# A STUDY OF THE ASSET LIABILITY MANAGEMENT IN COMMERCIAL BANKS



A SUMMARY OF THESIS SUBMITTED TO
THE M.S. UNIVERSITY OF BARODA
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN BANKING AND BUSINESS FINANCE

By

**ABHISHEK VARMA**
**M. Com – Banking & Business Finance**
**(Gold Medalist )**

UNDER THE SUPERVISION OF
**Dr. DILIP K. CHELLANI**
READER IN BANKING & BUSINESS FINANCE

**DEPARTMENT OF BANKING & BUSINESS FINANCE**
**FACULTY OF COMMERCE**
**THE M.S. UNIVERSITY OF BARODA**
**VADODARA . GUJARAT - INDIA**
**SEPTEMBER 2004**

# A STUDY OF ASSET LIABILITY MANAGAMENT IN COMMERCIAL BANKS



## Rationale of The Study:

The concept of Asset Liability Management (ALM) in commercial banks has gained considerable significance in India after the introduction of reforms in the financial sector. Further, reforms relating to the interest rate deregulation have propelled the ALM concept into prominence in the recent years. Many techniques of managing assets and liabilities originated in the seventh and eighth decade of the twentieth century in the developed countries, as a strategic response of banks to inflationary pressure, volatility in interest rates and severe recession which marked the global economy during that period.

In India, the Narsimham Committee Recommendations on Financial Sector Reforms (FSR) made during the last decade of bygone century, have paved way for new regulatory standards, better internal policy development and rapid advancement in information technology in the banking sector. Along with these developments a comprehensive technique of managing the entire bank balance sheet in a cohesive and coordinated manner has been developed and has been termed as "Asset Liability Management". As the Indian banks gear up to face stiff competition posed by foreign financial institutions the scope of this technique is expected to increase, to help the Indian banks in effective implementation of ALM process. Reserve Bank of India (RBI) has introduced the Asset Liability Management System as a part of the risk management and control mechanism in commercial banks vide its circulars, DBOD No. BP. BC. 94/21. 04. 098 dated September 10, 1998 containing draft guidelines & DBOD No. 8/21. 040098/99 dated February 10, 1999 containing final set of guidelines for implementation by commercial banks commencing from the financial year 1999-2000. As per these detailed guidelines commercial bank management are required to prepare on fortnightly basis following three statements and thereby adopt the ALM practices & procedures more comprehensively These statements are:

i) Statement of structural liquidity,

ii) Statement of Interest rate sensitivity, &

iii) Statement of short-term dynamic liquidity.

ALM is considered as a comprehensive risk management system that helps the commercial banks to manage different types of risks associated in banking business viz. Liquidity Risk, Credit Risk, Interest Rate Risk, Exchange Risk, & Operational Risk etc. RBI in its guidelines has emphasized that initially commercial banks should address the problem of liquidity risk and interest rate risk and thereafter cover other related risks like credit risk, forex risk & operational risk[1]. This study focuses on the theme that risk & return are positively co-related and commercial banks should not extend their business beyond risk tolerance limits even if the business is profitable.

**Definitions of Asset Liability Management:**

The Asset Liability Management has been defined in different ways. Some of the definitions provided by eminent bankers that capture the basic message of this technique are as under:

a) The process of managing the Net Interest Margin (NIM) within the Overall risk bearing capacity of the bank.[2]

b) The process of planning, directing, and controlling the flow, level, costs, yield and duration of the funds for the purpose of achieving financial goals & controlling financial risks.[3]

c) Coordinated management of the bank balance sheets to allow for alternative interest rates and liquidity scenario.[4]

d) An integrated approach to branch and financial management, requiring simultaneous decision about the types and amounts of financial assets and liabilities it holds or the Asset Liability mix and volume.[5]

The ALM technique is a converged version of several techniques which have been successfully employed by the bankers throughout the world for the past two - three decades to resist the pressure of highly volatile global financial environment. Though this process is too complex to practice, it is perhaps the only solution for the banks in post reform period of deregulatory framework to survive in the competitive environment requiring stress on the total balance sheet management. In other words secret of successful banking under deregulated, competitive & dynamic environment hinges on matching of assets and liabilities in terms of rates and maturity with a view to obtain optimum yield. ALM is only an approach not a precise technique and its detailed formulations varies from bank to bank. It is short term in nature focusing day to day, week to week balance sheet management to achieve near term financial goals. The management of both Assets & Liabilities is pursued not merely for growth but with greater concern for quality, profitability & capital ratios.[6]

**Objectives of the Study:**

The broad objectives of the study are:

1) Undertaking survey of existing literature on the subject in the post-financial sector reforms period in India.
2) Providing comprehensive information on various risks that exists in banking business and ALM process as a whole.
3) Examining prevalent practices of ALM in purposively selected commercial banks with reference to:
   - Management of Liquidity.
   - Management of various types of risks involved in banking business.
   - Ensuring an acceptable balance between Profitability, growth & risk and,
4) Developing a suitable reporting system/pattern for effective implementation & use of ALM technique in commercial banks.

All the above objectives have been analysed after,

i) Reviewing the interest rate outlook in the deregulated environment of the post reforms period.

ii) Analysing various types of risks involved in the banking business.

iii) Reviewing the actual performance vis-a-vis to projections in respect of certain key banking parameters like net profit margin, interest spreads and balance sheet ratios of a selected commercial bank.

In sum, the study aims to identify the process of management of the total balance sheet dynamics of business of banking.

**Importance of The Study In Indian Scenario:**

In the Indian perspective ALM refers to the management of deposits, credit, investments, borrowings, Foreign Exchange resources, capital with respect to capital adequacy and above all profit management. ALM has been formally graduated into the domestic banking parlance as part of the system of Memorandum of Understanding (MoU), by which commercial banks were required to submit a policy statement on their individual ALM system to the RBI at regular intervals. These regulatory submissions helped the banks in undertaking following exercise:

1) Estimating core source of funds i.e. deposits, Certificate of Deposits, and call borrowings etc.,
2) Prudential management of funds with respect to size and duration,
3) Minimising undesirable maturity mismatch so as to avoid liquidity problem, and
4) Reducing gap between Rate Sensitive Assets (RSA) & Rate Sensitive Liabilities (RSL) within the given risk taking capacity.

The first and foremost objective of all bank management is to maximise income while controlling the risk exposure. This requires banks to emphasise on interest margin or spread , liquidity and capital which have desired maneuverability for attaining optimum level of income with acceptable risk. Hence, efficient management of NIM is the basic test of successful ALM.

Secondly, the test of a prudent bank management lies in its liquidity management. Liquidity needs of a bank arise when there are outflow of deposits due to withdrawal and non-receipt of expected inflow due to delayed repayment. As the sources of liquidity are spread across both sides of balance sheet, there is an imperative need to manage both the sides and integrate liquidity management with the overall ALM.

Thirdly, There has been significant development in the move to deregulate the interest rate regime on both asset and liabilities, thereby exposing both assets and liabilities to volatility risk of interest rate changes.

Fourthly, gradual dismantling of restrictions with regard to Foreign exchange transactions has exposed Indian banks to the risks associated with the fluctuations in the foreign exchange markets. Similarly, restricted relaxations allowed to domestic bank with respect to fixation of aggregate gap limit and cross currency position now require much better technique of ALM, enabling them to maintain their respective net exposure in foreign currency within their risk taking capability.

**Scope of study & Data Source:**

- The Study is based entirely on the published Annual Balance –Sheet/ Financial Statements/Annual Plans (for strictly private circulation) of selected commercial banks.
- To examine the application and importance of ALM an in-depth study of a purposively selected large sized nationalised bank named as (Bank X) having a prominent base in Western & Northern region of India is undertaken. Study of Bank X involves data for nine years period i.e. (1994-95 to 2002-03). This period covers 4 years (April 1999-March 2003) after the issue of ALM guidelines by the RBI and a similar period (April 1994 –March 1999) prior to the implementation of these guidelines, to capture the performance of the bank with and without proper ALM strategy.
- Comparative analysis of four leading commercial banks viz. Bank of Baroda, Andhra Bank, Vijaya Bank & Canara Bank is undertaken to capture the comparative management of liquidity risks in these banks using available RBI guidelines. This section of the study is based on the data derived from the information published in the Annual Reports of respective banks under the additional disclosures for the Financial Year 2002-2003 (March – end).

**Methodology Adopted:**

- 3 - pronged approach has been adopted for the study:

  I) Analysing the existing framework of the ALM process & measuring its efficiency.

  II) Ascertaining methods of Quantification, Monitoring, & Management of different kinds of risk.

  III) Ascertaining methods of strategic planning & decision making with regard to the Asset Liability structure.

**Hypothesis:**

This research has been designed to test the following hypothesis:

1) There is no impact of ALM on the Interest spread
2) The ALM does not have an impact on the Bank's Liquidity.

**Statistical Test:**

For testing the above hypothesis the database of India's leading Public sector bank (referred to as bank 'X') has been selected. Data related to Interest earned, Interest expended, frequency of liquid assets, Interest spread etc. have been analysed and **Chi-square test** has been administered to test the Hypothesis.

## Conclusion & Prognosis

In India the financial sector reforms of 1990s brought unprecedented changes in the banking sector. Interest rate deregulation, and the opening up of the various financial markets combined with the intensifying competition began affecting the spreads of the banks. As such the pressures arising on the profitability, liquidity and sustainability of a bank cannot always be tackled on an emergency basis. A better alternative for the banks is to take strategic perspective while addressing the aspects related to the interest rate/exchange rate fluctuations, liquidity positioning, credit accommodation etc. Commercial banks are generally exposed to the risks that are known & quantifiable. It is therefore pertinent for the banks to remain vigilant of the different types of risks examined in earlier chapters and incorporate strong risk management systems into their operational processes & procedures both at the branch level (micro level) and the top management levels (macro level). It is at this juncture that the ALM has a significant role to play. This is because ALM underlines a disciplined decision making framework for the bank as it involves proper identification, understanding & management of different kinds of risks associated with the banking business. The guidelines issued by the RBI on implementation of ALM system are meant to ensure that the process of risk management becomes a regular exercise in the banking business in India. In recent years the risk management in banking is attracting more and more attention of the top management of the banks. With the evolution of varied innovative products in banking the perception of risk is also increasing compelling the top management in the banks to incorporate stringent risk management procedures into their planning, policies & processes. Various risk management tools & techniques are now available which help the banks in modifying their processes & procedures. An attempt was made in this study to present in depth analysis of the various banking risks, presented in individual chapters.

Considering the **liquidity risk factor** (Chapter no. IV) the study observes that liquidity position of a commercial bank change at a very fast pace due to various factors. Hence, it is the responsibility of the top management of bank to ensure that the commercial bank has sufficient resources to deal with these changes. This requires establishment of a proper policy framework that can address to the following:

i) Basic liquidity need

ii) Monitoring the liquidity position

iii) Planning for the future funding need

This will not only help in reducing stress on bank's balance sheet but will also help in creating better & stable liquidity portfolios.

Considering the **Interest rate risk** (Chapter no. V) aspect it is understood that financial inter mediation is becoming riskier, however it can be assumed that there exists a neutral position in managing interest rate risk. A commercial bank needs to maintain spreads for long-term viability, in this process it will be exposed to interest rate risk. However, the extent of interest rate risk/exposure it should assume depends upon how risk savvy/averse it is.

For efficient **Credit risk management** (Chapter no. VI) the acceptable levels of risk should be clearly laid down. In the case of contingent risk management, the acceptable levels of risk will have to be fixed considering the fact that it may lead to risk transformation which may further enhance the levels of other risks. On the other hand, credit risk management will be the thrust area for the bank since inefficient risk management will deteriorate its asset quality. Thus, apart from setting acceptable levels for credit risk, an improved review of each advances proposal for credit approvals should also be generated, since a sound credit policy will always be a competitive advantage to the bank.

Exposure to the **Exchange risk** (Chapter no. VII) is considered as the prominent risk item in banks portfolio. The impact of any loss on account of exchange can be very severe. Hence it is necessary that banks closely monitor the Foreign Exchange portfolios and minimise the risks involved using the advanced techniques like, Swaps Options, Futures, Forwards etc.

To analyse the various risks in banking business, a case study (Chapter no. IX) has been presented which is divided into two sections. The section - I is based on 9 years data (up to year ending March, 2003) of one of India's leading public sector bank, having major business base in Gujarat State. In this section the study analyses the impact ALM system on management of Liquidity, Interest rate risk & impact of ALM on the net profit of the bank. The study made following **observations**:

1) The book size of the bank has more than doubled during the study period of nine years ending March 2003.
2) The Net Assets of the bank has increased nearly three times during the study period.
3) The bank has comprehensively implemented the ALM guidelines issued by the RBI in its policies, procedures & operational processes from the Financial Year 1999-2000.
4) Liquidity planning is done strictly on the basis of maturity profile of the liquid assets & liabilities of the bank.
5) The RSA & RSL are assessed on the basis of the maturity patterns/buckets.

To test the following hypothesis of study the chi-square test was administered:

a) There is no impact of ALM on the Interest Spread, and
b) The ALM does not have an impact on the Bank's Liquidity.

Analysis have proved that the above stated Hypothesis are strongly rejected, hence this study draws the following **conclusions**: that the;

a) ALM has a significant impact on the Interest spread of a bank

b) ALM has major impact on managing banks liquidity and

c) ALM can be considered as a comprehensive technique to manage the banks balance sheet as a whole & propel the bank on the path of higher growth (as indicated by the phenomenal increase in the book size & net profit position during the study period).

The section - II of the study which presents a comparative analysis of four leading Public Sector Banks (of which Bank of Baroda & Canara Bank having book size of around eighty thousand crores & Vijaya bank & Andhra bank having book size of around Twenty thousand crores) with regard to management of liquidity.The analysis presents that:

a) Bank of Baroda & Vijaya Bank are maintaining a negative gap for all maturities

b) Bank of Baroda & Andhra Bank are maintaining a negative gap for all maturities except for 5 years & above.

c) Canara bank is maintaining a positive gap for all maturities except for a period of 5 years and above.

From the above observations it can be concluded:

a) Bank of Baroda, Vijaya Bank & Andhra Bank are expected to maintain a negative gap in the falling interest rate scenario are expected to effectively manage the liquidy risk in the falling interest rate scenario.

b) Canara Bank is expected to maintain a positive gap in the falling interest rate scenario

c) In the falling interest rate scenario Canara Bank, therefore is very likely to face severe liquidity risk, if it does not change the buckets/pattern of assets & liability management.

**Prognosis:**

ALM is an important tool for managing various types of risks prevailing in the banking business under the present competitive financial environment. Banks need to address these risks in a structured manner by upgrading their risk management systems and adopting more comprehensive ALM practices. For this purpose



(a) The commercial banks need a more comprehensive & strong database/information systems which ensure that the data are available in time, without compromising on the quality .

(b) Suggestive reporting formats have been provided in Appendix II at the end of Chapter to strengthen the Information system for effective ALM implementation. These formats have been developed during the course of our study. The discussions with various bank officials prompted us to give a thought on these formats/reporting patterns. However, these formats have not been tested so far. We propose to take it to the banks for their comments & acquaintances in toto & finally to the regulators.

(c) The study suggests that ALM processes should be well integrated with the Information Technology platform created in the bank. This will help in developing a suitable software to process the ALM data and generate various information, required for facilitating management in efficient/quick decision processes.

(d) And finally, under the Basel – II Accord RBI is presently working on introduction of Risk Based Supervision (RBS) which is expected to provide a whole new dimension to Indian Banking industry in coming years. We present the proposed note on RBS in commercial banks in India in the Appendix – I at the end of the chapter.

**Future Studies:**

We suggest following future research areas on the subject:

i) Comparative study of Implementation of ALM in Public Sector & Private Sector Banks In India.

ii) A detailed study on Profitability in Indian Banks as a result of implementation of ALM norms.

iii) Technological aspects involved in uniform implementation of ALM norms in Indian Banks.

The research areas have attained more significance particularly after the recent turmoil in the first highly technology based bank established in the private sector after the introduction of Financial Sector Reforms. The Global Trust Bank (GTB) has now been merged with Oriental Bank of Commerce (OBC), by the RBI as it was facing the huge NPA burden & subsequent liquidity crisis. Banks therefore have to develop sound ALM policies & processes under the Basel Capital Accord – II which would help the banks **to perform** under the current competitive financial environment or **otherwise they would perish** like GTB & many other co-operative banks in the state of Gujarat and elsewhere in the country.


**References:**

**(1) www.rbi.org.in**

**(2) K.N. Kannan,(1996) :Relevance & Importance of ALM in Banks,**
(The Journal of the Indian Institute of Bankers Vol. 67 No. 4 Oct. – Dec1996)

**(3) & (4) B.S. Murthy(1996): Asset liability Management & Manager's Role**
(The Journal of the Indian Institute of Bankers Vol. 67 No. 4 Oct. – Dec1996)

**(5) : D. Ghosh Roy, (1997)** Bank Branch as a Profit Centre – An Asset - Liability Management Approach (BDP Publishers)

**(6) : H.R. Machiraju, (2004)** - Modern Commercial Banking – Page No. 121 (Vikas Publishing House Pvt. Ltd.)