

Received: July 2021	Received in revised form: September 2021	Accepted: November 2021
---------------------	--	-------------------------

Effect of Liquidity on Financial Performance of Nepalese Commercial Banks

- Ballav Niroula¹
- Dr. Sanju Kumar Singh²

Abstracts

The main aim of this research is to explore the effect of liquidity on financial performance of commercial banks in Nepal. The study used correlation and regression analysis to analyze and interpret the result. This research used secondary data from 2015/016 to 2019/020. 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. Moreover, variables LDR has negative and significant effect on both ROA and ROE. In addition, variable LR has positive and significant effect on ROA and negative and significant effect on ROE. The finding shows that the CAR has highly significant and negative effect on ROE, it means that in Nepalese financial market equity are less profitable. 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.

Key Words: Capital Adequacy Ratio, Cash Reserve Ratio, Liquidity Ratio, Loan to Deposit Ratio, Return on Assets, Return on Equity

Introduction

Bank plays an important role to provide facilities by their financial activities and generate profit. The banking in all around the world contributing each country economic development as financial services provider. Geographically Nepal is land lock country though economic growth is growing so far smoothly. Banking in Nepal economy plays vital role to national economic development. Most of youths goes Gulf countries and other countries where they can

¹ Mr. Niroula is an Assistant Professor of Management, Patan Multiple Campus, TU, Nepal

² Dr. Singh is an Assistant Professor of Universitas Airlangga, Indonesia

get job and generate money and they transfer money in Nepal to their respected family as remittance become one of major source of income for financial sector in Nepal (Budhathoki et al. 2020). Sound financial health for banking is one of the indicators that generating profit. Moreover, banks financial performance matters for every bank especially commercial banks. The liquidity position of banks became a major challenge in worldwide and it has serious effect so far bankrupt. Liquidity is one of the factor that trigger to profit decrease and increase of banks. Hertina et. al. (2021) found that the liquidity ratio is used to measure a company's ability to meet short-term obligations. In banking, Liquidity concern is a level of strength of financial institutions, especially in the banking industry (Assfaw, 2019).

In Nepalese banking sector Liquidity is quite volatile over the period. Current condition of liquidity of Nepalese banking need to reduce through reliable financial market policy. Moreover, the liquidity and bank profitability shows strong effect in financial performance Nepalese commercial banks (Jha, 2012). For stable banking sector need stable economy of the country (Baral, 2007). Furthermore, it indicate that liquidity is one of factor that have impact in Nepalese commercial banks. This research tries to explore regarding liquidity effect on financial performance of Nepalese commercial banks. This research used liquidity variables Capital Adequacy Ratio, Cash Reserve Ratio, Liquidity Ratio, Loan to Deposit Ratio and as dependent variable financial performance Return on Assets (ROA) and Return on Equity (ROE).

Past literature shows that banking profitability in each country or cross-country widely used return on assets (ROA) and return on equity (ROE) as indicators as dependent variable to measured profitability. Bourke (1989) studied on profitability of banking ROA and ROE as performance measures. Zeitun (2012) studied the profitability of commercial banks on Gulf Cooperation Council (GCC) countries used ROA and ROE as performance measures as well. Most of the past studies used ROA and ROE as dependent variable to measure bank profitability. This research attempt to explore the banks financial performance as ROA and ROE are dependent variables. This study explores the factors of liquidity variables affect to the performance of the Nepalese commercial banks.

To examine the effect of liquidity on financial performance of commercial banks in Nepal, the research has been divided into seven section as introduction, literature review, operational definition of variables, methodology, result and discussion, conclusion and references.

Literature Review

Liquidity and Bank Profitability

Liquidity is often considered one of the important determinants of the bank's profitability. One of major objective of commercial bank is to maximize the wealth of shareholders. One of the curial points is to maintain optimal level of liquidity. In regard profitability of firm liquidity play vital role to fulfill the short-term obligation. Therefore, the liquidity have an important role to both shareholders and investors in terms of taking decision (Demirgünes, 2016). To achieve the financial goal, the firm need to be reduce the risk of short term obligation. Abbas et. al., (2019) explored the bank liquidity on the profitability of commercial banks in the post-crisis period between 2011 and 2017 in the Asian developed economies in the comparison with the USA banking industry. The study shows that the liquidity has strong influence on profitability as compared to other variables. In this research, liquidity ratio is considered as one of independent variable to determine the financial performance of the commercial banks in Nepal.

Capital Adequacy Ratio and Bank Profitability

Financial strength of the bank can be measured by the availability of capital in it. Banks can manage unforeseen losses, if they have adequate capital available with them. Adequacy of capital determines the financial soundness of the bank and less chances of failure of the bank. Capital adequacy ratio in their study showed the positive relationship on profitability (Suganya and Kengatharan, 2018). Ahmad and Ariff (2008) explored that the more capital implies a bigger cushion to avoid failure resulting from high risk. Athanasoglou et al. (2008) found that the capital and profitability are directly related. Srairi (2009) found GCC countries Capital and profitability has positive relation. However, well-capitalized banks are considered safer since they take less risk, and so, according to financial theory, pay lower returns, a negative relationship between profitability and the high capital ratio might be expected. Saona (2016) found that profitability and capital adequacy are inversely related.

Cash Reserve Ratio and Bank Profitability

To operate commercial banks smoothly need reserve required by law to hold a certain percentage of their deposits (Oganda et. at., 2018). Brahmaiah and Ranajee (2018) found that Indian central banks reforms regarding cash reserve ratio for private commercial banks and liberalization for foreign players. Oganda et al., (2018) studied cash reserve ratio on

performance of commercial banks in Kenya. Cash reserve showed a strong negative relationship with return on equity, indicating a significant negative relationship with Equity Bank's performance. As per the research, banks should minimize their cash reserves. Moreover, investment in productive investments, diversify their funding sources, and diversify their investments of these funds. In this research, cash reserve ratio expected to have both negative and positive effect on financial performance.

Loan to Deposit Ratio and Bank Profitability

Liquidity of respected banks or firms consider to be ability to meet all its obligations. The banks need to repay its depositors and full fill the all of transaction without delay. In banking sector, liquidity issues consider to be important because its smoothness build public trust (Anggari & Dana, 2020). Rosyid and Irawan Noor (2018) stated that the Loan to Deposit Ratio is how far the bank's ability to repay the withdrawal of funds. Loan to deposit ratio is one of important ratio that measure the liquidity condition of banks. Kusumastuti and Alam (2019) found that LDR has negative effect and has no significant effect on profitability. Rosyid and Irawan Noor (2018) also found that LDR has significant effect on profitability of commercial banks. This research expected LDR have both negative and positive affect on profitability of commercial banks.

Operational Definition of Variables

Variable	Definition	Formula
ROA	Net profit generation by banks or company through using respected banks assets.	$ROA = \frac{\text{Net Profit after tax}}{\text{Total Assets}}$
ROE	Net profit generation by banks or company through using respected banks equity.	$ROE = \frac{\text{Net Profit after tax}}{\text{Total Equity}}$
Liquidit y Ratio	The company ability to meet its short-term debt	$CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$
CAR	Capital adequacy ratio is calculated by dividing a bank's capital by its risk-weighted assets. The capital used to calculate the capital adequacy ratio is divided into two tiers.	$CAR = \frac{\text{Total capital}}{\text{Risk weighted assets}}$
LDR	The bank ability to replay depositors repay.	$LDR = \frac{\text{Total Loan}}{\text{Total Deposit}}$

CRR The amount reserve in banks according to central authority.
 CRR = Deposit X Reserve Ratio

Measurement of Variables

Variables	Measurement Definition	Acronym	Expected Sign
Return on Assets	Net profit to total assets	ROA	
Return on Equity	Net profit to shareholders equity	ROE	
Cash Reserve Ratio			-
Capital Adequacy Ratio	Shareholders fund to total risk weighted assets	CAR	+
Loan to Deposit Ratio	Total Credit to Deposits		-
Liquidity Ratio			-

Methodology

This research used secondary data over the period 2015/2016- 2019/2020. The data for this research has been collected from annual report of commercial banks of Nepal. Total 20 commercial banks have taken for this study as a sample. The data used in this research is balance panel data. The random sampling techniques has been applied to select the sample. To explore the relationship of liquidity on financial performance this research applied statistical tools, correlation and regression analysis. To show the effect of liquidity on financial performance, this research used CAR, LDR, CRR and LR independent variables. ROA and ROE research as outcome variables. To analyze the data statistical software SPSS version – 23 has been used.

The proposed econometric model for this study is expressed as:

$$y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 \dots \dots \dots + \varepsilon \dots \dots \dots (1)$$

Where,

Y = dependent variable

α = constant

β = coefficient of explanatory variables

X = vector of explanatory variable

e = error term.

The study uses the following econometric model.

$$ROA = \beta_0 + \beta_1 CRR + \beta_2 CAR + \beta_3 LDR + \beta_4 LR + e^t \dots\dots\dots I$$

$$ROE = \beta_0 + \beta_1 CRR + \beta_2 CAR + \beta_3 LDR + \beta_4 LR + e^t \dots\dots\dots II$$

Where, ROA = Return on Assets

CRR = Cash Reserve Ratios

ROE = Return on Equity

CAR = Capital Adequacy Ratio

e^t = Error terms

LR = Liquidity Ratio

$\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 = Slope of the coefficient.

Results and Discussion

In this section of the research is to determine the empirical testing through correlation and regression analysis.

Table 1. *Correlation Metrix of Liquidity and Financial Performance*

	ROA	ROE	CRR	CAR	LDR	LR
ROA	1					
ROE	0.46	1				
CRR	0.32	0.29	1			
CAR	0.04	-0.21	0.13	1		
LDR	-0.24	-0.25	-0.04	-0.07	1	
LR	0.05	-0.14	-0.01	-0.16	0.04	1

Note: Annual report.

Table 1 presents the correlation between liquidity and financial performance. The value of ROA and CRR is 0.32 which have positive relationship. In regard ROA and CAR has positive relation and the value is 0.04. In other words, the ROA and LDR has negative relationship and

the value is -0.04. In addition, ROA and LR has positive relation relationship with value 0.05. Furthermore, ROE and CRR has positive relationship with value 0.29 but ROE and CAR, LDR and LR have negative relationship with value -0.21, -0.25 and -0.14 respectively.

Table 2 *Regression Coefficient of ROA and Liquidity Indicators.*

	Unstandardized				Collinearity Statistics	
	B	Std. Error	T	Sig.	Tolerance	VIF
(Constant)	2.172	.879	2.470	.015		
CRR	.020	.006	3.125	.002	.980	1.020
CAR	.001	.019	.039	.009	.950	1.052
LDR	-.015	.006	-2.295	.024	.994	1.006
LR	.004	.005	.773	.001	.972	1.029
Adj. R² = 0.385		F. Stat. = 4.094		F. Sig. = 0.004		D.W. = 1.037

Dependent variable: ROA

Table 2 shows the regression coefficient of liquidity indicators and ROA. Variance inflation factors of all dependent and independent variables are less than 5, it indicates that there is no multicollinearity between the independent variable. In a regression model, this means that one independent variable may be predicted from another independent variable. D.W. values of the variables are 1.037 which explains that there is a positive autocorrelation. (Durbin, J., & Watson, G. S. 1951). Adjusted R² is 0.385 which means that the selected independent variables explain 38.5% for dependent variables ROA and ROE. The regression model is fit because F. sig. value is 0.004 which is less than 0.05.

All independent variables have significant effect on financial performance of commercial banks in Nepal at 95% confidence interval because p – value of all independent variables have less than 0.05. there is a statistically positive and significant effect of cash reserve ratio (CRR), capital adequacy ratio (CAR) and liquidity ratio (LR) on return on assets (ROA). This result is consistent to the result of (Akhter, 2018) and contradict with the (Bordeleau, É., & Graham, C. 2010). The result also shows that there is a significant negative effect of loan to deposit ratio (LDR) on the ROA. This result is consistent with (Madushanka & Jathurika, 2018) and (Ozili, 2017).

The ROA model can be expressed as:

$$ROA = 2.172 + 0.02 \text{ CRR} + 0.001 \text{ CAR} - 0.015 \text{ LDR} + 0.004 \text{ LR} + e^t$$

Table 3. *Regression Analysis of ROE and Liquidity.*

	Unstandardized		T	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	45.065	8.301	5.429	.000		
CRR	.215	.061	3.525	.001	.980	1.020
CAR	-.588	.180	-3.262	.002	.950	1.052
LDR	-.165	.061	-2.725	.008	.994	1.006
LR	-.091	.047	-1.926	.051	.972	1.029
Adj. R² = 0.638		F. Stat. = 7.344		F. Sig. = 0.000		D.W. = 1.528

Dependent variable: ROE

Regression coefficient of liquidity variables and ROE is presented in Table 3. The table shows CAR, LDR and LR have significant and negative effect on ROE at 5% level of significance, which describes that when CAR, LDR and LR of commercial banks in Nepal increases return on equity decreases. this result is consistent with the result of (Reschiwati et al., 2020) and opposite with the result of (Prasad & Prasad, 2019). There is a statistically positive and significant effect of CRR on ROE.

The F. Sig. value is 0.000, which means the ROE model of regression is fit at 5% level of significance. Adjusted R² value is 0.638, it indicates that 63.8% variance in the dependent variable ROE is explained by the liquidity variables. Durbin-Watson of the study is 1.528, which is less than 2 and inside the normal range. It explains, there is no autocorrelation between the independent variables. Now regression model can be expressed as:

$$ROE = 45.065 + 0.215 \text{ CRR} - 0.588 \text{ CAR} - 0.165 \text{ LDR} - 0.091 \text{ LR} + e^t$$

Conclusion

This research uses panel data to examine the effect of liquidity on the financial performance of commercial banks in Nepal. Cash reserve ratio of Nepalese commercial banks shows significant positive effect on ROA and ROE. It clarifies that CRR of commercial bank is good enough. Capital adequacy ratio result in ROA is positive and in ROE it shows statistically negative effect. It reveals that investment in Nepalese banks assets is better than equity. In

regard loan to deposit ratio in both model ROA and ROE has significant and negative effect. It specifies that the collected deposit of the commercial banks is not properly used to generate profit. In addition, variable liquidity ratio has positive and significant effect on ROA but negative significant on ROE. It indicates that the use of short-term securities trigger to profit but use of equity inverse effect. The findings of this study are considerable evidence for researcher and policy maker of financial institution. It could be argued that maintaining liquidity can increase the financial performance of commercial banks.

This study studied the liquidity effect on financial performance of commercial banks in Nepal only but the future researchers can apply the same model by using distinct liquidity related other variables in Development banks, Insurance companies, manufacturing companies and other financial institutions. Moreover, financial performance variable NIM and EPS can be used as outcomes variables in future research.

References

- Abbas, Faisal, Shahid I., and Bilal A. (2019). “The Impact of Bank Capital, Bank Liquidity and Credit Risk on Profitability in Postcrisis Period: A Comparative Study of US and Asia.” *Cogent Economics and Finance* 7(1).
- Ahmad, Nor H. B., and Mohamed A. (2008). “Multi-Country Study of Bank Credit Risk Determinants.” *International Journal of Banking and Finance* 5(1).
- Akhter, N. (2018). The Impact of Liquidity and Profitability on Operational Efficiency of Selected Commercial Banks in Bangladesh: *International Research Journal Publisher: Global Journals Online Year, 18*. <https://www.researchgate.net/publication/330224312>
- Anggari, N. S., and I. Made D. (2020). “The Effect of Capital Adequacy Ratio, Third Party Funds, Loan to Deposit Ratio, Bank Size on Profitability in Banking Companies on IDX.” *American Journal of Humanities and Social Sciences Research (AJHSSR)* 4(12):334–38.
- Assfaw, Abdu M. (2019). “Firm-Specific and Macroeconomic Determinants of Banks Liquidity: Empirical Investigation from Ethiopian Private Commercial Banks.” *Journal of Accounting Finance and Auditing Studies (JAFAS)* 5(2):123–45.
- Athanasoglou, Panayioti P., Sophocles N. Brissimis, and Matthaios D. D., (2008). “Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability.”

Journal of International Financial Markets, Institutions and Money 18(2):121–36.

- Baral, Keshar J. (2007). “Health Check-up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal.” *Journal of Nepalese Business Studies* 2(1):41–55.
- Bourke, Philip. (1989). “Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia.” *Journal of Banking and Finance* 13(1):65–79.
- Brahmaiah, Bezawada, and Ranajee. (2018). “Factors Influencing Profitability of Banks in India.” *Theoretical Economics Letters* 08(14):3046–61.
- Budhathoki, Prem B., Chandra K. R., Lamichhane K. P., Bhattarai G., and Rai A. (2020). “The Impact of Liquidity, Leverage, and Total Size on Banks’ Profitability: Evidence from Nepalese Commercial Banks.” *Journal of Economics and Business* 3(2).
- Demirgünes, Kartal. (2016). “The Effect of Liquidity on Financial Performance: Evidence from Turkish Retail Industry.” *International Journal of Economics and Finance* 8(4):63.
- Hertina, D., Diah A. V., Dahlia D. P., Annisa T. B., Siska N. O., Muhammad F. F., and Obsatar S. (2021). “Stock Price Impact of Liquidity, Solvency, and Profitability.” *Review of International Geographical Education Online* 11(5):932–42.
- Kusumastuti, Wahyu I., and Azhar A. (2019). “Analysis of Impact of CAR, NPF, BOPO on Profitability of Islamic Banks (Year 2015-2017).” *Journal of Islamic Economic Laws* 2(1):30–59.
- Madushanka, K. H. I., & Jathurika M. (2018). "The Impact of Liquidity Ratios on Profitability (With special reference to Listed Manufacturing Companies in Sri Lanka). *International Research Journal of Advanced Engineering and Science*, 3(4), 157–161.
- Oganda, Aloys J., Vitalis A. M., and Simeyo O. (2018). “Effect of Cash Reserves on Performance of Commercial Banks in Kenya: A Comparative Study between National Bank and Equity Bank Kenya Limited.” *International Journal of Academic Research in Business and Social Sciences* 8(9):685–704.
- Ozili, P. K. (2017). Bank Profitability and Capital Regulation: Evidence from Listed and non-Listed Banks in Africa. *Journal of African Business*, 18(2), 143–168. <https://doi.org/10.1080/15228916.2017.1247329>

- Prasad, S., & Prasad, B. (2019). *Impact of liquidity on profitability in Nepalese Commercial Bank* (Issue 1).
- Reschiwati, R., Syahdina, A., & Handayani, S. (2020). Effect of liquidity, profitability, and size of companies on firm value. *Utopia y Praxis Latinoamericana*, 25(Extra 6), 325–332. <https://doi.org/10.5281/zenodo.3987632>
- Rosyid, P. I., and Irawan N. (2018). “Effect of Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR) and Return on Equity (ROE) on Share Price PT Bank Danamon Indonesia, Tbk.” *International Journal of Business and Applied Social Science (IJBASS)* 4(1):87–101.
- Saona, Paolo. (2016). “Intra-and Extra-Bank Determinants of Latin American Banks’ Performance.” *Revista Mexicana de Economía y Finanzas* 11:1–27.
- Srairi, Samir A. (2009). “Factors Influencing the Profitability of Conventional and Islamic Commercial Banks in GCC Countries.” *Review of Islamic Economics* 13(1):5–30.
- Suganya, Jeyan S., and Kengatharan L. (2018). “Impact of Bank Internal Factors on Profitability of Commercial Banks in Sri Lanka: A Panel Data Analysis.” *Journal of Business Studies* 5(1):61.
- Jha S. (2012). “A Comparison of Financial Performance of Commercial Banks: A Case Study of Nepal.” *African Journal of Business Management* 6(25):7601–11.
- Zeitun, Rami. (2012). “Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis.” *Global Economy and Finance Journal* 5(1):53–72.