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Basel - III Framework on Liquidity Standards - A Case Study on South Indian Bank Ltd.#

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Abstract

A bank is said to have adequate liquidity when it can raise sufficient funds both by increasing liabilities (deposits) and by realizing assets promptly. Bank's liquidity management, therefore, is the process of generating funds to meet contractual obligations like new loan demand, existing loan commitment and deposit withdrawals at reasonable prices at all times. The main forms of liquidity risks are 'Funding Risk', 'Time Risk' and 'Call Risk'. Measuring and managing liquidity risk are one of the most vital activities of commercial banks. This case study brings out the procedure given by Reserve Bank in the lines of Basel III framework and the liquidity management practices of South Indian Bank. While analysing the liquidity in Flow approach and Stock approach it is observed that there is a better liquidity for the Bank to meet obligations in some time buckets and in some, the position needs improvement.

Keywords: Liquidity Risk, Basel III Framework, Funding Risk, Time Risk, Call Risk, Stock Approach, Flow Approach, Time Bucket

1. Introduction

South Indian Bank Limited (SIB) (BSE: 532218, NSE: SOUTH BANK) is a private sector bank headquartered at Thrissur in Kerala, India. South Indian Bank has 831 branches, 4 service branches 33 extension counters and 20 regional offices spread across more than 26 states and three union territories in India. It has set up 1269 ATMs and 4 Bulk Note Acceptor/Cash Deposit Machines all over India. One of the earliest banks in South India, "South Indian Bank" came into being existence during the Swadeshi movement. South Indian Bank was registered as a private Limited Company under the companies Act of 1913 and commenced business on 29th January, 1929 at Round South, Thrissur. The establishment of the Bank was the fulfillment of the dreams of a group of enterprising men who joined together at Thrissur, a major town (now known as the Cultural Capital of Kerala), in the erstwhile State of Cochin.

The composition of the Board of Directors is governed by the Banking Regulation Act, 1949, the Companies Act, 2013, SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015 and the Code of Conduct on Corporate Governance adopted by the Bank. The Board comprises of 10 Directors as on the date of this report, with rich experience and specialized knowledge in various areas of relevance to the Bank, including banking, accountancy, small scale industry, agriculture, and information technology. Excluding the MD & CEO, all other members of the Board are Non-Executive Directors and Seven Directors out of the total 10 Directors are Independent Directors. Declaration has been obtained from the Independent Directors as required under the RBI Regulations, SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015 and Companies Act, 2013. The remuneration and other benefits paid to MD & CEO of the Bank and other Non-Executive and Independent

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Directors during the financial year 2015-16 are disclosed in Corporate Governance Report.

Mr. Sunil Gangadharan is the Chairman and Mr. V. G. Mathew is the CEO and Managing Director of South Indian Bank.

1.1 Need for Study

The main purpose behind this study is to understand about the liquidity risk management measures under Basel III. This study helps us to see how SIB manage their risks in an effective way.

1.2 Objective of the study

To study the liquidity risk and liquidity risk management measures being followed by South Indian Bank.

The different sections of the paper are given below:

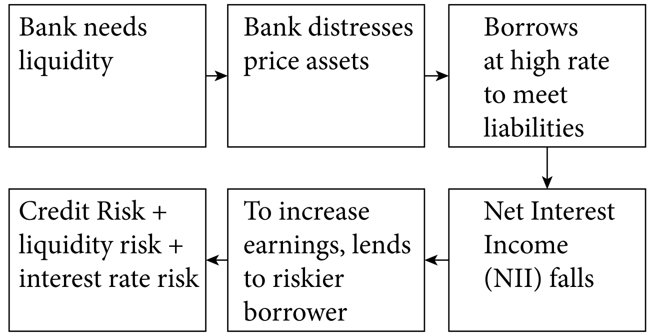
1. Review of Literature
2. Dimensions and Role of Liquidity Risk Management
3. Methodology
4. Data Analysis and Interpretation
5. Findings
6. Conclusion

2. Review of Literature

Though the importance of liquidity risk is well recognized, it eludes a comprehensive definition. The term liquidity is used across the market for different purposes, which means that liquidity risk itself is defined differently and depends very much on the context in which it is used. Liquidity risk is sometimes referred to as inability of the bank to convert an asset into cash at a reasonable time at a specific price. The cash position of the firm is an important consideration in paying dividends; the grater the cash position and overall liquidity of a company, the greater will be its pay dividends (Pandey, 2010). Literature contains many more such contextual definitions.

Padmalatha. S and Justin P (2010) give the anatomy of liquidity risk in the following model

Anatomy of liquidity risk



This model brings out the most significant impact of liquidity problems. They can have an adverse impact of the bank's earnings and capital, and, in extreme circumstances, may even lead to the collapse of the bank itself, though the bank may otherwise be solvent. A more dangerous consequence is that a liquidity crisis in a large bank could give rise to systemic consequences impacting other banks and the country's banking system as a whole. Liquidity problems can also affect the proper functioning of payment systems and other financial markets.

In its paper titled 'Liquidity Risk Management and Supervisory Challenges', the Basel Committee (2008) pointed out that

a. Most of the banks which exposed themselves to severe liquidity risks did not have the requisite framework to support the risks inherent in individual business lines or products, and, therefore, did not align the risks to the bank's own risk tolerance.
b. Many banks did not account for the 'unlikely' event of a large part of their contingent liabilities having to be funded all at once.
c. To many banks, the kind of severity or duration of the liquidity crisis (as it materialized later) seemed a remote possibility. Hence, these banks did not conduct stress tests to factor market wide liquidity strain and disruptions.
d. Even where contingency funding plans were made, they were not related to results of stress tests, or did not factor in the possible drying up of some potential funding sources.

Subramoniam (2015) made a discussion on following sources of liquidity risk:

a. A decline in earnings: The income of the bank can come down because of many reasons. The decline in Net Interest Income (NII) is one of the major reasons. The spread between lending rate and deposit rate may come down due to market pressure or RBI directives. Similarly, non-interest income may come down due to offering service at a cheap rate or free of cost to meet the competition in the banking sector.
b. An increase in Non-Performing Assets (NPA): NPA is a double-edged sword; on the one side, the income cannot be recognized from NPAs and on the other side, provision has to be kept. Both this affect profitability. Moreover, the funds blocked in NPAs will cause liquidity problem as they are not readily available for recycling. This results in 'credit squeeze'.
c. Deposit concentration: Some banks rely on bulk deposits from large corporate or government departments which may be withdrawn in short period. Sometimes, it will cause 'liquidity shocks' if banks are not able to mobilize similar deposits.
d. Downgrading by rating agencies: When Moody's downgraded State Bank of India, it caused a shock to the banking sector as a whole. The banks may suffer from 'deposit drain' on such occasions.
e. Expanded business opportunities: When a bank is aiming at horizontal growth through branch expansion, the business opportunities are also growing. Likewise, a growing economy demands more funds, and to meet the competition, banks may have to lend across the sectors. This necessitates liquid funds.
f. Acquisitions: This is one of the sources of liquidity problems as acquisitions require payment of huge cash to the entity acquired.
g. New tax initiatives: This may require cash outflow for meeting tax obligations.

The literature shows the importance and significance of liquidity management.

2.1 Dimensions and Role of Liquidity Risk Management

Banks need liquidity to meet deposit withdrawal and to fund loan demands. The variability of loan demands and variability of deposits determine bank's liquidity needs. It represents the ability to accommodate decreases in liability and to fund increases in assets. Effective liquidity management by bank serves four important functions.

- It demonstrates the market place that the bank is safe and therefore capable of repaying its borrowings.
- It enables bank to meet its prior loan commitments, whether formal or informal.
- It enables bank to avoid the unprofitable sale of assets.
- It lowers the size of the default risk premium which the bank must pay for which funds.

3. Methodology

For measuring and managing liquidity risk, two measures are prescribed under Basel III. They are:

1. Flow Approach
2. Stock Approach

Flow Approach: consists the following: Flow method is the basic approach followed by Indian Banks. It is called as gap method of measuring and managing liquidity. It requires the preparation of structural liquidity gap report. In this method net funding requirement is calculated on the basis of residual maturities of assets & liabilities. These residual maturities represent net cash flows i.e., difference between cash outflow & cash inflow in future time buckets.

These calculations are based on the past behavior pattern of assets and liabilities as well as off-balance sheet exposures. Cumulative gap is calculated at various time buckets. In case gap is negative bank has to manage the shortfall.

The analysis of net funding requirements involves the construction of a maturity ladder and the calculation of a cumulative net excess or deficit of funds at selected maturity dates.

The RBI guidelines for the gaps are given below:

A Structural Liquidity Statement should be prepared by the Bank and to be submitted to RBI on fortnightly basis on the first and third Wednesday of each month.

The various time buckets considered for the purpose and the RBI guideline for gaps are given below:

Table 1. Structural Liquidity Statement

Sl. No.	Time Buckets	RBI Guidelines- Negative Gap should not exceed
1	Day 1	5 % of the total outflow
2	2-7 days	10 % of the total outflow
3	8-14 days	15 % of the total outflow
4	15-28 days	20 % of the total outflow
5	29 days and upto 3 months	Each Bank can have its own ALCO/ Board approved policy regarding the permissible gaps. SIB tries to keep positive gap in all time buckets.
6	Over 3 months upto 6 months	
7	Over 6 months and upto 1 year	
8	Over 1 year and upto 3 years	
9	Over 3years and upto 5 years	
10	Over 5 years	

Stock Approach: is based on the level of assets and liabilities as well as off balance sheet exposures on a particular date. The following ratios are calculated to assess the liquidity position of the bank:

- Ratio of core deposits to total assets: More the ratio, better it is because core deposits are treated to be stable source of liquidity. Core deposits will constitute deposits from the public in the normal course of business.
- Net loans to total deposits ratio: It reflects the ratio of loans to public deposits or core deposits. Total loans in this ratio represent net advances after deduction of provision for loan losses and interest suspense account. Loan is treated to be less liquid asset and therefore lower ratio, better it is.
- Ratio of time deposits to total deposits: Time deposits provide stable level of liquidity and negligible volatility. Therefore, lower the ratio better it is.
- Ratio of volatile liabilities to total assets: Volatile liabilities like market borrowings are to be assessed and compared with the total assets. Higher portion of volatile liabilities cause higher liquidity problems. Therefore lower the ratio is better.
- Ratio of short term liabilities to liquid assets: short term liabilities are required to be redeemed at the earliest. Therefore they will require ready liquid assets to meet the liability. It is expected to be lower in the interest of liquidity Ratio of liquid assets to total assets: higher level of liquid assets in total assets will ensure better liquidity. Therefore higher the ratio is better.
- Ratio of short term liabilities to total assets: Short-term liabilities may include balances in current account, volatile portion of savings account leaving behind core portion of saving which is constantly maintained. A lower ratio is desirable.
- Ratio of prime assets to total assets: Prime assets may include cash balances with banks and balances with the banks including central bank which can be withdraw at any time without any notice. Higher the ratio is better.
- Ratio of market liabilities to total assets: Market liabilities may include money market borrowings, interbank liabilities payable within a short period. Lower the ratio is better.

For the purpose of this study, data from the various annual reports of SIB are collected covering a period of 2011 to 2016.

4. Data Analysis and Interpretation

Flow approach - finding gap from 2011-2016:
Maturity Pattern of key assets and liabilities:
As at 31st March, 2011: **[in Crore]**

Exhibit 1:

Particulars 2011	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
Liabilities										
Deposits	152.32	1,171.88	963.1	433.84	3,639.23	2,865.94	6,584.86	11,214.99	557.06	2,137.86
Borrowings	24.67	-	-	-	0.06	0.06	0.11	65.45	-	200

Foreign Currency Liabilities	44.65	-	-	0.36	0.04	2.17	1.74	-	-	-
Total liabilities	221.64	1,171.88	963.1	434.2	3,639.33	2,868.17	6,586.71	11,280.44	557.06	2,337.86
Assets										
Loans & Advances	403.28	209.31	316.08	508.91	3029.17	2839.51	6636.55	3149	1347.16	2049.76
Investments	7.59	455.83	284.31	100.64	1140.51	161.68	124.2	625.14	1377.11	4646.76
Foreign Currency Assets	12.99	-	37.54	0.48	17.14	91.04	56.78	216	-	-
Total Assets	423.86	665.14	637.93	610.03	4186.82	3092.23	6817.53	3990.14	2724.27	6696.52

Particulars	**Day 1**	**2-7 days**	**8-14 days**	**15-28 days**	**29 days and upto 3 months**	**Over 3 months and upto 6 months**	**Over 6 months and upto 1 year**	**Over 1 year and upto 3 years**	**Over 3 year and upto 5 years**	**Over 5 years**
GAP(Assets- Liabilities)	202.22	-506.74	-325.17	175.83	547.49	224.06	230.82	-7,290.30	2167.21	4,358.66

Source: Annual Report of SIB, March 2011

Maturity Ladder Based on Contractual Maturities 2011:

DAY 1 **CASH INFLOWS**	AMOUNT	**CASH OUTFLOWS**		AMOUNT	GAP	RBI TOLERANCE LIMITS	REMARKS
Loans and Advances	403.28	Deposits		152.32		Negative Gap should not be more than 5% of total outflows	Gap is positive RBI Compliant
Investments	7.59	Borrowings		24.67			
Foreign Currency Assets	12.99	Foreign Currency Liabilities		44.65			
Total	423.86			221.64	202.22		
DAY 2-7 **CASH INFLOWS**		**CASH OUTFLOWS**				Negative Gap should not be more than 10% of total outflows	Negative Gap is 43% of total outflow. so it is not RBI Compliant.
Loans and Advances	209.31	Deposits		1,171.88			
Investments	455.83	Borrowings	-				
Foreign Currency Assets	-	Foreign Currency Liabilities	-			-506.74	
Total	665.14		1,171.88				
8-14 days **CASH INFLOWS**		**CASH OUTFLOWS**				Negative Gap should not be more than 15% of total outflows	Negative gap is 33% of the total cash outflow. Here the bank has breached RBI tolerance limits
Loans and Advances	316.08	Deposits	963.1				
Investments	284.31	Borrowings	-				
Foreign Currency Assets	37.54	Foreign Currency Liabilities	-				
Total	637.93		963.1	- 325.17			
15-28days **CASH INFLOWS**		**CASH OUTFLOWS**					
Loans & Advances	508.91	Deposits		433.84		Negative Gap should not be more than 20% of total outflows	Gap is positive. RBI Compliant
Investments	100.64	Borrowings		-			
Foreign Currency Assets	0.48	Foreign Currency Liabilities		0.36			
Total	610.03	Total		434.2	175.83		

29 days and upto 3 months CASH INFLOWS		**CASH OUTFLOWS**						
Loans & Advances	3029.17	Deposits		3,639.23		Gap is positive. RBI Compliant		
Investments	1140.51	Borrowings		0.06				
Foreign Currency Assets	17.14	Foreign Currency Liabilities		0.04				
Foreign Currency Assets	17.14	Foreign Currency Liabilities		0.04				
Total	4186.82	Total		3,639.33	547.49			
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**						
Loans & Advances	2839.51	Deposits		2,865.94		Gap is positive.		
Investments	161.68	Borrowings		0.06				
Foreign Currency Assets	91.04	Foreign Currency Liabilities		2.17				
Total	3092.23	Total		2,868.17	224.06			
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**				Gap is positive.		
Loans & Advances	6636.55	Deposits	6,584.86					
Investments	124.2	Borrowings	0.11					
Foreign Currency Assets	56.78	Foreign Currency Liabilities	1.74					
Total	6817.53	Total	6,586.71		230.82			
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.		
Loans & Advances	3149	Deposits	11,214.99		-7,290.30			
Investments	625.14	Borrowings	65.45					
Foreign Currency Assets	216	Foreign Currency Liabilities	-					
Total	3990.14	Total	11,280.44					
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**						
Loans & Advances	1347.16	Deposits	557.06		2167.21	Gap is positive.		
Investments	1377.11	Borrowings	-					
Foreign Currency Assets		Foreign Currency Liabilities	-					
Total	2724.27	Total	557.06					
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**						
Loans & Advances	2049.76	Deposits	2,137.86			Gap is positive.		
Investments	4646.76	Borrowings	200					
Foreign Currency Assets		Foreign Currency Liabilities	-					
Total assets	6696.52	Total liabilities	2337.86	4358.66				

In 2011, we can see that on day 1 there is a positive gap, so it satisfies RBI Norms. On 2-7 days i.e., on 2nd time bucket it is negative it does not satisfy RBI Norms, this is similar in the case of next time bucket also. On the 3rd time bucket there's a Negative gap if 33 percentage of total cash outflow. Here the bank has breached RBI tolerance limits. On the 4th bucket onwards it is positive gap. After that there is a negative gap, for that bank should raise the fund from outside to reduce this negative gap. After that they have positive gap on next time buckets.

Maturity Pattern of key assets and liabilities:
As at 31st March, 2012: [in Crore]
Exhibit 2:

Particulars 2012	Day 1	2-7 days	8-14 days	15-28 days		29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
Liabilities											
Deposits	198.34	1064.59	1370.76	1359.04		7805.7	4512.43	8237.65	10828.64	715.36	408.02
Borrowings	88.79	-	-	-		50.93	18.36	18.42	138.45	73.24	200
Foreign Currency Liabilities	176.96	8.79	6.33	11.29		109.81	91.16	132.38	64.92	45.33	-
Total	464.09	1073.38	1377.09	1370.33		7966.44	4621.95	8388.45	11032.01	833.93	608.02
Assets											
Loans & Advances	671.2	226.28	304.76	582.37		4538.62	4068.04	7373.45	3484.3	2555.51	3476.21
Investments	1.37	271.59	158.06	64.67	378.47	113	315.11	993.32	1805.81	5298.47	-
Foreign Currency Assets	251.21	-	48.06	17.08	118.93	93.02	20.48	108	-	-	-
Total	923.78	497.87	510.88	664.12	5036.02	4274.06	7709.04	4585.62	4361.32	8774.68	-

Particulars	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
GAP(Assets-Liabilities)	459.69	-575.51	-866.21	-706.21	-2930.42	-347.89	-679.41	-6446.39	3527.39	8166.66

Source: Annual Report of SIB, March, 2012

Maturity Ladder Based on Contractual Maturities 2012:

DAY 1 **CASH INFLOWS**	AMOUNT	**CASH OUTFLOWS**	AMOUNT	GAP		RBI TOLERANCE LIMITS	REMARKS
Loans and Advances	671.2	Deposits	198.34			Negative Gap should not be more than 5% of total outflows	Gap is positive. RBI Compliant
Investments	1.37	Borrowings	88.79				
Foreign Currency Assets	251.21	Foreign Currency Liabilities	176.96				
Total	923.78			464.09	459.69		

DAY 2-7 **CASH INFLOWS**		**CASH OUTFLOWS**			Negative Gap should not be more than 10% of total outflows		Negative gap is 53% of total outflow. So it is not RBI Compliant
Loans and Advances	226.28	Deposits	1064.59				
Investments	271.59	Borrowings	-				
Foreign Currency Assets	-	Foreign Currency Liabilities	8.79				
Total	497.87		1073.38	-575.51			
8-14 days **CASH INFLOWS**		**CASH OUTFLOWS**			Negative Gap should not be more than 15% of total outflows		Negative gap is 62% of total cash outflow. Here the Bank has breached RBI tolerance limits.
Loans and Advances	304.76	Deposits		1370.76			
Loans and Advances	304.76	Deposits					
Investments	158.06	Borrowings					
Foreign Currency Assets	48.06	Foreign Currency Liabilities					
Total	510.88		-866.21				
15-28days **CASH INFLOWS**		**CASH OUTFLOWS**					
Loans & Advances	582.37	Deposits	1359.04		Negative Gap should not be more than 20% of the cash outflows.		
Investments	64.67	Borrowings	-				
Foreign Currency Assets	17.08	Foreign Currency Liabilities	11.29				
Total	664.12	Total	1370.33 Gap: - 706.21			Gap is negative	
29 days and upto 3 months **CASH INFLOWS**		**CASH OUTFLOWS**					
Loans & Advances	4538.62	Deposits	7805.7				Gap is negative.
Investments	378.47	Borrowings	50.93				

Foreign Currency Assets	118.93	Foreign Currency Liabilities	109.81				
Total	5036.02	Total	7966.44		-2930.42		
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**					
Loans & Advances	4068.04	Deposits	4512.43				Gap is negative.
Investments	113	Borrowings	18.36				
Foreign Currency Assets	93.02	Foreign Currency Liabilities	91.16				
Total	4274.06	Total	4621.95		-347.89		
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**					Gap is negative
Loans & Advances	7373.45	Deposits	8237.65				
Investments	315.11	Borrowings	18.42				
Foreign Currency Assets	20.48	Foreign Currency Liabilities	132.38				
Total	7709.04	Total	8388.45		-679.41		
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**					Gap is negative.
Loans & Advances	3484.3	Deposits	10828.64				
Investments	993.32	Borrowings	138.45				
Foreign Currency Assets	108	Foreign Currency Liabilities	64.92				
Total	4585.62	Total	11032.01		-7447.59		
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**					
Loans & Advances	2555.51	Deposits	715.36				Gap is positive.
Investments	1805.81	Borrowings	73.24				
Foreign Currency Assets	-	Foreign Currency Liabilities	45.33				
Total	4361.32	Total	833.93		-3527.39		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**					
Loans & Advances	3476.21	Deposits	408.02				Gap is positive.
Investments	5298.47	Borrowings	200				
Foreign Currency Assets	-	Foreign Currency Liabilities	-				
Total	8774.68	Total	608.02	8166.66			

In 2012, on day 1 there is positive gap. After that the bank has negative gap i.e., on the 2nd bucket onwards bank possess negative gap of 53% of total outflow. So it is not upto the RBI Compliant there is liquidity problem, bank won't be able to meet it's short term financial demands. From 9th time bucket onwards there's a positive gap.

Maturity Pattern of key assets and liabilities:
As at 31st March, 2013: [in Crore]
Exhibit 3

Particulars 2013	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
Liabilities										
Deposits	289.92	1114.09	1312.75	1281.37	8923.65	4620.22	9166.44	16104.02	752.88	696.96
Borrowings	220.83	-	-	65.06	81.49	296.4	128.03	164.67	128.07	200
Foreign Currency Liabilities	257.3	1.78	3.12	6.33	111.48	321.88	186.54	86.15	48.59	-
Total	768.05	1115.87	1315.87	1352.76	9116.62	5238.5	9481.01	16354.84	929.54	896.96
Assets										
Loans & Advances	1009.88	240.66	389.47	785.76	4114.14	4449.64	9301.82	4580.83	3198	3745.33
Investments	101.93	312.61	163.14	100.84	900.01	613.33	674.39	1894.05	2310.72	5452.45
Foreign Currency Assets	309.9	-	14.57	21.4	-	138.01	23.35	-	-	-
Total	1421.71	553.27	567.18	908	5014.15	5200.98	9999.56	6474.88	5508.72	9197.78

Particulars	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
GAP(Assets-Liabilities)	653.66	-562.6	-748.69	-444.76	-4102.47	-37.52	518.55	-9879.96	4579.18	8300.82

Source: Annual Report of SIB: March, 2013

Maturity Ladder Based on Contractual Maturities 2013:

DAY 1 **CASH INFLOWS**	AMOUNT	**CASH OUTFLOWS**	AMOUNT	GAP	RBI TOLERANCE LIMITS	REMARKS
Loans and Advances	1009.88	Deposits	289.92		Negative Gap should not be more than 5% of total outflows	Gap is positive. RBI compliant.
Investments	101.93	Borrowings	220.83			
Foreign Currency Assets	309.9	Foreign Currency Liabilities	257.3			
Total	1421.71		768.05	653.66		
DAY 2-7 CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 10% of total outflows	Negative Gap is 50% of the total cash outflows. So it is not RBI Compliant.
Loans and Advances	240.66	Deposits	1114.09			
Investments	312.61	Borrowings	-	Compliant.		
Foreign Currency Assets	-	Foreign Currency Liabilities	1.78			
Total	553.27		1115.87	-562.6		
8-14 days CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 15% of total outflows	Negative gap is 56% of the total cash outflows. Here the Bank has breached RBI tolerance limits.
Loans and Advances	389.47	Deposits	1312.75			
Investments	163.14	Borrowings	-			
Foreign Currency Assets	14.57	Foreign Currency Liabilities	3.12			
Total	567.18		1315.87	-748.69		

15-28days CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	785.76	Deposits	1281.37		Negative Gap should not be more than 20% of the cash outflows.	Negative gap is 32% of the total cash outflows. So it is not RBI Compliant.
Investments	100.84	Borrowings	65.06			
Foreign Currency Assets	21.4	Foreign Currency Liabilities	6.33			
Total	908	Total	1352.76	-444.76		
29 days and upto 3 months CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4114.14	Deposits	8923.65			Gap is negative.
Investments	900.01	Borrowings	81.49			
Foreign Currency Assets	-	Foreign Currency Liabilities	111.48			
Total	5014.15	Total	9116.62	-4102.47		
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4449.64	Deposits	4620.22		Gap is negative.	
Investments	613.33	Borrowings	296.4			
Foreign Currency Assets	138.01	Foreign Currency Liabilities	321.88			
Total	5200.98	Total	5238.5	-27.52		
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**			Gap is positive.	
Loans & Advances	9301.82	Deposits	9166.44			
Investments	674.39	Borrowings	128.03			
Foreign Currency Assets	23.35	Foreign Currency Liabilities	186.54			
Total	9999.56	Total	9481.01			
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4580.83	Deposits	16104.02		Gap is negative.	
Investments	1894.05	Borrowings	164.67			
Foreign Currency Assets	nil	Foreign Currency Liabilities	86.15			
Total	6474.88		16354.84	-9879.96		
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	3198	Deposits	752.88		Gap is positive.	
Investments	2310.72	Borrowings	128.07			
Foreign Currency Assets	-	Foreign Currency Liabilities	48.59			
Total	5508.72	Total	929.54	4579.18		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	3745.33	Deposits	696.96			
Investments	5452.45	Borrowings	200		Gap is positive.	
Foreign Currency Assets	-	Foreign Currency Liabilities	-			
Total	9197.78	Total	896.96	8300.82		

In 2013, on 2nd time bucket, negative gap is 50 percentage of the total cash outflows. So it is not upto the RBI Compliant and here bank faces negative gap, and as a result to overcome that they have to raise funds from outside to meet their liabilities. On the 7th time bucket they have a positive gap, after that there is a negative gap. After this level they maintained positive gap.

Maturity Pattern of key assets and liabilities:
As at 31st March, 2014: **[in Crore]**
Exhibit 4

Particulars 2014	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 years and upto 5 years	Over 5 years
Liabilities										
Deposits	212.5	633.25	539.44	2015.84	13336.21	5106.59	6209.33	12324.83	1302.02	5811.08
Borrowings	19.85	84.91	-	0.48	0.06	791.54	514.23	877.87	241.84	200
Foreign Currency Liabilities	10.94	3.72	4.04	7.4	40.12	456.55	513.26	115.58	326.19	-
Total	243.29	721.88	543.48	2023.72	13376.39	6354.68	7236.82	13318.28	1870.05	6011.08
Assets										
Loans & Advances	1161.95	335.07	388.94	1006.56	4998.97	4393.23	10631.96	5276.98	3258.12	4778.08
Investments	99.03	-42.31	70.8	108.7	786	262.77	745.29	2712.8	2217.41	7391.29
Foreign Currency Assets	41.24	41.94	0.72	22.98	69.93	154.12	329.56	-	0.71	-
Total	1302.22	334.7	460.46	1138.24	5854.9	4810.12	11706.81	7989.78	5476.24	12169.37

Particulars	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
GAP(Assets-Liabilities)	1058.93	-387.18	-83.02	-885.48	-7521.49	-1544.56	4469.99	-5328.5	3606.19	6158.29

Source: Annual Report, SIB, March, 2014

Maturity Ladder Based on Contractual Maturities 2014:

DAY 1 **CASH INFLOWS**	AMOUNT	**CASH OUTFLOWS**	AMOUNT	GAP	RBI TOLERANCE LIMITS	REMARKS
Loans and Advances	1161.95	Deposits	212.5		Negative Gap should not be more than 5% of total outflows	Gap is positive. RBI Compliant.
Investments	99.03	Borrowings	19.85			
Foreign Currency Assets	41.24	Foreign Currency Liabilities	10.94			
Total	1302.22		243.29	1058.93		
DAY 2-7 CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 10% of total outflows	Negative gap is 53% of the total cash outflows. So it is not RBI Compliant.
Loans and Advances	335.07	Deposits	633.25			
Investments	-42.31	Borrowings	84.91			
Foreign Currency Assets	41.94	Foreign Currency Liabilities	3.72			
Total	334.7		721.88	-387.18		

8-14 days CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 15% of total outflows	Negative gap is 16% of the total cash outflows. Here the Bank has breached RBI tolerance limits.
Loans and Advances	388.94	Deposits	539.44			
Investments	70.8	Borrowings	-			
Foreign Currency Assets	0.72	Foreign Currency Liabilities	4.04			
Total	460.46		543.48	-83.02		
15-28days CASH INFLOWS		**CASH OUTFLOWS**			Negative gap should not be more than 20%of the total cash outflows.	Negative gap is 43% of the total cash outflows. So it is not RBI Compliant
Loans & Advances	1006.56	Deposits	2015.84			
Investments	108.7	Borrowings	0.48			
Foreign Currency Assets	22.98	Foreign Currency Liabilities	7.4			
Total	1138.24	Total	2023.72	-885.48		
29 days and upto 3 months CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	4998.97	Deposits	13336.21			
Investments	786	Borrowings	0.06			
Foreign Currency Assets	69.93	Foreign Currency Liabilities	40.12			
Total	5854.9	Total	13376.39	-7521.49		
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	4393.23	Deposits	5106.59			
Investments	262.77	Borrowings	791.54			
Foreign Currency Assets	154.12	Foreign Currency Liabilities	456.55			
Total	4810.12	Total	6354.68	-1544.56		
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**				Gap is positive.
Loans & Advances	10631.96	Deposits	6209.33			
Investments	745.29	Borrowings	514.23			
Foreign Currency Assets	329.56	Foreign Currency Liabilities	513.26			
Total	11706.81	Total	7236.82	4469.99		
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	5276.98	Deposits	12324.83			
Investments	2712.8	Borrowings	877.87			
Foreign Currency Assets	-	Foreign Currency Liabilities	115.58			
Total	7989.78	Total	13318.28	-5328.5		
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**				Gap is positive.
Loans & Advances	3258.12	Deposits	1302.02			
Investments	2217.41	Borrowings	241.84			

Foreign Currency Assets	0.71	Foreign Currency Liabilities	326.19			
Total	5476.24	Total	1870.05	3606.19		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**				Gap is positive.
Loans & Advances	4778.08	Deposits	5811.08			
Investments	7391.29	Borrowings	200			
Foreign Currency Assets	-	Foreign Currency Liabilities	-			
Total	12169.37	Total	6011.08	6158.29		
Loans & Advances	1006.56	Deposits	2015.84		Negative gap should not be more than 20%of the total cash outflows.	Negative gap is 43% of the total cash outflows. So it is not in tolerance limit.
Investments	108.7	Borrowings	0.48			
Foreign Currency Assets	22.98	Foreign Currency Liabilities	7.4			
Total	1138.24	Total	2023.72	-885.48		
29 days and upto 3 months CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	4998.97	Deposits	13336.21			
Investments	786	Borrowings	0.06			
Foreign Currency Assets	69.93	Foreign Currency Liabilities	40.12			
Total	5854.9	Total	13376.39	-7521.49		
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	4393.23	Deposits	5106.59			
Investments	262.77	Borrowings	791.54			
Foreign Currency Assets	154.12	Foreign Currency Liabilities	456.55			
Total	4810.12	Total	6354.68	-1544.56		
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**				Gap is positive.
Loans & Advances	10631.96	Deposits	6209.33			
Investments	745.29	Borrowings	514.23			
Investments	745.29	Borrowings	514.23			
Foreign Currency Assets	329.56	Foreign Currency Liabilities	513.26			
Total	11706.81	Total	7236.82	4469.99		
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				Gap is negative.
Loans & Advances	5276.98	Deposits	12324.83			
Investments	2712.8	Borrowings	877.87			
Foreign Currency Assets	-	Foreign Currency Liabilities	115.58			
Total	7989.78	Total	13318.28	-5328.5		

Over 3 year and upto 5 years CASH INFLOWS		CASH OUTFLOWS				
Loans & Advances	3258.12	Deposits	1302.02			
Investments	2217.41	Borrowings	241.84			Gap is positive.
Foreign Currency Assets	0.71	Foreign Currency Liabilities	326.19			
Total	5476.24	Total	1870.05	3606.19		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4778.08	Deposits	5811.08			
Investments	7391.29	Borrowings	200			Gap is positive.
Foreign Currency Assets	-	Foreign Currency Liabilities	-			
Total	12169.37	Total	6011.08	6158.29		

In 2014, on the 1st time bucket they have a positive gap and they satisfy RBI Compliant. On 2nd time bucket i.e., 2-7 day there is 53 percentage of negative gap this cannot satisfy RBI Compliant. After this they face liquidity problems in the further buckets. Then over 6 months and up to 1 year they have a positive gap. On the next time bucket they have a negative gap and they cover this gap on the succeeding time buckets.

Maturity Pattern of key assets and liabilities:
As at 31st March, 2015: **[in Crore]**
Exhibit 5

Particulars 2015	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
Liabilities										
Deposits	137.06	1120.97	842.63	2915.84	11270.62	10270.38	10497.58	6337.7	952.78	7566.93
Borrowings	76.48	-	500	-	150	94.47	781.97	341.25	88.3	200
Foreign Currency Liabilities	20.84	1.62	1.64	4.71	194.9	102.12	809.5	167.65	418.26	-
Total	234.38	1122.59	1344.27	2920.55	11615.52	10466.97	12089.05	6846.6	1459.34	7766.93
Assets										
Loans & Advances	2067.01	233.53	323.95	814.37	4379.4	4042.54	8985.38	5993.77	4166.06	6385.63
Investments	288.96	1422.25	234.91	52.98	959.91	576.75	697.22	3619.44	1931.79	6932.96
Foreign Currency Assets	107.23	-	1.25	5.8	82.45	281.81	428.87	4.23	0.01	-
Total	2463.2	1655.78	560.11	873.15	5421.76	4901.1	10111.47	9617.44	6097.86	13318.59

Particulars	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
GAP(Assets-Liabilities	2228.82	533.19	-784.16	-2047.4	-6193.76	-5565.87	-1977.58	2770.84	4638.52	5551.66

Source: Annual Report, SIB, March, 2015

Maturity Ladder Based on Contractual Maturities 2015:

CASH OUTFLOWS	AMOUNT		AMOUNT		RBI TOLERANCE LIMITS	REMARKS
Loans and Advances	2067.01	Deposits	137.06		Negative Gap should not be more than 5% of total outflows	Gap is positive. RBI Compliant.
Investments	288.96	Borrowings	76.48			
Foreign Currency Assets	107.23	Foreign Currency Liabilities	20.84			
Total	2463.2		234.38	2228.82		
DAY 2-7 **CASH INFLOWS**		**CASH OUTFLOWS**			Negative Gap should not be more than 10% of total outflows Gap is positive. RBI Compliant.	
Loans and Advances	233.53	Deposits	1120.97			
Investments	1422.25	Borrowings	-			
Foreign Currency Assets	-	Foreign Currency Liabilities	1.62			
Total	1655.78		1122.59	533.19		
8-14 days **CASH INFLOWS**		**CASH OUTFLOWS**			Negative Gap should not be more than 15% of total outflows	Negative gap is 58% of the total cash outflows. So it is not RBI Compliant.
Loans and Advances	323.95	Deposits	842.63			
Investments	234.91	Borrowings	500			
Foreign Currency Assets	1.25	Foreign Currency Liabilities	1.64			
Total	560.11		1344.27	-784.16		
15-28days **CASH INFLOWS**		**CASH OUTFLOWS**				
Loans & Advances	814.37	Deposits	2915.84		Negative Gap should not be more than 20% of the cash outflows	Negative gap is 70% of the total cash outflows. So it is not RBI Compliant.
Investments	52.98	Borrowings	-			
Foreign Currency Assets	5.8	Foreign Currency Liabilities	4.71			
Total	873.15	Total	2920.55	-2047.40		
29 days and upto 3 months **CASH INFLOWS**		**CASH OUTFLOWS**				
Loans & Advances	4379.4	Deposits	11270.62		Gap is negative.	
Investments	959.91	Borrowings	150			
Investments	959.91	Borrowings	150			
Foreign Currency Assets	82.45	Foreign Currency Liabilities	194.9			
Total	5421.76	Total	11615.52	-6193.76		
Over 3 months and upto 6 months **CASH INFLOWS**		**CASH OUTFLOWS**			Gap is negative.	
Loans & Advances	4042.54	Deposits	10270.38			
Investments	576.75	Borrowings	94.47			
Foreign Currency Assets	281.81	Foreign Currency Liabilities	102.12			
Total	4901.1	Total	10466.97	-5565.87		

Over 6 months and upto 1 year CASH INFLOWS		CASH OUTFLOWS				
Loans & Advances	8985.38	Deposits	10497.58		Gap is negative.	
Investments	697.22	Borrowings	781.97			
Foreign Currency Assets	428.87	Foreign Currency Liabilities	809.5			
Total	10111.47	Total	12089.05	-1977.58		
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	5993.77	Deposits	6337.7		Gap is positive.	
Investments	3619.44	Borrowings	341.25			
Foreign Currency Assets	4.23	Foreign Currency Liabilities	167.65			
Foreign Currency Assets	4.23	Foreign Currency Liabilities	167.65			
Total	9617.44	Total	6846.6	2770.84		
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4166.06	Deposits	952.78		Gap is positive.	
Investments	1931.79	Borrowings	88.3			
Foreign Currency Assets	0.01	Foreign Currency Liabilities	418.26			
Total	6097.86	Total	1459.34	4638.52		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**			Gap is positive.	
Loans & Advances	6385.63	Deposits	7566.93			
Investments	6932.96	Borrowings	200			
Foreign Currency Assets	-	Foreign Currency Liabilities	-			
Total	13318.59	Total	7766.93	5551.66		

In 2015, on the 1st and 2nd time bucket there is positive gap and Bank could satisfy RBI Compliance. On the 3rd time bucket onwards there's a negative gap of 70 percentage of the total cash outflows. So, it is not upto the RBI Compliant, this arises due to holding a valuable asset that cannot be tradable when they need cash during to the lack of buyers. On the 7th time bucket onwards, the bank keeps enough liquidity.

Maturity Pattern of key assets and liabilities:

As at 31st March, 2016: [in Crore]

Exhibit 6

Particulars 2016	Day 1	2-7 days	8-14 days	15-28 days	29 days and upto 3 months	Over 3 months and upto 6 months	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 year and upto 5 years	Over 5 years
Liabilities										
Deposits	212.74	930.69	863.88	1290.92	8709.88	6860.07	16672.03	6152.9	1229.61	12798.01
Borrowings	63.69	-	-	-	927.57	336.27	170.63	316.79	200	300

Foreign Currency Liabilities	36.84	3.48	2.93	12.53	990	307.53	165.14	391.93	403.52	-
Total	313.27	934.17	866.81	1303.45	10627.45	7503.87	17007.8	6861.62	1833.13	13098.01
Assets										
Loans & Advances	1863.66	214.98	270.17	863.03	5289.95	4753.82	8593.2	6835.5	4737.45	7663.99
Investments	-	191	162.05	45.05	301.53	108.48	394.23	2079.04	2020.3	9317.25
Foreign Currency Assets	146.54	167.77	44.58	84.74	175.01	330.03	85.08	9.23	-	-
Total	2010.2	573.75	476.8	992.82	5766.49	5192.33	9072.51	8923.77	6757.75	16981.24

Particulars 2016	**Day 1**	**2-7 days**	**8-14 days**	**15-28 days**	**29 days and upto 3 months**	**Over 3 months and upto 6 months**	**Over 6 months and upto 1 year**	**Over 1 year and upto 3 years**	**Over 3 year and upto 5 years**	**Over 5 years**
GAP(Assets-Liabilities)	1696.93	-360.42	-390.01	-310.63	-4860.96	-2311.54	-7935.29	2062.15	4924.62	3883.23

Source: Annual Report, SIB, March, 2016

Maturity Ladder Based on Contractual Maturities 2016:

DAY 1 **CASH INFLOWS**	AMOUNT	**CASH OUTFLOWS**	AMOUNT	GAP	RBI TOLERANCE LIMITS	
Loans and Advances	1863.66	Deposits	212.74		Negative Gap should not be more than 5% of total outflows	Positive gap and RBI compliant
Investments	-	Borrowings	63.69			
Foreign Currency Assets	146.54	Foreign Currency Liabilities	36.84			
Total	2010.2		313.27	1696.93		
DAY 2-7 CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 10% of total outflows	Negative gap. Not RBI Compliant
Loans and Advances	214.98	Deposits	930.69			
Investments	191	Borrowings	-			
Foreign Currency Assets	167.77	Foreign Currency Liabilities	3.48			
Total	573.75		934.17	-360.42		
8-14 days CASH INFLOWS		**CASH OUTFLOWS**			Negative Gap should not be more than 15% of total outflows	
Loans and Advances	270.17	Deposits	863.88			
Loans and Advances	270.17	Deposits	863.88		bank has breached RBI tolerance limits.	Negative gap and not RBI Compliant
Investments	162.05	Borrowings	-			
Foreign Currency Assets	44.58	Foreign Currency Liabilities	2.93			
Total	476.8		866.81	-390.01		
15-28days CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	863.03	Deposits	1290.92		Negative Gap should not be more than 20% of the cash outflows	Negative gap
Investments	45.05	Borrowings	-			
Foreign Currency Assets	84.74	Foreign Currency Liabilities	12.53			
Total	992.82	Total	1303.45	-310.63		

29 days and upto 3 months CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	5289.95	Deposits	8709.88			
Investments	301.53	Borrowings	927.57			
Foreign Currency Assets	175.01	Foreign Currency Liabilities	990			
Total	5766.49	Total	10627.45	-4860.96		
Over 3 months and upto 6 months CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4753.82	Deposits	6860.07			
Investments	108.48	Borrowings	336.27			
Foreign Currency Assets	330.03	Foreign Currency Liabilities	307.53			
Total	5192.33	Total	7503.87	-2311.54		Negative gap
Over 6 months and upto 1 year CASH INFLOWS		**CASH OUTFLOWS**				Negative gap
Loans & Advances	8593.2	Deposits	16672.03			
Investments	394.23	Borrowings	170.63			
Foreign Currency Assets	85.08	Foreign Currency Liabilities	165.14			
Total	9072.51	Total	17007.8	-7935.29		
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				
Over 1 year and upto 3 years CASH INFLOWS		**CASH OUTFLOWS**				Positive gap
Loans & Advances	6835.5	Deposits	6152.9			
Investments	2079.04	Borrowings	316.79			
Foreign Currency Assets	9.23	Foreign Currency Liabilities	391.93			
Total	8923.77	Total	6861.62	2062.15		
Over 3 year and upto 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances	4737.45	Deposits	1229.61			Positive gap
Investments	2020.3	Borrowings	200			
Foreign Currency Assets	-	Foreign Currency Liabilities	403.52			
Foreign Currency Assets		Foreign Currency Liabilities	403.52			
Total		Total	1833.13	4924.62		
Over 5 years CASH INFLOWS		**CASH OUTFLOWS**				
Loans & Advances		Deposits	12798.01			Gap is positive.
Investments		Borrowings	300			
Foreign Currency Assets		Foreign Currency Liabilities	-			
Total		Total	13098.01	3883.23		

In 2016, on day 1 they have positive gap. In the 2nd time bucket negative gap should not be more than 10 per cent of total outflows. So it is not RBI Compliant. But on the 2nd time bucket there's a negative gap of 38 percent of the total cash outflows. On the 3rd time bucket there is a negative gap 44 per cent, 4th time bucket there is 23 per cent and so on. On the 7th time bucket onwards they have positive gaps and from that they could keep liquidity.

Stock Approach:

The following ratios are calculated from the annual statements of South Indian Bank

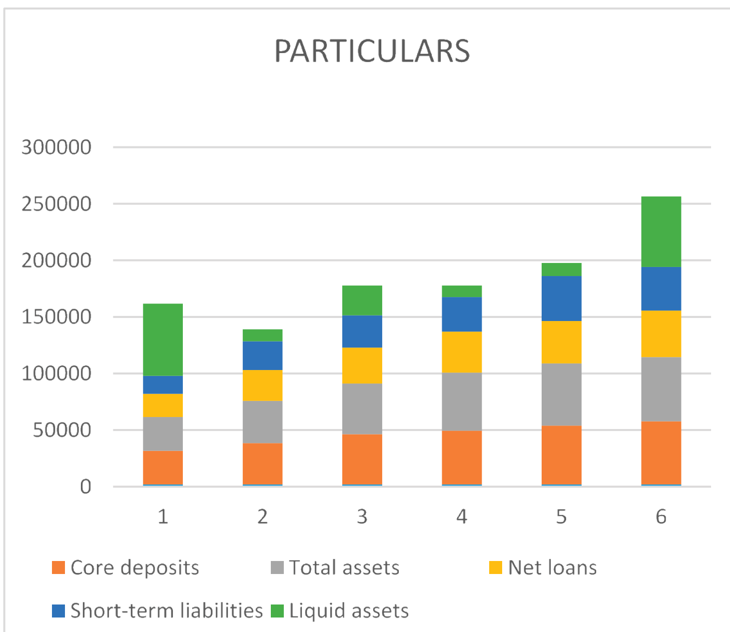
The required data for finding these ratios are given below:

Exhibit 7

Particular	2011	2012	2013	2014	2015	2016
Core deposits	29721.08	36500.53	44262.3	47491.09	51912.49	55720.73
Total assets	29844.47	37337.39	44846.23	51242.84	55020.46	56747.66
Net loans	20488.73	27280.74	31815.53	36229.86	37391.64	41085.75
Short-term liabilities	15885.03	25261.73	28388.64	30500.3	39793.33	38556.82
Liquid assets	63793.5	10686.977	26392.01	10171.21	11535.03	62334.43

Source: Annual reports on various years

Here we can see that core deposits increase year after year. In case of total assets thus also increase. Net loans increase from 2011-2016. In 2016 we can see that there is an increase in liquid assets. From these data we can find out the assert liability liquidity ratios.



Source: Annual reports on various years

The table below gives as the values of ratios in each year:

Exhibit 8

RATIOS	2011	2012	2013	2014	2015	2016
Core Deposits/Total Assets	0.99586	0.97758	0.98697	0.92678	0.94351	0.98190
Net Loans/Total Deposits	0.68936	0.74740	0.71879	0.76287	0.72028	0.73735
Short term liabilities/Liquid Assets	0.24900	2.3637	1.07565	2.99869	3.4497	0.61854
Liquid Assets/Total Assets	2.13753	0.28622	0.58850	0.19849	0.20964	1.09844
Short term Liabilities/Total Assets	0.5322	0.6765	0.6330	0.59521	0.72324	0.67944

Source: Computed from figures taken from Annual reports of various years.

- In the case of ratio of Core deposits to Total Assets, more the ratio better it is because core deposits are treated to be stable source of liquidity. In the year 2011, the ratio is 99 percent. In 2016 the ratio is 98 per cent, showing a stability over years.
- Net Loans to Total Deposits Ratio, in the year 2011 is 68 per cent. This ratio is also stable over years.
- Ratio of Short-Term Liabilities to Liquid Assets, is good when the ratio is lower. In the year 2016 it is better for the bank.
- Ratio of Liquid Assets to Total Assets, higher the ratio better it is. We can see that the ratio is higher in the year 2016, so that it will ensure better liquidity.
- Ratio of Short – Term Liabilities to Total Assets - here lower ratio is better for the bank. It is to be lower in the interest of liquidity.

5. Findings

- In **flow approach** we can see that there is positive gap as well as negative gap mismatches. It can either be positive or negative. Positive Mismatch: M.A. > M.L. and vice-versa for Negative Mismatch. In case of positive mismatch, excess liquidity can be deployed in money market instruments, creating new assets & investment swaps etc. For negative mismatch, it can be financed from market borrowings (call/Term), Bills rediscounting, repos & deployment of foreign currency converted into rupee.

a. In 2011, it was observed that on day 1 there is a positive gap, so it satisfies RBI Norms. On 2-7 days i.e., on 2nd time bucket it is negative it doesn't satisfy RBI Norms, this is similar in the case of next time bucket also. On the 3rd time bucket there's a Negative gap is 33% of the total cash outflow. Here the bank has breached RBI tolerance limits. On the 4th bucket onwards it's positive gap after that there is a negative gap for that bank should raise the fund from outside to reduce this negative gap. After that they have positive gap on next time buckets.

b. In 2012, on day 1 there is positive gap. After that bank have negative gap i.e., on the 2nd bucket onwards bank possess negative gap of 53% of total outflow. So it is not RBI Compliant So there is liquidity problem, bank should unable to meet short term financial demands. From 9th time bucket onwards there's positive gap.

c. In 2013, on 2nd time bucket Negative gap is 50% of the total cash outflows. So, it is not RBI Compliant here bank faces negative gap, to overcome that they have to raise funds from outside to meet their liabilities. On, the 7th time bucket they have a positive gap, after that there is a negative gap. After this level they maintain positive gap

d. In 2014, on the 1st time bucket they have positive gap and they satisfy RBI Compliant. On 2nd time bucket i.e., 2-7 day there is 53% of negative gap this can't satisfy RBI Compliant. After this they face liquidity problems to the next time bucket. Then over 6 months and up to 1 year they have positive gap. On the next time bucket they have a negative gap and they cover this gap on the preceding time buckets.

e. In 2015, on the 1st and 2nd time bucket there is positive gap and bank should satisfy RBI Compliant. On the 3rd time bucket onwards there's a Negative gap of 70% of the total cash outflows. So it is not upto the RBI Compliant, this arises due to holding a valuable asset that can't be tradable when they need cash during to the lack of buyers. On the 7th time bucket the bank should satisfy RBI Compliant.

f. In 2016, on day 1 they have positive gap. On the 2nd time bucket there's a Negative gap of 38% of the total cash outflows. So it is not RBI Compliant. In the 2nd time bucket Negative Gap should not be more than 10% of total outflows. On the 3rd time bucket there's a negative gap 44%, 4th time bucket there's 23% and so on. On the 7th time bucket onwards they have positive gaps and from that they should satisfy RBI Compliant.

- In **Stock approach** it can see that sometimes the ratio is higher and it is lower.

a. In the case of ratio of Core deposits to Total Assets, more the ratio better it is because core deposits are treated to be stable source of liquidity. In the year 2011, 99% is there. In 2016 the ratio is 98%, so it is better compared to other years.

b. In the case of Net Loans to Total Deposits Ratio, in the year 2011, 68% is there. This ratio is better when it has lower value.
c. Ratio of Short-Term Liabilities to Total Assets, it is good when the ratio is lower. In the year 2016 it's better for the bank.
d. Ratio of Liquid Assets to Total Assets, higher the ratio better it is. We can see that the ratio is higher in the year 2016, so that it will ensure better liquidity.
e. Ratio of Short – Term Liabilities to Liquid Assets, here lower ratio is better for the bank. It is to be lower in the interest of liquidity.

This study may be a motivation for further studies in the specific areas of liquidity risk management.

5. Conclusion

While analysing the liquidity in Flow approach and Stock approach we can see that there is a better liquidity for the South Indian Bank to meet obligations in few time buckets and in cfew time buckets the position needs improvement. The assumptions made in liquidity planning may not be accurate. Besides the assumptions on assets and liabilities and also off-balance sheet items, banks should also anticipate requirement of funds to support other operations like settlements and clearing claims. Net overheads expenses, such as rent and salary are not taken into account as a significant source of cash outflow. Sometimes it will be huge at the time of mass retirement or salary revision. Bank has to strengthen its sinking fund to meet this. The mandatory reserve requirements such as CRR and SLR may change substantially according to monetary control measures exercised by RBI. It can squeeze or expand the liquidity which may result in unpredictable effect on liquidity.

The treasury of a Bank plays a very significant role in liquidity management. Effectiveness of the liquidity risk management depends on the efficiency of front, middle and back offices of the treasury in performing integrated cash flow management. The Asset-Liability Committee plays a big role in liquidity risk management. The mismatch gap may lead to liquidity problem. Liquidity policy prescribes minimum liquidity to be maintained, funding of reserve assets, limits on exposure to money market, contingent funding, interbank committed credit lines etc. But liquidity policy of a Bank cannot be kept constant which requires frequent reviews and revisions.

Premature withdrawal of deposits and pre-closure of loans cannot be prevented even with careful planning leading to liquidity shock. Maturity mismatch may also result in price mismatch or vice–versa hitting banks' profitability. Mounting Non-Performing Assets (NPA) is a real threat for banks. They not only hit the earnings, but also block funds for roll over. They may upset the assumptions on assets mentioned elsewhere. Though the NPA level of South Indian Bank is alarming, it should take adequate steps to meet this challenge in future.

General market conditions are always unpredictable and could affect the liquidity of Bank. The Bank should have a reliable MIS designed to provide timely and forward-looking information on the liquidity position of the bank and the Group to the Board and ALCO, both under normal and stress situations. The MIS should cover liquidity positions in all currencies in which the Bank conducts its business – both on a subsidiary/branch basis (in all countries in which the bank is active) and on an aggregate group basis. It should capture all sources of liquidity risk, including contingent risks and those arising from new activities, and have the ability to furnish more granular and time sensitive information during stress events.

The Management should ensure that an independent party regularly reviews and evaluates the various components of the bank's liquidity risk management process. These reviews should assess the extent to which the bank's liquidity risk management complies with the regulatory/supervisory instructions as well as its own policy. The independent review process should report key issues requiring immediate attention, including instances of non-compliance to various guidances limits for prompt corrective action consistent with the board approved policy. But the challenge is that who should be this ‘independent party’ and what are their competencies.

The guidelines also cover two minimum global regulatory standards, viz., Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) as set out in Basel III rules text. But so far RBI Guidelines are silent on these standards. These concepts need clarifications before the South Indian Bank can act.

The “global financial crisis of 2007” has highlighted the role of prudent liquidity management as the cornerstone of financial stability. BCBS has come out with guidelines for liquidity management in banks and Reserve Bank of India has given guidelines after a lot of discussions on November 7, 2012. Though South Indian Bank has already taken adequate steps in this direction, they face a lot of challenges in liquidity risk management. Some of them are discussed in this paper. While following the guidelines meticulously, the Bank should also evolve Contingency Funding Plan (CFP) for meeting the emergency. It is believed that the guidelines on liquidity management will be implemented and stabilized in South Indian Bank soon.

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