Impact of Liquidity Management on Profitability in the Pakistani Commercial Banks

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Abstract : The purpose of this research was to investigate the effect of the liquidity management on profitability in the Pakistani commercial banks during the period (2004–2013). Total of Three banks having more than 1767 branches are chosen to reflect the whole Pakistani commercial banks. The liquidity indicators are investment ratio, current ratio, capital ratio, credit facilities and liquid assets ratio, while return on equity (ROE) and return on assets (ROA) are the proxies for profitability. Hypotheses are tested by using regression analysis and correlation. The empirical results show that increase in the current ratio and the investment ratio of the available funds have positive effects on the profitability, while there is a negative effect of the capital ratio and the liquid assets ratio on the profitability of the Pakistani commercial banks. The researcher recommends that there is a need for an optimum utilization of the available liquidity in a various aspects of investment in order to increase the banks' profitability, and banks should adopt a general framework of liquidity management to assure sufficient liquidity for executing their operations efficiently, and they should initiate an analytical study of the evolution rates of liquidity and their ability to achieve a balance between sources and uses of funds.

Keywords: liquidity, profitability, ROE, ROA, liquid assets, investment ratio, capital ratio

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1. Introduction

The liquidity in the commercial bank represents the ability to pay its obligations by the contractor at the time of maturity, which includes lending and investment commitments, withdrawals, deposits, and accrued liabilities (Amengor, 2010).

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 key factor in business operations. It is vital for the survival of business, the firm should have sufficient degree of liquidity. It should be

neither excessive nor inadequate. Excessive liquidity means bank has ideal funds. Due to which profitability may be lower, increase speculation, and unjustified extension. Whereas inadequate liquidity results 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.

1.1 Research Problem

The commercial banks play their 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. This investment activity carried out by the bank is hardly free of risks and problems, because the bank motive is to maximize its expected profits on these investments, and 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.

The problem arises when the Bank is not able to meetthese demands, especially those unexpected ones, which may embarrass the bank with its clients and may lose their trust over the time, in light of the intensive competition in the banking sector resulting from the increasing number of local banks, as well as intensive competition from the foreign banks that work in the local banking market.

Therefore, each commercial bank shouldwork to maximize its profits, and at the same time be able to meet the financial requirements of its depositors by holding a sufficient amount of liquidity, in order to achieve a balance between the profitability and liquidity. The problem here ishowto choose or select the optimal point or level at which banks can maintain their assets in order to achieve these two objectives together, because each level of liquidity has a different effect on the levels of profitability, and 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. Therefore, this research seeks to answer the following questions:

1. Does the efficient liquidity management affect profitability in the Pakistani commercial banks?

2. How do the liquidity indicators affect profitability in the Pakistani commercial banks?

3. What are the limitations that may hinder the achievement of the required balance between liquidity and profitability, and how to overcome these limitations?

1.2 Research Objective

The objective of this research is to examine the effect of the banking liquidity management on profitability in the Pakistani commercial banks, considering their need to keep a highest balance between liquidity and profitability at the same time. Therefore, this research will focus on identifying the most important indicators of the liquidity management, investigate the effect of each indicator on the banks' profitability, identify the effect of the liquidity management as a whole on profitability in the commercial banks, and lastly to suggest a recommendations needed to achieve the required consensus between liquidity and profitability in these banks.

1.3 Research Design

The research is organized to cover five sections as follows: Section two presents an extensive review of literature on the effect of the liquidity management on profitability in the commercial banks and the research hypotheses. Section three represents the methodological approaches used in this research. While Section four focuses on the analysis of the research hypotheses, and to show the contribution of the research results in the provision of a new addition to previous studies. Finally, section five reviews the findings and the recommendations reached by the researcher.

2. Literature Review

The literature review section comprises on some empirical and theoretical researches as well as publications about our variables i.e. the effect of liquidity

management on the bank's profitability and depicts an overview of Pakistani economy, and later on study of hypothesis will be discussed.

2.1 Theoretical Literature

This part presents:

- theoretical aspects related to banks liquidity concept

- the need for liquidity

- theories of liquidity management

- Banks profitability and its measures and these are explained below one by one.

Banks Liquidity Concept

The ease with which savings or investments can be turned into cash and simple is the ability to meet financial obligations. And these are lending, investment and withdrawal of deposits and maturity of liabilities. (Amengor, 2010).

Theories of Liquidity Management

There are a number of liquidity management theories, as follows:

1). Anticipated Income Theory

Anticipated income theory states that bank can manage its liquidity through

- granted loans

- when due in a timely manner

- reduce the possibility of delays in repayment at the maturity time

Furthermore, this theory says that bank's organizational management can estimate and plan its liquidity based on their forecasted income of the borrower and this make able the banks to grant medium as well as long term loans. And the repayment of such loans are associated with those borrower's income which are being expected to be paid

gradually and daily premiums, and such situation will enable the banks to assure high liquidity when cash expectations are high.

2). ShiftAbility Theory

It is an approach about shifting of assets while keep banks liquid. Commonly, banks sell its assets to more liquid banks when a bank is in shortage of liquid money. This approach gives a directions and feasibility about those banks with fewer reserves or investing in long-term will run more efficiently. Under this theory, banks always try to eliminate liquidity crises that's they always sell or repo at good prices.

3). Liability Management Theory

Maintaining liquid assets, liquid investments is not useful, the only liability section of balance sheet need to be focused here. But banks can satisfy liquidity needs by borrowing in the money and capital markets according to this theory and the basic contribution you can find here is to consider both sides of a bank's balance sheet. (Emmanuel, 1997).

4). Commercial Loan Theory

The liquidity of the commercial bank achieved automatically through self-liquidation of the loan, i.e. for short periods and to finance the working capital, where borrowers repay their obligations after completions of their projects or anything associated with it.

According to this theory:

- the banks do not lend money for the purposes of purchasing real estate

- consumer goods or,

- for investing in stocks and bonds

- due to the length of the expected payback period of these investments,

Because this theory is appropriate for traders who need finance and for the short period of time.

2.1.3 The Concept of Banks Profitability

Bank profitability means its ability to generate revenues. Profitability in general:

Is a relationship between the profits and investments that leads to the achievement of these profits and profitability means the company's goals?

2.1.4   Liquidity Measurement

To insure a bank's ability to pay operating expenses short-term and current liabilities, because current liabilities measures as using current liabilities and current assets.

The main measures of liquidity:

- ➢ current ratio

- ➢ capital ratio

- ➢ cash ratio

- ➢ quick ratio

- ➢ investment ratio

2.1.5 Assessment of the Bank's Profitability

The following ratios are the most important earnings ratios used in assessing the bank profitability (Taha, 1999, p 190-191).

1). Return on assets:

(ROA) on assets (ROA) = (Net income/ Total Assets) $\times$ 100.

2). Return on Equity (ROE):

Return on equity (ROE) = (Net income/ Capital) $\times$ 100.

3). Return on deposits (ROD):

Return on deposits = (Net income/ Total deposits) $\times$ 100

2.2 Empirical Review

A number of researches have examined the impact of liquidity management on the profitability in commercial banks. The results are as follows:

Adebayo et al. (2011) examined liquidity management and commercial banks' profitability in Nigeria and he concluded that profitability in commercial banks is significantly influenced by liquidity and vice versa.

Saleem and Rehman (2011) 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.

Charity (2012) examined the impact of liquidity performance in commercial using First Bank of Nigeria Plc as case study. Findings indicate that there was a positive relationship between liquidity management and the existence of any banks.

Agbada and Osuji (2013) examined empirically the effect of efficient liquidity management on banking performance in Nigeria. Findings from the empirical analysis were quite robust and clearly indicate that there is significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhances the soundness of bank.

Al-Tamimi and Obeidat (2013) identified the most important variables which affect the Capital Adequacy of Commercial Banks of Jordan in Amman Stock Exchange for the period from 2000 –2008. The study shows that there is a statistically significant positive correlation between the degree of capital adequacy in commercial banks and the

factors of liquidity risk, and the return on assets, and there is an inverse relationship not statistically significant between the degree of capital adequacy in commercial banks and factors of the capital risk, credit risk, and the rate of force- revenue.

Ibe (2013) examined the effect of liquidity management on the profitability of banks in Nigeria. He found that liquidity management is indeed a critical issue in the banking sector of Nigeria.

Lartey et al. (2013) sought to find out the relationship between the liquidity and the profitability of banks listed on the Ghana Stock Exchange. It was found that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana.

MoeinAddin et al (2013) investigated the relationship between modern liquidity indices and stock return in companies listed on Tehran Stock Exchange. Results indicated that there was a positive and significant relationship between comprehensive liquidity index and stock returns while there was no significant relationship between the index of cash conversion cycle as well as net liquidity balance and sock returns.

Almazari (2014) investigated the internal factors that have an effect on profitability in Saudi and Jordanian banks. He found that there is a positive correlation between profitability measured by ROA of Saudi and Jordanian banks with some liquidity indicators, as well as there is a negative correlation with other liquidity indicators between profitability measured by ROA of Saudi and Jordanian banks .

2.3 Pakistani Commercial Banks

The banking sector in Pakistan distributed on three types of banks, namely:

1. The commercial banks.
2. The Islamic banks.
3. The foreign banks in Pakistan.

We choose three commercial banks, as follows:

Bank No:	Bank Name
1	Askari Bank
2	Meezan Bank
3	Bank Alfalah

2.4 Research Hypothesis

Based on the research questions and objectives, the research hypotheses can be formulated as follows:

H01: There is no statistically significant effect of the banking liquidity management on profitability in the Pakistani commercial banks.

H02: There is no statistically significant effect of the investment ratio on profitability in the Pakistani commercial banks.

H03: There is no statistically significant effect of the Net credit facilities / Total assets ratio on profitability in the Pakistani commercial banks.

H04: There is no statistically significant effect of the capital ratio on profitability in the Pakistani commercial banks.

H05: There is no statistically significant effect of the liquidity ratio on profitability in the Pakistani commercial banks.

H06: There is no statistically significant effect of the quick ratio on profitability in the Pakistani commercial banks.

2.5 What Distinguishes This Research from Other Previous Researches?

This research brings improvements on some aspects of existing researches, in that it uses a variety of liquidity and profitability indices to measure the effect of liquidity management on profitability in the Pakistani commercial banks. It also contributes to the existing literature by providing a new addition to the previous literature about the effect of liquidity management on profitability in the Pakistani commercial bank.

3. Research Methodology

3.1 Data Search

This research tries to investigate the effect of the liquidity management on profitability in the three (3) Pakistani commercial banks during the time period (2004–2013). Annual reports of the banks are used, which issued by these banks.

3.2 Model Specification

The following two models represent the research models which formulated as follows:

$$Y1 = a0 + a1x1 + a2x2 + a3x3 + a4x4 + a5x5 \qquad (1)$$

$$Y2 = b0 + b1x1 + b2x2 + b3x3 + b4x4 + b5x5 \qquad (2)$$

Where: Y1, Y2: represents the bank's profitability measured by ROE, ROA Respectively.

X1: Investment ratio = Net credit facilities / Total deposits.

X2: Net credit facilities / Total assets.

X3: Capital ratio = Capital/Total assets.

X4: Liquid assets ratio = Cash / Current liabilities.

X5: Current ratio = Current assets / Current liabilities.

a1, a2, a3, a4, and a5: represents the coefficients values of the five independent variables of the first model, respectively.

Where b1, b2, b3, b4, and b5: represents the coefficients values of the five independent variables of the second model, respectively.

a0, b0: represent the values of the vertical section.

The model number (1) measures the effect of the liquidity management indicators on profitability in the Pakistani commercial banks, where return on equity (ROE) was the proxy for profitability.

The model number (2) measures the effect of the liquidity management indicators on profitability in the Pakistani commercial banks, where return on assets (ROA) was the proxy for profitability.

3.3 Research Variables Definition

The independent variables represent the liquidity management, which include the following measures (Ratios):

Investment ratio = Net credit facilities / Total deposits.

Net credit facilities / Total assets.

Capital ratio = Capital / Total assets

Liquid assets ratio = Cash / Current liabilities.

Current ratio = Current assets/ Current liabilities.

The independent variables: Represent the bank's profitability measured by the return on equity (ROE), and return on assets (ROA).

Table: 1. Variables definition & measurement units

Variables symbol	Measurement unit	Variables explanation
IR	Investment Ratio	Net credit facilities / Total deposits
NCF/TA	Net credit facilities/ Total assets	Net credit facilities / Total assets
CR Capital ratio	Capital / Total assets	
LAR Liquid assets ratio	Cash / Current liabilities	
CrR Current ratio	Current assets / Current liabilities	
ROE	Return on Equity	Net Income/ Owners Equity

ROA Return on Assets   Net Income/ Total Assets

Investment ratio: This 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.

Net credit facilities / total assets. This percentage represents the bank's ability to exploit and employ the available funds in achieving profits, and also indicates to the financial burdens that assist the banks in determining the level of risk.

Capital Ratio. It is a measure of a bank's financial strength and the adequacy of its capital, and it indicates to the extent of financial stability at the Bank.

Liquid assets ratio: This ratio measures the ratio of Acid liquid assets, which includes cash & equivalent and cash reserve at the central bank, short-term deposits in banks and other government and non-government guaranteed securities as a percentage of total bank assets.

Current ratio: This ratio measures the bank's ability to repay short-term obligations during a very limited period (a few days), and by comparing them with short-term assets in the same period. Current ratio = Current assets / current liabilities.

Return on equity: This ratio used as a measure of a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Return on Equity = Net Income/Owner's Equity.

Return on assets: This ratio is an indicator of how a bank is profitable relative to its total assets, and gives an idea as to how a management is efficient in using its assets to generate earnings. ROA = Net Income/total assets.

4. Data Analysis

This research applies the quantitative, descriptive, ratios and econometrics analysis approaches in investigating the effect of liquidity management on profitability in the Pakistani commercial banks during the time period (2004–2013), including the

analysis of the profitability and liquidity ratios, Cross Sectional Analysis, regression analysis, correlation analysis, and test (F-Fisher) analysis, which are being estimated by the linear method, through applying the statistical program (SPSS) on the panel data related to the indicators of liquidity and profitability during the study period, based the annual reports issued by the Pakistani commercial banks, and other relevant previous studies conducted on the banking profitability and liquidity in Pakistan and in other countries around the world.

4.1 Statistical Analysis and Interpretation

The total change in the dependent variable (ROE) demonstrated by the independent variables (R-squared) equals to (0.628) which is statistically significant at the level of less than (0.05) where (Sig. R = 0.0000), and the value of the determination coefficient (adjusted R- squared) equals to (0.269).

The total change in the dependent variable (ROA) demonstrated by the independent variables (R-squared) equals to (0.730) which is statistically significant at the level of less than (0.05) where (Sig. R = 0.0000), and the value of the determination coefficient (adjusted R- squared) equals to (0.435).

The correlation analysis test:

To examine the correlation between the dependent variables and the independent variables, we accept one of the following hypotheses:

H0: There is no correlation between liquidity management and banks profitability.

H1: There is a correlation between liquidity management and banks profitability.

The decision rule as follow:

Accept H0 if (Sig. R) > 5%.

Accept H1 if (Sig. R) <5%

The analysis outputs show that the significant of the correlation value equals to (Sig. R = 0.0000), that there is a statistically significant correlation between liquidity management and banks profitability.

The research hypotheses test:

The following two models used to investigate the effect of the independent variables on banks profitability, as follows:

Y1 = a ± a1 (X1) ± a2 (X2) ± a3 (X3) ± a4 (X4) ± a5 (X5)

Y2 = b ± b1 (X1) ± b2 (X2) ± b3 (X3) ± b4 (X4) ± b5 (X5)

Test results of the research hypotheses:

The hypotheses test shows the results as follows:

1). There is a statistically significant positive effect of the investment ratio on profitability of the Pakistani commercial banks.

2). There is a statistically significant positive effect of the net credit facilities divided by the total assets on profitability of the Pakistani commercial banks.

3). There is a statistically least positive effect of the capital ratio on profitability of the Pakistani commercial banks, when the profitability measured by ROE, but this effect becomes significant positive when using ROA as a proxy for profitability.

4). There is a statistically significant negative effect of the liquid ratio on profitability of the Pakistani commercial banks.

5). There is a statistically significant negative effect of the current ratio on profitability of the Pakistani commercial banks.

To examine the total variation in the dependent variable explained by the independent variables, we accept one of the following hypotheses:

Ho: There is no statistically significant effect of liquidity management on the profitability of the Pakistani commercial banks.

H1: There is a statistically significant effect of liquidity management on the profitability of the Pakistani commercial banks.

Table:2Coefficients of the independent variables on (ROE)

| Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-62.783	22.997		-2.730	.012
	IR	.552	.870	.434	.634	.532
	NCF/TA	.345	1.125	.201	.306	.762
	CR	2.974	1.087	.547	2.735	.012
	LAR	14.479	7.978	.575	1.815	.082
	CrR	-7.927	4.475	-.551	-1.771	.089

a. Dependent Variable: ROE

Source: Author computation from computer output.

Table 3. Coefficients of the independent variables on (ROA)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-5.070	1.252		-4.048	.000
	IR	.073	.047	.924	1.538	.137
	NCF/TA	-.022	.061	-.204	-.355	.726
	CR	.252	.059	.747	4.252	.000
	LAR	.473	.435	.303	1.089	.287
	CrR	-.278	.244	-.312	-1.142	.265

a. Dependent Variable: ROA

Source: Author computation from computer output.

Profitability
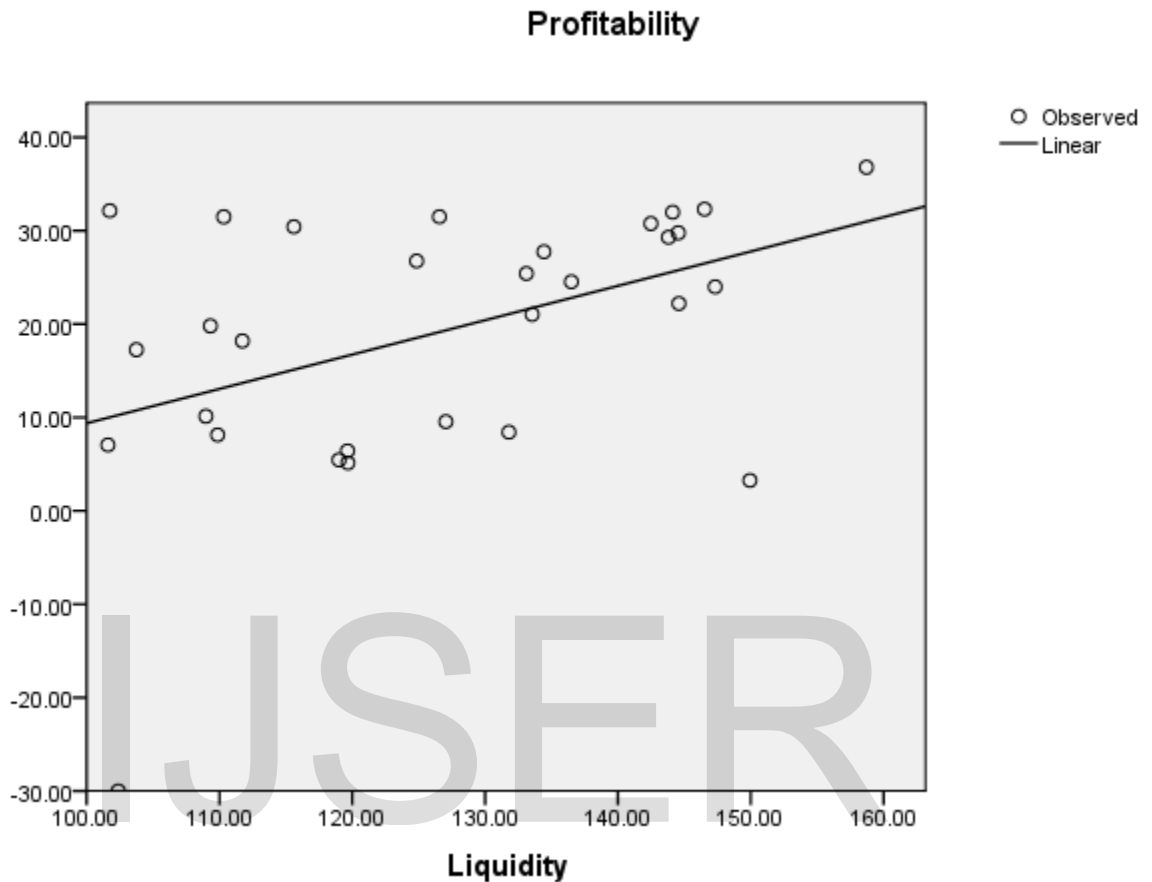
Determining the coefficients values of the research models:

Based on the coefficients values in the two tables above, the regression equations will be written as follows:

$$Y1 = -2.730 + 0.634X1 + 0.306X2 + 2.735X3 + 1.815X4 - 1.771X5 \tag{1}$$

$$Y2 = -4.048 + 1.538X1 - 0.355X2 + 4.252X3 + 1.089X4 - 1.142X5 \tag{2}$$

Equation (1) indicates that the profitability as measured by return on equity is affected negatively by the current ratio, and negatively affected by the other variables.

While the second equation indicates that the profitability as measured by return on assets is affected positively by the investment ratio, Capital ratio, and the liquid assets ratio, but the profitability is negatively affected by the two other variables.

5. Findings

The purpose of this research was to investigate the effect of the banking liquidity management on profitability in the Pakistani commercial banks, through identifying the indicators of banking liquidity and profitability during the time period (2004–2013).

The review of the preliminary figures showed that there is a lack of uniformity in these figures during the research period, and the analysis results show that there is a positive effect of some liquidity indicators on the profitability of these banks.

It is noted that an increase in the investment ratio, as well as in the liquid assets ratio lead to an increase in profitability by raising the return on equity (ROE) and return on assets (ROA), and that means the profitability in the commercial banks increases with an increase in the liquid assets ratio and the investment ratio. The results also indicate that a decrease in the percent of the invested funds out of the total available funds, as well as a decrease in capital, leads to increase in profitability in the Pakistani Commercial Banks when measured by ROE, but an increase in the capital ratio leads to increase in profitability as measured by ROA.

The researcher notes that, the result of decreasing in the percent of invested funds as well as in the Bank capital contribute in increasing profitability in the Pakistani commercial banks, this result does not correspond with the logic which indicates that an increase in invested funds and in capital lead to an increase in profitability. While the result of decreasing in the percent of Acid liquid assets leads to increase in banks profitability, is logical and compatible with the principle of tradeoff between liquidity and profitability (decreasing in the liquid assets leads to a decrease in liquidity and at the same time leads to an increase in profitability).

6. Summary and Conclusion

The major aims of this research were to find empirical evidence of the degree to which effective liquidity management affects profitability in commercial banks and how commercial banks can enhance their liquidity and profitability positions.

Based on the research findings, the researcher concluded that, there is an effect of the liquidity management on profitability in the Pakistani commercial banks as measured by ROE or ROA, where the effect of the investment ratio and liquid ratios on the profitability is positive when measured by ROE, and the effect of capital ratio on profitability is positive as measured by ROA, and the effect of the other independent variables on the two measures of profitability (ROE and ROA) is negative, the researcher thinks that this negative effect is due to the increased volume of untapped deposits at the Pakistani commercial banks.

Thus, a bank needs to maintain adequate liquidity, which greatly affects profits.

Consequently, the researcher recommends that there is a need to invest the excess of liquidity available at the banks, in a various aspects of investments in order to increase the banks' profitability and to get benefits from the time value of the available money, also the Pakistani commercial banks should adopt a general framework for liquidity management to assure a sufficient liquidity for executing their works efficiently, and there is a need to make an analytical study of the liquidity evolution rates to assess the banks' ability to achieve a balance between sources and uses of funds, the banks need to adopt of a scientific methods in detection of the strengths and weaknesses points of liquidity, especially in light of the sudden circumstances that may be exposed by banks.

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