Asset-Liability-Management– A Comparative Study of a Public and Private Sector Bank

P.Sheela
Professor, Dept of Finance, GITAM Institute of Management- GITAM University

Tejaswini Bastray
Research Scholar, GITAM Institute of Management- GITAM University

Abstract
Asset-Liability-Management (ALM) is a comprehensive and dynamic framework for measuring, monitoring and managing the market risk of a bank. It is the management of balance sheet structure (Asset-Liability) in such a way that the net earnings from interest are maximized within the overall risk-preference (present and future) of the banks. This study examined the effect of Asset-Liability-Management (ALM) on the Commercial banks profitability in Indian financial market by taking into consideration one Public Sector Bank namely Union Bank of India and one private sector bank namely ICICI bank by using Gap Analysis Technique. This paper attempts to assess the interest rate risk that both the banks are exposed to, spread over a period from 2009 to 2014. The findings from the study revealed that both the banks have been exposed to interest rate risk. The study also indicated that Union bank of India has a better Asset-Liability-Management (ALM) framework in practice.

KEYWORDS: Assets, Liability, Indian Banks, Profitability

Introduction:

Assets and liabilities management basically refers to the process by which an institution manages its balance sheet in order to allow for alternative interest rate and liquidity scenarios. Banks and other financial institutions irrespective of its size provide services which expose them to various kinds of risk like credit risk, interest risk, and liquidity risk. Failure to identify the risk may affect the financial position of the financial institution. One of the strategies for risk management to assess such risk is Asset Liability Management (ALM). ALM is an attempt to analyze the gap between assets and liabilities in terms of their maturities and interest rate sensitivities so that banks can minimize the risk arising from such gap mainly from interest rate risk and liquidity risk. The Reserve Bank of India (RBI) has implemented the Basel II norms for the regulation of Indian banks, providing a framework for banks to develop ALM policies. At the macro-level, ALM leads to the formulation of critical business policies, efficient allocation of capital, and designing of products with appropriate pricing strategies, while at the micro-level, the objective of the ALM is two-fold: it aims at profitability through price matching while ensuring liquidity by means of maturity matching. An efficient asset-liability management system aims to manage the volume, mix, maturity, rate sensitivity, quality and liquidity of the assets and liabilities as a whole, so as to earn a predetermined, acceptable risk/reward ratio. ALM is not limited to balance sheet assets and liabilities such as deposits and lending’s only, but also includes off-balance sheet activities such as swaps, futures and options. The objective of ALM is to make banks fully prepared to face the emerging challenges. The present study proposes Gap analysis model for asset-liability management, with profitability as the objective, and constraints based on liquidity and statutory requirements. The model was applied to a private and a public sector bank operating in India, resulting in a recommended optimal asset-liability mix of the banks in the sample. Using these results, the study assessed the nature of asset-liability management of different bank groups, in terms of its implications on profitability, liquidity, and interest rate sensitivity.
Need for ALM in Banks

The transformation of the Indian financial markets over the past few years, the growing integration of domestic markets with external markets, and the risks associated with banks operations have become complex and large, the requirement strategic management in dealing with such complexities are on rise. In a fairly deregulated environment, banks are now required to determine on their own, the interest rates on deposits and advances in both domestic and foreign currencies on a dynamic basis. Intense competition for business involving both the assets and liabilities, together with increasing volatility in the domestic interest rates as well as foreign exchange rates, has brought pressure on management of banks to maintain a good balance among spreads, profitability and long-term viability. Imprudent liquidity management practices can put banks earnings and reputation at higher stake, thus calling for structured and comprehensive measures and not just ad hoc actions. The various risks that the banks are exposed to are – credit risk, interest rate risk, foreign exchange risk, equity/commodity price risk, liquidity risk and operational risks and thus, the banks need to introduce effective risk management systems that address the underlying issues. In such circumstances, banks need to address these risks in a structured manner by upgrading their risk management and adopting more comprehensive ALM practices than that has been done hitherto. ALM, among other functions, is primarily concerned with risk management and provides a comprehensive and dynamic framework for measuring, monitoring and managing the risks associated. In the process, it assesses various types of risks and alters the asset-liability portfolio in a dynamic way in order to manage risks. The first step of market risk management is to measure the liquidity and the interest rate risk. ALM policies are intended to keep those risks at an acceptable level given the expectations of future market/interest rates. Liquidity and interest rate policies, though distinct, are interdependent since any projected liquidity gap will be funded at an unknown rate, unless a hedge is contracted today.

Literature review

There has been good number of studies and plenty of literature relating to asset-liability management in banks is available. The Basel committee on banking supervision (2001) proposed and formulated the broad supervisory framework and suggested required standards for bringing best practices in the supervision mechanism of banking system. Various researchers have made significant contributions in the field of asset liability management by studying it in different contexts.

Gardner and Mills (1991) revealed asset-liability management as a part of banks’ strategic planning and as a response to the changing environment in prudential supervision, e-commerce and new taxation treaties. Their text provided the foundation of subsequent discussion on asset-liability management.

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.

S R Shinde(1998) takes the view that banks are ultimately economic entities securing profits by assuming numerous risks inherent in their financial intermediary and payment function and sophisticated ALM is the key to successful bank management. ALM also includes off-balance sheet activity such as swaps, futures and options.

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.
Hester & Zoellner (1966) found through his studies most of the categories of assets and liabilities are statistically significant coefficients and rejected the null hypothesis relationship between them by the method of statistical cost accounting (SCA) on US banks.

Berger & Humphrey (1997) stated that the whole idea of measuring bank performance is to separate banks that are performing well from those which are doing poorly.

Vaidyanathan (1999) found that the most important thing which banks require to manage nowadays is interest risk. He analyzed various types of risks and found that earlier banks were liquidity managed but now they are liability managed.

Haslem et al. (1999) found that the least profitable very large banks have the largest proportions of foreign loans, yet they emphasize domestic balance sheet (asset/liability) matching strategies. Conversely, the most profitable very large banks have the smallest proportions of foreign loans, but, nonetheless, they emphasize foreign balance sheet matching strategies.

Vaidya and Shahi (2001) revealed that interest rate risk and liquidity risk are two key inputs in business planning process of banks.

Bikram De (2003) stated that ownership does not seem to have any effect on the Return on Assets but, public sector banks do seem to have higher Net Interest Margin and Operating Cost Ratio.

Ranjan and Nallari (2004) found that SBI and associates had the best asset-liability management in the period 1992-2004. They also found that, other than foreign banks, all other banks could be said to be liability-managed. Private sector banks were mostly focused on profit generation, while nationalized banks followed a conservative approach about maintaining high liquidity. The Basel committee for banking supervision provides important guidelines for measuring interest rate risk sensitivity.

Kosmidou et al. (2004) found through his research that liability management contributes more in creating the profitability

Pramod Vaidya and Arvind Shahi (2005) discussed 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), found 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.

Kanjana.E.N (2007), found that the “Efficiency, Profitability and Growth of Scheduled Commercial Banks in India” tested whether the establishment expense was a major expense, and out of total expense which is met by scheduled commercial banks is more due to more number of employees. In her empirical study, the earning factor and expense factor which are controllable and non-controllable by the bank.

Charumathi (2008) stated in her study on interest rate risk management concluded that balance sheet risks include interest rate and liquidity risks.

Chkrabraborty and Mohapatra (2008) stated in the study that public sector banks have an efficient asset-liability maturity pattern. Also they found that the interest rate risk and liquidity risks are the
significant risks that affect the bank’s balance sheet and therefore, they should be regularly evaluated and managed.

**Roma Mitra, Shankar Ravi (2008)**, estimated and compared efficiency of the banking sector in India. The analysis is supposed to verify or reject the hypothesis whether the banking sector fulfils its intermediation function sufficiently to compete with the global players. The results are insightful to the financial policy planner as it identifies priority areas for different banks, which can improve the performance. This paper evaluates the performance of Banking Sectors in India.

**Ashok Kumar (2009)** found how the financial performance of SBI group, nationalized banks group, private banks group and foreign banks group has been affected by the financial deregulation of the economy. The main objective of the empirical study is to assess the financial performance of Scheduled Commercial Banks through CRAMEL Analysis.

**Kajal Chaudhary and Monika Sharma (2011)** revealed that public banks must pay attention on their functioning. These banks should select borrower very smartly and also public banks should decrease the NPA level. Sometimes the perspective of management also defines the risk profile of banks which further determines the liquidity and profitability tradeoff.

**Dash and Pathak (2011)** found public sector banks have best asset-liability management. They also found that public sector banks had a strong short-term liquidity position, but with lower profitability, while private sector banks had a comfortable short-term liquidity position, balancing profitability.

**Dr. Anurag B Singhand Ms. Priyanka Tandon (2012)** found that, 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.

**Prathap (2013)** found that ownership and structure of the banks do have a major bearing in the ALM procedure. It is further observed that SBI and its Associates have the best correlation, thereby indicating the best asset-liability maturity pattern. Most of the Indian banks, unlike foreign banks, are liability-managed banks because they all borrow from money market to meet their maturing liabilities. The private banks are highly aggressive for profit generation and use the short-term funds for long-term investments.

**Dr. Kanhaiya Singh (2013)** found that the 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.

**Amit Kumar Meena, Joydip Dhar (2014)** found that that the Overall liquidity structure of banks in India is stable but the amount of cash they maintain with them can create problems in long run as it is deteriorating their profits.

**Manish Roy Tirkey & Shaban. E. A. Salem** found in their study that ICICI bank is better compared to HDFC bank. Ratio analysis was used in order to compare asset/liability management in ICIC bank and HDFC bank.

**Swati Dubey & Neeraj Rawat** found in their study that there is a direct relationship exists between Asset Liability Management and the profitability of a bank.

**Objectives of the study**

i) To understand the key policy decision regarding the strategic Asset Liability Management.

ii) To understand asset liability management with reference to banks.
Research Methodology

**Type of research:** The research methodology is descriptive in nature as it involves fact-finding enquiries and reporting of what has happened or what is happening.

**Data Collection:** Secondary data has been used for the analysis.

**Source of the secondary data:** The study covered one public sector bank i.e. Union bank of India operating in India and a private sector bank i.e. ICICI bank. The data for the study is collected from the major financial details (balance sheets, annual reports) of the sample banks and the RBI website i.e. www.rbi.org. The research is primarily based on secondary data; the study is conducted on the basis of the Asset-Liability guidelines issued by RBI to individual banks. In addition to the above sources, some more information was collected from different issues of Economic.

**Analysis of Asset – Liability Management**

The study on the analysis of short term liquidity for the two banks is done for a period of 5 years (2009-2014) by using Gap analysis model for respective bank

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>GAP Position</th>
<th>Change in Interest Rate (Δr)</th>
<th>Change in Net Interest Income (ΔNII)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RSA = RSLs</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>2</td>
<td>RSA = RSLs</td>
<td>Decrease</td>
<td>No change</td>
</tr>
<tr>
<td>3</td>
<td>RSAs ≥ RSLs</td>
<td>Increase</td>
<td>NII increases</td>
</tr>
<tr>
<td>4</td>
<td>RSAs ≥ RSLs</td>
<td>Decrease</td>
<td>NII increases</td>
</tr>
<tr>
<td>5</td>
<td>RSAs ≤ RSLs</td>
<td>Increase</td>
<td>NII decreases</td>
</tr>
<tr>
<td>6</td>
<td>RSAs ≤ RSLs</td>
<td>Decrease</td>
<td>NII increases</td>
</tr>
</tbody>
</table>

**Residual Maturity for the year 2009-10 (Rs. in Crores)**

<table>
<thead>
<tr>
<th>Maturity Gap</th>
<th>1 - 14 days</th>
<th>15 - 28 days</th>
<th>29 days - 3 m</th>
<th>3 m - 6 m</th>
<th>6 m - 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICICI Bank</td>
<td>-83,449.60</td>
<td>32,542.90</td>
<td>-115,699.30</td>
<td>-42,658.30</td>
<td>-8,009.70</td>
</tr>
<tr>
<td>Union Bank Of India</td>
<td>1,135.76</td>
<td>3,196.72</td>
<td>4,535.74</td>
<td>1,510.61</td>
<td>-12,507.52</td>
</tr>
</tbody>
</table>

**Source:** Annual Reports of ICICI Bank and Union Bank of India (2009-10).

The bucket wise distributions of maturity gaps depict that Union bank of India has negative gap in 6 months to 1 year time bucket and ICICI bank are following the negative gap strategy for the time buckets up to one year which indicates that the short term liabilities are more than short term assets. ICICI Bank seems to have a positive gap in fifteen to twenty days bucket. This shows that these banks have a more short term assets than liabilities. This may be attributed to the large credit card loans by these banks. However, irrespective of the bank group, the time buckets over one year it can be noticed a positive gap in the scheduled commercial banks of India.
The bucket wise distributions of maturity gaps depict that Union Bank of India has negative gap in 15 to 28 days time bucket, 3 months to 6 months time bucket and 6 months to 1 year time bucket and ICICI bank are following the negative gap strategy for the time buckets up to one year which indicates that the short term liabilities are more than short term assets. ICICI Bank seems to have a positive gap in fifteen to twenty days bucket. This shows that these banks have a more short term assets than liabilities. This may be attributed to the large credit card loans by these banks. However, irrespective of the bank group, the time buckets over one year we see the positive gaps in the scheduled commercial banks of India. This trend may lead to call money borrowing to fill in the liquidity gap and may reduce the interest margin substantially in the increasing interest rate scenario. Thus, it is concluded that the bank is exposed to interest rate risk.
Table 3 - Residual Maturity for the year 2011-12 (Rs. in Crores)

<table>
<thead>
<tr>
<th>Maturity Gap</th>
<th>1 - 14 days</th>
<th>15 - 28 days</th>
<th>29 days - 3 m</th>
<th>3 m- 6 m</th>
<th>6 m-1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICICI Bank</td>
<td>5,408.90</td>
<td>10,749.40</td>
<td>-134,467.70</td>
<td>-153,404.70</td>
<td>-189,889.10</td>
</tr>
<tr>
<td>Union Bank Of India</td>
<td>-2,394.93</td>
<td>474.04</td>
<td>5,790.01</td>
<td>1,995.08</td>
<td>-4,961.67</td>
</tr>
</tbody>
</table>

Source: Annual Report of ICICI Bank and Union Bank of India (2011-12)

The bucket wise distributions of maturity gaps depict that union bank of India has negative gap in 15 to 28 days time bucket, 3 months to 6 months time bucket and 6 months to 1 year time bucket and ICICI bank are following the negative gap strategy for the time buckets up to one year which indicates that the short term liabilities are more than short term assets. ICICI Bank seems to have a positive gap in fifteen to twenty days bucket. This shows that these banks have a more short term assets than liabilities. This may be attributed to the large credit card loans by these banks. However, irrespective of the bank group, the time buckets over one year we see the positive gaps in the scheduled commercial banks of India. This trend may lead to call money borrowing to fill in the liquidity gap and may reduce the interest margin substantially in the increasing interest rate scenario. Thus, it is concluded that the bank is exposed to interest rate risk.

Table 4 - Residual Maturity for the year 2012-13 (Rs. in Crores)

<table>
<thead>
<tr>
<th>Maturity Gap</th>
<th>1 - 14 days</th>
<th>15 - 28 days</th>
<th>29 days - 3 m</th>
<th>3 m- 6 m</th>
<th>6 m-1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICICI Bank</td>
<td>-14,094.80</td>
<td>87,750.80</td>
<td>-103,573.00</td>
<td>-110,332.10</td>
<td>-139,806.60</td>
</tr>
<tr>
<td>Union Bank Of India</td>
<td>-713.63</td>
<td>2,504.98</td>
<td>2,643.68</td>
<td>7,670.54</td>
<td>-13,779.26</td>
</tr>
</tbody>
</table>

Source: Annual Reports of ICICI Bank and Union Bank of India (2012-13).

The bucket wise distributions of maturity gaps depict that union bank of India has negative gap in 1 to 14 days time bucket and 6 months to 1 year time bucket and ICICI bank are following the negative gap strategy for the time buckets up to one year which indicates that the short term liabilities are more than short term assets. ICICI Bank seems to have a positive gap in fifteen to twenty days bucket. This shows that these banks have a more short term assets than liabilities. This may be attributed to the large credit card loans by these banks. However, irrespective of the bank group, the time buckets over one year we see the positive gaps in the scheduled commercial banks of India. This
trend may lead to call money borrowing to fill in the liquidity gap and may reduce the interest margin substantially in the increasing interest rate scenario. Thus, it is concluded that the bank is exposed to interest rate risk.

Table: 5 - Residual Maturity for the year 2013-14 (Rs. in Crores)

<table>
<thead>
<tr>
<th>Maturity Gap</th>
<th>1 - 14 days</th>
<th>15 - 28 days</th>
<th>29 days - 3 m</th>
<th>3 m - 6 m</th>
<th>6 m - 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICICI Bank</td>
<td>-7,906.80</td>
<td>54,286.30</td>
<td>-56,302.40</td>
<td>-45,597.10</td>
<td>-48,609.70</td>
</tr>
<tr>
<td>Union Bank Of India</td>
<td>-3,984.97</td>
<td>2,840.30</td>
<td>-4,734.27</td>
<td>-10,249.91</td>
<td>11,517.24</td>
</tr>
</tbody>
</table>

Source: Annual Reports of ICICI Bank and Union Bank of India (2013-14).

The bucket wise distribution of maturity gaps depicts that union bank of India has negative gap in 1 to 14 days time bucket. 29 days to 3 months time bucket, 3 months to 6 months and 6 months to 1 year time bucket and ICICI bank are following the negative gap strategy for the time buckets up to one year which indicates that the short term liabilities are more than short term assets. ICICI Bank seems to have a positive gap in fifteen to twenty days bucket. This shows that these banks have a more short term assets than liabilities. This may be attributed to the large credit card loans by these banks. However, irrespective of the bank group, the time buckets over one year we see the positive gaps in the scheduled commercial banks of India. This trend may lead to call money borrowing to fill in the liquidity gap and may reduce the interest margin substantially in the increasing interest rate scenario. Thus, it is concluded that the bank is exposed to interest rate risk.
FINDINGS OF THE STUDY

1. The ALM concept though in vogue since 1997, its inherent complexities in obtaining accurate timely information from the grass root level is making difficult for the banks to make full advantage of it.
2. The up gradation of technology by the banks has helped the banks to achieve the objective of fully utilizing management of information systems (MIS) in the collection of accurate and timely data required for managing their Asset Liability.
3. It was understood through the study, that interest rate risk is measured through the use of re-pricing gap analysis and duration analysis where as the Liquidity risk is measured through gap analysis.
4. Through the study it was observed that both the banks were exposed to interest rate risk throughout the study period.
5. To fill the short term liquidity gap, banks resort to market borrowings at higher rate of interest which was the cause in the reduction of interest margin and the profitability of the banks.

CONCLUSION

With the onset of liberalization Indian banks are now more exposed to uncertainty and to global competition. This makes it imperative to have proper asset liability management system in place. Through effective liquidity risk management banks can avoid unprofitable sale of assets and reduce borrowings from central bank and can demonstrate itself as a safe bank. Maintaining a good interest risk management is vital for Indian banks in the present scenario. It enables the bank to reduce earnings volatility and gives opportunity to get benefited from changing interest rates. After calculating through the Gap analysis and critically analyzing them, it is evident that both banks are performing satisfactorily in terms of profitability and adequacy, but they are needs to address the immediate concern of liquidity. On critical comparison between ICICI bank and Union bank is that, the Union bank is more profitable with good Asset-Liability Management strategy. It is found that both the banks are exposed to interest rate risk. To fill the short term liquidity gap, banks resort to market borrowings at higher rate of interest which is the cause of reduction in the interest margin and profitability of banks.
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