Determinants of Bank Liquidity: Empirical Evidence from Listed Commercial Banks with SBP

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Abstract
This study empirically investigates the determinants of commercial banks liquidity; we took a sample size of 31 listed commercial banks with state bank of Pakistan from a population of 37 commercial banks. A convenience sampling method is used to collect data for the period of 10 years, starting from 2005 up to 2014.The stock approach method was used to measure the bank liquidity. The results of balance fixed effect model showed that the independent variables like CAP and GDP have positive and significant impact on bank liquidity while NPL and BS have statistically significant and negative impact on bank liquidity. Subsequently we found that ROE and INF have statistically insignificant but positive relationship with bank liquidity. Moreover, commercial banks in Pakistan should not only be focused about bank specific variables, but they must consider both the internal and external factors together in developing strategies to improve the liquidity position of the banks. The results of this study are important for credit manger, regulators and academician, in the sense, that they can facilitate commercial banks in efficient resource allocation.
Keywords: Bank liquidity, Liquidity risk, Financial Institutions, State Bank of Pakistan (SBP), Bank for international settlement (BIS)

Introduction

Commercial Banks are major players in the financial universe; this fact is proved by the financial crises in 2007-08. The commercial banks perform the key role as transfer surplus funds from developed sectors to needy sectors and in this way banks create a balance between surplus economic units and deficit business units and strengthen the overall economic condition of a specific country. BCS, (2000) explains that bank liquidity is necessary for banks' daily routine operations to pay the claim of their short term depositors as well as short term business obligations. If banks could not satisfy the claim of depositors then this will create the banks to face liquidity shocks and ultimately, banks are going to bankruptcy or liquidation. . BIS, (2008) said that bank liquidity means to satisfy the claim of depositors as they come due, without further undesirable losses. Diamond and Dybvig, (1983) concluded that the main reasons that the banks are delicate; their role in transforming maturity and providing assurance in respect of short term depositor's that whenever they need their deposits, the bank will satisfy their claims. This argument of bank fragile is supported by most recent researchers (Rauch et al. 2009). Hence; liquidity is the key element of banks to safeguard against bankruptcy.

Basel 111, (2010) was published for the purpose to overcome the shortfall of Basel 11 regarding bank liquidity. Basel report, (2010) clearly states that bank should maintain the liquidity coverage ratio which reflects that reasonable level of liquid assets and must be fulfilling the liquidity provisions for a one month time period under a rigorous state of liquidity stress. Basel 111 has highlighted the importance of holding liquid assets. In the event of recession in a country, banks with more liquid assets have better survival chances than those banks with less liquid assets. This will encouraged the banks to hold more liquid assets to control the economic downturn. During the subprime crisis, large banks failed due to lack of liquidity even if they received extensively liquidity support. After this crisis, the regulators start to make proposals to implement liquidity ratios in addition to capital standard. Moreover, Ionica Munteanu, (2012) concluded that the lack of bank liquidity are caused by global crisis as well as all negative events. The lender of the last resorts support to commercial banks regarding bank liquidity, even with such far-reaching support, many financial institutions were declared bankrupt even they were profitable due to liquidity mismanagement as in the case of Lehman Brothers in 2008.

Theoretical Background

The notion of bank liquidity has received substantial attention from both researchers and popular academics. Various studies have been carried out to investigate the bank liquidity and its determinants. Keynes, (1936) has presented Liquidity Preference Theory and recognized that three reasons on why people demand and prefer liquidity. The transaction motive of holding cash means daily transactions of the company to keep the business wheel turning. The precautionary motive reflects that a company must also keep liquidity for meeting unforeseen or unexpected cash out flows. Speculative reason refers to business units prefers liquidity to take advantage of special investment opportunities which will result increase the profit of banks.

Wang, (2002) says that banks make sure the availability of liquidity in the economy by accepting

deposits, liquid liabilities and then advancing long term loans to economy against demand deposits and keep illiquid assets. Banks face transformation risks and ultimately, bank runs on deposits occurred. Drehmann and Nikolaou, (2009) concluded that the ability of banks to settle their obligations within a given time period is called funding liquidity. Unexpected withdrawals from depositors are likely to exceed the available amount of cash; such unbalances would cause fall in the bank liquidity i.e. asset liquidity risk and funding liquidity risk. Hence, bank maturity transformation risk arises from the mutual interaction of the above two liquidity risk. Maturity transformation reflects that banks cannot fulfill the unexpected withdrawals of depositors.

Objective of the Study

To identify the determinants of bank liquidity in Pakistani commercial Banks

Review of Literature

Horne and Wachowicz, (2000) said that more liquidity creation for general public can cause higher risk because a maturity transformation risk can arise and cannot satisfy the claim of depositor's demand. *Bryant (1980), Diamond and Dybving, (1983) were presented first model regarding banks runs, Deposit insurance, Liquidity and explored that the main role of banks are providing liquidity. Moore, (2009) explored that* it is essential for banks to keep enough liquidity, so banks can meet the depositors claim without any barrier otherwise bank runs may occur. If there is shortage of bank liquidity then banks borrow funds from other banks or central banks to fulfill the depositor's claims. If depositor's claims are not fulfilled by the banks then depositors lose their trust on banking system and ultimately it exposed to runs on banks. *Borodo et al., (2001) states that crisis are the inherent part of the business cycle, when the economy goes into depression, so this will impact the return of business units and face difficulties in repaying loans and eventually, bank non-performing loan increase. Therefore, Banks in one end will face liquidity of their assets (loans) and on the other stand it would be liquidity of their liabilities (deposits) and banks are going to bankruptcy.*

Theoretically there are two contradictory views about bank capital and liquidity. According to the first view there are further two different approaches under which bank capital may hinder liquidity, the financial fragility structure and the crowding-out of deposits hypothesis. The first approach refers to lower bank capital leads higher liquidity (Diamond & Rajan, 2000, 2001), whereas higher bank capital leads crowed-out deposits and by this means leads lower bank liquidity (Gorton & Winton, 2000).The crowding- out of deposits hypothesis refers to shift the investor's money and short-term deposits into bank capital. The investments on capital are not easily converted into cash and cannot be withdrawn as desired and this will reduce bank liquidity. Under The second view, the risk absorption hypothesis, which referred to higher capital favors to generate more liquidity (Diamond & Dybvig, 1983) and (Allen & Gale, 2004).

Iannotta et al., (2007) explained that 'too big to fail' argument, under this argument large banks have no preference on liquidity and small banks have maintain high liquidity. If large banks need liquidity then they can easily approach to external financing within a given time period but it is impossible for small banks to access easily external financing. In this connection, large banks have low cost of funding, because other financial institutions and central banks have trust on large banks as compared to small banks. The central bank advances loans for any bankruptcy fall upon by large commercial banks; therefore, large banks take benefit from an inherent assurance and invest in riskier asset.

Kiyotaki & Moore, (2008) explained that large banks prefer low liquidity because in a situation of cash shortage central bank give advance to them. In contrary, Rauch et al., (2009) and Berger and Bouwman (2009), explored that smaller banks are likely to be stress on intermediation process hence, they have smaller amount of liquidity.

According to Louzic, Vouldis and Metaxas, (2011) said that moral hazard of "too big to fail" hypothesis states that large banks undertake excessive risk i.e. investment on risky assets and more loans to borrower. So large banks cause higher NPL's and eventually they are going to bankruptcy as in case Lehman Brothers. Moreover, Keeton and Morris, (1987) have first proposed "Moral hazard" hypothesis. They said that banks increase their loan portfolio as compared to capital investment so, their Non-performing loan will rise and finally the large financial institutions are going to bankruptcy. Bloem and Gorter, (2001), investigated that NPL may disturb all business units, but the most considerable influence is on financial institutions which are likely to have large loan portfolios. More non-performing loans reflect loss of depositors and foreign investors and this leads to liquidity problems and ultimately this may create a cause of bankruptcy. Consequently, the NPL's has an adverse influence on banks liquidity.

Molyneux & Thorton, (1992); Goddard et al., (2004) concluded that if banks hold high liquidity leads high opportunity cost and ultimately low profitability for banks. Hampel et al., (1994) also support this argument. Moreover, Myers and Rajan, (1998) said that no doubt more liquidity increase the ability of a bank to meet the claim of depositors, this will cause rise in opportunity cost and negatively influence on bank profitability and also raise the solvency risk for commercial banks. *Owolabi et al., (2011) said that there should be trade-off between profitability and bank liquidity.* Moreover, Bordeleau and Graham, (2010) concluded that a limit should be maintain for holding liquidity, if banks crossed this limit the profitability will be decline. They conclude that

banks should keep a trade-off balance between bank liquidity and ROE.

Painceira, (2010) states that liquidity preference for commercial banks differ during different business cycles. The researcher says that during economic expansions, the investment opportunities will rise in the country. The commercial banks have greater confidence on business units. Therefore, the liquidity preference decrease and expand loan able funds to borrowers. While on other hand bank hold more liquidity during economic downturn. As in Pilbeam, (2005) in line with the above theoretical relationship argued that there is rise in loan when the economy of a specific country is on higher side. Bordo et al., (2001) said that crunches are a common part of the business cycle. When the economy is going towards downturn then profitability of business units will tend to decrease. Therefore, in that situation customers could not repay loans, and depositors to perceive high solvency risk. Ultimately, the NPL's will increase and depositors will try to withdraw their bank deposits to protect their wealth. Therefore, a problem of maturity mismatched occurred and banks are going to bankruptcy. Gavin & Hausmann, (1998) said that if economic condition of a country towards downturn or crunches in business operations, this will result to reduces borrowers' capability to meet debt. The banks NPLs will increase and eventually banks are going to bankruptcy while on the other hand the economic prosperity in a country tends to increase borrower's capability to meet debt obligation and at last banks NPL will decrease.

Gil-Diaz, (1994) explains that the conventional role of a bank is accepting deposits and then undertakes loans against the specific percentage of deposits. In an unbalanced economic situation where inflation rate is high tends to increase in interest rate and in such situation borrowers cannot repay loans because real incomes fall. Therefore, this may cause to fall down the economic activity of a specific country. Huybens and Smith, (1998, 1999), explored that if inflation increase in a country which tends to decrease the returns of all business units. In such specific situation, the banks makes less loans, resource allocation is less efficient, as well as reduces the intermediary activities of banks. Hence, rise in inflation in a country will increase the bank liquidity.

Hypothesis Development

Based on the literature reviewed this study has the following hypothesis

Bank-specific Hypotheses

H1: Bank Capital has positive/negative and significant impact on banks liquidity.

H2: Bank size has negative/positive and significant impact on banks liquidity.

H3: NPL has a negative and significant impact on bank liquidity.

H4: Profitability has a negative and significant impact on bank liquidity.

Macro specific Hypotheses

H5: GDP has a negative and significant impact on bank liquidity.

H6: Inflation rate has a positive and significant impact on bank liquidity.

Variables of the Study

Bank liquidity measure is very important because financial institutions that fail to meet the depositors claim may face illiquidity that result the commercial banks are going to bankruptcy. The liquidity ratio approach uses various ratios to determine changes in liquidity. Moore, (2010), Rychtarik, (2009) and Praet& Herzberg, (2008) have used liquidity ratios i.e. liquid assets to total assets. Researchers say that liquidity gape approach is more confusing because there is no standard method to measure bank liquidity.

Description of Variables		Table 1
Variables	Definition	
CAP	Shareholder's equity to total assets	
BS	Natural log of total assets	
NPL	Non-performing loan to gross advances	
ROE	Earning after taxes to total equity	
GDP	(%) Annual growth rate of GDP	
INF	Consumer price index	

Sample and Data Collection

A convenience sampling method was used to collect the data from all commercial banks of Pakistan. Target samples are commercial banks that are listed with State Bank of Pakistan. Initially we have considered all listed commercial Banks as a sample for the study. However, to make the balance panel data, we have been excluded some of the commercial banks, because they were established in later years. The final sample of this study has included 31 commercial banks of Pakistan for the period of 10 years from 2005 to 2014 and total observations for this study was 310. Moreover, the data regarding macroeconomic variables is gathered from the World Development Indicator (WDI).

Econometric Model

In order to empirically examine determinants of bank liquidity, researcher used linear multivariate regression which has been extensively applied in the previous finance literature:

$$BL_{it} = \alpha + \beta_1 CAP_{it} + \beta_2 BS_{it} + \beta_3 NPL_{it} + \beta_4 ROE_{it} + \beta_5 GDP_{it} + \beta_6 INF_{it} + \varepsilon_{it}$$

Where,

- BL = Bank liquidity
- α =   Constant
- β = Coefficient
- CAP =   Bank capital
- BS =   Bank size
- NPL =   Non- performing loan
- ROE =   Profitability
- GDP =   Gross domestic product
- INF =   consumer price index
- $\varepsilon i, t =$ error term
- i = Commercial Banks of Pakistan
- t = Time t

Three methods are used in panel data analysis, i.e." common effect", "fixed effect" and "random effect model". For the every model, there is a distinct way to test each model as well as confirm their validity.

Empirical Findings

In this section the statistically results of the study are given. At first descriptive statistics is provided in table 11. Afterwards the correlation matrix is provided in table 111 which shows the Pearson correlation coefficient between the variables. After correlation matrix the Diagnostic test are given for each model as Likelihood test and Housman Test for the best fit model for this study.

Table 2 shows the descriptive statistics for the study sample including 310 observations for each variable. The average value of bank liquidity of commercial banks listed in SBP is 12.65% and standard deviation is 9.6% which shows that there is low variation in bank liquidity ratio. The minimum and maximum values of BL of Pakistan are ranged from 1.27% to 40.17%. The average value of CAP is 13.87% and ranged from 0.2% to 47.83%. The standard deviation of CAP is 12.03% which reflects that there is low variation of bank liquidity of Pakistan from its mean value. The average value of bank size is 18.07 million (converted into log). The maximum and minimum values of bank size are ranged from 11.61 to 20.52 and standard deviation is 2.0

6% which shows little dispersion of bank size from its mean value. The mean value of NPL is 11.40% and standard deviation is 8.03 which reflect that a little dispersion of NPL among Commercial Banks of Pakistan from its mean value. The maximum and minimum values of NPL are ranged from 40.83% 5.14%. The mean value of profitability is 13.64% and standard deviation is 8.35% which shows that a little dispersion of profitability among banking sectors of Pakistan. The values of maximum and minimum are ranged from 1.72% to 31.67%.

The average growth of GDP from 2005 to 2014 is 4.41% and standard deviation is 2.37% which shows little dispersion from its mean value. The maximum and minimum values of GDP are ranged from 2.40% to 6.60%. The mean value of inflation rate is 10.76% which is more than the mean value of GDP. The standard deviation of INF rate is 4.06% and this will reflects that there is a little dispersion of mean value of inflation rate. The maximum and minimum values of inflation rate are ranged from 6% to 20.28 %.

Descriptive Statistics   **Table 2**

	Mean	Maximum	Minimum	Std. Dev.
BL	0.12655	0.4017	0.0127	0.0960
CAP	0.1387	0.4783	0.0020	0.1203
BS	18.007	20.5263	11.610	2.0639
NPL	0.1140	0.4083	0.0514	0.0803
ROE	0.1364	0.3167	0.0172	0.0835
GDP	0.0441	0.0660	0.0240	0.0137
INF	0.1076	0.2028	0.0600	0.0406

Correlation Matrix   **Table 3**

	BL	CAP	BS	NPL	ROE	GDP	CPI
BL	1						
CAP	0.6024	1					
BS	-0.4950	-0.6065	1				
NPL	0.3730	0.3451	-0.2036	1			
ROE	-0.1350	-0.3241	0.3604	-0.1460	1		
GDP	0.1582	-0.0385	-0.1526	-0.1529	0.2002	1	
INF	-0.0114	0.0221	0.0139	-0.0489	-0.1268	0.4634	1

The results of correlation matrix revealed that there is no existences of correlation between variables i.e. lower than 0.80. Therefore, we can conclude that there is no problem of multicollinearity between all explanatory variables.

Likelihood Test

This test is applied to find out which model is appropriate; common or fixed effect model. The null hypothesis (Ho) for the test is that all the cross sections have common intercept and the alternative hypothesis is that intercept is different for each cross section. The result is given in following table.

Likelihood Test   **Table 4**

Effects Test	Statistic	d.f.	Prob.
Cross-section F	18.6751	(30,273)	0.0000
Cross-section Chi-square	345.9184	30	0.0000

From the above table, the probability of cross section is significant, which means that the appropriate model is fixed effect model as compared to random effect model.

Houseman Test

Houseman test is the most efficient way to select best model between fixed effect and Random effects.

Hauseman test   **Table 5**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	91.2580	6	0.0000

The result of Houseman test shows that the p-value of chi square is significant which reflects that fixed effect model is the more efficient model than random effect model. Hence, this study is considering fixed effect model as their final model to be analyzed and The results of fixed model as

Linear (Fixed Effect Model)   **Table 6**

Variables	Beta	Standard Error	t-Statistic	Prob.
C	0.4260	0.0566	7.5170	0.0000
CAP	0.0850	0.0430	1.9767	0.0491*
BS	-0.0192	0.0026	-7.2785	0.0000**
NPL	-0.0892	0.0389	-2.2927	0.0226*
ROE	0.0296	0.0394	0.7528	0.4522
GDP	0.7029	0.2235	3.1447	0.0018**
INF	0.0901	0.0694	1.2989	0.1951
R Square	0.8246		Observations	300
A.R.Square	0.8015		(Prob) F-Stats	0.0000

(**, and * denote significance level of 1% and 5% respectively)

Discussions and Conclusions

As for CAP, we have found that a statistically significant relationship with BL at 1% of significance level. The coefficient value is positive i.e. 0.0850 which means bank capital rises by 1%, the BL increases by 8.50%. The finding of this study about CAP and BL are in line with the risk absorption theory provided by Diamand & Dybving, (1983) and Allen and Gale, (2004). Moreover, result of this study regarding CAP and BL are also relevant with the empirical findings of G.Alger and I.Alger, (1999); Chagwiza, (2014); Tseganesh, (2012); Aymen Ben Moussa, (2015); Bunda and Desqui, (2008); Vodova, (2011b) and Cucinelli**, (**2013). Therefore, the hypothesis of this study (H1) saying that "*There is a positive and significant impact of CAP on BL in Pakistan*" is accepted.

Bank size has a statistically significant and negative relationship with bank liquidity at 1% significant level. The coefficient value is i.e. -0.0192 which means that BS rises by 1%, then BL decreases by 1.92%. The result is in line with the hypothesis "two big to fail" by Iannotta et al. (2007). Hence on the basis of this hypothesis large banks tend to hold less liquid assets and invest in riskier assets through implicit guarantee. In case of liquidity shortage, large banks access to Lender of the Last Resort (Central Bank) for advances to

overcome the liquidity shortage while central bank also provide loan to small banks but on small scale and higher interest rate. Moreover, the result of this study about BS and BL are also relevant with the empirical findings of Vodova, (2011b); Hackethal et al., (2010); Rajan and stein, (2002); G.Alger and I.Alger, (1999) and Vento and Ganga, (2009). Therefore, the hypothesis of this study (H2) saying that "*There is a negative and significant impact of BS on BL in Pakistan*" is accepted.

NPL and bank liquidity has a negative and statistically significant relationship with bank liquidity. The coefficient value is i.e. -0.0892 which means that NPL rises by 1%, then BL decreases by 8.92%. The result is in line with the Bloem and Gorter, (2001) they said that the large bad loans portfolios has an adverse influence on banks liquidity. Moreover, this study finding regarding NPL and BL are in line with the findings of Iqbal, (2012); Clifford and Michael, (2012); Gupta, (1997) and Festic and Repina, (2009), Sharma, (2005). Therefore, the hypothesis of this study (H3) saying that "*There is a negative and significant impact of NPL on BL in Pakistan*" is accepted

Profitability and bank liquidity has a positive and statistically insignificant relationship with bank liquidity. The result of this finding is linked with a previous study by Khidmat and Rehman, (2014) about BL and ROE and concluded that profitability of a bank support its solvency problem but it does not help in liquidity shortage problem of the commercial banks, because liquidity needs day to day operation while profitability is longer period. The same result is given by Olarewaju and Adeyemi, (2015). Therefore, the hypothesis of this study (H4) saying that "*There is a negative and significant impact of ROE on BL in Pakistan*" is rejected.

Most studies in literature established a negative relationship exist between gross domestic product and bank liquidity. The result of this study established a positive and significant relationship with commercial banks liquidity of Pakistan at 1% significance level. The coefficient value is 0.7029 i.e. one percent change in GDP rate leads to 70.29% increases bank liquidity of Pakistan. The result is in line with the philosophy of Calza et al., (2001) that during economic boom companies and household prefer less rely on external debt and raise fund on internal sources of finance, while in recession, they prefer loan from financial institutions.

The empirical finding of this study regarding bank liquidity and gross domestic product is relevant with the empirical results of P. Vodova, (2010), Aymen Ben Mousa , (2015), Ferrouhii & Lehadiri, (2013), Valla et al., (2006) and Aspaches et al. ,(2005). Therefore, the hypothesis of this study (H5) saying that "*There is a negative and significant impact of GDP on BL in Pakistan*" is rejected.

Inflation rate and bank liquidity has a positive and statistically insignificant relationship with bank liquidity. Therefore, the hypothesis of this study (H6) saying that "*There is a negative and significant impact of NPL on BL in Pakistan*" is rejected.

Conclusion

This study investigates the microeconomic and macroeconomic variables of Pakistani commercial banks liquidity. We took a sample size of 31 financial institutions listed in SBP (2014) over a period of ten years from 2005 to 2014. Stock approach method was used to measure the bank liquidity. This study employs fixed effect model which showed that CAP and GDP significantly increase bank liquidity whereas BS and NPL significantly decrease bank liquidity. Previous studies report that bank liquidity is very important factor to safeguard against bankruptcy. In sum up findings of our study are in line with study hypotheses except (H4) and H6. We found that as bank capital increases, the commercial bank liquidity of Pakistan also improves. Hence, risk absorption theory proposed by Diamond and Dybving (1983) and Allen and Gale (2004) support our finding regarding CAP and BL. Liquidity shortage could be meet the available bank capital. GDP also improves the commercial bank liquidity of Pakistan. Hence, the research of Calza et al (2001), Alper et al. (2012), and Aspachs et al. (2005) are in line with the finding. BS is negatively and significant impact on Bank liquidity. This is in line with the argument of "two big to fail" by Iannotta et al. (2007). Hence, large banks tend to hold less liquid assets and invest in riskier assets through implicit guarantee, whereas small banks tend to hold more liquidity. NPL has a negative and significant relationship with BL. This finding is relevant with Bloem and Gorter, (2001), Gupta (1997) and Clifford and Michael (2012). However, the variables like ROE and CPI have positive and no significant relationship with bank liquidity.

Policy Recommendations

Keeping in view the above mentioned facts and figures the following recommendations were established on the basis of fixed effect model.

1. Bank capital, Bank size, Non-Performing loan and Gross Development product are key indicators or drivers which influences the liquidity of Pakistani commercial banks. Hence, the commercial banks of Pakistan should focus on these variables which tend to improve the liquidity position of the commercial banks of Pakistan.
2. No doubt capital is the most important safety buffer, since it gives the resources to recover from substantial losses of any nature and also save banks from liquidations. However, the main cause of a

bank's failure is usually a liquidity problem and bank capital makes possible to cover the shortfall of liquidity problem. Therefore, the State Bank of Pakistan should periodically check up the Capital strength of all commercial banks. According to SBP (2013), Basel 111 regulatory framework the minimum bank capital requirement i.e. 8% and the average value of bank capital during the tested period was 13.87%, but the minimum value of bank capital is low as per descriptive statics of this study is very low and this would be liquidity risk problem for commercial banks of Pakistan.

3. The profit of banks are advances, as well as more risky and illiquid assets, therefore, banks should be given to only prime borrowers at a point where risk may reduce and liquidity level may not diminish. Hence, on the basis of this strategy banks can reduced the non-performing loan as well as maintain the liquidity level. In addition, the commercial bank of Pakistan should develop a strict mechanism of recovery policy because the Maximum bank non-performing loan is 40% as in Descriptive statistics part of this study. The State Bank of Pakistan should use monetary policies such as open market operations, changing in discount rate and changing in legal reserve requirement so these strategies would limit the requirement for loan application.

4. The gross domestic products significantly impact on bank liquidity of Pakistan. The State Bank of Pakistan should develop strategy about discount rate, reserve requirement and open market operation on the basis of forecasted gross domestic product.

5. Commercial banks should maintain a trade-off balance between holding cash and investments on capital.

6. The regulatory authority must consider the bank specific factors for liquidity management, since they are under their control and setup a new better policy regarding liquidity management.

Future Research Direction

This study investigates the microeconomic and macroeconomic variables of commercial bank liquidity of Pakistan. Since bank liquidity is very important to the existence of commercial banks. Therefore, there may be further research by incorporating other variables. Moreover our study has suggested several research topics and recommendations for future work.

➢ There should be incorporated more challenging variables like political influence, Interest rate on loans, Reserve requirements, unemployment, short-term monetary interest rate and ownership structure to explain the bank liquidity. Hence the above variables might have a better role in identifying other factors contributing to liquidity of commercial banks of Pakistan.

➢ Future studies can be improved by the expansion of samples as incorporate non-financial institutions. Besides this researchers might use more complicated econometric model where it could capture the possible effect of independent variables on dependent variables.

➢ This study has taken data of commercial banks of Pakistan listed with SBP. It would be useful to carry same study by incorporating, Development Finance institutions, Microfinance Banks, Investment Banks, Insurance Companies, Mutual fund companies and Leasing Companies.

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