia			
Sr.	Bank Name	Sr.	Bank Name
1	Bank Bumi Arta Tbk	10	PT Bank BTPN Tbk
2	Bank Mandiri (Persero) Tbk	11	PT Bank China Construction Bank
3	Bank Negara Indonesia (Persero)	12	PT Bank CIMB Niaga Tbk
4	Bank Pan Indonesia Tbk PT	13	PT Bank Ganesha Tbk
5	Bank Pembangunan Jawa Tbk	14	PT Bank jRrust Indoseia Tbk
6	Bank Rakyat Indonesia Tbk	15	PT Bank Tabungan Nasional Tbk
7	Bank Victoria International Tbk	16	PT Bank Woori Indonesia Tbk
8	PT Bank Maspiion Indonesia	17	PT Bank Yudha Bhakti Tbk
9	PT Bank BRI syariah Tbk		
Lebanon			
Sr.	Bank Name	Sr.	Bank Name
1	B.L.C. Bank S.A.L	4	Banque BEMO Sal
2	Bank Audi SAL	5	BLOM Bank s.a.l.
3	Bank of Beirut S.A.L.	6	Byblos Bank S.A.L.
Malaysia			
Sr.	Bank Name	Sr.	Bank Name
1	Affin Holdings Berhad	5	Hong Leong Financial Group Bhd
2	CIMB Group Holdings Berhad	6	OSK Holdings Berhad
3	Hong Leong Bank Berhad	7	Public Bank Berhad
4	Hong Leong Capital Berhad	8	RHB Capital Berhad
Pakistan			
Sr.	Bank Name	Sr.	Bank Name
1	Allied Bank Limited	11	Habib Metropolitan Bank Limited
2	Apna Microfinance Bank Limited	12	JS Bank Limited
3	Askari Bank Limited	13	MCB Bank Limited
4	Bank Al Habib	14	Meezan Bank Limited
5	Bank Al-Falah Limited	15	National Bank of Pakistan
6	Bank Of Khyber Limited	16	Samba Bank Limited
7	Bank Of Punjab Limited	17	Silkbank Limited
8	BankIslami Pakistan Limited	18	Standard Chartered Bank (PK)
9	Faysal Bank Limited	19	Summit Bank Limited
10	Habib Bank Limited	20	United Bank Limited
Philippines			
Sr.	Bank Name	Sr.	Bank Name
1	Asia United Bank Corporation	10	Philippine Bank of Communications
2	Bank of The Philippine Islands	11	Philippine Business Bank

3	BDO Leasing and Finance Inc	12	Philippine National Bank
4	BDO Unibank Inc	13	Philippine Saving Bank
5	China Banking Corporation	14	Philippine Trust Company
6	Citystate Savings Bank, Inc.	15	Rizal Commercial Banking Corp.
7	Col Financial Group, Inc	16	Security Bank Corporation
8	First Metro Investment Corporation	17	Union Bank of the Philippines
9	Metropolitan Bank & Trust Co.		

Thailand

Sr.	Bank Name	Sr.	Bank Name
1	Bangkok Bank Public Co. Limited	6	MFC Asset Management Co. Ltd
2	CIMB Thai Bank Public Co. Limited	7	Siam Commercial Bank Co. Ltd
3	Kiatnakin Bank Public Co. Limited	8	Thanachart Capital Public Co. Ltd
4	Krung Thai Bank Public Co. Limited	9	TISCO Financial Group PCL
5	Kim Eng Securities Public Co. Ltd	10	TMB Bank Public Co. Ltd

Turkey

Sr.	Bank Name	Sr.	Bank Name
1	Akbank T.A.S.	5	Koçbank
2	Denizbank A.S.	6	Sekerbank T.A.S.
3	Finansbank A.S.	7	Turk Ekonomi Bankasi A.S.
4	HSBC Bank (Turkey)	8	Yapi Ve Kredi Bankasi A.S.

Vietnam

Sr.	Bank Name	Sr.	Bank Name
1	Asia Commercial Bank	3	Saigon Thuong Commercial JS Bank
2	Saigon - Hanoi Commercial JS Bank		