International Journal of Finance and Commerce
www.commercejournals.com
Online ISSN: 2664-715X, Print ISSN: 2664-7141
Received: 27-02-2023, Accepted: 14-03-2023, Published: 31-03-2023
Volume 5, Issue 1, 2023, Page No. 117-124

Effect of liquidity risk on financial performance of commercial banks in Nepal

Anita Chaudhary[1], Pitambar Sapkota[2]
[1] MBS-F Scholar of Lumbini Banijya Campus, Tanahun, Nepal
[2] Assistant Professor, Lumbini Banijya Campus, Tanahun, Nepal

Abstract
The purpose of this study to investigate the effect of liquidity risk on financial performance of commercial banks in Nepal. This study applies the Pooled Ordinary Least Square estimator. Balanced panel data of ten commercial banks over the period of 2011/2012 to 2020/2021 were used for analysis. In the study ROA and ROE are uses as bank performance measurement tools and capital ratio, investment ratio, liquidity management ratio, bank size and assets quality are used as explanatory variables. The results showed that bank size, liquidity management ratio and capital ratio has been found a positive effect on banks financial performance and investment ratio, and assets quality has negative effect on banks financial performance. Thus, the study concludes that liquidity risk is an important predictor for the financial performance of the commercial banks. Therefore, the success of the banks in terms of profitability depends on liquidity risk management.

Keywords: Return on assets, return on equity, current ratio, investment ratio, liquidity management, assets quality, and bank size

Introduction

Bank liquidity refers to the ability of the bank to ensure the availability of funds to meet financial commitments or maturing obligations at a reasonable price at all times. Bank liquidity means a bank having money where they need it particularly to satisfy the withdrawal needs of the customers (Wasiuzzaman & Tarmizi, 2010) [49]. Profitability and liquidity are effective indicators of the corporate health and performance of not only the commercial banks, but all profit-oriented ventures (Eljelly, 2004) [10]. These performance indicators are very important to the shareholders and depositors who are major stakeholders of a bank.

The liquidity risk of banks arises from funding of long-term assets by short-term liabilities, thereby making the liabilities subject to rollover or refinancing risk. Liquidity risk is usually of an individual nature, but in certain situations may compromise the liquidity of the financial system.

Liquidity risk management in banks is defined as the risk of being unable either to meet their obligations to depositors or to fund increases in assets as they fall due without incurring unacceptable costs or losses. Effective liquidity risk management helps ensure a bank's ability to meet its obligations as they fall due and reduces the probability of an adverse situation developing (Kumar & Yadav, 2013) [18].

A bank is responsible for the sound management of liquidity risk. A bank should establish a robust liquidity risk management framework that ensures it maintains sufficient liquidity, including a cushion of unencumbered, high quality liquid assets, to withstand a range of stress events, including those involving the loss or impairment of both unsecured and secured funding sources. Banks face two central issues regarding liquidity. Banks are responsible for managing liquidity creation and liquidity risk. Liquidity creation helps depositors and companies stay liquid, for companies especially when other forms of financing become difficult. Managing liquidity risk is to ensure the banks own liquidity so that the bank can continue to serve its function (Vossen and & Ness, 2010) [48].

The commercial banking sector in Nepal has been rapidly growing in recent years, however, with this growth comes an increase in liquidity risk, which poses a significant threat to the financial performance of commercial banks in the country. Maintaining a balance of liquidity and profitability is crucial in the corporate world. Liquidity refers to the management of a company's current assets and liabilities, and plays a key role in determining a firm's ability to effectively manage its short-term obligations. To meet these obligations, firms need to keep a sufficient amount of cash on hand. However, having too little or too much liquidity can negatively impact a firm's profitability. Profitability, on the other hand, refers to a firm's revenue in relation to its expenses. The ultimate goal of every firm is to achieve optimal profitability, and maintaining the right level of liquidity is necessary to achieve this. The relationship between liquidity and profitability is significant, and firms must strive to maintain an optimal level of liquidity to enhance profitability (Ali Khan & Ali, 2016) [4].

The problem statement of this research is that despite the growth of commercial banking sector in Nepal, there is a lack of understanding about the impact of liquidity risk on the financial performance of commercial banks in the country. This is an important issue, as liquidity risk can have a significant impact on the stability and profitability of commercial banks. Furthermore, the lack of data and information on liquidity risk management practices in commercial banks in Nepal, makes it difficult to assess the effectiveness of the measures being taken to manage and mitigate liquidity risk. This is why this research aims to fill this gap by investigating the effect of liquidity risk on the financial performance of commercial banks in Nepal. Moreover, the problem also includes the difficulty in measuring and assessing liquidity risk in commercial banks in Nepal due to the different methods and models used by banks, which makes it difficult to compare the performance

of different banks. Also, the complex relationship between liquidity risk and other financial risks, such as credit risk and market risk, and how they interact to affect financial performance is another issue to be considered. Furthermore, the external factors such as macroeconomic conditions, government policies, and regulatory environment on liquidity risk and financial performance of commercial banks in Nepal also plays an important role. Therefore, this research study will provide a comprehensive understanding of the effect of liquidity risk on the financial performance of commercial banks in Nepal and will also provide valuable insights into the measures that can be taken to mitigate and manage liquidity risk.

The major purpose of this study is to investigate the relationship between liquidity and profitability. Specifically, it examines the effects of capital ratio, investment ratio, assets quality, liquidity management, bank size on bank performance of Nepal.

Review of literature

Theoretical review

The theoretical framework is a structure that provides an insight to the concepts and theories that are pertinent to the topic of research.

The liquidity preference theory was developed by Keynes in 1936. According to him the interest rate should be viewed as a monetary matter. It is considered as a return for parting with liquidity and, therefore, the rate of interest is the direct outcome of the demand and supply of money.

The Liability Management theory focuses on the fact that traditional trends in debt and liquidity management at banks are not of any importance given that money can be obtained through short-term debt instruments from the capital market whenever the need to fill the reserve deficit. And that this does not mean that the bank manages only its liabilities and does not focus on managing its assets, but the liability management theory emphasizes on the importance of bank's assets structure in providing it with liquidity (Shafiq & Nasr, 2010) [44].

According to trade-off theory, a trade-off exists between liquidity and profitability in all organizations. In a bank's context, this means that the two objectives to achieve good profits and maintain liquidity cannot be followed simultaneously without one affecting the other (Akinwumi, Essien & Adegboyega, 2017) [3].

In line with agency costs theory, the free cash flow hypothesis (Jensen, 1986) [15] may also explain why MFIs with higher liquidity may not experience better financial performance.

Empirical Review

Muteti (2012) [38] studied the relationship between financial risk management on financial performance of commercial banks. The study found that credit risk, interest rate risk, foreign exchange risk, liquidity risk had a negative relationship with financial performance of commercial banks. The study recommended that management of commercial banks should better control credit risk exposure; maintain safe levels of liquidity and hedge against foreign exchange risk and interest rate risk.

Alzorqan (2014) [5] studied the relationship between bank liquidity risk and performance. The study regarded liquidity risk as an endogenous determinant of bank performance, and apply panel data instrumental variables regression to estimate the impact of liquidity risk on banks performance. The study established that there is a significant relationship between Loan-deposit ratio, current ratio and banks performance.

Pradhan and Shrestha (2016) [41] examined the effect of liquidity on the performance of Nepalese commercial banks. Investment ratio, liquidity ratio, capital ratio and quick ratio are the independent variables used in this study. The study shows that investment ratio and capital adequacy are positively significant with bank performance, which indicate that increase in investment ratio and capital ratio leads to increase the performance of the banks. However, beta coefficients for liquidity ratio and quick ratio are negative with return on assets and return on equity indicating increased liquidity ratio and quick ratio decreases the return on assets and return on equity of the bank.

Naji and Hamad (2017) [39] analyzed the impact of liquidity risk on the profitability of local commercial banks and measured during the period (2008-2013). The study found that there is a statistically significant relationship between dependent and independent variables represented by measures of bank liquidity and the profitability of commercial banks.

Chuwdhury and Zaman (2018) aimed to analyses the effect of Liquidity risk on the banks' performance for the period 2012 to 2016 AD. In the study ROA and ROE were used as Bank performance measurement tools and Loan to deposit ratio, Capital to total asset ratio is used as liquidity indicators. The results showed that is negative effect liquidity indicators on bank's performance.

Singh and Niroula (2021) [47] explored the effect of liquidity on financial performance of commercial banks in Nepal. In this research dependent variables' ROA and ROE are used and independent variables; CAR, CRR, LDR and LR. The result shows that there is a positive and significant effect of CRR on both ROA and ROE. The variable CAR has positive and significant effect on ROA but negative and significant effect on ROE. Furthermore, variable CRR has positive and significant effect on both ROA and ROE, it indicates that the strength of cash deposit to central bank play vital role to stabilize the financial performance of commercial banks in Nepal.

Research methodology

This study is based on secondary source of data for the period of 2011/12-2020/21 out of the 26 commercial banks 10 banks are selected as sample by using convenience sampling method. The data were collected from banking and financial Statistics publish by Nepal Rastra Bank, annual reports of different sample banks, Supervision report of Nepal Rastra Bank.

The research designs adopted in this study are descriptive and causal relationship research design. More specifically, the study examines the effect of capital ratio, investment ratio, assets quality, liquidity management and bank size on bank's financial performance.

The model

As a first approximation, the model estimate in this study assumes that the performance of Nepalese commercial banks depend on several independent and control variable. The liquidity variables are capital ratio, investment ratio, assets quality, liquidity management and bank size.

Therefore the model takes the following form:

Profitability = f (liquidity variables, control variable)
The liquidity variables select in this study are capital ratio, investment ratio, assets quality and liquidity management. The control variable is bank size. Therefore the model takes the following form:

$$\text{Bank Performance} = \beta_0+\beta_1 CR_{it}+\beta_2 IR_{it}+\beta_3 AQ_{it}+\beta_4 LM_{it}+\beta_5 BS_{it}+\varepsilon_{it}$$

Where, the bank performance is use as a dependent variable and is measure in terms of the following:
ROA= Return on assets
ROE= Return on equity
In this study, bank performances have measure as bank profitability in terms of return assets and return on equity.
The independent variable consists of liquidity variable and control variable as under:

CR= Capital ratio
IR= Investment ratio
AQ= Assets quality
LM= Liquidity management
BS= Bank size

Investment Ratio
Loan to deposit is the most important ratio to measure the liquidity condition of the bank. Loan means the advances for the conventional banks. Bank with Low LDR is considered to have excessive liquidity, potentially lower profits, and hence less risk as compared to the bank with high LDR. However, high LDR indicates that a bank has taken more financial stress by making excessive loans and also shows risk that to meet depositors' claims bank may have to sell some loans at loss (Ahmed, 2009). The investment ratio indicates to the appropriateness of investing the available funds to the bank which derived from deposits, to meet the demands of credited loans and advances.
Investment ratio= Credit facilities / Total deposits
H_1= Investment ratio has a significant negative effect on bank profitability.

Capital ratio
It measures the financial strength of a bank and indicates the extent of financial stability at the bank. Capital can be calculated by dividing capital by total assets. The equity-to-asset ratio measures how much of bank's assets are funded with owner's funds and is a proxy for the capital adequacy of a bank by estimating the ability to absorb losses. Capital Ratio is a measure of a bank's liquidity management strength and the adequacy of its capital, and it indicates to the extent of liquidity management stability at the Bank (Pradhan & Shrestha, 2016) [41].

Capital ratio = Capital / Total asset

H_2= Capital ratio has a significant positive effect on bank profitability.

Assets quality (AQ)
Asset quality is an evaluation of asset to measure the credit risk associated with it. It is calculated by dividing non-performing loans by gross loans. Credit risk is one of the factors that affect the health of an individual bank. The extent of the credit risk depends on the quality of assets held by an individual bank. The quality of assets held by a bank depends on exposure to specific risks, trends in non-performing loans, and the health and profitability of bank borrowers (Baral, 2005).

AQ= Non- performing loan/Gross loans

$H_{3=}$ Asset quality has a significant negative effect on bank profitability.

Liquidity management
Liquidity management is the strategy any organization adopts to optimize, maximizes, and safeguards its liquidity. Liquidity management takes one of two forms based on the definition of liquidity. A high liquidity ratio indicates a less risky and less profitable bank (Bariya *et al*. 2016).
Liquidity ratio= Total liquid assets/ Total assets
H_4= Liquidity management has a significant negative effect on bank profitability.

Size of firm (SF)
Size refers to bank size that is calculated by logarithm of total assets. Total assets have been used as the measure of company size. This variable controls for cost differences and product and risk diversification according to the size of the financial institution economies. Firms' size has a strong positive affiliation with profitability (Chhetri, 2021) [8].
H_5= Bank size has significant positive impact on bank profitability.

Results and finding
The descriptive statistics use in this study consists of total number of samples, maximum values, minimum values, average and the standard deviation of all the variables.

Descriptive Statistics
The descriptive statistics are shown for dependent and independent variables. The profitability of the banks are proxies by both Return on Assets (ROA) and Return on Equity (ROE) which are the dependent variables in the study while capital ratio, investment ratio, assets quality, liquidity management, and size of bank are the independent variables.

Table 1: Descriptive Statistics

	ROE	ROA	LNBS	IR	LM	CR	AQ
Mean	10.50168	1.642900	11.44650	81.92770	20.30930	10.30465	2.333920
Maximum	42.94000	3.250000	12.75462	104.0600	37.52000	21.00000	24.29000
Minimum	-457.8000	-3.430000	9.526756	52.98000	3.660000	-4.960000	0.010000
Std. Dev.	48.50580	0.866365	0.692543	8.891583	9.561852	3.807801	3.096605
Jarque-Bera	31992.18	633.6774	5.590829	4.992668	6.247606	41.68153	2827.424
Probability	0.000000	0.000000	0.061090	0.082386	0.043990	0.000000	0.000000
Observations	100	100	100	100	100	100	100

Note: Results drawn from Eviews 12

The ROE ranges from 42.94 to -457.80 with a mean of 10.51 and standard deviation of 48.51. The ROA ranges from 3.23 to -3.43with a mean of 1.64 and standard deviation of 0.87. The assets quality ranges from 24.29 to 0.01 with a mean of 2.33 and standard deviation of 3.097. The liquidity management ranges from 37.52 to 3.66 with a mean of 20.31 and standard deviation of 9.56. The capital ratio ranges from 21 to -4.96 with a mean of 10.30 and standard deviation of 3.81. The investment ratio ranges from 104.06 to 52.98 with a mean of 81.93 and standard deviation of 8.981. The size of sample bank range from 12.75 to 9.53 with a mean of 11.45 and standard deviation of 0.69.

Inferential Results

Table 2: Correlation Analysis

Correlation							
Probability	**ROE**	**ROA**	**LNBS**	**IR**	**LM**	**CR**	**AQ**
ROE	1.000000						

ROA	0.248880	1.000000					
	0.0125	-----					
LNBS	0.087901	0.282129	1.000000				
	0.3845	0.0045	-----				
IR	0.234174	0.213775	0.307064	1.000000			
	0.0190	0.0327	0.0019	-----			
LM	-0.018415	0.126905	-0.224751	0.219261	1.000000		
	0.8557	0.2083	0.0246	0.0284	-----		
CR	0.338062	0.394848	0.205062	0.689523	0.070569	1.000000	
	0.0006	0.0000	0.0407	0.0000	0.4854	-----	
AQ	-0.214623	-0.418993	-0.290858	-0.160509	-0.024744	-0.062559	1.000000
	0.0320	0.0000	0.0033	0.1107	0.8069	0.5364	-----

Note: Results drawn from Eviews 12

The value of correlation r = -0.419 which means there is low negative linear relationship between Assets Quality and return on assets. There is low degree negative linear relationship between assets quality and return on equity i.e. -0.215.

The value of correlation coefficient r= 0.395 which means there is moderate positive linear relationship between capital ratio and return on assets. Similarly, the value of correlation coefficient r= 0.338 which means there is moderate positive linear relationship between capital ratio and return on equity.

The value of correlation coefficient r= 0.126 which means there is weak positive linear relationship between liquidity ratio and return on assets. Similarly, the value of correlation coefficient r=-0.018 which means there is very poor negative linear relationship between liquidity ratio and return on equity.

The value of correlation coefficient r=0.214 which means there is lower positive linear relationship between investment ratio and return on assets. Similarly, the value of correlation coefficient r=0.234 which means there is lower positive linear relationship between investment ratio and return on equity.

The value of correlation coefficient r=0.282 which means there is lower positive linear relationship between bank size and return on assets. Similarly, the value of correlation coefficient r=0.088 which means there is very lower positive linear relationship between bank size and return on equity.

Regression analysis

In order to tests the statistical significance and robustness of the result, regression models has been used. Following three tables represent analysis of the secondary data.

Regression analysis with Return on Assets

Regression analysis has been conducted in order to determinants o profitability in commercial bank of Nepal. An asset quality, Capital Ratio, Investment Ratio, and Liquidity management is used as an independent variable and Return on Assets is used as dependent variable. Regression result is presented as follows;

$$ROA= \beta_0+\beta_1 LM+\beta_2 IR+\beta_3 CR+\beta_4 AQ+\beta_5 BS+\grave{e} \ldots\ldots (1)$$

1. Apply Breusch-Pagan Test

Table 3: Breusch-Pagan test

	Cross-section	**Test Hypothesis Time**	**Both.**
	23.80451	93.63427	117.4388
Breusch-Pagan	(0.0000)	(0.0000)	(0.0000)

Note: Results drawn from Eviews 12

If P value in Breusch-Pagan Test is greater than 0.05 then accept null hypothesis and go for POLS. And P value is less than 0.05 then rejects the null hypothesis and go for Random effect model.

The Breusch-Pagan test is less than 0.05 then the reject null hypothesis of pooled ordinary-square and go for random model.

Table 4: Random effect model

Variable	**Coefficient**	**t-Statistic**	**Prob.**
LNBS	0.234432	2.072339	0.0410
IR	-0.028973	-2.505969	0.0139
LM	0.017632	2.180445	0.0317
CR	0.115757	4.673842	0.0000
AQ	-0.103842	-4.417310	0.0000
C	0.024593	0.018721	0.9851
R-squared	0.356368		
Adjusted R-squared	0.322132		
F-statistic	10.40923		
Prob(F-statistic)	0.000000		
Durbin-Watson stat	1.164942		

Note: Results drawn from Eviews 12

To find random effect model is appropriate, further analysis has been performed to test the Hausman test.

Table 5: Apply Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.163774	5	0.0097

Note: Results drawn from eviews 12

The hausman test is carried out to choose between fixed effect model and random effect model. Since the calculation of probability value of 0.0097 is less than 0.05. Further analysis has been performed to test fixed model.

Table 6: Fixed effect model

Variable	Coefficient	t-Statistic	Prob.
LNBS	0.012809	0.086672	0.9311
IR	-0.001412	-0.080106	0.9363
LM	0.020450	0.932304	0.3538
CR	0.065423	2.144767	0.0348
AQ	-0.122173	-3.605118	0.0005
C	0.807577	0.409868	0.6829
R-squared	0.512309		
Adjusted R-squared	0.431983		
F-statistic	6.377895		
Prob(F-statistic)	0.000000		
Durbin-Watson stat	1.332310		

Note: Results drawn from Eviews 12

The established multiple linear regression equation becomes:

ROA=0.807577-0.122173AQ+0.020450CR+0.020450CLM-0.001412IR+0.012809BS

The probability of an independent variable assets quality is 0.0005, less than 0.05. So, AQ is a significant independent variable for this regression model. The probability of independent variable capital ratio is 0.0348, less than 0.05. So, CR is a significant independent variable for this regression model. The probability of independent variable cash reserve ratio 0.3538, more than 0.05. So, LM is not a significant independent variable for this regression model. The probability of an independent variable investment ratio is 0.9363, less than 0.05. So, IR is not a significant independent variable for this regression model. The probability of an independent variable Bank size is 0.9311, more than 0.05. So, bank size is not a significant independent variable for this regression model.

Independent variable will forecast 51.23% true value of dependent variable. The value of R-squared is0.512309, which explained the independent variables predicting 51.23% of the dependent variable. The value of adjusted R squared is0.431983, which means the independent variables cumulatively determine 43.19% of the dependent variables.

F statistic shows the combine effect on all independent variable in dependent variable. If probability of F-Stats is greater than 5% or 0.05 it means chances of error is high and we can conclude that combine effect in insignificant. On the other hand, if probability value of F-Stats is less than 5% or 0.05 it means combine effect is significant or considerable. The value of prob (F-statistic) is 0.000000 which is less than 5%, which means this model is fit.

Regression analysis with return on equity

Regression analysis has been conducted in order to determinants of profitability in commercial bank of Nepal. Assets quality, Capital Ratio, Investment Ratio, and Liquidity management is used as an independent variable and Return on Equity is used as dependent variable. Regression result is presented as follows;

$ROE = \beta_0+\beta_1LM+\beta_2IR+\beta_3CR+\beta_4AQ+\beta_5BS\ldots..$ (2)

Table 7: Breusch-Pagan test

	Cross-section	Test Hypothesis Time	Both.
Breusch-Pagan	0.038146 (0.8452)	0.024483 (0.8757)	0.062628 (0.8024)

Note: Results drawn from Eviews 12

If P value is greater than 5% then accept null hypothesis and go for pols. If P value is less than 0.05, reject the null hypothesis and go for fixed or random effect model. So, P>0.05 then go for pols.

Table 8: Panel Least Squares for ROE

Variable	Coefficient	t-Statistic	Prob.
LNBS	-3.865363	-0.506966	0.6134
IR	-0.297043	-0.062636	0.9502
LM	-0.297043	-0.566841	0.5722
CR	4.412458	2.623888	0.0101
AQ	-3.318945	-2.123909	0.0363
C	27.03035	0.300926	0.7641
R-squared	0.156720		
Adjusted R-squared	0.111865		
F-statistic	3.493898		
Prob(F-statistic)	0.006105		
Durbin-Watson stat	2.243675		

Note: Results drawn from Eviews 12

The established multiple linear regression equation becomes:

ROE=27.03035 -3.318945AQ+4.412458CR-0.297043LM-0.048503IR-3.865363BS

The probability of an independent variable assets quality is 0.0363, less than 0.05. So, AQ is a significant independent variable for this regression model. The probability of independent variable capital ratio is 0.0101, less than 0.05. So, CR is a significant independent variable for this regression model. The probability of independent variable cash reserve ratio 0.5722, more than 0.05. So, LM is not a significant independent variable for this regression model. The probability of an independent variable investment ratio is 95.02, more than 0.05. So, IR is not a significant independent variable for this regression model. The probability of an independent variable Bank size is 0.6134, more than 0.05. So, bank size is not a significant independent variable for this regression model.

Independent variable will forecast 15.67% true value of dependent variable. The value of R-squared is 0.156720, which explained the independent variables predicting 15.67% of the dependent variable. The value of adjusted R squared is0.111865, which means the independent variables cumulatively determine 11.18% of the dependent variables.

F statistic shows the combine effect on all independent variable in dependent variable. If probability of F-Stats is greater than 5% or 0.05 it means chances of error is high and we can conclude that combine effect in insignificant. On the other hand, if probability value of F-Stats is less than 5% or 0.05 it means combine effect is significant or considerable. The value of prob (F-statistic) is 0.006105 which is less than 5%, which means this model is fit.

Discussion

The relationship between Bank size and financial performance is found positive on ROA and negative on ROE but not significant. The negative relationship between Bank size and return on equity indicates that high bank size in commercial banks decreases the ROE which indicates financial performance. The positive relationship between Bank size and return on assets indicates that high bank size in commercial banks increases the ROA which indicates financial performance. A conclusion was further made that coefficient of bank size positively and significantly impacts bank performance (liu, 2011) [37]; (Jha *et al*. 2012) [16]; (Naded & Ratemo, 2011) [42]; (Jagongo & Njuguna, 2022) [14]. Chhetri (2021) [8] also concludes that there is negative impact of bank size on bank's performance.

Assets quality can be determined by looking at loss provisions, loan advances and NPLs. Assets quality ensures that loans are awarded to credit worth customers who can repay the loan. The relationship between Assets quality and financial performance is found negative and significant. The negative relationship between assets quality and financial performance indicates that high Assets quality in commercial banks decreases the financial performance. The study concluded assets quality negative and significant influences bank performance (liu, 2011) [37]; (Jha *et al*. 2012) [16]; (Naded & Ratemo, 2011) [42].

The relationship between investment ratio and financial performance is found negative but not significant. The negative relationship between investment ratio and financial performance indicates that high investment ratio in commercial banks decreases the financial performance. Budhathoki (2020) [7] found that negative relation between investment ratio and liquidity ratio to ROA. The relationship between investment ratio and financial performance is found positive and significant (Pradhan & Shrestha, 2016) [41].

The positive relationship between capital ratio and financial performance that high investment ratio in commercial banks increases the financial performance. Correlation between capital ratio on ROA and ROE is found to be positive indicating higher the capital ratio higher would be ROA and ROE (Pradhan & Shrestha, 2016) [41].

The relationship between LM and ROA is positive and ROE is negative. The correlation between return on equity and liquidity management ratio is found to be negative indicating higher the liquidity in the bank lower would be the return on equity and the correlation between return on assets and liquidity ratio is found to be positive indicating higher the liquidity in the bank higher would be the return on assets (Pradhan &Shrestha, 2016) [41]; (Pokharel, 2019) [40]. Gizaw, Kebede and Selvaraj (2015) [11] find that LM has a significant negative effect on ROE, but not on ROA.

Conclusion and implication

The study concludes that bank in order to design an effective liquidity risk management system need to establish a suitable liquidity environment, operating under the sound credit granting process, maintaining an appropriate liquid administrative that monitoring, processing as well as enough controls over liquid risk. Bank need to place and devise strategies that will not only limit the banks exposition on liquid risk but will develop performance and competitiveness of the banks.

Based on the findings, the study offers the following implications and it also includes recommendations.

All commercial banks are recommended to have a strong policy and strategy for loan review approval and monitoring before granting loans, thereby reducing non performing loans and mitigate liquidity risk. Excessive loans and advances increase the various risks such as aggravates liquidity maturity mismatch, increase in bad loans, etc. So, every banks need to maintain healthy relation between deposits and loans and advances. Bank should determine capital ratio such a way which attracts more depositors and debtors.

References

1. Ahmad AA. Impact of internal factors on bank profitability: Comparative study between Saudi Arabia and Jordan, Journal of Applied Finance & Banking,2009:4(1):125-140.
2. Ahmad SY, Kushwaha BP. Potential of film–induced tourism and its impact on destination development. Prabandhan Guru,2016:7(1-2):9-14.
3. Akinwumi IA, Essien J, Adegboyega R. Liquidity management and banks performance in Nigeria. Business Management and Economics,2017:5(6):88-98.
4. Ali Khan R, Ali M. Impact of liquidity on profitability of commercial banks in Pakistan: An Analysis on Banking Sector in Pakistan. Global Journal of Managemen and Business Research: C Finance,2016,53-60.
5. Alzorqan ST. Bank of performance: An empirical study of the banking system, in Jordan. Research Journal of Finance and Accounting,2014:5(12):155-164.
6. Amiri AM, Kushwaha BP, Singh RK. Visualization of Global Research Trends and Future Research Directions of Digital Marketing in Small and Medium Enterprises using Bibliometric Analysis, Journal of Small Business and Enterprise Development, Vol, 2023. ahead-of-print No. ahead-of-print. https://doi.org/10. 1108/JSBED-04-2022-0206
7. Budhathoki, *et al*. The Impact of liquidity, leverage, and total size on banks' profitability: Evidence from Nepalese commercial banks. Journal of Economics and Business,2020:3(2):545-555.
8. Chhetri GR. Effect of credit risk management on financial performance of Nepalese commercial banks. Journal of Balkumari College,2021:10 (1):19-30.
9. Chowdhury M, Zaman s. Effect of liquidity risk on performance of Islamic banks in Bangladesh. Journal of Economics and Finance (IOSR-JEF),2018:9(4):01-09. DOI: 10.9790/5933-0904010109
10. Eljelly A. The cyclical behavior of optimal bank capital, Journal of Banking and Finance,2004:28(3):1469-1498.
11. Gizaw M, Kebede M, Selvaraj S. The Impact of Credit Risk Management on Profitability Performance of Commercial Banks in Ethiopia. African Journal of Business Management,2015:9(2):59-66.
12. Hacini I, Boulenfad A, Dahou K. The impact of liquidity risk management on the financial performance of Saudi Arabian Banks. Emerging Markets Journal.2021:11(1):67-75. DOI 10.5195/emaj.2021.221.
13. Hasan N, Singh A, Agarwal M, Kushwaha BP. Evaluating the Role of Microfinance Institutions in Enhancing the Livelihood of Urban Poor, Journal of Economic and Administrative Sciences, Vol, 2022.

ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JEAS-09-2021-0175
14. Jagongo A, Wanjiru PN. Liquidity risk and financial performance of deposit taking savings and credit cooperative societies in kenya. International Journal of Finance and Accounting,2022:7(1):1-14.
15. Jensen MC. Agency costs of free cash flow, corporate finance, and takeovers. American Economic Review,1986:76:323-329.
16. Jha S, Hui X. A comparison of financial performance of commercial banks: A case study of Nepal. African Journal of Business Management,2012:6(25):7601-7611.
17. Kaur G, Kushwaha BP. Essential Aspects for the Development of Women Entrepreneurial Intention in India. Journal of Contemporary Issues in Business and Government,2021:27(1):2381-2388.
18. Kumar M, Yadav GC. Liquidity risk management in Bank: A conceptual framework. AIMA Journal of Management & Research,2013:5(7):1-12.
19. Kushwaha BP. Paradigm shift in traditional lifestyle to digital lifestyle in Gen Z: a conception of consumer behaviour in the virtual business world. International Journal of Web Based Communities,2021:17(4):305-320.
20. Kushwaha BP, Tyagi V, Sharma PB, Singh RK. Mediating role of growth needs and job satisfaction on talent sustainability in BPOs and call centres: An evidence from India. Journal of Public Affairs,2022:22(1):e2400.
21. Kushwaha BP, Maru FY. Management students' attitude towards entrepreneur and entrepreneurship, International Journal of Research in Management & Technology,2015:5(4):325-329.
22. Kushwaha BP, Rao NS. Globalization and rural consumers' buying behaviour. Synergy Journal of Management,2014:16(1-2):80-90. ISSN: 0973-922X.
23. Kushwaha BP. An empirical study on youth perceptions and preferences on smartphones. International Journal of Research in IT & Management,2015:5(10):82-90.
24. "Kushwaha BP. Consumer behaviour in telecom industry: a study w.s.r.t. value added services. International Journal of Multidisciplinary Empirical Research,2015:2(1):13-23."""
25. Kushwaha BP. The impact of influencing factors on purchase decision of consumer durable product. International Journal in Management and Social Science,2015:3(9):375-386.
26. Kushwaha BP. Sustainable offering practices through stakeholder's engagement. Journal of Innovation for Inclusive Development,2018:3(1):3-9. ISSN: 2456 - 4478.
27. Kushwaha BP. Personalised Digital Marketing Perspectives and Practices in Tourism Industry, PalArch's Journal of Archaeology of Egypt/Egyptology,2020:17(6):2029-2041.
28. Kushwaha BP, Singh VN. Incentives and obstacles to take entrepreneurship as a new career opportunity: a case of management students. Apeejay-Journal of Management Sciences and Technology,2018:6(1):36-44.
29. Kushwaha BP, Kaur G, Singh N, Sharma A. Integrating Employees, Customers and Technology to Build an Effective Sustainable Marketing Strategy, International Journal of Sustainable Society,2022:14(4):310-322.
30. Kushwaha BP, Rao NS, Ahmad SY. The factors influencing consumer buying decision of electronic products. Management Dynamics,2015:15(1):5-15.
31. Kushwaha BP, Shiva A, Tyagi V. How Investors' Financial Well-Being Influences Enterprises and Individual's Psychological Fitness? Moderating Role of Experience under Uncertainty, Sustainability,2023:15(2):1699. https://doi.org/10.3390/su15021699
32. Kushwaha BP, Singh RK, Tyagi V. Investigating Privacy Paradox: Consumer Data Privacy Behavioural Intention and Disclosure Behaviour, Academy of Marketing Studies Journal,202125(1):1-10.
33. Kushwaha BP, Singh RK, Varghese N, Singh VN. Integrating social media and digital media as new elements of integrated marketing communication for creating brand equity. Journal of Content, Community and Communication,2020:11(6):52-64. DOI: 10.31620/JCCC.06.20/05
34. Kushwaha BP, Tyagi V, Shiva A. Investigating the role of reinforcement and environmental factors in balancing the state of apprehension: evidence from India. World Review of Entrepreneurship, Management and Sustainable Development,2021:17(2/3):142-160.
35. Kushwaha BP, Tyagi V, Singh RK. Impact of Message Design on Display Ads Involvement and Effectiveness: An Evidence from India, Int. J. of Management Practice,202115(4):532-547.
36. Kushwaha Dr. BP, Tiwari Dr. DN. Demonetization and digital initiative for inclusive social and financial growth. Kaav International Journal of Economics, Commerce & Business Management,2018:5(1):34-38.
37. Liu HA. Determinants of commercial banks performance: Evidence from Jordan. International Research Journal of Finance and Economics,2011:5(5):19-45.
38. Muteti SR. Relationship between financial risk management and financial performance of commercial banks in Kenya. University of Nairobi, MBA Project, 2012.
39. Naji K, Hamad A. Liquidity risk and its impact on the profitability of commercial banks An applied study on a sample of commercial banks in Iraq. Journal of Baghdad College of Economic Sciences,2017:52:401-416.
40. Pokharel SP. Impact of liquidity on profitability in Nepalese Commercial Bank. Patan Pragya,2019:5(1):180-187.
41. Pradhan SR, Shrestha D. Impact of liquidity on bank profitability in Nepalese commercial banks. Nepalese Journal of Business, 2016, 1-14.
42. Ratemo SK, Ndede FWS. Liquidity Risk and Financial Performance of Commercial Banks in Kenya. Journal of Finance and Accounting,2021:5(1):113-128.
43. Rubel, Kushwaha. Increasing the Efficiency and Effectiveness of Inventory Management by Optimizing Supply Chain through Enterprise Resource Planning Technology, EFFLATOUNIA- Multidisciplinary Journal,2021:5(2):1739-1756.
44. Shafiq A, Nasr M. Risk management practices followed by the commercial banks in Pakistan. International Review of Business Research Papers,2010:6(2):308-325. Retrieved from

file:///C:/Users/user/Downloads/Risk_Management_Practices_Followed_by_the_Commerci.pdf
45. Singh RK, Kushwaha BP. The Influence of Digital Media Marketing and Celebrity Endorsement on Consumer Purchase Intention, Journal of Content, Community & Communication,202114(7):145-158. DOI: 10.31620/JCCC.12.21/12.
46. Singh RK, Kushwaha BP, Tyagi V. Essential Aspects for the Development of Women Entrepreneurial Intention in India. Journal of Contemporary Issues in Business and Governmen,2021:27(1):2326-2339.
47. Singh SK, Niroula B. Effect of liquidity on financial performance of Nepalese commercial banks. NCCS Research Journals, 2021, 16-26.
48. Vossenand D. Theoretical framework of profitability as applied to commercialbanks in Malaysia. European Journal of Economics, Finance and Administrative Sciences,2010:19(9):75- 97.
49. Wasiuzzaman S, Tarmizi H. Profitability of Islamic banks in Malaysia: Anempirical analysis. Journal of Islamic Economics, Banking and Finance,2010:6(4):53-68.