Original Article

LIQUIDITY MANAGEMENT AND FINANCIAL PERFORMANCE OF NEPALESE COMMERCIAL BANKS

Shreeram Sah* Dr. Hatairat Lertjanyakit*

ABSTRACT

This study investigates the impact of liquidity management on the financial performance of Nepalese commercial banks. The study finds that LR has significant positive relationship with market value of financial performance, whereas CRR has significant negative relationship with market value of financial performance. The results also revealed that CDR and LR has significant negative relationship with book value of financial performance, whereas capital adequacy ratio has positive significant relationship with book value of financial performance.

Key Words: *Tobin's Q (TQ), Net worth per share (NWPS), Credit-Deposit Ratio (CDR,) Capital Adequacy Ratio (CAR), Liquidity Ratio (LR), Cash Reserve Ratio (CRR).*

1Introduction

Liquidity management is a concept that is receiving serious attention all over the world especially with the current financial situations and the state of the world economy (Ibe, 2013). Some of the striking corporate goals include the need to maximize profit, maintain high level of liquidity in order to guarantee safety, attain the highest level of owner's net worth coupled with the attainment of other corporate objectives. The importance of liquidity management as it affects corporate performance in today's business cannot be over emphasized. The crucial part in managing working capital is required maintenance of its liquidity in day-to-day operation to ensure its smooth running and meets its obligation (Eljelly, 2004).

Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term compulsions. Shortfall in liquidity results in bad credit ratings, and finally it may result in the closure of the company. At the same time a very high degree of liquidity is also bad, as idle assets earn nothing. A study of liquidity is of major importance to both the internal and the external analysts because of its close relationship with day-to-day operations of a business (Bhunia, 2012). It is the ability of banks to change their assets into cash in a shortest possible time.

Liquidity is a financial term that means the amount of capital that is available for investment. Bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations. It is the bank's ability to immediately meet cash,

* MBA Student, Global College International

* Faculty, School of Management, Shinawatra University

cheques other withdrawals obligations and legitimate new loan demand while abiding by existing reserve requirements (Ibe, 2013). Nwaezeaku (2006) defined liquidity as the degree of convertibility to cash or the ease with any asset can be converted to cash (sold at a fair market price).

Nwankwo (2004) explained that the banking liquidity management is simply to meet financial commitment whether it is withdrawing from a current account or interbank deposit or a maturing issue of commercial paper. Bank liquidity refers to the ability of a bank to raise certain amount of funds at a certain cost within a certain period of time to discharge obligations (Andabai & Bingilar, 2015).

Liquidity signifies the aptitude of a financial firm to keep up all the time a balance between the financial inflow and overflow over time (Vento & La Ganga, 2009). A company that cannot pay its creditors on time and continue not to honor its obligations to the suppliers of credit, services, and goods can be declared a sick company or bankrupt company. Inability to meet the short-term liabilities may affect the company's operations and, in many cases, it may affect its reputation too. Lack of cash or liquid assets on hand may force a company to miss the incentives given by the suppliers of credit, services, and goods. Loss of such incentives may result in higher cost of goods, which in turn affect the performance of the business.

In order to pay current debts, liquidity management is very important for each business organization. Thus, the business and financial institutions should be able to maintain sufficient level of liquid assets such as cash in hand and cash at bank to meet the payment obligations. Liquidity ratios work with cash and near-cash assets of a business on one side and the immediate payment obligations on the other side. If the coverage of the current liabilities by the cash and near-cash is insufficient, it indicates that the business might face difficulties in meeting its immediate financial liabilities. High volume of liquid assets can affect the business operations and profitability of the organizations. Thus, there exists a trade-off between liquidity and profitability (Saleem & Rehman, 2011).

The discussion about the relationship between corporate liquidity management and performance is a crucial for both corporate financial managers and practitioners because of its importance to corporate existence and development. Liquidity plays a crucial role in the successful operation of a banking business. Every stakeholder is interested in the liquidity position of a bank. Thus, banking firm should safeguard that it does not hurt from lack of or excess liquidity to cover up its short-term obligations (Kurawa & Abubakar, 2014).

The commercial banks play mediation role by absorbing financial surpluses from their holders (depositors) and put them at the disposal of investors (borrowers) to be directed towards various investment channels (Alshatti, 2015). This investment activity carried out by the bank is hardly devoid of risks and problems, because the bank is seeking to maximize its expected profits on these investments. This requires optimum utilization of the available resources, since the bank is exposed at any moment to meet the obligations of its clients and depositors who want to withdraw their savings, and so the bank should be ready to meet these demands at any time. Therefore, each commercial bank should work to maximize its profits, and at the same time be able to meet the financial requirements, in order to achieve a balance between the performance and liquidity. The problem arises when the commercial banks try to maximize their profit at the expense of neglecting the liquidity, which may cause a technical and financial hardship with the consequent withdraw of deposits (Ali, 2015)

The problem then becomes how to select or identify the optimum point or the level at which a commercial bank can maintain its

assets in order to optimize these two objectives since each of the liquidity has a different effect on the level of performance. This problem becomes more pronounced as good numbers of commercial banks are engrossed with profit maximization and as such they tend to neglect the importance of liquidity management. However, the profit maximization becomes a myth as the resulted liquidity can lead to both technical and legal insolvency with the consequence of low patronage, deposit flight, erosion of asset base (Olagunju et al., 2011).

Liquidity management has been taken as an important tool to analyze the sustainability and liquidity position of any enterprise that may also help any organization to derive maximum profits at minimum cost. A company must maintain its ability to pay off its current obligations and have a sound base of working capital to stay for a long in the competitive market. The management of working capital is an important aspect to be considered for attaining sound liquidity position (Sharma, 2011).

In the context of Nepal, (Joshi, 2004) found that liquidity is positively related to bank performance. Liquidity indicators of joint venture banks showed that they have stored high level of liquidity and are not facing the liquidity deficit problem, instead they are facing the liquidity problem (Baral, 2005).

Poudel (2012) examined the impact of the credit risk management in bank's financial performance in Nepal. The study concluded that commercial banks are not giving more focus on credit risk mitigation that could help them to increase their eligible capital components, which is another cause that some of the commercial bank have lower capital adequacy. Rana (2014) found that both stock market size and liquidity can predict the economic growth of Nepal. The study also concluded that stock market size and liquidity are co-integrated with economic growth of Nepal and hence they are interrelated with each other in the long run.

The above discussion shows that the study related to the liquidity management and performance of banks are of great importance. Though there are these findings in the context of different countries, no such findings using more recent data exist in the context of Nepal. Hence, this study focuses on analyzing the effect of the liquidity management on performance in context of Nepalese commercial banks.

Research Methodology

This study has employed quantitative research techniques such as descriptive, correlation and causal comparative research design based on secondary data analysis to deal with issue raised in this study that influence the financial performance of selected commercial banks in the context of Nepal. The descriptive research design helps in a fact finding, searching for adequate information about bank liquidity and financial performance of Nepalese commercial banks. Such designs involve the systematic collection and presentation of data to give clear picture of situation. To describe the nature of data of the commercial banks consisting of 130 observations during fiscal year 2006/07 through 2015/16 descriptive statistics is used with respect to variables like Tobin's Q, net worth per share, credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio.

This study also employs casual comparative research design to analyze the effect of the liquidity management on financial performance of Nepalese commercial banks. Causal comparative research designs help to determine the cause and effect relationship between the different dependent (financial performance) and independent variables (liquidity management).

In order to examine the effect of the liquidity management on financial performance of

Nepalese commercial banks, this study contains a sample of 13 commercial banks of Nepal whose respective data are collected from the time period of 2006/07 to 2015/16 leading to a total of 130 observations. The selection of thirteen banks is based on convenient sampling.

This study is based on secondary data. The variables used in the study are categorized into credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio with Tobin's q and net worth per share. The secondary data used are of annual in nature. The secondary data and information have been collected from Banking and Financial Statistics of NRB and annual reports of the selected commercial banks. Also, the data for market value of the commercial banks used for calculation of Tobin's Q is collected from the NEPSE website. The secondary data consists of financial data of commercial banks during the sample period of 2006/07 to 2015/16 covering the period of 10 years.

Research Model

As per the research study, two models have been developed which states that Tobin's Q and Net worth per share are dependent on independent variables such as credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio. Regression model is designed to test the hypothesis that there is a significant relationship between liquidity management and financial performance of commercial banks. The model generated for the study expressed in the regression equation model is presented below

More specifically, the given model has been segmented into following models:

Model -1

$$TQ_{it} = \beta_0 + \beta_1 CDR_{it} + \beta_2 CAR_{it} + \beta_3 LR_{it} + \beta_4 CRR_{it} + e_{it}$$

Model -2

$$NWPS_{it} = \beta_0 + \beta_1 CDR_{it} + \beta_2 CAR_{it} + \beta_3 LR_{it} + \beta_4 CRR_{it} + e_{it}$$

Where,

β_0 is the constant term and β is coefficient of variable

TQ = Tobin's Q

NWPS = Net worth per share

CDR = Credit Deposit ratio

CAR = Capital adequacy ratio

LR = Liquidity ratio

CRR = Cash Reserve Ratio

e_{it} = Error term

Hypothesis

H1 : There is a significant relationship between credit-deposit ratio and bank performance.

H2 : There is a significant relationship between capital adequacy ratio and bank performance.

H3 : There is significant relationship between liquidity ratio and bank performance.

H4 : There is significant relationship between cash reserve ratio and bank performance.

Results

Pearson's correlation analysis between study variables

Pearson correlation coefficients are computed which states whether there is positive relation or negative relation among the two variables. More specifically, it shows the correlation coefficients of dependent and independent variables for Nepalese commercial banks.

Table 1

Correlation between Dependent and Independent Variables of Model 1

Variables	TQ	CDR	CAR	LR	CRR
TQ	1				
CDR	-.289**	1			
CAR	0.074	-0.043	1		
LR	0.137	.333**	.397**	1	
CRR	-.196*	-0.155	0.061	0.094	1

Notes. *Author's calculation through SPSS*

The asterisk signs (**) and (*) indicate that the results are significant at 1 percent and 5 percent level respectively

Result Table 1 shows the Pearson correlation coefficients of dependent and independent variables for Nepalese commercial banks. The result shows that credit-deposit ratio is negatively correlated to Tobin's Q. This means that higher the credit-deposit ratio, lesser would be the Tobin's Q and lesser the credit-deposit ratio higher would be Tobin's Q. However, capital adequacy ratio and liquidity ratio are positively correlated to Tobin's Q. This means higher the capital adequacy ratio and liquidity ratio, higher would be the Tobin's Q. Again, here the capital reserve ratio is negatively correlated to Tobin's Q. It indicates that with the increase in capital reserve ratio leads to decrease in Tobin's Q and vice versa.

Table 2

Correlation between Dependent and Independent Variables of Model 2

Variables	NWPS	CDR	CAR	LR	CRR
NWPS	1				
CDR	-.452**	1			
CAR	.543**	-0.043	1		
LR	-0.078	.333**	.397**	1	
CRR	-0.017	-0.155	0.061	0.094	1

Notes. *Author's calculation through SPSS*

The asterisk signs (**) show that the results are significant at 1 percent

Result Table 2 shows that there is negative relationship between credit-deposit ratio, liquidity ratio and cash reserve ratio. It indicates that higher the credit-deposit ratio, liquidity ratio and reserve ratio lower would be the net worth per share and vice versa. On other hand, capital adequacy ratio is positively correlated with net worth per share. It indicates with the increase in capital adequacy ratio there would be increase in net worth per share also and vice versa.

Regression Analysis

Hausman test is used to determine whether fixed-effect model or random-effect model is to be selected. In Hausman test, null hypothesis is: Random effect model is appropriate whereas alternate hypothesis is: Fixed effect model is appropriate.

H_0 = Random effect model is appropriate.

H_1 = Fixed effect model is appropriate.

Table 3

Hausman Test Result of Model 1

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	23.00856	4	0.0001

Notes. Author's calculation through Eviews

Since p-value is less than 10%, alternate hypothesis is selected. It means that fixed-effect model is appropriate for the study.

Having indicated the Pearson correlation coefficients, the regression analysis has been carried out with Eviews and the summary is presented in Table 4. More specifically, it shows the regression summary of credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio on Tobin's Q.

Table 4

Regression summary of Model 1

R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob(F-statistic)
0.550039	0.486328	0.199332	8.633301	0.0000

Notes. Author's calculation through Eviews

Result The above Table 4 shows that R-squared has a value of 0.550039 which means that the model is capable of explaining 55.0039% of the variability in the dependent variable. It can also be said that 55.0039% of variations in the Tobin's Q (i.e. dependent variable) is explained by the independent variables selected (credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio). This result is complimented by the adjusted R-squared of about 48.6328%, which in essence is the proportion of total variance that is explained by the model. Also, the table shows that prob (F-statistic) is less than 10%, which states that model considered is significant.

Table 5

Fixed regression model of Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.326354	0.225608	1.446557	0.1508
CDR	0.003426	0.002643	1.29655	0.1974
CAR	0.000133	0.004327	0.030649	0.9756
LR	0.001415	0.00078	1.814897	0.0722*
CRR	-0.013548	0.004443	-3.049243	0.0029*

Notes. Author's calculation through Eviews

The asterisk signs (*) show that the results are significant at 10 percent

Result Table 5 shows that liquidity ratio and cash reserve ratio have p-value of 0.0722 and 0.0029 respectively which are less than 0.1000 unit it shows that liquidity ratio and cash reserve ratio are significant to Tobin's Q. Liquidity ratio has a coefficient value of 0.001415 which shows that it is positive effect on Tobin's Q and with 1-unit change in liquidity

ratio, it would increase Tobin's Q by 0.001415 unit. Cash reserve ratio has a coefficient value of -0.013548 which means that cash reserve ratio has a negative effect on Tobin's Q and with every 1-unit change in cash reserve ratio, Tobin's Q would decrease by 0.013548 unit. Now credit-deposit ratio has a p-value of 0.1974 which shall be considered insignificant as it more than 0.1000 unit. Capital adequacy ratio shall also be considered insignificant as it also has the p-value of 0.9756 as it is more than 0.1000 unit.

Table 6

Hausman Test Result of Model 2

Test Summary	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.066774	4	0.5467

Notes. Author's calculation through Eviews

Since p-value is more than 10%, null hypothesis is selected. It means that random effect model is appropriate for the study. Table 4.14 more shows the regression summary of credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio on net worth per share.

Table 7

Regression summary of Model 2

R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob(F-statistic)
0.625878	0.613907	41.35552	52.27899	0.0000

Notes. Author's calculation through Eviews

Result Table 7 shows that R-squared has a value of 62.5878%, which means 62.5878% of variations in the net worth per share (i.e. dependent variable) is explained by the independent variables selected (credit-deposit ratio, capital adequacy ratio, liquidity ratio and cash reserve ratio). This result is complimented by the adjusted R-squared of about 61.3907%. Also, the table shows that prob(F-statistic) is less than 10%, which states that model considered is significant.

Table 8

Fixed regression model of Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	152.5197	49.22062	3.098696	0.0024
CDR	-1.16297	0.530455	-2.192402	0.0302*
CAR	12.02689	0.894264	13.44892	0.0000*
LR	-0.589225	0.160616	-3.668533	0.0004*
CRR	-1.135622	0.91056	-1.247169	0.2147

Notes. Author's calculation through Eviews

The asterisk signs (*) show that the results are significant at 10 percent

Result Table 8 shows that credit-deposit ratio, capital adequacy ratio and liquidity ratio have p-value 0.0302 unit, 0.0000 unit and 0.0004 unit respectively it shows that credit-deposit ratio, capital adequacy ratio and liquidity ratio are significant to net worth per share. Credit-deposit ratio and liquidity ratio have a coefficient value of -1.16297 unit and -0.589225 unit respectively, this shows credit-deposit ratio and liquidity ratio have a negative relationship with net worth per share and with a 1 unit change in credit-deposit ratio there shall be 1.16297 unit decrease in net worth per share and with a 1 unit change in liquidity ratio there shall be 0.589225 unit decline in net worth per share. Capital adequacy ratio has a coefficient value of 12.02689 unit, this shows with a 1-unit change in capital adequacy ratio there shall be 12.02689 unit increase in net worth per share. Cash reserve ratio has p-value 0.2147 unit which is more than 10% which shall be considered insignificant.

Major Findings and Discussions

Liquidity ratio (LR) has a significant positive effect on Tobin's Q (TQ), which means bank liquidity and financial performance are positively related. In this context, Tamunosiki, Giami and Obari (2017) indicated a negative and significant relationship between cash reserve ratio and corporate performance while loan-to-deposit ratio and liquidity ratio are positively related to corporate performance albeit, significantly and insignificantly respectively, as here the author measured performance with return on shareholders' funds of Nigerian banks. Therefore, the result is consistent with the results obtained in other economy. Cash reserve ratio (CRR) has significant negative effect on Tobin's Q (TQ), which means bank liquidity and financial performance are negatively related. This maybe because increasing cash reserve ratio (CRR) by central bank, increases intermediation costs as the spreads between lending and deposit rates rises. In this context, Abid and Lodhi (2015) concluded that changes in cash reserve ratio (CRR) has an inverse impact on banks profitability. Therefore, the result is consistent with the study of other economy.

The panel data analysis of Model 2 showed that credit-deposit ratio (CDR) and liquidity ratio (LR) have significant negative relationship with book value of financial performance as measured by net worth per share (NWPS) whereas, capital adequacy ratio (CAR) has a positive significant relationship with book value of financial performance as measured by net worth per share (NWPS). Credit-deposit ratio (CDR) has significant negative effect on net-worth per share (NWPS), which means bank liquidity and financial performance are negatively related. In this context, Ramchandani and Jethwani (2017) revealed credit deposit ratio (CDR) affects negatively to net interest ratio, operating profit to total assets ratios, return on assets, return on earnings and return on investment of the banks. Therefore, the result is consistent with result obtained in other economy. liquidity ratio (LR) has significant negative effect on net-worth per share. This indicates that bank liquidity and financial performance are negatively related. In connection therewith, Samsuri (2017) indicates that liquidity has negative relationship with gain. Malik, Awais and Khursheed (2016) concluded that there is a negative relationship between the profitability ratio and the liquidity ratio. Sometimes, there may be weak positive relation between these ratios. Therefore, the result is consistent with results obtained in other economy. Capital adequacy ratio (CAR) has significant positive effect on net-worth per share (NWPS), it shows bank liquidity and financial performance are positively related. In this respect, Olalekan and Adeyinka (2013) revealed that capital adequacy relates positively to profitabilty of banks in Nigeria. For the primary data analysis it showed a non – significant relationship but the secondary data analysis showed a significant relationship. Gul, et al. (2011); Kosmidou (2008) show significant relationship between bank

profitability and capital adequacy. Therefore, the result is consistent with results obtained in other economy.

Conclusion

Based on the findings of the study over the period of 2006/07 to 2015/16 showed that liquidity ratio (LR) has significant positive effect on Tobin's Q (TQ), which means bank liquidity and market value of financial performance of selected Nepalese commercial banks are positively related. It indicates that higher the liquidity ratio (LR) higher would be the Tobin's Q (TQ). However, cash reserve ratio (CRR) has a significant negative effect on Tobin's Q (TQ), which means bank liquidity and market value of financial performance are negatively related. It indicates that change in cash reserve ratio (CRR) would lead to decline in Tobin's Q (TQ).

This study also concludes that capital adequacy ratio (CAR) has a significant and positive effect on net worth per share (NWPS), this shows bank liquidity and book value of financial performance of selected Nepalese commercial banks are positively related. It indicates higher the capital adequacy ratio (CAR) higher would be net worth per share. However, credit-deposit ratio (CDR) and liquidity ratio (LR) have negative effect on net worth per share (NWPS), which means bank liquidity and book value of financial performance are negatively related. This indicates with every change in credit-deposit ratio (CDR) and liquidity ratio (LR) would lead to decline in net worth per share (NWPS).

The major conclusion of this study is that financial performance of Nepalese of commercial banks is affected by liquidity management factors and its management based on the findings and analysis of this study.

Recommendations

The study observed a significant positive relationship between liquidity ratio and Tobin's Q whereas significant negative relationship between cash reserve ratio and Tobin's Q. Hence the banks willing to increase its market value financial performance should increase its liquidity ratio and decrease its cash reserve ratio.

The study observed a significant positive relationship between capital adequacy ratio and net worth per share whereas net worth per share has significant negative relationship with credit-deposit ratio and liquidity ratio. Hence the banks willing to increase its book value financial performance should increase its capital adequacy ratio and decrease its credit-deposit ratio and liquidity ratio.

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