



## AN ANALYSIS OF ASSET-LIABILITY MANAGEMENT IN INDIAN BANKS

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### Abstract

Assets and Liabilities Management (ALM) is a dynamic process of planning, organizing, coordinating and controlling the assets and liabilities – their mixes, volumes, maturities, yields and costs in order to achieve a specified Net Interest Income. As all transactions of the banks revolve around raising and deploying the funds, Asset-Liability Management (ALM) gains more significance as an initiative towards the risk management practices by the Indian banks. Measuring and managing liquidity risk is an important dimension of ALM. Mismatch in the maturity profile of assets and liabilities exposes the balance sheet to liquidity risk. This paper is aimed at measuring the liquidity Risk in SBI & associate banks in India, by using Gap Analysis Technique (maturity profiling). Using publicly available information, this paper attempts to assess the liquidity risk carried by the sample banks in the year 2011- 2012. The findings revealed that the banks are exposed to liquidity risk.

**Keywords:** Asset Liability Management, Liquidity Risk, Gap Analysis, Maturity Profiling, Maturity Bucket.

ALM is concerned with strategic balance sheet management involving risks caused by changes in the interest rates, exchange rates and the liquidity position of the bank. While managing these three risks forms the crux of ALM, credit risk and contingency risk also form a part of the ALM. The significance of ALM to the financial sector is further highlighted due to the dramatic changes that have occurred in recent years in the assets (uses of funds) and liabilities (sources of funds) of banks. There has been a vast shift in the borrowers' profile, the industry profile and the exposure limits for the same, interest rate structure for deposits and advances, and so on. This has been accompanied by increased volatility of markets, diversification of bank product profiles, and intensified competition between banks on a global scale, all adding to the risk exposure of banks. Thus, banks increasingly need to match the maturities of the assets and liabilities, balancing the objectives of profitability, liquidity, and risk. This has increased the need for implementing asset liability management in banks.

The concept of ALM has its genesis in USA and Canada in 1970s. This was largely due to the emergence of volatile financial/commodity markets, new technologies and deregulation of the financial system. The Reserve Bank of India introduced the concept of Asset-Liability Management and Risk Management in India for the first time in the year 1998-99. Initially, this concept was made mandatory for all „Scheduled Commercial Banks“, excluding Regional Rural Banks (R.R.B.s) (R.B.I. directive, circular no. DBOD.No.BP.BC.94/21.04.098/98 Dated 10th September 1998).

### BACKGROUND

Flannery and James (1984) discussed the use of asset liability management tools to maximise the benefit of tax shields in an effort to maximize profits. The results show that the banks will adjust their maturity gaps between loans and deposits in some situations to take advantage of tax shields and improve profits. Giokas and Vassiloglou (1991) developed a goal-programming model for bank asset and liability management. They supported the idea that apart from attempting to maximize revenues, management tries to minimize risks involved in the allocation of the bank's capital, as well as to fulfill other goals of the bank, such as retaining its market share, increasing the size of its deposits and loans, etc.

D Gosh Roy (1995) in an article points out that ALM as a tool for increased profitability and managing interest rate volatility have been in vogue in the international banking scenario in the late seventies. With the process of globalisation and deregulation setting in, Indian banks could no longer shy away from managing their assets and liabilities more so in the short run. O P Chawla (1998) opined that ALM has evolved from the early practice of managing liquidity on the bank's asset side, to a later shift to the liability side, termed liability management, to a still later realization of using both the assets as well as liabilities sides of the balance sheet to achieve optimum resources management. But that was till the 1970s. In the current decade, ALM covers the management of the entire balance sheet of a bank.

Madhu Vij (2005) attempts a case study of four banks- Citi bank, ICICI bank, IDBI bank and SBI and studies how Asset Liability Management can be used as an important tool for managing liquidity risk and interest rate risk. The traditional gap analysis is used for measuring the risks. Measuring and managing liquidity risk is an important dimension of ALM. Mismatch in the maturity profile of assets and liabilities exposes the balance sheet to liquidity risk.



Pramod Vaidya and Arvind Shahi (2005), and Dr. Anurag B Singh and Ms. Priyanka Tandon (2012) discusses in depth, the importance of liquidity risk management and interest rate risk management, various methods of measuring these risks and the challenges faced by Indian banks in managing these risks.

Parvinder Arora, Ajay Garg, and Bhavna Ranjan (2007), examines the ALM practices of six banks, using the tool of Duration GAP Analysis by looking at interest rate sensitivity statements for the period 2000-04. They concluded that the practice of ALM is the solution to most of the problems faced by banks in the recent times. It is the most scientific way to deal with the challenges put forward by the liberalization and the globalization of the financial services sector.

The paper entitled “A Study on the Assets and Liabilities Management (ALM) in Indian banking industry with special reference to Interest Rate Risk Management at ICICI Bank” by Dr. B. Charumathi (2008) is aimed at measuring the Interest Rate Risk in ICICI Bank by using Gap Analysis Technique. Using publicly available information, the study attempts to assess the interest rate risk carried by the ICICI bank in March 2005, 2006, & 2007. The findings revealed that the bank is exposed to interest rate risk.

Aruna Saini and Ram Dhan Saini (2010) carried out the study “Analysis of Liquidity Management and Trade Off Between Liquidity, Risk and Profitability – An Empirical Study” with the objectives like measuring and evaluating the efficiency of liquidity management by using the ratio analysis, comparing the liquidity position of the company from year to year by applying motaal’s comprehensive test..

Mihir dash, K.A. Venkatesh and Bhargav B.D. (2011), analysed asset-liability management in banks operating in India by determining the liquidity position of banks in India through maturity profiling. The results of the study suggest that, overall; public sector banks had a better short-term liquidity position than the private sector banks and foreign banks. Dr. Kanhaiya Singh (2013) attempted to analyze the impact of measures and strategies banks undertook to manage the composition of asset-liability and its impact on their performance in general and profitability in particular. Maturity profiling is used to determining the liquidity position and Duration analysis to measure interest rates risk.

#### **OBJECTIVE AND METHODOLOGY OF THE STUDY**

The present study analyses asset-liability management in SBI & Associate banks by determining the liquidity position of banks in India through maturity profiling method. This is an analytical study. The data used for the study included the major financial details of the sample banks collected from the RBI publication named “Statistical tables relating to banks in India” which was available in the RBI website. The study covered six banks categorised under the group SBI & Associates banks, for the year 2011-12.

The primary objective of the study was to compare and analyze the asset-liability maturity gap of SBI & Associate banks to measure liquidity risk. The study was conducted on the basis of the Asset-Liability Guidelines issued by RBI to individual banks. The major balance sheet items have to be distributed into time buckets as follows: 1-14 days; 15-28 days; 1-3 months; 3-6 months; 6-12 months; 1-2 years; 2-5 years; and 5+ years.

From the maturity profile, the maturity gap was computed by subtracting total outflows from total inflows, giving the mismatch in the outflow and inflow in the particular time bucket. A positive maturity gap means that in the particular time bucket, the inflows are more than outflows, while a negative maturity gap means that in the particular time bucket, the inflows are lesser than outflows.

The maturity gap was expressed as a percentage of outflows to identify the severity of the gap. Also, the cumulative maturity gap was computed on the basis of maturity gap of the bank to give the position of the bank during the future period. In particular, the time buckets 1-14 days and 15-28 days are indicators of short term liquidity position of the bank. As per the guidelines of Reserve Bank of India, the banks should take care that the maturity gap of the short term liquidity indicator does not cross 20% of the outflow of the respective buckets.

#### **RESULTS AND DISCUSSION**

The table below shows the maturity gap position of the sample banks in the different time buckets:

Bank	Rs. in Crores							
	1-14 days	15 - 28 days	29 - 90 days	3 - 6 months	6 -12 months	1- 3 years	3 to 5 years	Over 5 years
State Bank of India	-23787	-10402	-9843	-63390	-87749	138417	-60854	126732
State Bank of Bikaner	-1416	376	-3108	-2875	-5815	9388	-905	5742
State Bank of Hyderabad	4715	-386	-5202	-5487	-16047	1405	10712	13633
State Bank of Mysore	246	-859	69	-934	-4645	9460	-1182	-1312
State Bank of Patiala	-5041	-1994	-5004	-10718	-18680	11260	10767	14160
State Bank of Travancore	-612	2430	4034	1140	4099	-10511	-8633	6761

Source: calculated

A study on ALM conducted by **Mihir dash, K.A. Venkatesh** and **Bhargav B.D.** among all scheduled commercial banks for the year 2008-09, shows that all the sample public sector banks had excess liquidity in the 1-14 days' time bucket, especially so for the State Bank of India, which had an highest excess liquidity of Rs. 85,876.77 crores in the 1-14 days time bucket. All the banks belong to SBI group shows a positive gap in 1-14 days bucket in that year. In another study conducted by **Madhu Vij** on liquidity risk management, the gap analysis for the year 2003 shows that SBI bank is maintaining a positive gap in all the short term buckets up to 6 months. Contrary to these two studies, our study conducted among the banks of State bank of India & Associates, in the year 2011-12, reveals that four out of six banks had liquidity deficiency in the 1-14 days time bucket, 15-28 days, 29-90 days and 3-5 years' time bucket. Five banks had liquidity deficiency in 3-6 months and 6-12 months time bucket. Only State bank of Travancore has sound short term liquidity. Whereas, all the banks except State Bank of Travancore showed excess liquidity for 1-3 years time bucket. Those banks maintain medium term liquidity. Except State Bank of Mysore, remaining banks has excess liquidity in the 5+ years' time bucket. Thus they maintain long term liquidity.

The table below shows the maturity gap position of the sample banks in the different time buckets as a percentage of outflows:

Bank	1-14 days	15 - 28 days	29 - 90 days	3 - 6 months	6 -12 months	1- 3 years	3 to 5 years	Over 5 years
State Bank of India	-26.49	-43.24	-12.95	-57.58	-61.41	43.45	-30.89	59.73
State Bank of Bikaner	-44.32	64.48	-49.94	-66.04	-66.86	47.61	-7.90	55.74
State Bank of Hyderabad	178.03	-44.50	-63.02	-68.51	-86.86	3.75	461.29	54.99
State Bank of Mysore	9.69	-51.14	1.28	-26.60	-50.07	74.15	-16.07	-10.83
State Bank of Patiala	-69.31	-87.57	-53.08	-84.56	-84.20	43.38	535.14	168.09
State Bank of Travancore	-24.68	251.65	69.50	20.70	43.87	-52.24	-64.35	31.53

Source: calculated

The study by Mihir Das, et al reveals that, for all the banks in SBI group, the percentage of maturity gap to total outflows is very high and positive. In our study, it was found that two out of six sample banks had excess liquidity in the 1-14 days time bucket. It was also found that four of the sample banks had liquidity deficiency in excess of 20% of total outflows in the 1-14 days time bucket, as well as 15-28 days time bucket. As per the RBI guidelines, the mismatch during the 1-14 days and 15-28 days time buckets should not in any case exceed 20% of the cash outflows in each time bucket. Also, they had a deficiency in the succeeding time buckets. However, State bank of Hyderabad had a huge surplus (in excess of 100% of total outflows) in the previous time bucket, thus it may have a higher tolerance level in the 15-28 days time bucket.

The table below shows the cumulative maturity gap position of the SBI & Associate banks in the different time buckets:

Bank	Rs. in Crores							
	1-14 days	15 - 28 days	29 - 90 days	3 - 6 months	6 -12 months	1- 3 years	3 to 5 years	Over 5 years
State Bank of India	-23787	-34189	-44032	-107422	-195172	-56755	-117609	9123
State Bank of Bikaner	-1416	-1040	-4148	-7023	-12838	-3451	-4356	1387
State Bank of Hyderabad	4715	4330	-872	-6360	-22406	-21001	-10290	3343
State Bank of Mysore	246	-613	-544	-1478	-6123	3337	2155	843
State Bank of Patiala	-5041	-7035	-12039	-22757	-41437	-30177	-19410	-5250
State Bank of Travancore	-612	1818	5852	6992	11090	580	-8054	-1293

Source: calculated

**Madhu Vij** states that State Bank of India is having a positive cumulative gap for all the buckets of maturities except one year to three years and three years to five years while studying the liquidity risk management of the bank for the year 2002-03. Whereas, in this study conducted for the year 2011-12, it was found that three of the sample banks, namely State Bank of India, State Bank of Bikaner, and State Bank of Patiala had severe liquidity deficiency starting from the 1-14 days time bucket. It was also found that State Bank of Mysore and Hyderabad had liquidity deficiency starting from the 15-28 days and 29-90 days time bucket respectively. Except State Bank of Patiala and State Bank of Travancore, other banks showed positive cumulative gap in 5+ years which is the positive sign in liquidity management.

Asset Liability Management is the on-going process of formulating, implementing, monitoring, and revising strategies related to assets and liabilities in an attempt to achieve financial objectives for a given set of risk tolerances and constraints. It has evolved as a vital activity of all financial institutions and to some extent other industries too. ALM is not only considered vital for imparting strength and soundness to the banking system, but also as a necessary prerequisite for Indian banks to conform to global best practices.

Maturity-gap analysis has a wide range of focus, not only as a situation analysis tool, but also as a planning tool. Banks need to maintain the maturity gap as low as possible in order to avoid any liquidity exposure. This would necessarily mean that the outflows in different maturity buckets need to be funded from the inflows in the same bucket. As per the RBI's guidelines, banks have to maintain a stable liquidity position in the short term duration, including both 1-14 days and 15-28 days time buckets, to ensure the stability and credibility of the banking system of the country.

The study conducted by Dr Kanhaiya singh among the SBI & Group, reveals that in the years 2010 & 2010-11, almost one fourth of short term liabilities are used to finance long term assets. This result in the maturity mismatch and the banks are at the liquidity exposure. In the same way, the results of our study suggest that, overall, SBI & Associate banks faces liquidity risk in the year 2012. Especially the short term liquidity position of State Bank of India, State Bank of Bikaner and State Bank of Patiala is not satisfactory. The liquidity management in long term in the banks State Bank of Mysore, and State Bank of Travancore is very poor. Compared to other banks in this group, State Bank of Hyderabad shows the satisfactory performance in very short term, medium term and long term liquidity management.



The asset liability management by banks is critically dependent on the maturity profile of their assets and liabilities. In our study period, i.e., 2011-2012, as the sample banks of our study generally raised resources through short-term liabilities to finance assets ranging from short- to long-term, the liquidity and credit risks get multiplied particularly during the periods of crisis. Because of the opening of banking domain to global players in Indian environment and increasing penetration of private sector banks, the public sector banks, in our study SBI & associate has been compelled to concentrate on profitability at the cost of liquidity. But the banks should estimate an optimum liquidity risk they can undertake, because a very high liquidity risk will affect the profitability itself.

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