

DETERMINANTS OF LIQUIDITY OF PRIVATE BANKS OF INDIA

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Abstract: For the upliftment of an economy, a healthy and strong banking sector is of paramount importance. The efficiency and viability of banks is much affected by the liquidity level they possess. This paper investigates the factors that determine liquidity of Indian private banks. Using panel data, empirical analysis is carried out on the commercial banks of India for the period 2005 to 2017. The bank specific factors included are bank size, deposits, cost of funds, capital adequacy ratio, non performing assets and ROE. The result shows private sector banks relying more on financial markets with their increasing size holds less liquidity.

Keywords: Liquidity, bank size, non performing assets, capital adequacy ratio, ROE

INTRODUCTION

Liquidity is the degree with which an asset without any change in its price can be easily bought or sold in the market. More precisely, it is the ability of a firm or financial institution to meet the cash demand with low or no financial loss. In case of bank, liquidity refers to the assets that are either in form of cash or immediately convertible into cash without any serious loss of time and money. Direct cash holding in currency or holding creditworthy securities including government bills with short term maturities provides liquidity to a bank.

The literature on finance holds that liquidity is difficult to define but it's easy to identify. In economics liquidity represent the ability to exchange wealth for goods and services. The meaning of liquidity emphasized two important aspects. First aspect describes it as a flow concept while the others holds it as the ability to realize these flows. The Basel committee on banking Supervision (2006) describes liquidity as the funds that can meet funding requirement and business needs very easily.

For the upliftment of an economy, a healthy and strong banking sector is of paramount importance. The efficiency and viability of banks is much affected by the liquidity level they possess. In order to avoid the risk of being called illiquid, banks must meet their financial obligation when they come due (Crocket,2008). Banks act as liquidity provider in a financial system but at times banks may face shortage of liquidity due to unexpected deposits withdrawal or large amount of standby credit drawn. Therefore effective risk management is required to maintain coordination of the cash inflows and outflows(Nagret, 2009). Liquidity shortage of one bank can spread to other banks affecting the entire financial system and as such liquidity is notonly important for an individual banking but the entire banking industry. Liquidity is expressed neither as an amount nor ratio but as an ability of bank to fulfill its mandatory obligation (Tian,2009).

THEORETICAL FRAMEWORK

Based on theories and concepts some important bank specific variables are discussed here with their effects on profitability of banks.

Bank size is an important determinant of profitability. For the banking sector the existence of economics and dis economics of scale are decided through the size of total assets of a bank. Bank size is measured by the logarithm of total assets to keep it consistent with other variables. Larger banks enjoy more economics of scale which help them to earn more return. Arellano and Bond (1991) postulated that banks can increase their profitability with the cost advantages they experience through their growing size. However, Regehr and Sengupta (2016) bank size increases bank's profitability but at a decreasing rate. A firm enjoys economics of scale up to a certain point and then dis economics of scale begin to operate. This mean that profitability increase only up to a level and then dis economics of scale set in. Thus, literature has both the views regarding the relationship between profitability and bank size.

Bank with adequate capital are more capable of handling losses and risk of shareholders. Capitalized banks are save to meet its financial obligations. A bank can adhere to the regulatory capital standards when it is equipped with high amount of capitals and hence advance more funds as loan increasing its profit-share. Moreover, the fear of going bankrupt is also minimal reducing their funding cost and increasing profitability. (Burger 1995, Bourke 1989). Henceforth, capital adequacy ratio is also a key factor affecting profitability.

Another variable considered under study is non- performing assets. An asset for which the interest and the principal amount remain overdue for 90 days is called non performing asset (NPA). The NPA results lower profitability for a bank. With increasing NPA, banks risk taking capacity reduces and it becomes difficult to invest on risky assets. Nonperforming assets have opportunities costs, the non –interest-earning assets could have been invested somewhere else to earn more. Moreover, cost is also invested in attempts to recover the bad loans.

Loans are the main source of earning for commercial banks. Deposits creates loan and so higher the deposits higher will be the loan advancing by the bank resulting in higher internet margins. Therefore, there is a positive relation between banks profitability and deposits. But if a bank fails to transport its deposits into loan efficiently it might have adverse efforts on banks' profits.

Cost of Fund is determined by the rate of interest paid to depositors on financial products including saving accounts and time deposits. The spread between the cost of fund and the interest rate charged for its loan are one of the main sources of profit for a bank. As the cost of fund increases, profitability is reduce by a decline in gross margins. But SienPeng and Mansor (2017) argued that as banks main source of funding is deposits, higher the cost of funds; higher will be the lending rate that bank charges and hence profitability increases.

Last but on the least non interest income can also affect profitability to a great extent. Deregulation of interest rates during the reform has totally made the banking sector more competitive. Banks have started to diversify their business focusing more on fee based activities. Non interest income(NII) expands banks source of earning and contributes to profit. Most researchers believe that NII can not only increase profit but also reduces the risk to a bank. While according to others, NII can increase income in the initial stage of development but as the bank business expands; the rising operating cost for earning NII decreases the net income. Lepetit et al. (2018) holds that if the proportion of commission in total income is much high, profit will decrease. Thus, literature has both the views on non-interest income.

OBJECTIVE OF STUDY

The study has been carried out to determine the relationship between the bank specific factors and liquidity. The overall objective of the paper is to identify the significant determinants of liquidity of private banks in India.

RESEARCH METHODOLOGY

To identify the factors affecting liquidity of private sector banks, the technique of panel data is used. In the study balanced panel data private sector banks from the period pertaining from 2005-2017 has been considered. Hausman test was applied to check whether to select the fixed effect estimates or random effects estimates for the given set of data. Fixed effect estimates are usually correlated with the regressors (The dependent variable considered in this study is liquidity which is defined as liquid asset (sum of cash in hand, available balance with RBI, balances with other banks and money at call short notice) over total assets.

MODEL SPECIFICATIONS

Based on the theoretical framework, the following model has been formed to run our regression for public and private sector banks separately

$$LIQ_{it} = \alpha_{it} + \beta_1 SIZE_{it} + \beta_2 DEP_{it} + \beta_3 CoF_{it} + \beta_4 NPA_{it} + \beta_5 CAR_{it} + \beta_6 ROE_{it} + \varepsilon_{it}$$

Where, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the co-efficients of determinant variables and ε is the error term. A panel with i representing bank and t representing time (year) is constructed. The data comprised 19 private sector banks within a time period of 2005-2017. The total number of observation is 247.

➤ LIQ = Liquid assets/Total assets

Independent Variables:

- Size= Bank Size
- DEP= Deposits
- CoF= Cost of funds
- NPA= Net Npa (assets quality indicator)
- CAR= Capital Adequacy ratio
- ROE= Return of equity (Profitability indicator)

i represents Bank and t represents time (year)

ANALYSIS OF THE STUDY

As a first step descriptive statistics of the data is given in table 1 The table shows mean, standard deviation, minimum and maximum value for all the variables used in the study for the period 2005-2017

Table 1
Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Liquidity	247	.0897004	.053717	.036	.328
Bank size	247	12.61745	1.477403	9.071	15.972

COF	247	6.493113	1.148106	2.295	8.889
NPA	247	1.249399	1.161608	.01	6.34
Deposits	247	614960.5	1003951	6630.345	6436397
ROE	247	12.73325	9.504917	-63.787	25.79
CAR	247	14.86134	4.936096	9.58	56.41

Source: Own estimation

The hausman test was done to choose the appropriate model between fixed effects and the random effects model. The null hypothesis is that the preferred model is random effects with the alternative hypothesis being the model is fixed effect. If the p value is less than 0.05 we reject the null hypothesis and choose the fixed effect model.

Table 2
Hausman test results

Test Summary	Chi.sq. Statistics	Chi Sq. d.f.	Prob.
Cross Section Random	1.51	5	0.9123

Source: Own estimation

Results shows the p value is greater than the conventional significance level of 5% and thus we cannot reject the null hypothesis and accordingly the appropriate model for our study is random effect model.

Table 3
Diagnostics tests

a. VIF		
Variable	VIF	1/VIF
ROE	2.00	0.500345
NPA	2.20	0.454239
CAR	1.21	0.829622
Deposits	3.37	0.296509
COF	1.12	0.895379
Banksizes	3.63	0.275457
Mean VIF	2.25	
b. Breusch-Pagan / Cook-Weisberg test for heteroskedasticity		
Ho: Constant variance		
chi2(1)	=	156.68
Prob> chi2	=	0.0005

c. Breusch-Godfrey LM test for autocorrelation

H₀: no serial correlation

Chi²= 77.283

prob>chi²= 0.000

Source: Own estimation

A series of diagnostics test was done. Firstly, multicollinearity was tested through the variance inflation factor (VIF). VIF is tested for all the variables included in the model and results clearly depicts that none of the variables are collinear as the VIF value is less than the threshold value of 10.

Secondly to detect heteroskedasticity, Breusch-Pagan / Cook-Weisberg test for heteroskedasticity was performed. According to the results the p value is less than the 5% level of significance and therefore the null hypothesis of constant variance is rejected. Hence, the model suffers from the problem of heteroskedasticity.

Thirdly, to detect autocorrelation Breusch-Godfrey LM test for autocorrelation was performed. Here the null hypothesis is that there is no serial correlation. But p value is 0.000 which is less than the 5% significance level so we reject the null hypothesis and conclude that the model suffers from the problem of autocorrelation also. The results of diagnostic test clearly depicts that the model suffers from both the problem of autocorrelation and heteroskedasticity and hence the robust regression is used which solves these two problems in panel data. The results of robust regression of random effect model is given below

Table 4 Robust Regression Results

Variables	Co efficients	Standard error	P value
Bank Size	-.0204296	.006239	0.001
Deposits	0.45209	0.05200	0.384
ROE	-.0001069	.0003113	0.731
COF	-.0030536	.0017768	0.086
NPA	.0000263	.0027786	0.992
CAR	.0021681	.0002236	0.000
Cons_	.3329525	.0693229	0.000
R square = .2871			
No. of observation = 247			
Prob(f statistic) = 0.0000			

Source: Own estimation

The regression results shows a positive relationship between banks liquidity and profitability. Banks with higher amount of returns may have more liquid assets as the returns cannot always distributed as soon as they are obtained. However, this results was not statistically significant. The cost of funds was found to be significantly affecting bank's liquidity. The relationship was negative. This results does not follow the prediction that with increasing funding cost banks raises their liquid assets buffer. Non-performing loans was found to be positively related to private bank's liquidity. Similar results was obtained for

Slovakian commercial banks by Vodova (2011). However, the results was not found to be statistically significant.

The capital adequacy ratio was significantly affecting bank's liquidity positively. As banks capital ratio increased banks liquidity level also increased. This result is similar to studies of Vodova (2011). Sheefeni (2016). Capital adequacy ratio guarantees stability to financial system by lowering risk of insolvency which in turn reduces liquidity risk.

Conclusion:

The regression results shows a negative relationship between bank size and liquidity. This results was also statistically significant at 5% significance level. This result is due to the fact that large banks can mobilize their deposits with less difficulty and are able to grant more loans which reduces its liquidity level. Studies of Vodova (2011); Singh and Sharma (2016) also found a negative relation between banks size and liquidity. Deposits of banks was found to be positively affecting liquidity in case of private banks. However, the result was not statistically significant.

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