

# Liquidity Risk Management in Commercial Banks: A Case Study of PNB and HDFC Bank



## **Bhisham Kapoor**

Ex- Officiating Principal and Associate Professor  
Deptt. of Commerce & Business Administration  
M.M.H College,  
Ghaziabad



## **Sanyam**

Research Scholar  
Deptt. of Commerce & Business Administration  
M.M.H College,  
Ghaziabad  
C.C.S. University,  
Meerut



## **Shubhangi Aggarwal**

Student,  
Deptt. of Commerce & Business Administration  
G.G.I.P. University,  
Delhi

### **Abstract**

In India Banking sector is an important component of financial system. To run smoothly the banks are required to maintain a sound liquidity position. Liquidity is termed as the back bone of any business enterprise. Without a sound liquidity position a bank has to face so many problems while operating its functions. The paper will help to discuss about the liquidity phase of Indian Commercial Banks. This study shows the liquidity of both private and public sector bank is at risk of liquidity in terms general and high liquidity ratio. In India, all the private and public sector banks are under the unbleached surveillance of Reserve Bank of India and fund-requirement of banks is also taken care of, which is possible by RBI to the maximum limit.

**Keywords:** Liquid Risk, Liquidity Coverage Ratio, HQLA.

### **Introduction**

Liquidity is how quickly you keep your cash on hand. The term liquidity means the capacity of the bank to give cash on demand; liquidity is to get your money whenever you need it. A bank is called illiquid when it is not able to settle its obligations in time. Liquidity risk arises when a bank is not able to adjust decreases in the obligation or to fund increases in assets. To get sufficient funds, a bank has to maintain an adequate liquidity; it can be done either by increasing liabilities or by immediately converting assets at a reasonable cost, thereby affecting the profitability of bank. The regulator has strictly requested the bank in the credit risk and operational risk in the past, but do not focus on liquidity risk. However, we can find that after the subprime mortgage crisis, liquidity risk will give serious consequences to the banks.

### **Classification of Liquidity Risk**

#### **Funding liquidity risk**

A Funding liquidity risk is a risk, arises due to a bank's inability to pay its debts when they fall due. It is the risk that the bank cannot meet the requirements of its customers wishing to withdraw their deposited amount. Defective management of funding liquidity was one of the main reasons due to which the banks finally failed, or they need assistance from their respective governments, during the financial crisis in 2007-2008. One of the main components of this is how the liquidity risk was inferred by the bank and how it flowed through pricing of customer products.

#### **Market liquidity risk**

Being as a precondition for market efficiency the market liquidity is an important dimension of market conditions because it is the centrepiece of stability of financial system. The elimination or lack of market liquidity is capable of creating financial instability which can lead to systemic risk. Therefore, by obtaining a smooth functioning and liquid market, there is continued growth along with availability of sufficient liquidity in the market. There are many market structural factors that ensure the availability and liquidity in the market

#### **Composition of Liquid Assets**

The liquid assets of bank are composed of the following:

1. Cash in hand.
2. Cash balance with other banks.
3. Money at call and short notice.
4. Investments.
5. Advances.

**Factors Determining the Liquidity Position of A Bank****Statutory requirements**

The extent of liquid reserves held by banks depends on the statutory requirements of the RBI. According to RBI, commercial banks have to maintain certain Cash Reserve Ratio (CRR) and statutory liquid ratio (SLR) Higher CRR and SLR result in lower liquidity.

**Banking habits of Customers**

Banking habits customers play an important role in determining bank's liquidity. The Banking habits refer to the utilisation of services provided by the banks. If people have e-banking habits then the use of cash is reduced in transactions and banks need to keep liquid cash in small amounts. In developing countries, e-transactions are limited to business and Individuals depend more on cash transactions so, the need for liquidity is comparatively high in developing countries.

**Structure of banking**

The structure of a banking system also influences the liquidity requirements of a bank. In a branch banking system, banks can operate with less cash reserves because in case of emergency cash can be transferred from another branch. The Branch banking system can work with less liquidity because cash reserves can be centralized in the head office. Whereas in the unit banking system the higher cash reserve is required.

**Nature of bank accounts and deposits**

The nature of bank accounts, i.e., savings account, current account or fixed accounts affect the amount of cash balances held by banks. In the case of fixed deposit accounts, the banks can manage with less cash than the current accounts where it will have to maintain large cash balance. There are various types of trade deposits with the banks like demand deposits, time deposits, short - term deposits and long term deposits which requires a larger liquidity.

**Type of depositors**

The determinant of the bank's liquidity is type of depositors. If the large numbers of the bank depositors are in business firms, corporations, schools, college etc., and then the bank will have to maintain high liquidity due to unexpected. On the other side, if the bank depositors are mostly individuals and are of personal nature, the bank can operate with less liquidity.

**Nature of advances**

The nature of advances by bank i.e. loans, overdraft, cash credit and purchasing and discounting of bills of exchanges also affect the size of the cash balances of the bank.

**Seasonal Requirements**

The banks have to consider the seasonal requirements of credit from the customers. It is true that there is always increased demand for borrowings during busy seasons e.g.; sowing, harvesting and festivals seasons. Therefore, the banks should keep large amount of cash.

**Business Condition**

The business conditions in the country also influence the liquidity of banks. If the condition is not good the demand from bank increases and when the business condition not good there is less borrowing from banks.

**Objective of the Study**

To study the comparison of liquidity position of selected public and private sector banks.

**Hypothesis**

H<sub>01</sub>: Liquidity risk position of both banks is similar.

H<sub>02</sub>: Public sector banks are able to maintain sound liquid coverage ratio.

**Research Methodology**

The study is conducted to compare the liquidity position of two banks PNB and HDFC bank. To compare the liquidity risk of banks "Liquidity Coverage Ratio" is used. Liquidity coverage Ratio is proportion of high quality liquid asset held by a bank, to ensure their ongoing ability to meet its short term obligations. LCR is a key recipient of Basel Agreement, which is a series of rules developed by The Basel Committee on Banking Supervision (BCBS). The Liquidity Coverage Ratio is calculated through the formula:

$$LCR = \frac{\text{High Quality Liquid Asset}}{\text{Total Net Cash Flow}} \geq 100\%$$

To test the hypothesis in present study t-test is used.

For calculating value of t following formula is used:

$$t = \frac{M1 - M2}{\sqrt{\frac{(N1-1)S1^2 + (N2-1)S2^2}{N1 + N2 - 2} \times \frac{1}{N1} + \frac{1}{N2}}}$$

**Collection of Data**

The required data used in the study is secondary in nature and collected from various sources.

The source of secondary data is-

1. Report on Trend and progress of Banking in India
2. Annual reports of RBI
3. www.pnbindia.in
4. www.hdfcbank.com

**Data Analysis**

For the purpose of comparison of liquidity risk position of PNB and HDFC Bank data has been taken of four quarter i.e., from June 2017 to March 2018 of the said banks and t-test has been used for the study of data.

**Remarking An Analisation**

Punjab National Bank

**LCR Disclosure Template As At 31st March 2018**

Quantitative Disclosure								(Rs. In Crore)	
		Quarter ended Mar'18		Quarter ended Dec'17		Quarter ended Sept'17		Quarter ended June'17	
		Total unweighted Value (average)*	Total Weighted Value (average)	Total unweighted Value (average)	Total Weighted Value (average)	Total unweighted Value (average)	Total Weighted Value (average)	Total unweighted Value (average)	Total Weighted Value (average)
	Based on the simple average of daily observations	62 Data Points		63 Data Points		65 Data Points		64 Data Points	
	High Quality Liquid Assets								
1	Total High quality Liquid Assets (HOLA)		106677.96		116781.66		125569.33		117874.09
	Cash Outflows								
2	Retail deposits and deposits from small business	434951.58	40534.79	439247.31	40934.72	431857.56	40202.98	425908.46	39470.1
(i)	Stable deposits	59207.24	2960.36	59800.29	2990.01	59655.47	2982.77	62414.97	3120.75
	Less stable deposits	375744.34	37574.43	379447.02	37944.7	372202.09	37220.21	363493.49	36349.35
3	Unsecured whole funding of which:	138572.48	74355.27	154080.14	90844.59	155061.65	91724.01	148717.5	88284.87
(i)	Operational deposits (all counterparties)			0	0	0	0	0	0
(ii)	Non-operational deposits(all counterparties)	138572.48	74355.27	154080.14	90844.59	155061.65	91724.01	148717.5	88284.87
(iii)	Unsecured debts			0	0	0	0	0	0
4	Secured wholesale funding								
5	Additional requirement of which	31061.64	25308.57	24003.6	20154.16	21740.25	17814.65	23022.91	19111.44
(i)	Outflows related to derivative exposures and other	24653.36	24653.36	19749.03	19749.03	17419.18	17419.18	18712.02	18712.02
(ii)	Outflows related to loss of funding on debt products	0	0	0	0	0	0	0	0
(iii)	Credit and liquidity facilities	6408.06	655	4254.57	405.13	4321.07	395.47	4310.89	399.42
6	Other contractual funding obligations	0	0	0	0	0	0	0	0
7	Other contingent funding obligations	147388.47	5691.84	149386.11	5768.56	144837.68	5581.68	141411.53	5407.73
8	Total Cash Outflows		145890.47		157702.03		155323.33		152274.14
	Cash Inflows								
10	Inflows from fully performing exposures	18530.27	16240.58	18571.41	16200.02	21717.27	19046.54	25556.48	23004.22
11	Other cash inflows	33742.32	33742.32	33809.34	33809.34	27782.17	27782.17	28618.6	28618.6
12	Total Cash inflows	52272.6	49982.9	520380.75	50009.36	49499.44	46828.71	54175.08	51622.82
13	TOTAL HQLA		106677.96		116781.66		125569.33		117874.09
14	Total Net Cash Outflows		95907.57		107692.67		108494.62		100651.31
15	Liquidity Coverage Ratio(%)		111.23		108.44		115.74		117.11

SOURCE:www.pnbindia.in

The LCR requirement has become binding on the banks with the following minimum required level as per the time-line given below:

Period	Minimum LCR
Jan 1, 2015	60%
Jan 1, 2016	70%
Jan 1, 2017	80%
Jan 1, 2018	90%
Jan 1, 2019	100%

## HDFC BANK

## Basel III - Pillar 3 Disclosures

Liquidity Coverage Ratio								
(₹millions)								
Particulars	Quarter ended March 31, 2018		Quarter ended December 31, 2017		Quarter ended September 30, 2017		Quarter ended June 30, 2017	
	Total Unweighted Value (average)*	Total Weighted Value (average)*	Total Unweighted Value (average)*	Total Weighted Value (average)*	Total Unweighted Value (average)*	Total Weighted Value (average)*	Total Unweighted Value (average)*	Total Weighted Value (average)*
<b>High Quality Liquid Assets</b>								
1	Total High Quality Liquid Assets (HQLA)	1,591,284.5	1,446,415.1	1,397,494.1	1,294,946.1			
<b>Cash Outflows</b>								
2	Retail deposits and deposits from small business customers, of which:	4,514,394.3	415,433.3	4,377,818.8	402,421.7	4,246,045.0	390,082.1	4,168,037.7
(i)	Stable deposits	720,122.5	36,006.1	707,204.0	35,360.2	690,449.2	34,522.5	684,306.7
(ii)	Less stable deposits	3,794,271.8	379,427.2	3,670,614.8	367,061.5	3,555,595.8	355,559.6	3,483,731.0
3	Unsecured wholesale funding, of which:	2,185,077.5	1,097,914.2	2,190,656.1	1,094,291.6	2,093,180.5	1,043,507.3	1,936,175.8
(i)	Operational deposits (all counterparties)	304,391.4	75,312.0	323,912.8	80,193.9	277,591.5	68,605.6	262,830.4
(ii)	Non-operational deposits (all counterparties)	1,776,185.6	918,101.7	1,764,418.4	911,772.8	1,725,349.9	884,662.6	1,562,711.6
(iii)	Unsecured debt	104,500.5	104,500.5	102,324.9	102,324.9	90,239.1	90,239.1	110,633.8
4	Secured wholesale funding		92,224.2		45,189.0		31,528.3	
5	Additional requirements, of which	1,004,866.4	660,201.4	898,290.9	618,190.9	979,178.4	659,859.3	865,866.2
(i)	Outflows related to derivative exposures and other collateral requirement	558,687.0	558,687.0	526,719.6	526,719.6	572,822.4	572,822.4	483,627.1
(ii)	Outflows related to loss of funding on debt products	-	-	-	-	-	-	-
(iii)	Credit and liquidity facilities	446,179.4	101,514.4	371,571.3	91,471.3	406,356.0	87,036.9	382,239.1
6	Other contractual funding obligation	190,047.4	190,047.4	172,250.2	172,250.2	172,159.3	172,159.3	227,255.3
7	Other contingent funding obligations	590,745.8	17,722.4	575,446.0	17,263.4	531,707.8	15,951.2	555,321.2
8	Total Cash Outflows	2,473,542.9	2,473,542.9	2,349,606.8	2,349,606.8	2,313,087.5	2,313,087.5	2,193,268.4
<b>Cash Inflows</b>								
9	Secured lending (e.g. reverse repo)	601.1	-	6,858.7	-	4,577.8	-	11,586.9
10	Inflows from fully performing exposures	535,333.1	285,857.7	505,604.1	267,955.0	444,784.5	236,790.1	426,326.7
11	Other cash inflows	720,991.8	665,281.5	667,446.1	620,101.3	690,221.0	637,936.2	599,292.2
12	Total Cash Inflows	1,256,926.0	951,139.2	1,179,908.9	888,056.3	1,139,583.3	874,726.3	1,037,205.8
		Total Adjusted Value	Total Adjusted Value	Total Adjusted Value	Total Adjusted Value	Total Adjusted Value	Total Adjusted Value	Total Adjusted Value
13	TOTAL HQLA	1,591,284.5	1,446,415.1	1,397,494.1	1,294,946.1			
14	Total Net Cash Outflows	1,522,403.7	1,522,403.7	1,461,550.5	1,461,550.5	1,438,361.2	1,438,361.2	1,412,293.2
15	Liquidity Coverage Ratio (%)	104.52%	98.96%	97.16%	91.69%			

\* The average weighted and unweighted amounts are calculated taking simple average based on daily observation for the respective quarters.

Quarter ended	LCR Maintained (Average)	LCR Required
March 31, 2018	104.52%	90.00%
December 31, 2017	98.96%	80.00%
September 30, 2017	97.16%	80.00%
June 30, 2017	91.69%	80.00%
March 31, 2017	99.52%	80.00%
December 31, 2016	108.97%	70.00%
September 30, 2016	105.89%	70.00%
June 30, 2016	95.96%	70.00%

SOURCE: www.hdfcbank.com

## Result of t-test

## P value and statistical significance

The two-tailed P value equals 0.0040. By conventional criteria; this difference is considered to be very statistically significant.

## Confidence Interval

The mean of PNB minus HDFC Bank equals 15.0475  
95% confidence interval of this difference: From 6.9263 to 23.1687

**Intermediate values used in calculations**

t = 4.5338

d.f. = 6

standard error of difference = 3.319

Bank	PNB	HDFC Bank
Mean	113.13	98.08
SD	4.01	5.29
SEM	2.00	2.64
N	4	4

The data analysis shows that the mean of PNB (113.13) minus HDFC Bank (98.08) equals 15.05 at 95% confidence interval of this difference lies From 6.9263 to 23.1687 therefor it is significant.

The difference between standard deviation of PNB (4.01) minus HDFC Bank (5.29) equals 1.28.

The difference between SEM of PNB (2) minus HDFC Bank (2.64) equals -0.64

**Findings**

1. After reviewing the financial results of PNB the liquidity position of bank was far better in preceding quarters and it records a downwards trend in the period of March 2017, June 2017, Sep. 2017, Dec. 2017 and it improved in the quarter of March 2018. The improvement was due to the actions taken by RBI and Government of India
2. After reviewing the financial results of HDFC bank the liquidity position of bank is higher than the required LCR in each quarter.
3. As per the discussion it is very clear that the first hypothesis (H01) is found correct on the basis of t-test and value of P therefor it is accepted.

**Conclusion**

To conclude we can say that without a sound liquid position a bank has to face a lot of problem in smooth functioning that's why banks have to maintain a sound position to avoid liquid risk. The key objective of LCR standards is to ensure that a bank should maintain an adequate level of high quality liquid assets (HQLA) that can be used in a 30 calendar day time horizon for its liquid requirements. The RBI's intervention is very important to regulate and complete the market. RBI should create trust among various banking institutions of the system so that relations can be reciprocated and thereby fulfil the requirement of market. RBI must also deliver liquidity efficiently among the banks. The effect of liquidity risk spread will be reduced.

**Reference**

1. *Report on Trend and progress of Banking in India*
2. <http://EzineArticles.com/6044889>
3. <https://www.rbi.org.in>
4. <https://www.pnbindia.in>
5. [www.hdfcbank.com](http://www.hdfcbank.com)
6. Richie, N., & Madura, J. (2007). *Impact of the QQQ on liquidity and risk of the underlying stocks. The Quarterly Review of Economics and Finance, 47(3), 411-421.*
7. Yadav, S. (2014). "NPAs: Rising Trends and Preventive Measures in Indian Banking Sectors" *International journal of advance research in computer science and management studies, 2(1).*
8. Hemal Pandya, "Corporate Governance Structures and Financial Performance of Selected Indian Bank" *Journal of Management & Public Policy, Vol. 2, No. 2 June 2011.*