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Examining the key determinants of Liquidity Risk in Pakistan's Banking Sector: A Comprehensive Study

[1]*Shahid Mehmood* [2]*Hasham Noor Bin Rizwan* [3]*Shahid Iqbal* [4]*Aqeel Ahmad*

ABSTRACT

The main aim of the empirical study was to examine the relation which exists between Liquidity risk and its determinants i.e. CAR, Capital Adequacy Ratio, R.O.A. Return on Assets, R.O.E Return on Equity, Size of the bank, A.Q. Asset Quality and N.P.L. non-performing loan. The data was examined through the regression analysis. This study took 10 years data i.e., from 2013-2022 of ten (10) Pakistani Banks. The results of the regression analysis/study reveal that a negative relation exist between the Liquidity of bank and four determinants like C.A.P, R.O.E, Size of the bank and Asset Quality ratio whereas others two variables had positive impact i.e. N.P.L and R.O.A on liquidity of the bank. All variables jointly had a significant impact on Liquidity. Significant and negative relation was found between liquidity and Size of the bank, Asset Quality and capital adequacy ratio. Whereas return on assets has a positive and insignificant influence to the liquidity risk while NPL had the positive and the significant influence to liquidity and return on equity that have the negative and but insignificant effect as well on the liquidity of the bank. Consider the following guiding principles in the eventual framework of the bank supervision. Each supervisor must consider the liquidity mismatch between assets and liabilities is vital for assessing a bank's liquidity profile. This analysis helps identify potential liquidity risks beyond traditional financial ratios.

Keywords:
Capital adequacy ratio,
Return on Assets,
Return on Equity,
Size of the bank.
Asset Quality
Non-performing loan,
Pakistani Banks.

INTRODUCTION

The transformation of maturity from short term deposit to long term loan that is the primary role of the bank that stems the risk of liquidity for the bank. This is actually the efficiency of the institution to finance capital gains and meet its commitments without suffering inappropriate losses (Choudhary et al, 2022). This is actually a risk which arises when the banks will unable to meet its due commitments because bank will unable to have appropriate liquidate assets or sources of funding. Liquidity risk can influence bank's income and capital.

[1] *Lecturer, University of Management and Technology, Lahore, Pakistan. Email: shahid-mahmood@umt.edu.pk (Corresponding Author)*
[2] *Lecturer, University of Management and Technology, Lahore, Pakistan. Email: hasham.noor@umt.edu.pk*
[3] *Senior Associate Professor, Bahria University Islamabad, Pakistan. Email: siqbal.buic@bahria.edu.pk*
[4] *Professor, University of Central Punjab, Lahore, Pakistan. Email: aqeel.a@ucp.edu.pk*

The bank's management must therefore ensure that adequate funds are available at the appropriate cost so that bank can fulfill its due obligations of investors and lenders (Paul, 2022). The theory of liquidity buffer and inventory of capital argues that to hold the cash would be costly for the bank, but it can be favorable because it minimizes the possibility that the money will run out. Profitability can be improved for banks that hold liquid assets; at some point, holding more cash decrease the profitability of a bank. This statement is an idea that if bank hold those assets that have low yield, then chances of the bank's liquidity will be increased. Not only to maximize the profit is the ultimate goal of the bank but also maintaining liquidity is crucial for the bank (Stulz et al., 2023).

Financial intermediary, transformation of liquidity and risk transformation are some pivotal roles that commercial banks play. The dominate sector of finance In Pakistan are banks, the financial system of intermediation in this country heavily rely upon Pakistan's commercial banks. The Pakistan's banks are authorized and monitored in accordance with the SOPs of the Banking Law and the regulation issued by the Central Bank of Pakistan. State bank of Pakistan regulations (SBP, ordinance_62, 1962). The financial sector of Pakistan is dominated by the commercial banks and liquidity deficiency will have the gigantic impact on the financial development of the Pakistan. On June 2018 Pakistan has35 banks (SBP, http://www.sbp.org.pk, 2022).

The potentiality of the risk of liquidity over a particular period of time is when the bank unable to settle its commitments in terms of time (Nikolaou, 2010). The risk that appears when a bank will unable to fulfill the commitments at maturity without inappropriate losses. This risk may have the bad affect not only on income but also on capital of the banks and, therefore, it will be a most important task for a bank's management to give adequate resources for future requirements of investors and borrowers on a specific cost (Gazali et al., 2023). The risk of liquidity of bank's susceptibility is determined by fund raising risk and nature of the risk of market. To ensure the stability of the balance sheet and the dynamic management of the liquidity risk, the liquidity risk must be watched while keeping in mind the credit risk and market risk. (Jenkinson, 2008) noted that liquidity risk affects both the performance of the bank and its goodwill. The confidence that the depositors have may be loosed if the monetary resources are not available to them in an adequate manner.

(Douglas W. Diamond, 1983) highlighted that the risk of the liquidity naturally revealed by the transformation of the maturity from short term to long term loans. The risk of the liquidity is the inefficacy of the bank when they are unable to meet its obligation and sell the assets at the

lower value in a small market and it is a costly for the fulfillment of obligations. (Goodhart, 2008) argued that liquidity risk has two main aspects: maturity transformation and liquidity on bank balance. If the Banks have assets that can convert into liquid asset then the banks don't have to worry. Banks with assets that mature in less time may have less need for cash. This can be increased depositor's demand of who create the risk of liquidity. Not only the bank but also the whole system of banking caused to fail because of contagion (Douglas et a,, 2001).Banks channel savings from resource-rich segments of society to resource-poor segments, making it easier for savers and investors alike. In addition, banks facilitate the payment system and handle daily transactions in the economy. During the process of intermediation, banks create liquidity, the term defined by (Douglas W. Diamond, 1983). By definition, liquidity creation is the process by which banks finance their current liabilities through non-current assets. On the other hand, obtaining liquidity from a bank refers to its ability to meet its financial commitments at maturity. For example, a bank issues a spot deposit that can be taken back at any time and provides credit to the borrower within a specific period of time. Banks benefit both depositors and borrowers in providing liquidity in liabilities and illiquidity in protecting assets. Given its importance to the economy, liquidity creation is the primary function of the banking system. The clear policy of management of liquidity should be communicated all over the organization by every bank (Subramoniam, 2018).

Problem Statement

Liquidity management is a critical function for the sustainability and stability of banking institutions. Maintaining adequate liquidity levels ensures the ability of banks to meet short-term obligations and mitigates the risk of insolvency. In Pakistan's banking sector, liquidity management has become increasingly significant due to economic fluctuations, regulatory changes, and evolving financial landscapes over the past decade. This study examines the determinants of liquidity within Pakistan's commercial banking sector by analyzing its relationship with key bank-specific factors. The variables under consideration include capital adequacy, asset quality, return on assets (ROA), return on equity (ROE), bank size, and non-performing loans (NPLs).

Research Objectives:

1. To analyze the quantitative impact of capital adequacy, asset quality, and non-performing loans (NPLs) on the liquidity levels of Pakistan's commercial banks.
2. To examine the relationship between profitability measures, such as return on assets (ROA) and return on equity (ROE), and the liquidity of these banks.

3. To evaluate the extent to which bank size affects liquidity management practices in Pakistan's commercial banking sector.

Research Questions

1. What is the quantitative impact of capital adequacy, asset quality, and non-performing loans (NPLs) on the liquidity levels of Pakistan's commercial banks?
2. How do profitability measures, such as return on assets (ROA) and return on equity (ROE), affect the liquidity of these banks?
3. To what extent does bank size influence the liquidity management practices of Pakistan's commercial banks?

HYPOTHESES DEVELOPMENT

The key determinants of liquidity risk in Pakistan's banking sector are multifaceted, involving both bank-specific and macroeconomic factors. These determinants influence how banks manage their liquidity, which is crucial for maintaining financial stability. The research highlights the impact of asset quality, funding management, loan quality, monetary policy, leverage, capital adequacy, exchange rates, market competition, and systematic risk on liquidity risk management. Asset Quality and Loan Quality: In conventional banks, loan quality positively impacts liquidity risk management, whereas asset quality has a negative impact (Meliza et al., 2024). Funding Management: This factor positively influences liquidity risk management in both conventional and Islamic banks, indicating its critical role in maintaining liquidity (Rafique et al., 2020). Leverage and Capital Adequacy: Both leverage and capital adequacy ratio negatively impact the liquidity of banks, suggesting that higher leverage and capital requirements may constrain liquidity (Olofin et al., 2024).

While these determinants provide a comprehensive view of liquidity risk in Pakistan's banking sector, it is essential to consider the dynamic nature of these factors. Economic conditions, regulatory changes, and global financial trends can alter the impact of these determinants, necessitating continuous monitoring and adaptation by banks and policymakers. Another study also identified the key determinants of liquidity in Pakistan's banking sector, focusing on bank-specific factors (size, capital, credit risk), macroeconomic factors (GDP, inflation), and market competition (measured by HHI). It finds that bank size, credit risk, GDP, and inflation negatively affect liquidity, while market competition has a positive impact. Notably, capital does not significantly influence liquidity reserves. This comprehensive analysis spans 20 banks from 2006 to 2016, highlighting the intricate relationships between these determinants and liquidity (Olofin et al., 2024).

Similarly, another study investigated the impact of systematic risk and economic dynamics on liquidity reserves in Pakistan's banking sector. Key determinants include systematic risk factors such as Beta, Lending Interest Rate (DIR), and Domestic Credit (DCPFC), which significantly influence liquidity management. The findings highlight that liquidity reserves serve as a buffer against liquidity risk, emphasizing the importance of effective liquidity management strategies in response to economic fluctuations and market conditions over the period from 2001 to 2015 (Kamran et al., 2019). The key determinants of liquidity risk in Pakistan's banking sector include bank capital (CAP), bank size (BS), non-performing loans (NPL), and gross domestic product (GDP). The study found that CAP and GDP positively and significantly impact bank liquidity, while NPL and BS have a statistically significant negative impact. Additionally, inflation (INF) showed a statistically insignificant but positive relationship with liquidity. These findings suggest that both internal and external factors should be considered in liquidity management strategies (Islam et al., 2020).

Additionally, (Baltensperger, 1980) demonstrated that if the banks do not wish to come short of stocks, then retaining at least a portion of the assets in liquid form would prove to be costly in the event of deposit withdrawals. It is the comparison of the costs of maintaining liquid assets and the costs of minimizing the chances of 'running out'. Furthermore, Bender (1999) contributes to inventory buffer theory the size of liquidity reserves and assets. They should point out the opportunity costs of lost revenue from having to hold cash instead of lending it out, and the cost of obtaining cash quickly. Moreover, it would be pertinent to discuss the maximum effective extent of a liquidity shock that a bank is willing to tolerate in order to shorten the maturity gap between its liquid assets and corresponding liabilities or the entity's liquidity risk for which time and financial resources can be procured. The liquidity risk embedded in their balance sheet can be effectively managed by maintaining a buffer of liquid assets (Bonner et al., 2013).

Likewise, the idea of shift ability that was alternatively devised by Harold Moulton in 1915 holds that banks are least likely to experience extreme withdrawals of deposits if they possess some sort of liquidity reserve. Commercial papers, prime bank acceptances and above all, Treasury notes were part of the liquidity reserves. These instruments were all redeemable at the specified maturity period because of prevailing conditions in the markets. (Diamond, 2004)

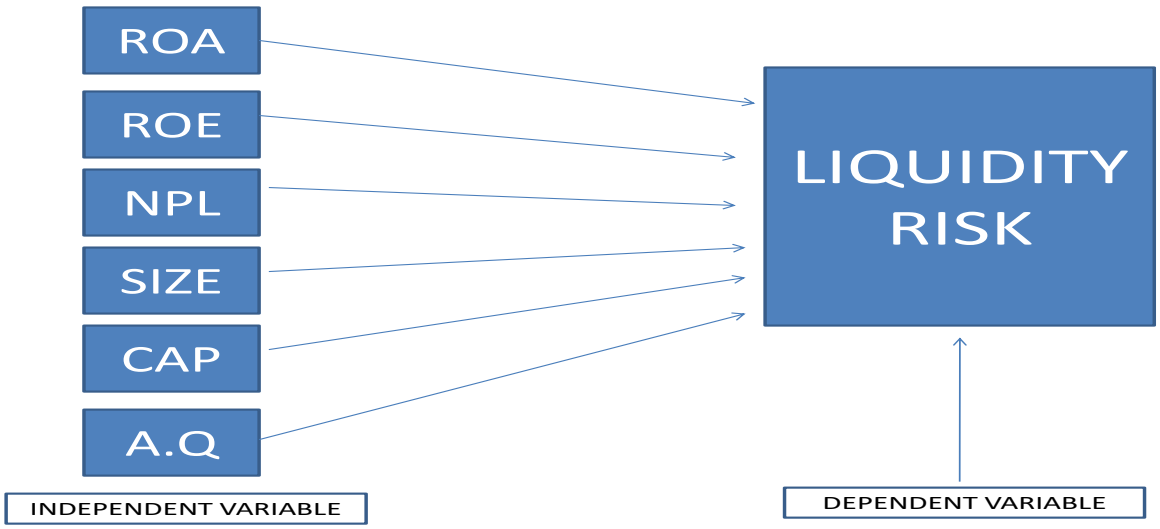
Moreover, (Diamond, 2004) highlighted the exposure of leap factors establishes a risk absorption hypothesis linking bank capital to liquidity generation. This phenomenon, whereby a bank serves as a risk transformer, emanates from this theory. The risk absorption hypothesis points out that there is expansion of banks' liquidity reserves whenever capital base expands. (Bonner et al., 2015) The generation of liquidity creates the potential for risks that the bank would not otherwise face because banks that create additional liquidity would suffer greater losses because they would have to sell off unliquidated investments to satisfy their investors' needs, while their equity would be higher than that investment risk. Also, the risk absorption effect applies more strongly to the larger banks because their institutions are subject to greater regulation and more market discipline. The impact might be comparatively severed if the banks that holds minimum capital ratios of any level this is due one reason that these banks have least buffers to bear the repercussion and that's why are more vulnerable to tend to face the risk (Sundaresan et al, 2022). Notably, (Sarmiento, 2018) investigated the relations between bank's internal factors over the period 2007-2011and liquidity risk of Islamic banks working in Pakistan. A correlation which is significant and positive found in this study between the different factors i.e., the bank size and liquidity risk. On the other hand, Capital adequacy, Return on Equity, return on asset and net working capital has insignificant relation with the liquidity (Olofin et al., 2022).

Additionally, (Iqbal, March 2012) used 5 conventional and 5 Islamic banks as sample size for the period covering from 2007 and 2010 also showed those different relationships exit between the dependent and independent variables i.e., negative relationship between the liquidity risk and NPL and positive relationship between Capital adequacy, ROA and ROE and bank size (Meliza et al., 2022). Moreover, (Shamas, 2018) used 42 Islamic banks from different countries as sample size for the period covering from 2007 and 2014 also showed different relationship i.e., cash ratio and liquidity risk has a negative correlation. The securities held by the bank and liquidity risk has a negative correlation. The size of bank also has a negative relationship with liquidity risk. In contrast, a positive relationship exists with high profit assets (Abbas et al., 2022).

In addition to, (Khoutem Ben Jedidia, 2015) examined a panel of 60 Islamic banks from MENA and Southeast Asian nations. The investigation showed that, while the profitability bank indicator (ROA) has a favorable effect on exposure to liquidity shortage, the capital adequacy ratio (CAR) and the bank's investment ratio have statistically significant negative correlations with the liquidity risk measure. The real growth rate of GDP has a negative but irrelevant

relationship with liquidity risk (Maraghni & Bouheni, 2015). Additionally, (Abdo & Onour, 2015) employed Islamic banks from several countries, including Malaysia and the Gulf, as a sample size for the period 2009–2014. Their research revealed that liquidity risk is primarily concerned with the management of three bank-specific variables, namely past liquidity situation, bank size, and loan loss provision, as well as two industry-specific variables, broad money growth and GDP growth (Prasetya, 2018).

Conceptual Farmwork



Hypotheses

Therefore, current study use following hypothesis for analysis:

H1: *Capital Adequacy has a negative effect on liquidity of the bank.*

H2: *Return on Assets has positive relationship with liquidity of the bank.*

H3: *Return on Equity has a* ***negative relationship*** *with liquidity of the bank.*

H4: *Bank's non-performing loans has a* ***positive relationship*** *with liquidity of the bank.*

H5: *Assets Quality Ratio has a* ***negative relationship*** *with the liquidity of the bank.*

H6: *Bank's size has a* ***negative relationship*** *with liquidity of the bank.*

METHODOLOGY

This research adopts a positivist philosophy, which is grounded in the assumption that reality is objective and can be measured through quantitative methods. Positivism supports the use of statistical techniques to establish patterns and relationships between variables, allowing for objective and unbiased conclusions. The study is driven by the belief that the determinants of liquidity in commercial banks can be quantitatively measured and understood through empirical evidence (Park et al., 2020).

The research follows a deductive approach, as it begins with existing theories and frameworks regarding bank liquidity management, followed by empirical testing of these theories through the collection and analysis of data. A deductive approach is appropriate because it allows for the testing of established relationships between liquidity and various financial indicators, such as capital adequacy and asset quality, in the context of Pakistan's banking sector (Mohammad Yeasin, 2023).

This study employs a quantitative research design, which focuses on the numerical analysis of data to identify statistical relationships between variables. Quantitative research is appropriate for this study as it seeks to measure and analyze the influence of different bank-specific factors on liquidity, using statistical methods to generate objective findings (Albers, 2017). This research involves analyzing secondary data from annual financial statements over a period of 10 years (2013-2022). The population for this study consists of all commercial banks licensed and operating in Pakistan, which total 35 as of 2022 (SBP, 2022). A purposive sampling technique (Nyimbili et al, 2024) was applied to select a sample of ten commercial banks: Habib Bank Limited (HBL), Silk Bank Limited, Bank Islami Limited, Meezan Bank Limited, Faysal Bank Limited, Askari Bank Limited, Bank Alfalah Limited, Summit Bank Limited, Muslim Commercial Bank (MCB), and Allied Bank Limited. These banks were chosen based on their market share, financial significance, and availability of comprehensive financial data.

The study relies on secondary data, which was gathered from the annual financial statements of the selected banks. Data was collected from the official websites of the respective banks and covers the period from 2013 to 2022. The data includes key financial variables such as total assets, customer deposits, loans and advances, cash and cash equivalents, equity, and other relevant metrics. This secondary data allows for a longitudinal analysis of liquidity trends and the factors influencing them (Kalimashi et al., 2022).

The study employs multiple regression analysis to examine the impact of independent variables on the liquidity of Pakistan's commercial banks. Regression analysis is appropriate for this study as it allows for the estimation of the relationship between the dependent variable (liquidity) and multiple independent variables (bank-specific factors). Data analysis will be conducted using statistical software such as **SPSS** to ensure reliability and accuracy.

RESULTS AND DISCUSSION

As shown in table the calculation of the relationship between independent variables & dependent variables had 6 independent variables together with one dependent variable based on the literature review.

Table 1: Variables and their Measurement

Variable	Measurement
Dependent:	
Liquid assets ratio (LAR)	Liquid assets divided by the total assets
Independent	
Capital adequacy ratio (CAP)	Core capital to total customer deposits.
Returns on Equity	Net Income to Equity
Returns on Assets.	Net income to total asset
Asset Quality Ratio	Cash & Cash Equivalent to Total Assets
Size	Natural Log of total assets of bank
NPL	Nonperforming loan divided by total loan

Data that was used in this study extracted from the financial statements of commercial banks of Pakistan for the period of 10 year (2008-2017), (Secondary data).

Model Summary

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.635[a]	.404	.365	3.22563	1.390

a. Predictors: (Constant), Size, Asset Quality, CAP, NPL, ROA, ROE
b. Dependent Variable: L.A/ Total Asset

The coefficient of determination (R^2) value of 0.365 indicates that the independent variables Size, Asset Quality, Capital Adequacy (CAP), Non-Performing Loans (NPL), Return on Assets (ROA), and Return on Equity (ROE) collectively account for 36.5% of the variation in the dependent variable, the Liquid Asset Ratio. This suggests that approximately 36.5% of the changes in liquidity risk can be explained by the variations in these six bank-specific factors. While this represents a moderate explanatory power, it also implies that other factors, which were not included in the model, contribute to the remaining 63.5% of the variance in liquidity. Consequently, the findings suggest that while the independent variables considered in this study have a notable influence on liquidity risk, further research may be necessary to identify additional determinants that affect liquidity levels in commercial banks.

Table 2: Descriptive Statistics

Descriptive Statistics				
	Minimum	Maximum	Mean	Std. Deviation
CAP	.01	.22	.1329	.04614
ROE	-.32	.34	.1186	.14021
ROA	-.04	.05	.0087	.01857
NPL	.01	.27	.0994	.06398
Asset Quality	.02	.14	.0795	.02116
Size	4.28	6.43	5.4997	.47702
L.A/ Total Asset	.55	21.48	11.2167	4.04835

Valid N (list wise)

The statistical summary indicates the following: Capital Adequacy (C.A.P.) has a mean of 0.1329 with a standard deviation of 0.04614, ranging from 0.01 to 0.22. Return on Equity (R.O.E.) averages 0.1186 with a standard deviation of 0.14021, fluctuating between 0.32 and 0.34. Return on Assets (R.O.A.) has a mean of 0.0087 and a standard deviation of 0.01857, ranging from -0.04 to 0.05. Non-Performing Loans (NPL) averages 0.0994, with a standard deviation of 0.06398, ranging from 0.02 to 0.14. The Size of the Bank has a mean of 5.49 and a standard deviation of 0.47702, ranging from 4.28 to 6.43. Liquidity averages 11.21, with a standard deviation of 4.04, ranging from 0.55 to 21.08. These statistics show moderate to high variability, particularly for R.O.E., R.O.A., and liquidity.

Table 3: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Size, Asset Quality, CAP, NPL, ROA, ROE[b]	.	Enter

a. Dependent Variable: L.A/ Total Asset

b. All requested variables entered.

This table shows that all the variables are successfully entered for further analyses of variables.

Table 4: ANOVA a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	654.889	6	109.148	10.490	.000[b]
	Residual	967.635	93	10.405		
	Total	1622.524	99			

The ANOVA results indicate an F-value of 10.940 with a significance level of 0.000. Since 0.000 is less than the 0.05 threshold, the model is statistically significant at the 5% level. This suggests that the independent variables collectively have a significant effect on the dependent variable.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.759	5.213		6.476	.000
	ROE	-4.176	3.900	-.145	-1.071	.287
	CAP	-27.378	8.810	-.312	-3.108	.003
	ROA	8.419	28.822	.038	.292	.771
	NPL	47.316	6.867	.748	6.891	.000
	Asset Quality	-32.133	15.933	-.168	-2.017	.047
	Size	-2.970	.896	-.350	-3.315	.001

a. Dependent Variable: L.A/ Total Asset

b. Predictors: (Constant), Size, Asset Quality, CAP, NPL, ROA, ROE

The regression analysis reveals the following relationships with liquidity risk: Return on Equity (R.O.E.) shows a negative but insignificant relationship (coefficient = -4.176, p = 0.287). Capital Adequacy Ratio (C.A.P.) has a significant negative impact on liquidity risk (coefficient = -27.378, p = 0.003), suggesting that higher capital adequacy reduces liquidity risk. Return on Assets (R.O.A.) shows a positive but insignificant relationship (coefficient = 8.419, p > 0.05). Non-Performing Loans (NPL) has a significant positive relationship (coefficient = 47.316), indicating higher NPLs increase liquidity risk. Asset Quality has a negative but insignificant relationship (coefficient = -32.133). Bank Size shows a significant negative relationship (coefficient = -2.970), meaning larger banks tend to have lower liquidity risk.

LAR=33.759-27.378(CAP)-4.176(ROE)+8.419(ROA)+47.316(NPL)-32.133(AQ)-2.970(Size)

Conclusion

The results of this study indicate the various relationships that exist between the dependent variable (liquidity) and the independent variables (Capital Adequacy, Return on Equity, Size of the Bank, Asset Quality, Return on Assets, and Non-Performing Loans) in Pakistan's commercial banking sector. Based on the findings, several important insights emerge regarding the determinants of liquidity in these banks:

Capital adequacy plays a significant role in determining the liquidity levels of banks. The study finds that an increase in the capital adequacy ratio (CAR) is associated with a decrease in liquidity risk. This finding shows that banks with higher capital reserves are better positioned to absorb shocks and meet their short-term obligations, thereby reducing the risk of liquidity crises. Similarly, the return on equity (ROE) demonstrates an insignificant relationship with bank liquidity in this study. While ROE is an important profitability measure, the findings suggest that it does not have a direct influence on liquidity risk. This could imply that factors related to profitability, while critical for long-term financial performance, may not immediately impact the liquidity position of banks.

Moreover, the bank size shows a significant negative impact on liquidity risk. Larger banks tend to have better access to capital markets and broader diversification, which allows them to manage liquidity more effectively. The ratio of asset quality, measured as the ratio of total loans to total assets, shows a negative but insignificant impact on liquidity. The lack of significance may suggest that asset quality alone does not provide a clear indication of a bank's liquidity position. Likewise, return on assets (ROA) shows a positive but insignificant relationship with liquidity. Although the positive correlation suggests that more efficient asset utilization might contribute to a stronger liquidity position, the insignificance of the relationship indicates that ROA may not be a primary driver of liquidity in the short term. Furthermore, the non-performing loans (NPLs) have a significant positive impact on liquidity risk. As the level of non-performing loans increases, liquidity risk also rises. This relationship reflects the fact that a higher proportion of NPLs ties up a bank's resources, reducing its available liquid assets and increasing the likelihood of liquidity crises. Banks with higher NPL ratios face greater challenges in maintaining liquidity, as they may be forced to allocate more resources toward provisions for loan losses and reduce their lending activities. This result

underscores the importance of effective loan management and the need for banks to closely monitor their asset quality.

The study concludes that various bank-specific factors significantly influence the liquidity levels of commercial banks in Pakistan. Among these, capital adequacy and size of the bank stand out as the most significant determinants of liquidity. Higher capital reserves and larger bank size are associated with lower liquidity risk, suggesting that these factors help strengthen a bank's ability to manage short-term obligations. In contrast, return on equity and asset quality have negligible or insignificant impacts on liquidity, indicating that profitability and asset quality do not directly translate into improvements in liquidity risk. The findings also highlight the critical role of non-performing loans in exacerbating liquidity risk. Banks with higher NPL ratios face a greater risk of liquidity stress, underlining the importance of managing loan portfolios and minimizing default rates to ensure adequate liquidity. This study provides valuable insights into the liquidity management practices of commercial banks in Pakistan, particularly regarding the need to focus on capital adequacy and managing non-performing loans. Policymakers and bank managers should consider these factors when designing strategies to mitigate liquidity risk, ensure financial stability, and promote long-term sustainability in the banking sector.

Recommendations and Future Research Directions

To strengthen liquidity management in Pakistani commercial banks, it is recommended that banks focus on enhancing capital adequacy and asset quality by increasing capital buffers and improving credit risk management practices. This can reduce liquidity risk and better prepare banks to absorb financial shocks. Additionally, banks should adopt prudent lending practices to minimize non-performing loans (NPLs), ensuring a healthier loan portfolio. Balancing cash reserves with short-term, low-risk investments will optimize liquidity and profitability, while strategic expansions and mergers can improve operational efficiency and bank size, offering better access to capital markets. Banks must also integrate risk-based liquidity management approaches and adhere to international regulatory standards to mitigate systemic risks and enhance liquidity stability.

For future research, exploring the impact of macroeconomic factors on bank liquidity would provide deeper insights into external shocks affecting liquidity. Comparative studies between Islamic and conventional banks in Pakistan could offer valuable perspectives on how different banking systems manage liquidity risk. Investigating the role of technological advancements, such as AI and blockchain, in liquidity management could open new avenues for innovation in

banking. Longitudinal studies focusing on the impact of financial crises on liquidity would help assess the effectiveness of liquidity management strategies during periods of economic stress. Additionally, examining alternative risk-based capital adequacy frameworks could contribute to developing more tailored regulatory measures for enhancing liquidity in emerging markets.

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