CHAPTER – II

CHAPTER II

LITERATURE SURVEY

- **REVIEW OF BASLE COMMITTEE RECOMMENDATIONS**

  - INTRODUCTION
  - PRINCIPLES FOR LIQUIDITY RISK MANAGEMENT
  - PRINCIPLES FOR INTEREST RATE RISK MANAGEMENT

- **REVIEW OF GUIDELINES ISSUED BY THE RESERVE BANK OF INDIA**

  - MANAGEMENT OF LIQUIDITY RISK
  - MANAGEMENT OF INTEREST RATE RISK

- **REVIEW OF RESEARCH PAPERS**
- **REVIEW OF BOOKS ON ALM**
- **REFERENCES**

LITERATURE SURVEY

A survey on existing literature on Asset Liability Management in commercial banks was undertaken & was found that very few academic work are there in India. This is mainly because asset liability management as a comprehensive technique, effective in managing different types of risks associated with the banking business as a whole was officially declared for the first time only in 1998 vide RBI guidelines. In fact, RBI was encouraged by the formality and sophistication of processes used to manage various risks viz. Liquidity Risk, Interest Rate Risk etc. and sound principles associated with prudent bank management provided under current international framework known as **"The Basel Capital Accord – 1988 "** The merits of the Accord were widely recognised & it became an accepted world standard. As regards banking industry in India whose average capital adequacy ratio was also quite low, RBI considered it necessary to strengthen the same in phased manner in line with the Basel committee norms[1].The introduction of reforms in the financial sector in 1991-92 on the Recommendations of Narsimham Committee created the competitive financial environment for banks in India. In the wake of recapitalisation of nationalised banks, RBI introduced a system of MoU with banks in 1993. As part of MoU, commercial banks were required to submit a policy statement on their individual ALM system to RBI. These developments led banks to perform successfully in the form of higher efficiency, productivity and profitability. The problems of risk in carrying on banking business in a competitive financial environment was the issue of high discussions and deliberations more at bankers meet rather than in the academic circles. The 18th Bank Economists' Conference (BECON) during 19-21 December 1995, organised by Indian Overseas Bank (IOB) at Madras on the theme of "Financial Sector Reforms-Managing Change" took the lead. The deliberations were made in Technical Session II on the issues of "Managing Financial Risks" by eminent bankers & bank economists from various banks in India. Further, Indian Institute Bankers now renamed as Indian Institute of Banking and Finance, Mumbai, published journal issue date October-December 1996 as special issue on ALM. Again, most of the articles contributed by senior bankers present the in-depth analysis of various facets of ALM. The academic studies documenting the experiences of with/and or without about ALM thrust

by banks are reviewed/incorporated in relevant chapters of the study. Here we take the review of Basel Committee Recommendations, RBI Guidelines on ALM System, Discussion Papers/Articles contributed by eminent bankers and books published by senior bankers on the subject.

Review of the Basel Committee Recommendations:

Introduction

The Committee on Banking Regulation & Supervisory Practices (Basel Committee), established by the Central – Bank Governors of the Group of Ten (G-10) countries at the end of 1974.The committee meets regularly four times a year usually in Basel, Switzerland, under the chairmanship of the Bank for International Settlement, whose permanent secretariat is located here. It has about thirty technical working groups and task forces that also have regular meetings. The members of the committee represent Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, Sweden, The United Kingdom & The United States of America along with Luxembourg and Switzerland. These countries are represented by their Central Bank or by the authority with formal responsibility for the prudential supervision of banking business where there is no Central Bank. The Committee does not possess any formal supranational supervisory authority, and its conclusions do not, and wherever intended to, have legal force. Rather it formulates broad supervisory standards and guidelines and recommends statements of best practice in the expectation that individual authorities will take steps to implement them through detailed arrangements – statutory or otherwise which are best suited to their own national systems. In this way, the committee encourages convergence towards common approaches and common standards without attempting detailed harmonisation of member countries supervisory techniques.

The Committee reports to the Central Bank Governors of the Group of Ten countries and seeks their endorsement for its major initiatives. In addition however, since the Committee comprises of representatives from institutions which are not Central Banks, the decision it takes carry the commitment of many national authorities outside the Central Banking fraternity. These decisions cover a very wide range of financial issues.

One Important objective of the Committee's work has been to close gaps in international supervisory coverage in pursuit of two basic principles. Firstly, that no foreign banking establishment should escape supervision, and secondly, that the supervision should be adequate. To achieve this objective the committee has issued a number of documents since 1975.

In 1988, the committee decided to introduce a capital measurement system commonly referred to as the Basel Capital Accord. This system provided for the implementation of a Credit Risk Measurement framework with a minimum capital standard of 8% by end – 1992. Since 1988, this framework has been progressively introduced not only in the member countries but also virtually in all other countries with active international banks.

In June 1999, the committee issued a proposal for a new Capital Adequacy Framework to replace the 1988 accord. The new accord consists of three Pillars:

1) Minimum Capital requirements – which seek to refine the standardised rules set forth in the 1988 accord.
2) Supervisory review of an institution's internal assessment process & Capital Adequacy
3) Effective use of disclosure to strengthen market discipline as a complement to the supervisory efforts.

Over the past few years, the committee has moved more aggressively to promote sound supervisory standards worldwide. In close collaboration with many G-10 supervisory authorities, the committee in 1997 developed a set of *"Core Principles for Effective Banking Supervision"* , which provides a comprehensive blueprint for an effective supervisory system. To facilitate implementation and assessment, the committee in October 1999 developed the *"Core Principles Methodology"*

In order to enable a wider group of countries to be associated with the work being pursued in Basel, the committee has always encouraged contact & co-operation between its members & other banking supervisory authorities. It circulates to supervisors throughout the world published and unpublished papers. In many cases, supervisory authorities in non-G-10 countries have seen fit publicly to associate themselves with the committee's initiatives. Contacts have been further strengthened by an International conference of banking supervisors which takes place every two years, with respect to the

ALM in commercial banks. The committee has given wide range of recommendations basically incorporating the principles of Liquidity & Interest Rate Management. These are summarised as the two sound principles of prudent bank management viz.:

1) Principles for the Assessment of Liquidity Management in Banking Organisations, &
2) Principles for the management of Interest Rate Risk

Rationale:

Liquidity, or the ability to fund increases in assets and meet obligations as they come due, is crucial to the ongoing viability of any banking organisation. Therefore, managing liquidity is among the most important activities conducted by banks. Sound liquidity management can reduce the probability of serious problems. Indeed, the importance of liquidity transcends the individual bank, since a liquidity shortfall at a single institution can have wide repercussions. For this reason, the analysis of liquidity requires bank management not only to measure the liquidity position of the bank on an ongoing basis but also to examine how funding requirements are likely to evolve under various scenarios, including adverse conditions.

In its work on the supervision of liquidity, the Basel Committee has focused on developing a greater understanding of the way in which banks manage their liquidity on a global, consolidated basis. Recent technological and financial innovations have provided banks with new ways of funding their activities and managing their liquidity. In addition, a declining ability to rely on core deposits, increased reliance on wholesale funds, and recent turmoil in financial markets globally have changed the way banks view liquidity. All of these changes have also resulted in new challenges for banks. In light of the fact that standard practices for managing bank liquidity have changed since publication of its September 1992 paper "*A framework for measuring and managing liquidity*", the Basel Committee gave its guidelines. These guidelines set out several principles that highlight the key elements for effectively managing liquidity as well as interest rate risk in banking organisations.

The formality and sophistication of the process used to manage liquidity and interest rate risk depends on the size and sophistication of the bank, as well as the nature and complexity of its activities. While the paper focuses on large banks, the principles have broad applicability to all banks. In particular, good management information systems,

analysis of net funding requirements under alternative scenarios, diversification of funding sources, and contingency planning are crucial elements of strong liquidity management at a bank of any size or scope of operations. The information systems and analysis needed to implement the approach, however, would typically absorb fewer resources and be much less complex at a smaller bank or one that is active in fewer markets than those at large, complex banks.

I. Various Principles for Assessment of Liquidity Management in Banking Organisation

a) Developing a Structure for Managing Liquidity

Principle 1: Each bank should have an agreed strategy for the day-to-day management of liquidity. This strategy should be communicated throughout the organisation.

Principle 2: A bank's board of directors should approve the strategy and significant policies related to the management of liquidity. The board should also ensure that senior management takes the steps necessary to monitor and control liquidity risk. The board should be informed regularly of the liquidity situation of the bank and immediately if there are any material changes in the bank's current or prospective liquidity position.

Principle 3: Each bank should have a management structure in place to execute effectively the liquidity strategy. This structure should include the ongoing involvement of members of senior management. Senior management must ensure that liquidity is effectively managed, and that appropriate policies and procedures are established to control and limit liquidity risk. Banks should set and regularly review limits on the size of their liquidity positions over particular time horizons.

Principle 4: A bank must have adequate information systems for measuring, monitoring, controlling and reporting liquidity risk. Reports should be provided on a timely basis to the bank's board of directors, senior management and other appropriate personnel.

b) Measuring and Monitoring Net Funding Requirements

Principle 5: Each bank should establish a process for the ongoing measurement and monitoring of net funding requirements.

Principle 6: A bank should analyse liquidity utilising a variety of "what if" scenarios.

Principle 7: A bank should review frequently the assumptions utilised in managing

liquidity to determine that they continue to be valid.

c) Managing Market Access

Principle 8: Each bank should periodically review its efforts to establish and maintain relationships with liability holders, to maintain the diversification of liabilities, and aim to ensure its capacity to sell assets.

d) Contingency Planning

Principle 9: A bank should have contingency plans in place that address the strategy for handling liquidity crises and include procedures for making up cash flow shortfalls in emergency situations.

e) Foreign Currency Liquidity Management

Principle 10: Each bank should have a measurement, monitoring and control system for its liquidity positions in the major currencies in which it is active. In addition to assessing its aggregate foreign currency liquidity needs and the acceptable mismatch in combination with its domestic currency commitments, a bank should also undertake separate analysis of its strategy for each currency individually.

Principle 11: Subject to the analysis undertaken according to Principle 10, a bank should, where appropriate, set and regularly review limits on the size of its cash flow mismatches over particular time horizons for foreign currencies in aggregate and for each significant individual currency in which the bank operates.

f) Internal Controls for Liquidity Risk Management

Principle 12: Each bank must have an adequate system of internal controls over its liquidity risk management process. A fundamental component of the internal control system involves regular independent reviews and evaluations of the effectiveness of the system and, where necessary, ensuring that appropriate revisions or enhancements to internal controls are made. The results of such reviews should be available to supervisory authorities.

g)Role of Public Disclosure in Improving Liquidity

Principle 13: Each bank should have in place a mechanism for ensuring that there is an adequate level of disclosure of information about the bank in order to manage public perception of the organisation and its soundness.

h) Role of Supervisors

Principle 14: Supervisors should conduct an independent evaluation of a bank's strategies, policies, procedures and practices related to the management of liquidity. Supervisors should require that a bank has an effective system in place to measure, monitor and control liquidity risk. Supervisors should obtain from each bank sufficient and timely information with which to evaluate its level of liquidity risk and should ensure that the bank has adequate liquidity contingency plans.

2. Various Principles of Management of Interest Rate Risk in Banking Organisation

a) The Role of the Board and Senior Management

Principle 1:

In order to carry out its responsibilities, the board of directors in a bank should approve strategies and policies with respect to interest rate risk management and ensure that senior management takes the steps necessary to monitor and control these risks. The board of directors should be informed regularly of the interest rate risk exposure of the bank in order to assess the monitoring and controlling of such risk.

Principle 2:

Senior management must ensure that the structure of the bank's business and the level of interest rate risk it assumes are effectively managed, that appropriate policies and procedures are established to control and limit these risks, and that resources are available for evaluating and controlling interest rate risk.

Principle 3:

Banks should clearly define the individuals and/or committees responsible for managing interest rate risk and should ensure that there is adequate separation of duties in key elements of the risk management process to avoid potential conflicts of interest. Banks should have risk measurement, monitoring and control functions with clearly defined duties that are sufficiently independent from position-taking functions of the bank and which report risk exposures directly to senior management and the board of directors. Larger or more complex banks should have a designated independent unit responsible for the design and administration of the bank's interest rate risk measurement, monitoring and control functions.

b) Policies and procedures

Principle 4:

It is essential that banks' interest rate risk policies and procedures be clearly defined and consistent with the nature and complexity of their activities. These policies should be applied on a consolidated basis and, as appropriate, at the level of individual affiliates, especially when recognising legal distinctions and possible obstacles to cash movements among affiliates.

Principle 5:

It is important that banks identify the risks inherent in new products and activities and ensure these are subject to adequate procedures and controls before being introduced or undertaken. Major hedging or risk management initiative should be approved in advance by the board or its appropriate delegate committee.

c) Measurement and monitoring system

Principle 6:

It is essential that banks have interest rate risk measurement systems that capture all material sources of interest rate risk and that assess the effect of interest rate changes in ways that are consistent with the scope of their activities. The assumptions underlying the system should be clearly understood by risk managers and bank management.

Principle 7:

Banks must establish and enforce operating limits and other practices that maintain exposures within levels consistent with their internal policies.

Principle 8:

Banks should measure their vulnerability to loss under stressful market conditions-including the breakdown of key assumptions - and consider those results when establishing and reviewing their policies and limits for interest rate risk.

Principle 9:

Banks must have adequate information systems for measuring, monitoring, controlling and reporting interest rate exposures. Reports must be provided on a timely basis to the bank's board of directors, senior management and, where appropriate, individual business line managers.

d) Internal controls

Principle 10:

Banks must have an adequate system of internal controls over their interest rate risk management process. A fundamental component of the internal control system involves regular independent reviews and evaluations of the effectiveness of the system and, where necessary, ensuring that appropriate revisions or enhancements to internal controls are made. The results of such reviews should be available to the relevant supervisory authorities.

e) Information for supervisory authorities

Principle 11:

Supervisory authorities should obtain from banks sufficient and timely information with which to evaluate their level of interest rate risk. This information should take appropriate account of the range of maturities and currencies in each bank's portfolio, including off-balance sheet items, as well as other relevant factors, such as the distinction between trading and non-trading activities.

Review of Guidelines issued by Reserve Bank of India:

Since the introduction of reforms in financial sector the Indian banks are gearing up to face stiff competition posed by foreign financial institutions & banking organisations. The ALM is being increasingly considered as a comprehensive technique of managing the entire bank balance sheet in a cohesive and coordinated manner in effective managing different types of risks associated with the banking business especially the Liquidity & the Ineterst Rate Risk . To encourage the use of this technique in the Indian banks The Reserve Bank of India has introduced the Asset Liability Management System as a part of the risk management and control system in 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 effective from 1st April 1999.

To start with, RBI desires that banks should address the problem of liquidity risk and interest rate risk and once banks are accustomed to this, the system can be extended to

cover other types of risks as well[3]. Risk & return are positively co-related and RBI is of the view that banks in India should not extend their business beyond risk tolerance limits even if the business is profitable. The RBI detailed final set of guidelines with necessary **Annexures I to III** are reviewed here as under:

I) Management of Liquidity Risk

Liquidity risk is the most important of the financial risk that banks face and it is necessary that it is kept within acceptable limits so that the bank's dependence on the money markets is minimal. RBI in its guideline framework emphasised that measuring and managing liquidity needs are important for efficient and effective operation of commercial banks. Bank's management therefore, should not only measure liquidity positions of the bank on an on going basis but also examine how liquidity requirements are likely to evolve under different assumptions. Experience shows that assets commonly considered, as liquid like government securities and other money market instruments could also become illiquid if market players are unidirectional. Thus, there is a continuous need of tracking liquidity through maturity or cash flow mismatches for measuring and managing net funding requirements, the use of maturity ladder and calculation of cumulative surplus or deficit of funds at selected maturity dates is adopted as a standard tool. The format of statement of structural liquidity provided under the RBI guidelines is reproduced in Annexure – I at the end of the chapter.

The maturity profile as given in the appendix I of the guidelines could be used for measuring the future cash flows of bank in different time buckets. Within each time bucket there could be mismatches (negative gaps) depending on cash inflows and outflows. While the mismatches up to one year would be relevant since these provide early warning signals of impending liquidity problems, the main focus should be on the short-term mismatches viz., 1-14 days, 15-28days. RBI emphasised that individual banks should monitor their cumulative mismatches(running total) across all time buckets by establishing internal prudential limits with the approval of the Board/Management Committee. The mismatches (negative gap) during 1-14 days and 15-28 days in normal course may not exceed 20% of the cash outflows in each time bucket. The RBI Statement of Structural Liquidity **Annexure I** may be prepared by placing all cash inflows and outflows in the maturity ladder according to the expected timing of cash flows. A

maturing liability will be a cash outflow while a maturing asset will be a cash inflow. While determining the likely cash inflows/outflows, banks have to make a number of assumptions according to their Asset-Liability profiles. For instance, banks with large branch network can afford to have larger tolerance level in mismatches in the long – term if their term deposit base is quite high. While determining the tolerance levels the banks may take into account all relevant factors based on their Asset- Liability base, nature of business, future strategy, etc. In order to enable the bank to monitor their short-term liquidity on a dynamic basis over a time horizon spanning from 1-90 days, banks may estimate their short-term liquidity profiles on the basis of business projections and other commitments for planning purposes. An indicative format in Annexure III for estimating short-term Dynamic Liquidity is provided under the guidelines at the end of the chapter.

RBI states in the guidelines that following aspects need to be addressed to, in relation to Liquidity risk management:

a) Commercial banks in India should look for widely diversified sources of liquidity. Banks should ensure in terms of quality and appropriate mix of liquidity sources.
b) As discussed earlier liquidity risk can arise from maturity mismatches of Assets and Liabilities, The Gap mismatch may be narrowed by raising resources periodically at reasonable rates related to Return on Assets (RoA) Banks should also evolve a mechanism to establish limits for mismatches and review them regularly for purpose of action.
c) Every commercial bank should have a mechanism to forecast its liquidity needs and also the sources of liquidity. Once in 3 months and review the trend in actual and make suitable adjustments in assets & liabilities so that they remain liquid at all times.
d) Thoroughly review their internal processes and try to adopt international standards laid down by Basel Committee for management of Liquidity

I A.) Currency Risk

The change in policy initiative by RBI, effective 3/8/1993 from the administered rates to the floating exchange rate arrangement has brought in its wake pronounced volatility adding a new dimension to the risk profile of banks' balance sheets. Further the policy of liberalisation, globalisation & deregulation in countries has rendered the banks' balance

sheets vulnerable to exchange rate movements. Dealing in different currencies brings opportunities as also risks. If the liabilities in one currency exceed the level of assets in the same currency, then the currency mismatch can add value or erode value depending upon the currency movements. The simplest way to avoid currency risk is to ensure that mismatches, if any, are reduced to zero or near zero. Irrespective of the strategies adopted, it may not be possible to eliminate currency mismatches altogether. Managing currency risk is one more dimension of Asset-Liability Management. Mismatched currency position besides exposing the balance sheet to movements in exchange rate also exposes it to country risk and settlement risk. Ever since the RBI (Exchange Control Department) introduced the concept of end of the day near square position in 1978, banks have been settings up overnight limits and selectively undertaking active daytime trading. Following the introduction of "Guidelines for Internal Control over Foreign Exchange Business" in 1981, maturity mismatches (gaps) are also subject to control. Following the recommendations of Expert Group on Foreign Exchange Markets in India (Sodhani Committee) the calculation of exchange position has been redefined and banks have been given the discretion to set up overnight limits linked to maintenance of capital to risk-weighted assets ratio of 8 per cent of open position limit.

Presently, the banks are also free to set gap limits with RBI's approval but are required to adopt Value at Risk (VaR) approach to measure the risk associated with forward exposures. Thus the open position limits together with the gap limits form the risk management approach to forex operations. For monitoring such risks banks should follow the instructions contained in Circular A.D. (M.A. Series) No. 52 dated December 27, 1997 issued by the exchange Control Department.

II) Management of Interest Rate Risk (IRR)

IRR is the risk where changes in the market interest rate affect the banks financial condition. From the Administered / Protected Policy of rate of interest to deregulatory framework introduced under the policy of FSR affect banks in India in a larger way.* As the immediate impact of changes in rate of interest is a banks total earnings with

---

**The deregulation of interest rate on all advances above Rs.2 Lacs. was announced by RBI in its busy season credit policy for 1994-95 and similarly, for all term deposits it was introduced in 1995-96.*

The changes in Net Interest Income (NII).The another impact of change in interest rates is on the banks net worth with the change in the economic value of banks parameters & possessions. Banks, therefore, under the deregulatory environment need to measure & manage IRR by improving Management Information System (MIS), mechanizing customer interface, back office operations & all market dealings.

As per the guidelines the Gap or mismatch risk can be measured by calculating Gap over different time intervals as at a given date. The traditional Gap analysis measures mismatches between Rate Sensitive Assets (RSA) and Rate Sensitive Liabilities (RSL). An asset or liability is normally classified as rate sensitive if ;

a) Within the time interval under consideration, there is a cash flow;
b) The interest rate resets/reprices contractually during the interval;
c) RBI changes the interest rates (i.e. interest on Saving Bank Deopsits, DRI advances, Export Credit, refinance, CRR Balance, etc.) in cases where interest rates are administered; and
d) It is contractually pre – payable or withdrawal before the stated maturities.

The Gap Report should be generated by grouping Rate Sensitive Liabilities, Assets and Off Balance Sheet Positions into time buckets according to residual maturity or next repricing period, whichever is earlier.

The difficult task in Gap Analysis is determining Rate Sensitivity. All investments, Advances, Deposits, Borrowings, Purchased funds, etc, that mature/reprice within a specified timeframe are Interest Rate Sensitive. Similarly, any principal repayment of loan is also rate sensitive if the bank expects to receive it within the time horizon. Certain assets and liabilities receive/pay rates that vary with a reference rate. These Assets and Liabilities are repriced at pre – determined intervals and are rate sensitive at the time of repricing. While the interest rates on term deposits are fixed during its tenure, the advances portfolio of the banking system is basically floating. The interest rates on advances could be repriced any number of occasions, corresponding to the changes in Prime Lending Rates (PLR).

The Gaps may be identified in the following time buckets:

i) 1 –28 days
ii) 29 days and up to 3 months
iii) Over 3 months and up to 6 months
iv) Over 6 months and up to 1 year
v) Over 1 year and up to 3 years
vi) Over 3 years and up to 5 years
vii) Over 5 years
viii) Non – sensitive

The reporting format provided for Interest Rate Sensitive Assets and Liabilities is also given in **Annexure II** at the end of the chapter.

The Gap is the difference between Rate Sensitive Assets (RSA) and Rate Sensitive Liabilities (RSL) for each time bucket. The positive Gap indicates that it has more RSAs whereas negative Gap indicate that it has more RSLs. The Gap reports indicate whether the bank is in a position to benefit from rising interest rates by having a positive Gap (RSA>RSL) or whether it is in position to benefit from declining interest rates by a negative Gap (RSL>RSA). The Gap analysis therefore, be used as a measure of interest rate sensitivity.

RBI Guidelines suggest that each bank should set up prudential limits on individual Gaps after having analyzed its bearing on the **Total Assets, Earning Assets or Equity.** The banks may workout Earnings at Risk(EaR) or Net Interest Margin (NIM), based on their views in the interest rates movements and fix a prudent level with the approval of the Board/Management Committee. RBI has also emphasized in the guidelines that a well defined transfer pricing system also provide a rational framework for ALM.

The RBI classification of various components of assets and liabilities into different time buckets for preparation of Gap reports (Liquidity and Interest Rate Sensitivity) in the indicative formats under Annexures I-III is the benchmark. Banks which are better equipped to reasonably estimate the behavioural pattern, embedded options, rolls-in and rolls-out, etc. of various components of assets and liabilities on the basis of past data/empirical studies could classify them in the appropriate time buckets,

subject to approval from the ALCO/Board and send a copy to Department of Banking Supervision, RBI.

The major limitation of the framework suggested by RBI as put in the Guidelines itself that it does not capture the impact of embedded options, i.e. the customers exercising their options (premature closure of deposits and prepayment of loans and advances) on the liquidity and interest rate risks profile of banks. RBI therefore suggests that banks should evolve suitable mechanism, supported by empirical studies and behavioral analysis to estimate the future behaviour of assets, and liabilities for better management of risks inherent in carrying banking business that increases in a competitive financial environment.

RESEARCH PAPERS / ARTICLES:

As said earlier, in this section we take the review of Papers /Articles mainly contributed by senior bankers/bank economists documenting the experiences of with and/or without ALM techniques by the banks. Similar other academic studies are incorporated in the relevant chapters of the study.

The 18th Bank Economists Conference papers published by IOB in 1995, presents total 14 papers on the theme of "Managing Financial Risks" contributed mainly by bankers. All the paper writers present a common view that banks under the liberalisation, globalisation, & deregulation policies of monetary authority should adjust to the new emerging competitive financial environment. It is pointed that Indian Banks have aged much more in experience during the past four & half years than in the previous two decades or so. Further it is stressed that risks associated with the business of banking are varied & many and the central theme of managing these multiple risks is really that of ALM. The following four papers presents a deeper insight into the subject :

Liquidity Risks In Banks :by DR. T.K. Velayudham Ex-principal Bankers Training College, RBI : The banking and Financial environment for Indian banks is changing fast and is becoming increasingly competitive. In this environment, banks will inevitably have to face a variety of risks. The more Important of these being liquidity risk. Indian banks are very much prone to this risk because of the maturity

mismatch between their assets & liabilities. The nature of liquidity risk needs to be analysed and appropriate methods of managing liquidity risk have to be evolved.

Management of Multiple Risks in Assets & Liabilities: by Mr. Pradeep K. Das A.G.M. (Planning & Development) – Vyasya Bank: This paper attempts a framework which arrays the different items of assets and liabilities (AL) against various risks grouped under three heads : Financial, market and operation in matrix form. Risk indices have been assigned to each cell.

The framework provides quantification of total risk for each itemof AL across all risks and also total weighted risk index for each type of risk across all items of AL. Overall risks for AL and average risk are also assessed. Frame work is a step towards better ALM through holistic and integrated approach to risk management.

Interest Rate And Asset - Liability Management: Mr. K. Ravi & Mr. N.H.G.K. Bhat Economics Research Section – Canara Bank: The central focus of the financial sector reforms, is improving the profitability, productivity and efficiency of the Banking system. One of the daunting tasks agitating the minds of all concerned is not only improving the profitability of the banks but also sustaining the same over a period of time.

As we know, the profitability of the banks is a direct function of NIM, Non- Interest Income and Non – Interest Expenditure. The Non – Interest expenditure is almost a fixed cost at least in the short/medium term, while non – interest income forms only about 12% of the total income, Hence Net – Interest Margin is the crucial variable determining the profits & profitability of the banks.

This paper has basically focused on the variables affecting Net – Interest Margin and steps required to be taken by the banks to ensure sufficient spread on their operations, in the context of phased deregulation of interest rates by the Reserve bank of India.

The deregulation will certainly result in higher volatility in interest rates. The Interest rate risk management will pose the greatest challenge to the banks in the years to come. Hence there is an urgent need to put in place the effective Asset – Liability Management System to take integrated view on movements in the Interest rates and to take coordinated Asset Liability decisions. The paper also covers the requirements

of Asset-Liability Management System, the recent changes in interest rates and its possible impact in the coming years.

Maturity matching, Duration analysis, analysis of rate sensitive assets and liabilities on an ongoing basis is the need of the hour. The various issues relating to interest rate and asset- liability management have also been presented in this research paper.

Towards Risk Management: Dr. V.T. Godse & Dr. K.C. Chakraborty A.G.M. Bank of Baroda: During the post nationalisation period of Indian banking industry different words and concepts have attained significance over different times. Initially, it was social banking in the seventies followed by IRDP up to mid-eighties ending up with consolidation/rationalisation/computerisation by late eighties. Liberalisation and deregulation of interest rates, prudential norms, capital adequacy, asset liability management as also risk management have become the buzzwords of the nineties.

With globalisation and happenings like BCCI, Barings & Daiwa, consciousness about the "risk" factor is gaining prime importance. Adherence to capital adequacy standards, accepted under Basle Committee worldwide has given a further fillip to the concept of 'Risk'. In the context of Indian banks, asset classification norms pronounced by Narsimham Committee have brought the risk factor into sharper focus. This paper addresses the issues like:

concept of risk and its components, risk situation in Indian banks, possible option to manage risks, prerequisites for risk management, and issues that emerge for discussion.

BOOKS ON ALM:

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

Indian banking and financial services industry is fast witnessing changes on account of processes of deregulation and Liberalisation. Interest rates deregulation brings in its wake the challenge of management of interest rate risks. A sound foundation for management of interest rate risks can be available only in the form of structure for ALM. It is a concept that ensures method of identification of maturity gaps and interest rate gaps between liabilities and assets of the bank at any point of time. This

is an essential statistical base on which foundation has to be developed for sound management of Banks. It is not enough to independently manage liability structure or to manage quality of assets. In the process of Liberalisation leading to increasing competition, banks get caught in strategic dilemma viz. of increasing competition, requirements of quick response to clients, reduction in interest rate margins, corresponding paring of earnings potentials etc. The thin margin of profits can get eroded by way of interest rate risks even if business is run otherwise on sound lines. ALM is not merely a subject for study by bankers but a task to be diligently performed by collection of copious statistical data on day to day changes in the structure of assets and liabilities, their maturities & their interest rates. This is because in the process of Liberalisation the users of the banking services have many options and resultantly their preferences change according to the market opportunities and competition. The need for Indian Banking is one of good text books which cover both the conceptual ass well as the operational aspects of practicing ALM. The problem is not new, ever since the banks started measuring the profitability of branch units, of different products and of the customers on their books, tools were required to analyse data of Asset Liability structure on a day to day basis. The need has accentuated in the recent years mainly as a result of processes of deregulation introduced in the banking field in most of the countries including India.

The theoretical coverage of the book on various aspects of ALM at Bank Branch level is comprehensive. A total hypothetical model is presented to explain the ALM as a technique using Gap analysis at the bank branch level. The income recognition, asset classification & provisioning (IRAP Norms) and ALM at the branch level is presented by the author along with suitable illustrations.

T. Ravi Kumar (1999) - Asset Liability Management : Vision Books, Mumbai

- The face of Indian Financial sector changed forever with the initiation of economic reforms in 1991.Deregulation and integration has led Indian Banks & Financial Institutions into competition both on the assets side as well as the liabilities side of the balance sheet, forcing them to assume greater and new risks

in their quest for higher returns. Accordingly, the need for bankers to be familiar with the risks to which they are exposed and the tools available for managing such risks assumes vital significance. It is also stressed by the author that every banker must be able to understand the concepts of risks in terms of its definition, identification, quantification & management, as well as the risk of managing the assets & liabilities. Without this all endavours to manage the net interest margin as well as the total balance sheet would remain a non- starter. The book provides a macro – level framework and sophisticated tools for modern risk management in banks. The step-by-step conceptual underpinnings are highlighted with appropriate examples drawn from the Indian environment. The author has presented the theoretical & conceptual framework through both the basic and finer nuances of ALM,with lucidly and easy felicity.

We have aptly updated many other articles/papers & books on the subject, the same have been updated in our bibliography. However, we have dare not to review these works here as we find most of them conceptual, theoretical with case illustration in ample measure but lack of empirical evidence by drawing database from banks in toto. This study therefore fills this vaccum in particular. In the chapters to follow we provide concept by concept detailed insight into various risks in banking business and document an evidence by taking a case study of a major bank for a full available period of 9 years ending March 2003. It therefore covers, 4 years with ALM strategies & equal period before ALM guidelines/strategies provided by RBI in 1999 to banks. Further, to capture the comparative analysis of liquidity management in banks, study covers four purposively selected nationalised banks. The data base analysis of ALM approach in banks is presented to capture the essence in its strategy formulations as revealed in findings.

References:

1) **Bidani S.N. & Others (2004)** –Credit Risk Management Page No. 10 (Taxmann Allied Services Pvt. Ltd.)

2) **K. Ravi & N.H.G.K. Bhat (1995) – Interest Rate & Asset Liability Management** – Page no. TSII – 47 to 54 Paper contributed in the 18th Bank Economist Conference, Madras. Organised by Indian Overseas Bank December 19-21, 1995.

3) **Reserve Bank of India (1999 & 2001):**Asset – Liability Management System in Banks :Guidelines issued by the Department of Banking Operations and Development,

Bank of International Settlement "Annual Report" (1987)

Basle Committee Recommendations (September 1992 & February 2000): Sound Practices for Managing Liquidity in Banking Organisations

ANNEXURE – I

Name of the bank:

Statement of Structural Liquidity as on:

(Amounts in Crores of Rupees)

	RESIDUAL MATURITY								
OUTFLOWS	1 to 14 days	15 to 28 days	29 days and upto 3 month	Over 3 months and upto 6 month	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 years and upto 5 years	Over 5 years	Total
1. Capital									
2. Reserves & Surplus									
3. Deposits	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Current Deposits									
(ii) Savings Bank Deposits									
(iii) Term Deposits									
(iv) Certificates of Deposits									
4. Borrowings	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Call and Short Notice									
(ii) Inter-Bank (Term)									
(iii) Refinances									
(iv) Others (specify)									
5. Other Liabilities & Provisions	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Bills Payable									
(ii) Inter-office Adjustment									
(iii) Provisions									
(iv) Others									
6. Lines of Credit committed to	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Institutions									
(ii) Customers									
7. Unavailed portion of Cash Credit/									
Overdraft / Demand Loan Component of Working Capital									
8. Letters of Credit / Guarantees									
9. Repos									
10. Bills Rediscounted (DUPN)									
11. Swaps (Buy/Sell)/ maturing forwards									
12. Interest payable									
13. Others (specify)									
A. TOTAL OUTFLOWS									

Source: ALM Systems in Banks; Guidelines by DBOD. RBI 1999

-Continued on next page

ANNEXURE – I

Name of the bank:
Statement of Structural Liquidity as on:

(Amounts in Crores of Rupees)

INFLOWS									
1. Cash									
2. Balance with RBI									
3. Balance with other Banks	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Current Account									
(ii) Money at call and short Notice, Term Deposits and other placements									
4. Investments (including those under Repos but excluding Reserve Repos)									
5. Advances (Performing)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Bills Purchased and Discounted (including bills under DUPN)									
(ii) Cash Credits, Overdrafts and Loans repayable on demand									
(iii) Term Loans									
6. NPAs (Advances and Investments)*									
7. Fixed Assets									
8. Other Assets	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Inter-office Adjustment									
(ii) Leased Assets									
(iii) Others									
9. Reserve Repos									
10. Swaps (Sell / Buy) / maturing forwards									
11. Bills Rediscounted (DUPN)									
12. Interest receivable									
13. Committed Lines of Credit									
14. Export Refinance from RBI.									
15. Others (specify)									
B. TOTAL INFLOWS									
C. MISMATCH (B-A)									
D. CUMULATIVE MISMATCH									
E. C as % To A									

* Net of provisions, interest suspense and claims received from ECGC/DICGC.

Source: ALM Systems in Banks; Guidelines by DBOD. RBI 1999

ANNEXURE – II

Name of the bank:

Statement of Interest Rate Sensitivity as on.

(Amounts in Crores of Rupees)

	INTEREST RATE SENSITIVITY								
LIABILITIES	1 –28 days	29 days and upto 3 month	Over 3 months and upto 6 month	Over 6 months and upto 1 year	Over 1 year and upto 3 years	Over 3 years and upto 5 years	Over 5 years	Non-Sensi-tivie	Total
1. Capital									
2. Reserves & Surplus									
3. Deposits	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Current Deposits									
(ii) Savings Bank Deposits									
(iii) Term Deposits									
(iv) Certificates of Deposits									
4. Borrowings	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Call and Short Notice									
(ii) Inter-Bank (Term)									
(iii) Refinances									
(iv) Others (specify)									
5. Other Liabilities & Provisions	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Bills Payable									
(ii) Inter-office Adjustment									
(iii) Provisions *									
(iv) Others									
6. Repos									
7. Bills Rediscounted (DUPN)									
8. Swaps (Buy/Sell)									
9. Others (specify)									
A. TOTAL LIABILITIES									

* Excluding provisions for NPAs and investments.

Source: ALM Systems in Banks; Guidelines by DBOD. RBI 1999

- Continued on next page

ANNEXURE II

Name of the bank:
Statement of Interest Rate Sensitivity as on:

(Amounts in Crores of Rupees)

ASSETS									
1. Cash									
2. Balance with RBI									
3. Balance with other Banks	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Current Account									
(ii) Money at call and short Notice, Term Deposits and other placements									
4. Investments (including those under Repos but excluding Reserve Repos)									
5. Advances (Performing)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Bills Purchased and Discounted (including bills under DUPN)									
(ii) Cash Credits, Overdrafts and Loans repayable on demand									
(iii) Term Loans									
6. NPAs (Advances and Investments)*									
7. Fixed Assets									
8. Other Assets	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
(i) Inter-office Adjustment									
(ii) Leased Assets									
(iii) Others									
9. Reserve Repos									
10. Swaps (Sell / Buy)									
11. Bills Rediscounted (DUPN)									
12. Others (specifiy)									
B. TOTAL ASSETS									
C. GAP (B-A)									
OTHER PRODUCTS (INTEREST RATE)									
(i) FRAs									
(ii) Swaps									
(iii) Futures									
(iv) Options									
(v) Others									
D. TOTAL OTHER PRODUCTS									
E.NET GAP (C-D)									
F.CUMULATIVE GAP									
G. E AS % TO B									

* Amounts to be shown net of provisions, interest suspense and claims received from ECGC/DICGC.

ANNEXURE – III

Name of the bank:

Statement of Short-term Dynamic liquidity as on .....

(Amounts in Crores of Rupees)

A. Outflows				
		1-14 days	**15-28 days**	**29-90 days**
1	Net increase in loans and advances			
2	Net increase in investments i) Approved securities ii) Money market instruments (other than Treasury bills) iii) Bonds/Debentures / shares iv) Others			
3	Inter-bank obligations			
4	Off-balance sheet items (Repos, swaps, bills discounted, etc.)			
5	Others			
	TOTAL OUTFLOWS			
	B. Inflows			
1	Net cash position			
2	Net increase in deposits (less CRR obligations)			
3	Interest on investments			
4	Inter-bank claims			
5	Refinance eligibility (Export credit)			
6	Off-balance sheet items (Reverse repos, swaps, bills discounted, etc.			
7	Others			
	TOTAL INFLOWS			
	C. Mismatch (B-A)			
	D. Cumulative mismatch			
	E. C as a % to total outflows			

Source: ALM Systems in Banks; Guidelines by DBOD. RBI 1999