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A Study on Liquidity Management of Commercial Banks in Nepal (With refrence to Samina bank ltd, Nabil bank ltd and Kumari Bank ltd)

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Abstract
The study examines the liquidity management through the comparative analysis of commercial banks namely MBL, CCBL and CBL from the period 2013/2014 to 2017/2018. The selection criterion is based on judgmental sampling. The independent variable includes CD ratio, CAR, NPL, and ROA. The dependent variable includes the liquidity ratio which is the measure of the most liquid assets of the banks. The analysis is done using the ratio analysis of the averages of the variables involves along with the descriptive and analytical analysis.
The ratio analysis shows that better liquidity position of all the three banks. This shows that they have more of the liquid assets to pay off its obligations. The CD ratio of sample banks is within bracket or less than 80% and they have been able to meet NRB requirement. The ROA along with CAR shows the insignificant positive relation with liquidity ratio.
*(**Key word:** liquidity, commercial bank, descriptive, analytical, ratio)*

I. Introduction

Liquidity also means the ability to finance the increase in assets and meet liabilities when they due fall without any unexpected losses, and so the efficient management of liquidity in the bank help to make sure that the bank is able to meet the incurred cash, which are usually uncertain and subject to external factors and to the behavior of other agents. The liquidity management is a vital factor in business operations. For the very survival of business, the firm should have requisite degree of liquidity. It should be neither excessive nor inadequate. Excessive liquidity means accumulation of ideal funds. Which may lead to lower profitability, increase speculation, and unjustified extension. Whereas inadequate liquidity result in interruptions of business operations. A proper balance between these two extreme situations therefore should be maintained for efficient operation of business through skill full liquidity management.

The focus of this study was to examine the effect of liquidity risk on financial performance of commercial banks in Nepal. The period of interest was between year 2005 and 2014 for all the 27 registered commercial banks in Nepal. Liquidity risk was measured by cash reserve ratio (CCR) and net stable funding ratio (NSFR) while financial performance by return on equity (ROE). Data was collected from commercial banks' financial statements filed with the Central Bank of Nepal. Panel data techniques of random effects estimation and generalized method of moments (GMM) were used to purge time-invariant unobserved firm specific effects and to mitigate potential endogeneity problems. Pair wise correlations between the variables were carried out. Wald and F- tests were used to determine the significance of the regression while the coefficient of determination, within and between, was used to determine how much variation in dependent variable is explained by independent variables. Findings indicate that NSFR is negatively associated with bank profitability both in long run and short run while CCR does not significantly influence the financial performance of commercial banks in Nepal both in long run and short run. However, the overall effect was that liquidity risk has a negative effect on financial performance. It is therefore advisable for a bank's management to pay the required attention to the liquidity management.

II. Literature Review

The International Accounting Standards (IFRS, 2006) indicate the fact that liquidity refers to the available cash for the near future, after taking into account the financial obligations corresponding to that period. Liquidity risk consist in the probability that the organization should not be able to make its payments to creditors, as a result of the changes in the proportion of long term credits and short term credits and the uncorrelation with the structure of organizations liabilities (Stoica, 2000)

Adebayo et al. (2011) examined liquidity management and commercial banks' profitability in Nigeria. Findings of this study indicate that there is significant relationship between liquidity and profitability. That means profitability in commercial banks is significantly influenced by liquidity and vice versa.

Nimer (2015) sought to reveal the relationship between liquidity and profitability. The main results of the study demonstrate that each ratio (variable) has a significant effect on the financial positions of enterprises with differing amounts and that along with the liquidity ratios in the first place.

Arif (2012) tested liquidity risk factors and assessed their impact on (22) of Pakistani banks during the period (2004-2009). Findings of the study indicate that there is a significant impact of liquidity risk factors on the banks profitability, where an increase in deposits lead to increasing in the bank's profitability in terms of reducing dependence on the central bank in meeting the customers' obligations, and profitability is negatively affected by the allocation of non-performing loans and liquidity gap. Profitability ratios also play an important role in the financial positions of enterprises.

"A liquidity risk management involves not only analyzing banks on and off-balance sheet positions to forecast future cash flows but also how the funding requirement would be met. The later involves identifying the funding market the bank has access, understanding the nature of those markets, evaluating banks current and future use of the market and monitor signs of confidence erosion. Bank's Liquidity Risk Management Procedures should be comprehensive and holistic. At the minimum, they should cover formulation of overall liquidity strategy, risk identification, measurement, and monitoring and control process." *(Nepal Rastra Bank , 2010: 22*)

"Solvency and liquidity risk management is a process that enables shareholders of the bank to maximise their profit without exceeding an acceptable risk. One of the most important objectives in banking operations is to choose the most appropriate ratio between the risk level and the profit rate" (*Jasienė, 2012*)

III. Objectives of the study

The main objective is to familiarize with the overall liquidity management practice in the Mega Bank Limited, Civil Bank Limited and Century Bank Limited. The specific objectives can be outlined as under:

- To analyze the impact of Credit Deposit Ratio (CDR) on Return on Assets (ROA).
- To identify the effect of Capital Adequacy Ratio (CAR) on Return on Assets (ROA).
- To find out the impact of Cash Reserve Ratio (CRR) on ROA.

IV. Hypothesis

H01: There is no significant difference between CDR and ROA.
H02: There is no distinct difference between CAR and ROA.
H03: There is no significant difference between CRR and ROA.

V. Research Methodology

5.1 Research Design

Research is conducted on three commercial banks in Nepal which include Mega Bank Nepal(MBNL), Civil Bank ltd(CBL) and Century Bank ltd (CBL). The reason for this study is to decide the impact of liquidity administration on productivity in deposit money bank performance. Data is taken from financial annual reports of banks for the period of 10 years 2010-2019. It is Descriptive in nature and makes use of quantitative analysis. Our main focus is Profitability and Liquidity.

Profitability: There are various methods used for measuring profitability of a bank. For the purpose of this study, the profitability of these banks will be determined using the return on asset (ROA)

Liquidity: The liquidity will be calculated using cash reserve ratio (CRR), credit deposit ratio (CDR) and capital adequacy ratio (CAR).

5.2 Populations and Samples

This study is based on secondary data which has been collected from banks annual reports. Among 27 commercial banks 3 Joint Venture banks have been randomly selected for study. They are Mega Bank Nepal(MBNL), Civil Bank ltd(CBL) and Century Bank ltd (CBL).

5.3 Research Tool and Instrument

For the selected topics "Ratio Analysis" could be the best mathematical tool for the evaluation and verification of data in systematic way. As well as the essential statistical tool such as correlation analysis, test statistics, and stress testing have been used for the relevant analysis of result.

Research variables

The research variables of the study such as liquidity ratio, credit deposit ratio, capital adequacy ratio and return on asset are mainly related with the financial fluency of the selected banks. Other variables are also used where considered necessary.

Liquidity ratio
The liquidity risk of the commercial banks is measured using liquid asset to total assets. The high figure of ratio shows the better liquidity position. The ratio measures capacity to meet immediate payments of depositors.

$$\text{Liquid Asset to Total deposit} = \frac{\text{Liquid asset}}{\text{Total Deposit}}$$

CD ratio
The CD ratio refers to the credit-deposit ratio in banking parlance. It tells us how much of the money banks have raised in the form of deposits has been deployed as loans. ... A high CD ratio would mean strong demand for credit in an environment of relatively slower deposit growth.

$$\textbf{Credit Deposit Ratio(CDR)} = \frac{\text{Total credit}}{\text{Total Deposit}}$$

Capital Adequacy Ratio
A Capital Adequacy Ratio is a measure of a bank's capital. It is expressed as a percentage of a bank's risk weighted credit exposures. This ratio is used to protect depositor and promote the stability and efficiency of financial systems around the world.

$$\textbf{Capital Adequacy Ratio (CAR)} = \frac{\text{Total capital fund}}{\text{Total risk weigh ted exposures}}$$

Return on asset
The return on assets (ROA) which is often called the firm's return of total assets measures the overall effectiveness of management in generating profit with its available assets.
We compute the relationship between net profit and assets with the help of the following formula:

$$\text{Return on Assets (ROA)} = \frac{\textbf{Net Profit after Taxes}}{\textbf{Total Assets}}$$

VI. Data Presentation And Analysis

Statistical tools are used to draw the relationship between different variables related to the study topic. In this study, different relationships have been calculated with the help of correlation analysis of NBL, KBL and SBL.

6.1 Descriptive Analysis
The descriptive statistics of the explanatory and explained variables in this study are presented in Table 1. It is based on a panel data set organized from three commercial banks operating in the Nepalese financial market during the period from 2010 to 2020. Looking at them, generally, the statistics indicate a wide variability exist in the indicators of liquidity risk management of commercial banks.

Descriptive Statistics			
	N	Mean	Std. Deviation
ROA	30	1.7913	.64328
CDR	30	82.1860	7.94113
CAR	30	13.2907	3.52873
CRR	30	14.5707	8.97480
Valid N (listwise)	30		

The ROA has a mean value of 1.7913% with standard deviation of .64328%.Credit Deposit Ratio (CDR) variable has the mean value of 82.1860%. Standard deviation of CDR is 7.94113%. Cash adequacy ratio(CAR) has a mean of 13.2907%.ir has standard deviation of 3.52873%.Cash Reserve Ratio (CRR) has a mean of 14.5707%. It has standard deviation of 8.97480% which also show there was low variability than all other variables used in the study.

Correlations					
		ROA	CDR	CAR	CRR
ROA	Pearson Correlation	1	-.533**	-.275	-.303
	Sig. (2-tailed)		.002	.141	.104
	N	30	30	30	30
CDR	Pearson Correlation	-.533**	1	.605**	.482**
	Sig. (2-tailed)	.002		.000	.007
	N	30	30	30	30
CAR	Pearson Correlation	-.275	.605**	1	.549**
	Sig. (2-tailed)	.141	.000		.002
	N	30	30	30	30
CRR	Pearson Correlation	-.303	.482**	.549**	1
	Sig. (2-tailed)	.104	.007	.002	
	N	30	30	30	30
**. Correlation is significant at the 0.01 level (2-tailed).					

From the table it is evident that there is a positive correlation of ROA and asset management while negative correlation with the size, credit risk and operational efficiency. This indicates that with increase in asset management, there has been increase in ROA. While the results show that with the rest of the variables decreasing, there can be increase in ROA. Asset management has very strong positive correlation with ROA, as it is logical that with increase in efficient asset management, the return on assets will be higher.

6.2 Regression analysis

The R square is a measure of the goodness of fit of the working capital management variables in explaining the variations in profitability of commercial banks in Nepal. The regression analysis of ROA and ROE on Working capital management has been separately analyzed below:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542[a]	.294	.213	.57083

a. Predictors: (Constant), CRR, CDR, CAR

As per the results on table has a R square value of .213 meaning that 21.3% of the variation in the dependent variable is explained by the independent variables while 78.7% is explained by other variables outside the model. This indicated that our model is a strong predictor. The R-value of .294, which indicates that there is a strong positive correlation between the dependent variable (ROA) and the set of independent variables.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.528	3	1.176	3.610	.027[b]
	Residual	8.472	26	.326		
	Total	12.000	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), CRR, CDR, CAR

From the table above the value of F-stat is found to be 3.610 and is significant as the level of significance is less than 5%. In addition, this indicates that the null hypothesis is rejected and alternative hypothesis is accepted. Hence it was found that Bank size, Liquidity Risk, Asset management and operational efficiency have impact on economic-based performance (ROA) of commercial banks.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.312	1.191		4.461	.000
CDR	-.045	.017	-.555	-2.613	.015
CAR	.021	.041	.114	.513	.612
CRR	-.007	.014	-.098	-.484	.632

a. Dependent Variable: ROA

Thus, the analysis predicts the average ROA with about 90% explanatory power by the following model:
ROA = 5.312 + -0.045SIZE + 0.021CAR + -0.007+ ez
To assess the significance of each independent variable on the dependent variable ROA, the researcher has established that bank size, asset management and credit risk were found to be significant and affect ROA as their t-sig are less than 5%. However, operational efficiency has insignificant effect on ROA, as its t-sig is 0.632 (>5%). The bank size may have significant effect on the value of ROA because it measures the log of total assets of the company and ROA value needs the usage of total assets value for its determination. Liquidity risk may have some effect as it measures the reserve of the bank compared to the total loans. Since loans would provision for interest, it would thus affect the net income and thus have an effect on the value of ROA. In the same way, asset management involves the total assets of the banks and thus will have effect on ROA. However, operational efficiency measures how able the bank is to meet up its operating expenses. Though operating expenses affect the value of net income, however, this does not have direct link to the value of the ROA.

VII. Conclusion

The study examines the liquidity management through the comparative analysis of commercial banks namely MBL, CCBL and CBL from the period 2013/2014 to 2017/2018. The selection criterion is based on judgmental sampling. The independent variable includes CD ratio, CAR, NPL, and ROA. The dependent variable includes the liquidity ratio which is the measure of the most liquid assets of the banks. The analysis is done using the ratio analysis of the averages of the variables involves along with the descriptive and analytical analysis.

The ratio analysis shows that better liquidity position of all the three banks. This shows that they have more of the liquid assets to pay off its obligations. The CD ratio of sample banks is within bracket or less than 80% and they have been able to meet NRB requirement.

Correlation Analysis & t-test for correlation shows the CD ratio therefore hypothesis H1 and H3 are accepted. The ROA along with CAR shows the insignificant positive relation with liquidity ratio. Hence the hypothesis H2 and H4 are accepted.

The stress testing is used to develop scenarios of 5% 10% and 15% withdrawal of deposit and their affect on liquidity ratio and CAR. It studies relationship of the financial variables and have become necessary for the forward-looking assessments. Though 5% and 10% withdrawal of deposit reduces liquidity ratio and CAR, They are within limit of NRB requirement i.e. 20% and 10% respectively. However, 15% withdrawal of deposit of sample banks shows the sign of liquidity crunch and low capital level. Hence Stress testing alerts bank management to be aware on adverse situations related to a several risks and provides an indication of how much capital needed to absorb losses and liquidity required during the adverse situation. It is used to evaluate the potential impact on a bank of a specific event and movement in a set of financial variables and its applications are expanding.

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