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Liquidity Management and Its Impact on Banks Profitability: A Perspective of Pakistan

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Abstract : Purpose:-*The basic aim of this research is to examine liquidity management impact on profitability in banking sector of Pakistan.*

Methodology: - *The secondary data used for this study and taking from publish annual report of ten banks (2006-2015). The data was analyzed by using correlation, descriptive statistics and regression techniques run on E-views. The quick, current, cash, interest coverage and capital adequacy ratios are taken as dimension of liquidity and return on asset, return on equity, and earning per share as dimension of profitability.*

Findings: - *The research finding shows that quick and capital adequacy ratio has positive impact on banks profitability determinants earnings per share and return on assets. The cash and current ratio has a negative relationship with return on assets. While interest coverage ratio is positively associated with return equity and earnings per share and is negatively associated with return on equity. Therefore overall empirical results show that liquidity management has positive impact on banks profitability.*

Research Limitation: - *This paper examines banks liquidity management and their impact on banks profitability in Pakistan by taking only ten conventional banks data for ten year. The further research can be conducted by adding different segment, banks and countries.*

Key words: *Liquidity, Conventional Banks, Profitability, Regression, Pakistan.*

Research Type:*Research paper*

I. INTRODUCTION

This study evaluates the liquidity management impact on banks profitability in Pakistan. Liquidity can be defined as the assets or securities which can be easily convertible into cash. Basically Liquidity refers to the short term assets (cash, short term advances, and balance with other bank) and short term liabilities (short term borrowing, account payable, lending to financial institution and short term deposits). Liquidity explains the company capability to cope with it short duration liability because it plays vital role in defining how efficiently a firm manage its short duration requirement and invest the cash to rise the profitability of the organization. In banking sector the liquidity management is significant element that will be considered to determine the bank's profitability. Liquidity management is essential for banks effectiveness and profitability. There are different studies that explain the liquidity management and its effect towards the profitability in banking sector.

The profitability is defined as the ability of the firm to generate the profit to uses it resources. Under this study profitability shall be appraise in relation to the liquidity. The basic goal of any firm is to generate and to enhance the profit of the firm, so it is compulsory to utilize its resources efficiently. There is need firm shall determine and maintain highest level of liquidity. Therefore, there is significant impact of liquidity management on banks profitability. Because there is need to fulfill short term requirement of cash and have some amount in liquid form to exploit the investment opportunity for gain.

Banking sector perform an essential role in business sector and economy of any country. Bank is a financial institution who deposits the saving of public and gives loan to people, other institutions, organization, Govt. etc. Bank also makes investment for the purpose of profit. Thus, to get maximum benefit there is need to effective use of resources. To achieve maximum benefit the bank should find out the highest level of funds to fulfill the short term requirement and then make the investment of further funds and also have some funds to get gain from investment opportunity. Because by effectively manage liquidity banks can increase the profitability.

According to study purpose relationship of banks profitability and liquidity management examined. The study results explain the importance of liquidity management for banks to maximize the profit. Due to this reason,

research is very essential for best utilize of resources and profit maximization. Our study purpose is to put a look on liquidity management impact towards banks profitability. To achieve the study objective, ten years data are taken of randomly selected banks from Pakistan but more than ten years data can be collected and selection of banks and countries can be add in sample size to analyze relationship between liquidity management and banks profitability.

This study is organized to explore value of liquidity management towards the bank's profitability. This study is classified in following sections: previous studies are explained in the section-2. Data and methodology are discussed in section-3. In Section-4 of this study, the research model is explained. The results are elaborated in the section-5 and findings are discussed in the section-6 and recommendations are discussed in the last section of study.

II. LITERATURE REVIEW

Literature review includes the previous studies that are related to research study which is directed to look the impact of independent variable on dependent variable. Previous studies play a significant role in conducting any type of research. Thus, the researchers by taking guidelines form such studies can make their research more valuable. The few studies that are related to our research are given below:

Maqsood, et al. (2016) explained that liquidity management had significant impact on banks profitability. The data that were used in this study was taken from financial statement of 8 different banks from 2004 to 2015. The regression and correlation techniques were used in this study. To look the liquidity it uses the current ratio (CR) and cash ratio (CASR) as independent variable and to determine profitability uses return on assets (ROA) as dependent variable.

Bassy, et al. (2016) conducted research to explore relationship between liquidity management and banks performance in Nigeria. The study concluded that efficient and effective management of liquidity is necessary for survival and successful operations of banks.

Ikeora and Andabai (2016) found the positive relationship between the dependent (profitability) and independent variable (liquidity management) using time series data spanning (1989-2013). Liquidity management includes the broad money supply and aggregate bank deposits and profitability was measure by return on assets ratio (ROA). Ordinary least square (OLS) econometrics method was used to analysis the hypothesis.

Salim and Bilal (2016) conducted a study and found significant relationship between the Loans to total assets, Loans to short term liabilities & deposits, Bank's loans, customer deposits to Total assets and return on assets (ROA). The study also found that no significant relationship between liquidity position and net interest margin (NIM) of Omani banks. The data was collected of four banks from 2010 to 2014 from their financial statement to inspect the connection between liquidity and banks financial performance. The data was analyzed by using multiple regression analysis.

Sheikhdon and kavale (2016) concluded that significant linear relationship between Account receivable management, Account payable and cash management on commercial banks performance in Mogadishu. Questionnaire was used as a method of data collection. The target population was 112 employees of commercial banks in Mogadishu. The sample size of 87 respondents was selected using slog van's formula. By using SPSS version the data was analyzed.

Khan and Ali (2016) narrated the positive association among banks liquidity and profitability. The current ratio and quick ratio was consider as measure of liquidity and Gross profit margin and Net profit margin ratios were consider as measure of profitability. The data was taken from annual account of Habib Bank Limited of last five year (2008-2014).

Nedunchezhian and Premalatha (2015) explained that no significant relation between the cash at bank, and return on assets (ROA). And also narrated there was no significant relationship between the advance total assets and return on assets (ROA). The sample size was taken 5 banks out of 20 in India.

Alshatti (2015) conducted a study to found liquidity management impact on commercial banks profitability in Jordan. The research paper taking liquidity management independent variable and return on assets (ROA) and return on equity (ROE) to measure the profitability dependent variable. Quantitative approaches and ratio analysis were used to analysis the data. The study explains that impact of investment and quick ratio (QR) is positive related to profitability when it measure by return on equity and impact of capital ratio was positive

when it is measure by return on assets (ROA) and other independent variable had negative impact on two profitability measure return on assets (ROA) and return on equity (ROE).

Almazari (2014) examined that internal factor that have an effect on profitability of banks that are in Saudi and Jordanian. He concluded that some liquidity indicators had positive correlation with profitability and other liquidity indicators were negatively correlated with banks profitability measured by return on assets of Nigerian and Saudi banks.

Akter and Mahmud (2014) appraised the existence of relationship between liquidity and banks profitability. The profitability was tested by return on assets ratio (ROA) and the liquidity was tested by current ratio (CR). The data for this study was taken from the specific commercial banks income statements and balance sheets of published in the website of such bank. The overall conclusion of this study was that insignificant relationship exists amongst bank's liquidity and profitability in all categories on banks in Bangladesh.

Ibe (2013) discussed that liquidity management was an important problem in the Nigeria. There was need for banks to examine the optimal liquidity position to resolve such problem. The data was collected from three banks which was selected randomly represent the whole banking sector of Nigeria. Profitability represents the after tax profit dependent variable and the liquidity management is independent variable which include the Bank cash assets (CA), Bank Balance, Treasury Bills and certificate. Regression was used to analysis the data.

Al-Nimer, et al. (2013) found that meaningful relationship exists between liquidity and Jordanian banks profitability. This paper examined liquidity as quick ratio (QR) and profitability as return on assets (ROA). The data was collected from fifteen Jordanian banks which are listed in Amman Stock Exchange (ASE) during the period of 2005-2011. The data was analyzed to use simple regression model. The study results showed that profitability is highly influenced by liquidity in the banking sector of Jordan.

Agbada and Osuji (2013)investigated the impact of effective liquidity management on banks performance in Nigeria. The outcomes of this research showed significant link amongst effective liquidity management and banks performance and soundness of banks enhanced by effective liquidity management.

Lartey, et al. (2013) explained correlation between liquidity and banks profitability listed in Ghana. The study result showed that there was little bit positive correlation within liquidity and banks profitability that are listed in Ghana.

Arif and Anees (2012) concluded that there was meaningful effect of liquidity risk factors on banks profitability. Such research article includes 22 Pakistani banks to investigate the impact of liquidity risk factor on the Pakistani banks during the period of 2004 to 2009.

Olagunju, et al. (2011) stated that commercial banks profitability was affected by liquidity. This means when liquidity increase, banks profitability decrease and when liquidity decrease then profitability of banks increase. In order to achieve the object of the study both structured and unstructured questionnaires were used. The data was collect from the management and financial statement of sampled banks. In this study Primary and secondary data were used and analyzed by using Pearson correlation technique.

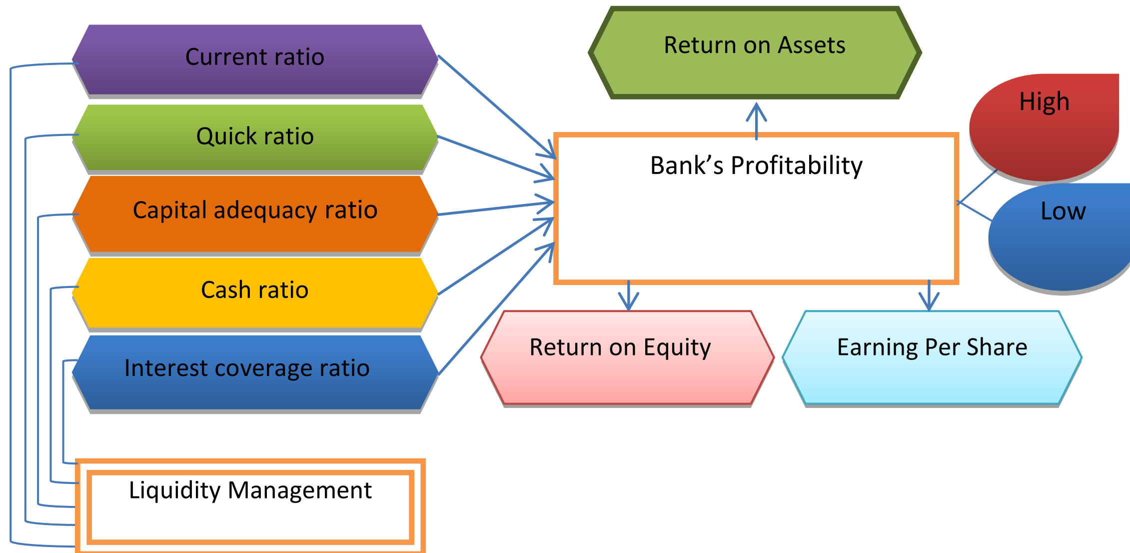
Saleem and Rehman (2011) explained the association of liquidity and enterprise profitability. The results showed considerable effect of all ratios on the financial position of enterprise. This study also explained that profitability plays vital role in enterprise financial position.

Bordeleau and Graham (2010) narrated that banks which hold some liquid assets their profitability increases and banks which hold more liquid assets their profitability goes down. The large banks of United States of America and Canadian were used as a sample in this study.

III- DATA AND METHODOLOGY

This study explains the impact of liquidity management on the profitability of banking sector of Pakistan using different liquidity and profitability ratios. The liquidity management shall be considering as independent variable and profitability as dependent variable. The ten conventional banks are considered as sample which represents the whole banking sector of Pakistan.

CONCEPTUAL FRAMEWORK



Source: Model developed by authors.

The data regarding such paper is collected of ten conventional banks financial statement for the period 2006-2015. The selected banks for the sample are Habib bank limited, Allied, Bank al Falah, Faysal, National, United, Soneri, Askari, Muslim commercial bank limited and Punjab bank limited. The data of liquidity and profitability ratios is extracted from consolidated financial statement of these banks. For data analysis purpose E-views is used to apply the following three techniques: descriptive statistics[1], correlation[2] and regression[3] on the data to examine the nature of relationship between the dependent and independent variable.

3.2 Research Models

The dimensions of profitability are analyzed through the balance panel data. In each of these models the profitability is measure by return on assets (ROA), return on equity (ROE) and earning per share (EPS). The balance panel data is examine by regression equation by taking profitability as dependent and liquidity management as independent variable. Balance panel data base structure describe by regression equation such as;

$$y_{At} = \alpha + \beta X_{At} + \varepsilon_{At} \qquad \text{———} \quad (1)$$

Where y_{At} represent profitability of banks in the simple econometric model and α is constant and β is the coefficient and x is dependent variable and ε is the error term.

The theoretical form of the model is presented below:

$$\text{Profitability} = f\,(\text{Liquidity Management}) \qquad \text{———} \quad (2)$$

The above model explains that profitability is the function of liquidity management. Under these models Arepresents the number of banks and t represents the time period.

Each model determines the impact of banks profitability on liquidity management in Pakistan.

$$ROE = \alpha + \beta_1 CR_{At} + \beta_2 QR_{At} + \beta_3 CASR_{At} + \beta_4 CAR_{At} + \beta_5 ICR_{At} + \varepsilon_{At} \qquad \text{————} (3)$$

$$ROA = \alpha + \beta_1 CR_{At} + \beta_2 QR_{At} + \beta_3 CASR_{At} + \beta_4 CAR_{At} + \beta_5 ICR_{At} + \varepsilon_{At} \qquad \text{————} (4)$$

(5)

$$EPS = \alpha + \beta_1 CR_{At} + \beta_2 QR_{At} + \beta_3 CASR_{At} + \beta_4 CAR_{At} + \beta_5 ICR_{At} + \varepsilon_{At} \qquad \text{————}$$

The liquidity is check out by five different liquidity ratios and banks profitability is check out by three different profitability ratios which are explain in table 1.

3.3 Variables

The various variables are used to examine liquidity management effect on banks profitability. Banks profitability is measure using return on assets (ROA), return on equity (ROE) and earning per share (EPS) respectively. A number of variables are used as a proxy of liquidity management.

Dependent variables: Under this study banks profitability is considered as dependent variable. Banks profitability measure by using three profitability ratios: return on assets (ROA), return on equity (ROE) and earning per share (EPS) which are explained below:

- *Return on Assets (ROA):* Return on assets (ROA) means that how much profit banks generate by managing it assets. It is calculate by dividing net profit by average total assets. Higher the return on assets (ROA) means higher the bank's profitability. Masood and Ashraf (2012) also considered return on assets (ROA) as a dimension of banks profitability.
- *Return on Equity (ROE):* Another banks profitability dimension is return on equity (ROE) which is compute by dividing earning after interest and tax with the average total equity. Return on equity (ROE) means profit return as portion of total equity invested. It means the parentage of income generate by using the equity of shareholders. Return on equity (ROE) as determinant of banks profitability is also taken by (Masood, et al. 2015)
- *Earning per share (EPS):* This study contains earning per share (EPS) as final dimension of banks profitability. It means that the part of a company's earnings after interest and tax that is distribute to every common stock outstanding, which use an indication of business's success. It is calculate by dividing the net income to no of shares outstanding. (Investopedia).

Independent variables: Liquidity management is taken as independent variable under such research contains cash ratio (CR), quick ratio (QR), current ratio (CR), interest coverage ratio (ICR) and capital adequacy ratio (CAR) are explained below:

- *Cash ratio (CASR):* One of the company's liquidity indicators is compute by dividing the company's cash to its current liabilities. It provides a look that how much Cash Company has to meet its short term requirements.

Table I. Determinants of Liquidity Management and Banks profitability

Determinants	Variable	Measures	Notations
Profitability	Return on assets	Net profit / Average Total assets	ROA
	Return on equity	Net profit / Average Total Equity	ROE
	Earnings per share	Profit attributable to equity holder / No. of share outstanding	EPS
Liquidity Management	Current Ratio	Current Assets / Current Liabilities	CR
	Quick Ratio	Quick Assets / Current Liabilities	QC
	Cash Ratio	Cash / Current Liabilities	CASR
	Capital Adequacy ratio	Total eligible regulatory capital held /Total risk weighted assets	CADR
	Interest coverage Ratio	Profit before interest and tax / Total interest expenses	CAR

- *Quick ratio (QR):* The quick ratio (QR) also recognized as acid test ratio shows bank's capacity to fulfill its short term requirement (current liabilities) when relate only with quick assets. Quick assets include cash, cash equivalents, account receivable, short term investments or marketable securities. An increase in quick ratio (QR) is a positive sign for bank's because it means banks have more quick assets to pay its current liabilities (myaccuontingcourse).
- *Current ratio (CR):* Current ratio (CR) is compute via dividing short term assets to current liabilities. Current assets are those may be convert within one year into cash and current liabilities means obligation that must fulfill within one year.
- *Capital Adequacy ratio (CADR):* This study also include capital adequacy ratio (CAR) as one dimension of liquidity management it describe bank's capital proportion towards its current liabilities and risk weighted assets. It is decided by bank supervisory and central bank to avoid commercial banks from additional leverage and becoming bankrupt in process (economictimes).
- *Interest coverage ratio (ICR):* Interest coverage ratio (ICR) also identified as times interest earned ratio (TIE) measures bank's ability to pay its interest expense on its debt. It is computed by dividing before interest and tax earning to total interest expense of the same time period.

IV. RESULTS

Table - II The descriptive statistics results display that return on equity (ROE) and capital adequacy ratio (CAR) have greatest average values while cash ratio (CR) has lowest average value. This descriptive statistics table also shows that standard deviation is also highest for the return on equity (ROE) whereas cash ratio (CR) has the lowest standard deviation value. The greatest difference of maximum and minimum is also for return on equity (ROE).

Table-II: Descriptive statistics

Variables	Mean	Max	Min	S. D.
ROA	1.3109	3.7900	-5.0000	1.3421
ROE	12.1965	37.9000	-203.0000	27.7896
EPS	8.0759	26.1700	-83.0500	12.6713
QR	0.4130	1.1100	0.1200	0.1753
CR	1.5735	3.7100	0.5300	0.5902
CASR	0.2648	0.5300	0.1100	0.0847
ICR	1.7311	4.8300	-4.7500	1.1349
CAR	13.5280	22.2500	1.0800	4.0144

The highest value of mean is 13.5280 for capital adequacy ratio (CAR) and lowest value of mean is 0.2648 of cash ratio (CR). The highest value of standard deviation is 27.7896 and lowest value is 0.0847 respectively. Table–III The correlation results display that profitability dimension return on equity (ROE) is positively associated with return on assets (ROA) at 0.83 Percent. Earning per share (EPS), quick ratio (QR), interest coverage ratio (ICR) and capital adequacy ratio (CAR) has positive relationship with return on assets (ROA) and return on equity (ROE). The current ratio (CR) and cash ratio (CASR) has a negative relationship with dependent variable return on assets (ROA) and return on equity (ROE). Moreover, the findings also specify that quick ratio (QR), current ratio (CR), cash ratio (CASR) has a negative relationship with earning per share (EPS).

Table-III: Relationship between variables

Variables	ROA	ROE	EPS	QR	CR	CASR	ICR	CAR
ROA	1							
ROE	0.8288	1						
EPS	0.7494	0.6426	1					
QR	0.0043	-0.0091	-0.0795	1				
CR	-0.3279	-0.3368	-0.3786	0.7677	1			
CASR	-0.0453	-0.1212	-0.0586	0.8368	0.7148	1		
ICR	0.9441	0.832	0.6886	0.0265	-0.31	-0.0246	1	
CAR	0.7183	0.5113	0.7259	0.2478	-0.5084	-0.148	0.6589	1

The table-IV shows the regression results for one banks profitability dimension return on assets (ROA). Regression results are analyzed at significant level of 15 percent. The probability is considered to examine the levels of significance of results. The values of coefficient and t-statistics are analyzed to look that relationship is positive or negative. Positive values of coefficient and t-statistics means that the relationship is positive and vice versa.

Table-IV: Dependent variable: Return on Assets (ROA)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.0588	0.2657	-3.9847	0.0001
ROE	0.0066	0.0028	2.3741	0.0197
EPS	0.0113	0.0052	2.1860	0.0314
QC	0.3116	0.5069	0.6148	0.5402
CR	0.1302	0.1331	0.9776	0.3302
CASR	-0.8999	0.9300	-0.9676	0.3358
ICR	0.7853	0.0744	10.5603	0.0000
CAR	0.0550	0.0172	3.1928	0.0019
R-squared	0.9220			
F-statistic	151.9987			
Prob.	0.0000			

The results show that interest coverage ratio (ICR), capital adequacy ratio (CAR), return on equity (ROE) and earning per share (EPS) ratio has significant and positive relationship with banks profitability. Current ratio (CR) and quick ratio (QR) demonstrates the positive and insignificant relationship with profitability. And cash ratio (CR) has negative and insignificant relationship with bank's profitability.Maqsood, et al. (2016) also found that current ratio (CR) and quick ratio (QR) has positive relation when it measure with return on assets (ROA).

Table-V Regression results taking return on equity (ROE) as dependent variable shows that interest coverage ratio (ICR) and quick ratio (QR) shows the significant and positive relationship with banks profitability. While the cash ratio (CASR) and current ratio (CR) has negative and insignificant relationship with banks profitability. The capital adequacy ratio (CAR) has negative but significant relationship with banks profitability.

Table-V: Dependent variable: Return on Equity (ROE)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.5953	10.4652	1.5858	0.1163
ROA	8.9378	3.7647	2.3741	0.0197
EPS	0.3306	0.192	1.7218	0.0885
QC	29.0832	18.4477	1.5765	0.1184
CR	-7.5471	4.8616	-1.5524	0.1241
CASR	-15.8405	33.9795	-1.5256	0.1306
ICR	10.4261	3.9464	2.6419	0.0097
CADR	-1.7180	0.6436	-2.6695	0.0090
R-squared	0.7534			
F-statistic	39.2900			
Prob	0.0000			

Return on equity (ROE) and earning per share (EPS) shows considerable and positive impact on banks profitability. The interest coverage ratio (ICR), quick ratio (QR) and capital adequacy ratio (CAR) are significant at 0.0097, 0.1184 and 0.0090 respectively.

The table - VI shows the regression results by considering the earning per share (EPS) as dependent variable. The results show that quick ratio (QR) and cash ratio (CASR) has positive but insignificant impact on banks profitability when it measure by earning per share (EPS). The current ratio (CR) and interest coverage ratio (ICR) shows negative and insignificant relationship with bank profitability. Finally the capital adequacy ratio (CAR), return on equity (ROE) and return on assets (ROA) has significant and positive relationship with banks profitability.

Table-VI: Dependent variable: Earnings per Share (EPS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.9807	5.5903	-2.1431	0.0348
ROA	4.4653	2.0427	2.1860	0.0314
ROE	0.0965	0.0560	1.7218	0.0885
QC	2.2035	10.0984	0.2182	0.8278
CR	-2.5903	2.6469	-0.9786	0.3304
CASR	15.1018	18.5214	0.8154	0.4170
ICR	-2.5103	2.1969	-1.1427	0.2562
CADR	1.2226	0.3373	3.6242	0.0005
R-squared	0.6540			
F-statistic	24.3038			
Prob	0.0000			

These results are taking by considering the earning per share (EPS) as dependent variable. The results show that capital adequacy ratio (CAR) has significant and positive correlation with profitability and the significance level is 0.0005 percent.

V. SUMMARY & CONCLUSIONS:

The basic goal of this study is to explore liquidity management impact on profitability in the banking sector of Pakistan. The data is taken from annual reports of ten banks from 2006-2015. The data is analyzed by using correlation and regression run through E-views 9.5.

The findings of such study clarify that interest coverage ratio (ICR) has positive and significant relationship with banks profitability when it analyzed by banks profitability determinants return on assets (ROA) and return on equity (ROE). The capital adequacy ratio (CAR) has positive and significant relationship with earning per share (EPS) and return on assets (ROA). The quick ratio (QR) has positive and insignificant relationship with return on assets (ROA) and earnings per share (EPS). Moreover, quick ratio (QR) has positive and significant relationship when evaluate using return on equity (ROE). The current ratio suggests positive but insignificant relationship with banks profitability while it investigate with return on assets (ROA). The findings of this study also narrated that cash ratio (CR) is positively linked with banks profitability dimension return on equity (ROE). The results also indicate that cash ratio (CR) is negatively correlated with banks profitability when it evaluate by return on equity (ROE) and earnings per share (EPS). And current ratio (CR) suggests the negative and significant relationship with return on assets (ROA) and negative and insignificant with earning per share (EPS). Therefore, the overall results explain that liquidity management has positive relationship with banks profitability. The research results also relate to the previous studies conducted by various scholars.

VI. RECOMMENDATIONS

The research result shows that liquidity is an essential factor for banks profitability. So, there is entire need bank must maintain a sufficient amount of liquidity to fulfill its short term demand of cash and to exploit investment opportunity for maximize the profitability. Because if banks don't effectively and efficiently manage the liquidity then it cannot fulfill the short-term obligations and take the advantage of investment opportunity. This research is directed by taking only ten years data of ten banks about liquidity and profitability in Pakistan so; the further research can be organize by taking other segment of bank, more banks and more years' data and more countries in the future.

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