



## **LIQUIDITY MANAGEMENT AND PROFITABILITY: A PERSPECTIVE OF SRI LANKAN LICENCED COMMERCIAL BANKS**

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### **Abstract**

*The present study examines the effect of liquidity management on banks profitability in Sri Lanka. Long term assets are more profitable than liquid assets. It is a mandatory function to invest in assets which generate high profit. 26 Sri Lankan banks are taken for the study and 20 years' annual data of licensed Sri Lankan commercial banks from 1998 to 2017 have been used. Liquidity management is the independent variable and profitability is the dependent variable. Return on Asset (ROA) is used to measure profitability meanwhile capital adequacy ratio, liquidity ratio, non performing loan ratio and interest margin are used to measure liquidity management. Descriptive statistics, correlation analysis and regression analysis were employed to examine the effect of liquidity management on profitability. The results of correlation analysis depict positive association between return on asset and capitalization ratio, interest meanwhile negative relationship was identified between capital adequacy ratio and return on asset. The results of regression analysis indicate that liquidity impacts on profitability significantly. Therefore, the present study recommends the bank managers to have clear understanding of balancing liquid assets and long term assets for generate more profit day by day.*

*Keywords: Liquidity management, profitability, capitalization ratio, interest margin, capital adequacy ratio*

## INTRODUCTION

The effect of liquidity management on profitability has become an important title to discuss in the banking sector in Sri Lanka. Both liquidity and profitability are impacted by the working capital decisions of organizations. When the investment is high in working capital, it often leads to low profitability and lower investment leads to poor liquidity. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004). Every organization should balance liquidity and profitability in order to maximize shareholders' wealth. The primary objective of every firm is to raise profits therefore resources utilization is important. There is need for firms to determine and maintain high level of liquidity. Therefore, there is significant impact of liquidity management on banks profitability because there is need to fulfill short term requirements of cash and have some amount in liquid form to exploit the investment opportunity for gain. Banking sector is operating as an essential sector in business sector in all countries. Bank is a financial institution where people deposits money as savings and banks grant loan to people, other institutions, organization, government, etc. Bank also makes investment for the purpose of making profit. Liquidity of banks refers to the ability of banks to convert assets to cash and unused bank lines of credit. Liquidity should be sufficient to settle all maturing unsecured debt obligations due within one year. Thus, proper mechanisms should be in practice to balance liquidity and profitability to get maximum benefit. To achieve maximum benefit, the bank should figure out the highest level of funds to fulfill the short term requirements and then make the investment of further funds and also have some funds to get gain from investment opportunity because appropriate liquidity management leads to rise in profitability.

### Statement of the Problem

Liquidity management and profitability are prerequisite factors for the sustainability and survival of banks. The banks operate to provide financial intermediation services to people, to maximize profit and to maximize shareholders' value. Lending is considered as the most important operation for fund utilization of Commercial Banks as major portion of their income is earned from loans and advances. Despite the fact that loan is considered as the major source of banks income and constitutes their major assets, it is risky area of the industry. That is also why credit risk management is one of the most critical risk management activities carried out by firms in the financial services industry. In fact, credit risk is considered as the most harmful among other risks as bad debts would impair banks profit. Credit risk arises from uncertainty in a given counterparty's ability to meet its obligations.

The NPL ratio going up as a result of default of gold-backed loans and high interest rates, loan expansions suffered. Sri Lanka's largest two state banks have taken a 20 billion rupee hit on credit losses in 2013 and had slashed their troubled gold-backed loan portfolios as the precious metal's price slumped, interim accounts show. In 2013 the People's Bank NPL rose to 5.3 per cent of loans from 2.8 percent a year earlier and capital adequacy rose to 15 percent from 14 per cent while in the Bank of Ceylon NPL was increased to 4.3 per cent of loans by 2013 from 2.76 percent a year earlier while capital adequacy was stable at 11.14 percent only slightly down from 11.38 percent. It is obvious that the Commercial banks in Sri Lanka are struggling to manage liquidity and profitability. It consequently dwindles the performance of banks. Therefore, carrying out an investigation on the effect of liquidity and profitability is mandatory for smooth functioning of Sri Lankan commercial banks. This research is guided by the following questions: To what extent liquidity management impacts on the profitability.

### **Objectives of the Study**

- To examine the effect of liquidity management on profitability of licensed commercial Banks in Sri Lanka; and
- To study the relationship between liquidity management and profitability licensed commercial Banks in Sri Lanka.

### **LITERATURE REVIEW**

Literature review comprises the previously conducted studies that are related to present research study which is directed to investigate the effect of independent variable on dependent variable. Few previously conducted studies that are related to the present research are presented below.

Priya & Nimalathasan (2013) carried out a research on liquidity management and profitability: A case study of listed manufacturing companies in Sri Lanka. The objective of the study is to find out the effect of changes in liquidity levels on profitability of listed manufacturing companies in Sri Lanka. 5 years data from 2008 to 2012 was used in the study. Correlation and regression analysis were employed and research findings indicate that there is a significant relationship exists between liquidity and profitability among the listed manufacturing companies in Sri Lanka. Further, Inventory Sales Period (ISP), Current Ratio (CR) and are significantly correlated with Return on Asset (ROA), Operating Cash Flow Ratio (OCFR) are significantly correlated with Return on Equity (ROE) 5 percent level of significance. At the same time ISP and OCFR also are significantly correlated with ROA, Creditors Payment Period (CPP) also is significantly correlated with ROE at 1 percent level of significance.

Guruswamy (2012) evaluated the profitability performance of SBI and found that among the associate banks, State Bank of Patiala, State Bank of Hyderabad, State Bank of Indore and State Bank of Bikaner proved to be the most dynamic in earning profit compared to SBI. Bordeleau and Graham (2010), carried out an investigation using a sample of large US and Canadian banks, and figured out that profitability generally improved for banks that held some liquid assets. Furthermore, the research findings indicate that this relationship varies depending on a bank's business model and the state of the economy.

Chauduri (2002) carried out an investigation and recommended that the public sector banks in India are neither strong nor very weak, but they do not have any further capacity to bear the burden of government policies.

Further, Mehrotra (2018) examined the effect of liquidity management on profitability: a comparative analysis of public and private sector banks in India. The relationship and the effect of liquidity management on profitability of public and private sector banks in India as a comparative view was analysed by taking 27 public sector banks and 20 private sector banks into consideration from 2011-12 to 2015-16. Cash Deposit Ratio (CDR), Credit Deposit Ratio (CRDR) and Investment Deposit Ratio have been used as independent variables to denote the liquidity management of the banks while Return on Assets (ROA) and Return on Equity (ROE) have been used as proxy variables for profitability of the banks. Research results indicate that there is a significant negative effect of CDR and IDR on ROA. However, in case of ROE, it is found that there is no significant relationship between banks' profitability and liquidity taking all the variables into consideration irrespective of type or form of commercial banks in India. Finally, the findings concluded that the commercial banks can focus on increasing their profitability without affecting their liquidity and vice versa.

Patnaik and Patnaik (2005) concluded that the profitability position of SBI is better than that of other public sector bank groups. In contrast to it, Kaur and Kapoor (2007) found that the relative efficiency of nationalized banks was higher than the relative efficiency of SBI and associates of SBI group.

Badola and Verma(2006) concluded that the explanatory power of spread, non-interest income, provisions and contingencies, and operating expenses is significant while credit deposit ratio, non-performing asset as percentage to net advances and business per employee are found with low explanatory power.

Munteanu (2013) carried out a research by using panel data of Eastern and Central European commercial banks from 2003 to 2010 and found a slight positive and negative impact of liquidity on both ROE and ROA, explaining a nonlinear relationship between the variables. Ibe

(2013) found that there is a significant relationship between cash and short term fund and bank profitability for Nigerian banks.

## **METHODOLOGY**

### **Data Collection and Sampling**

This study investigates the effect of liquidity management on the profitability of Sri Lankan licensed Commercial using different liquidity and profitability ratios. Annual data was used in the study. The sampling period is twenty years, from 1998 to 2017. The required data was gathered from the annual reports of Central Bank of Sri Lanka. 26 banks are taken as the sample population which are licensed domestic commercial banks in Sri Lanka.

### **Definition of Variables**

The various variables are used to investigate the effect of liquidity management on banks profitability. The profitability of banks is measured by return on assets (ROA).

#### ***Return on Assets (ROA)***

Return on assets (ROA) explains the amount of profit that are generated by banks through management of assets. It is calculated by dividing net profit by average total assets.

#### ***Capital Adequacy ratio (CAR)***

Capital adequacy ratio has also been included as one dimension of liquidity management. It describes bank's capital proportion towards its current liabilities and risk weighted assets.

#### ***Interest Margin***

The net interest margin measures the difference between interest paid and interest received, adjusted relative to the amount of interest-generating assets.

#### ***Liquidity Ratio***

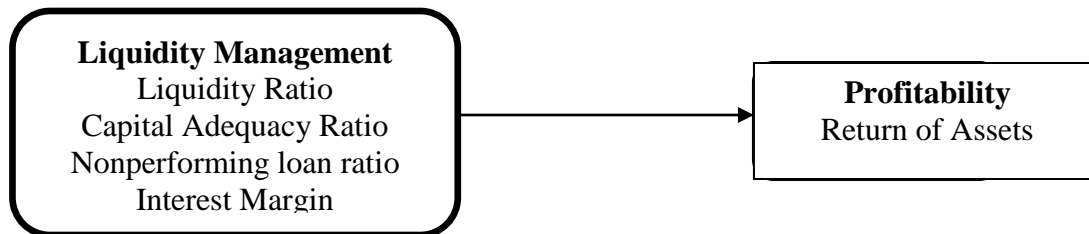
Liquidity ratio indicates whether current assets of a company will be sufficient to meet the company's obligations when they become due.

#### ***Nonperforming loan ratio***

The nonperforming loan ratio, better known as the NPL ratio, is the ratio of the amount of nonperforming loans in a bank's loan portfolio to the total amount of outstanding loans the bank holds.

## The Conceptual Frame Work

After reviewing the literature, the following conceptual model is formulated by the researcher under the basis of the research undertaken by Mehrotra (2018).



## Hypotheses of the Study

The following hypothesis is formulated based on the developed conceptual model.

**H<sub>1</sub>**. Liquidity management significantly impacts on profitability.

**H<sub>2</sub>**: There is correlation between liquidity management and profitability.

## RESULTS AND DISCUSSION

To investigate the impact of liquidity management on profitability, the model used for the regressions analysis is expressed in the general form as given below.

$$ROA = \beta_0 + \beta_1 LR + \beta_2 IC + \beta_3 NONPER + \beta_4 CADI + E_{it} \quad \text{model 1}$$

## Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data such as mean, maximum, minimum, standard deviation, skewness and kurtosis.

Table 1: Results of Descriptive Statistics

	TOTAL_CAP...	ROE	ROA	NET_NON_...	LARATIO	INTEREST_...
Mean	19.42992	15.47500	2.048506	31.54670	53.65809	3.537600
Median	19.56945	15.20000	1.900000	29.34512	61.19259	3.448092
Maximum	24.37214	27.10000	3.800000	58.21914	80.28393	4.831297
Minimum	14.62970	6.900000	1.000000	19.66193	22.30000	2.194835
Std. Dev.	2.651189	4.833314	0.653893	11.11292	19.17525	0.634408
Skewness	-0.194099	0.426782	0.968470	0.788618	-0.318152	0.199538
Kurtosis	2.441878	3.185777	3.818814	2.639328	1.627290	2.861316
Jarque-Bera	0.385165	0.635905	3.685160	2.181463	1.907679	0.148746
Probability	0.824826	0.727637	0.158408	0.335971	0.385259	0.928325
Sum	388.5985	309.5000	40.97012	630.9340	1073.162	70.75199
Sum Sq. Dev.	133.5472	443.8575	8.123955	2346.444	6986.113	7.647007
Observations	20	20	20	20	20	20

Table 1 shows the descriptive statistics of the data. The mean, maximum, minimum, standard deviation of total capitalization ratios are 19.42992, 24.37214, 14.6297, and 2.6511. 15.47500, 27.10, 6.900, 4.833 are the mean, maximum, minimum, standard deviation of ROE. The mean, maximum, minimum, standard deviation of capital adequacy ratio is 31.54670, 58.219, 19.661, and 53.658, 80.283, 22.300 and 19.175 are the mean, maximum, minimum, standard deviation of liquidity ratio. The mean, maximum, minimum, standard deviation of interest margin are 3.537, 4.831, 2.1948, and 0.6344.

### Multicollinearity Test

Another major requirement of goodness of fit of multiple regression models is non-collinearity relationship among the independent variables. Variance Inflation Factor is employed in this study to identify the multicollinearity problem.

Table 2: Results of Variance Inflation Factors

Variance Inflation Factors  
Date: 04/27/19 Time: 11:01

Included observations: 20

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.165929	444.4313	NA
LARATIO	2.96E-05	19.58803	2.119317
INTEREST_MARGIN	0.030239	80.02288	2.372402
NET_NON_PERFOR...	0.000110	25.09871	2.646824
CAPITAL_AD...	0.001152	90.81765	1.578405

The results of variance inflation factors reveal that the analyzed VIF values are below 10 and when VIF values are less than 10 then there is no multi- co linearity problem. Therefore, researcher can conclude that there is no multicolonearity issue in this study.

### Correlation Analysis

Correlation measures the degree of linear association between these variables. Correlation analysis is carried out to figure out the relationship among variables in this study.

Table 3: Results of Correlation Analysis

Covariance Analysis: Ordinary  
 Date: 04/27/19 Time: 10:57  
 Sample: 1 20  
 Included observations: 20

Correlation Probability	TOTAL_CAP...	ROE	ROA	NET_NON ...	LARATIO	INTEREST ...
TOTAL_CAPITAL_...	1.000000 -----					
ROE	0.267810 0.2536	1.000000 -----				
ROA	0.716024 0.0004	0.718372 0.0004	1.000000 -----			
NET_NON_PERF...	-0.337353 0.1458	-0.222858 0.0344	-0.465992 0.0384	1.000000 -----		
LARATIO	-0.406124 0.0756	0.121619 0.6095	0.412422 0.0708	-0.197076 0.4049	1.000000 -----	
INTEREST_MARGIN	0.329905 0.1555	0.636779 0.0025	0.753385 0.0001	-0.589170 0.0063	-0.341518 0.1406	1.000000 -----

Capital adequacy ratio is positively associated with ROA with the estimated coefficient value of 0.716024 and p value of 0.0003 which is significant at 5 per cent level. Correlation coefficient value between nonperforming loan ratio and ROA is -0.465992 and p value is 0.0344. so it can be said that there exists a significant relationship between nonperforming loan ratio and return on assets. So it can be said that there exists significant relationship between liquidity ratio and return on assets. Correlation coefficient value between interest cover and return on asset is 0.753385, and p value is 0.0001. so it can be concluded that there exists a significant relationship between interest margin and return on asset as p value less than 0.05. Therefore, there is relationship between liquidity ratios and profitability hence hypothesis is accepted.

### Regression Summary Model I

The regression analysis is employed to determine how much of the variance in the dependent variable is predicted by the independent variable and which of the independent variables is most predictive. Table 4 demonstrates the findings of the regression analysis which states the effect of liquidity management on profitability.



Table 4: Results of the OLS regression

Dependent Variable: ROA  
 Method: Least Squares  
 Date: 04/27/19 Time: 11:00  
 Sample: 1 20  
 Included observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.540972	1.471709	-2.406026	0.0295
Liquidity Ratio	0.002616	0.005438	0.481138	0.0014
Interest margin	0.692948	0.173893	3.984903	0.0012
Non performing loan ratio	-0.008132	0.010486	-0.775500	0.4501
Capital adequacy ratio	0.141081	0.033941	4.156638	0.0008
R-squared	0.820033	Mean dependent var		2.048506
Adjusted R-squared	0.772042	S.D. dependent var		0.653893
S.E. of regression	0.312201	Akaike info criterion		0.721981
Sum squared resid	1.462045	Schwarz criterion		0.970914
Log likelihood	-2.219811	Hannan-Quinn criter.		0.770575
F-statistic	17.08713	Durbin-Watson stat		2.093496
Prob(F-statistic)	0.000019			

Here the Profitability was considered to be dependent variable and the liquidity ratios such as liquidity ratio, interest margin, non performing loan, and capital adequacy ratios were considered as independent variables. According to the regression summary (Table 4) the coefficient of the liquidity ratio is positive at a value of 0.002616 and which is significant since p value is less than 0.05. This implies that an increase in the liquidity ratio by 1 is associated with a increase in profitability increased by 0.002616. The coefficient of the interest margin is 0.692946 which is also significant since p value is .less than 0.05. The results of the regression, the coefficient value of nonperforming loan, standard error and t statistics are found respectively -0.00814, 0.010486 and -0.775500. Besides P value is found to be greater than 0.05 ( $p=0.4501$ ) .While the coefficient of capital adequacy ratio is positive in the regression summary, it is 0.141081 which is significant at 5 % level as p value is equal to 0.008.

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.772042 which indicates that the variation of 77.7% on profitability (dependent variable) is due to liquidity management (independent variables). The regression results indicate that liquidity ratio, interest margin, and capital adequacy ratio impact on the profitability. Hypothesis is supported hence liquidity management impacts on profitability.

### Residual Normality test

To test the validity of the model, residual diagnosis test and Heteroscedasticity were carried out. Accordance with the residual normality test, the probability of Jarque –bera statistics is greater than 5% and therefore, the residuals are normally distributed.

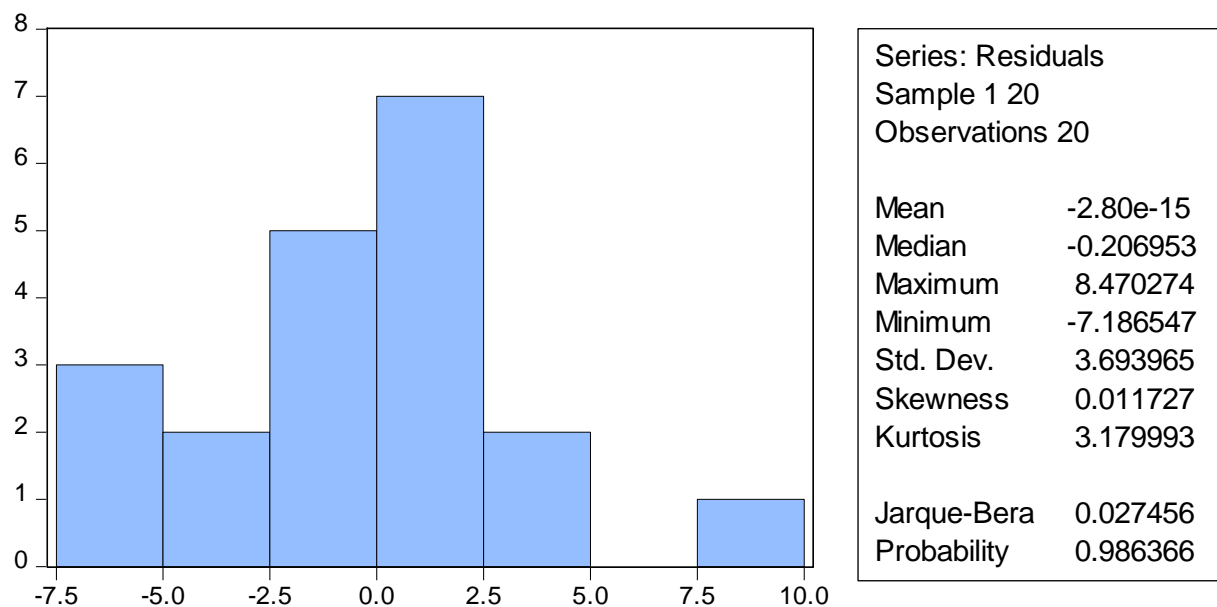


Figure 1: Residual Normality test

### Heteroscedasticity test

Breusch-Pagan-Godfrey test (B-P-G Test) was used to test for the presence of Heteroscedasticity. P value of the Chisquare is 0.0715. Then researcher can conclude The variance of the residuals are homoscedasticity.

Table 5: Results of the LM test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	2.687725	Prob. F(2,15)	0.1005
Obs*R-squared	5.276398	Prob. Chi-Square(2)	0.0715

### CONCLUSION

The research findings show that liquidity is a dominant determinant of determining the profitability of Sri Lankan commercial banks. It is more necessary for banking sector than other sectors. The results of correlation analysis depict positive association between return on asset and total capitalization, interest margin, liquidity ratio and return on asset, meanwhile negative

relationship was identified between capital adequacy ratio and return on asset. The results of regression analysis indicate that liquidity impacts on profitability significantly. The study concludes that Sri Lankan commercial banks should focus on the mechanisms of enhancing profitability without affecting liquidity and vice versa. This research has revealed the significant impact of liquidity management on licensed commercial banks in Sri Lanka. So the banks can obtain the highest profitability through maintaining the liquidity ratio at proper level. It implies that proper cash management policies and techniques should be adopted by the licensed commercial banks to avoid the adverse effect of the improper liquidity level on the profitability of the banks. Particularly, transaction motives, speculative motives and precautionary motives of those banks for liquidity should be analyzed and evaluated in a proper manner.

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