

ASSET AND LIABILITY MANAGEMENT IN BANKS – A COMPARATIVE STUDY ON GAP ANALYSIS OF SCBs IN INDIA

S. Prabhakar ¹, Dr. S. Mathivannan ², J. Ashok kumar ³

^{1,3} Ph.D. Research Scholar, ² Associate Professor and Head,
P.G. and Research Department of Commerce, Sri S.R.N.M. College, Sattur (India)

ABSTRACT

In India asset liability mismatch in balance sheet of commercial banks posed serious challenges as the banks were following the traditional methods of recording assets and liabilities at the book value. The liberalization process in the economy coupled with multifaceted global developments exposed banks for various kinds of risks viz. interest rate risk, liquidity risk, exchange risk, operational risk etc. which have direct impact on their operations, profitability and efficiency to compete with. The Central Bank of the country focused and advised banks for taking concrete steps in minimizing the mismatch in the asset-liability composition. There had been many positive impacts of various strategies followed by banks in the last one decade. This paper is an attempt to analyze the impact of measures and strategies banks undertook to manage the composition of asset-liability and its impact on their performance in general and profitability in particular.

Keywords: *Asset-Liability Management, Interest Rate Risk, Gap Analysis,*

I. INTRODUCTION

In the developing countries including India the regulatory regime, on the operations and control of banks and financial institutions, did not allow much competition in the financial system. The interest rates were by and large controlled by the Central bank, the Reserve bank of India (RBI). The balance sheet management did not pose many problems as the income was accounted for on accrual basis. Off balance sheet exposure for banks was minimum. It was only after liberalization process implemented in 1991, the banking sector had undergone the following major changes:

1. De-regulation of interest rates.
2. Non- recognition of Income on accrual basis.
3. Growth of forward contracts in foreign transactions and therefore higher off balance sheet exposure.
4. Diversification of banking products.
5. Growth of a healthy competition in banking sector.

The situation in pre liberalization era was that competition in the banks was negligible as the major business was handled by public sector banks. Therefore liabilities to the bank in terms of deposits did not pose many

problems. Banks used to have major focus on asset management. But in the changing context after liberalization, liability management also assumed significant importance.

1.1 Definition of ALM

The ALM is defined as "managing both assets and liabilities simultaneously for the purpose of minimizing the adverse impact of interest rate movement, providing liquidity and enhancing the market value of equity. It is also defined as "planning procedure which accounts for all assets and liabilities of a bank by rate, amount and maturity." Banks now focus on funds management approach to manage liability management and Interest rates risk. The features of this approach are:

- a. It focuses more control on volume, mix and return / cost of both assets and liabilities.
- b. Effective coordination on both, the assets and liabilities, to maximize the spread, and
- c. Revenues and costs affect both sides of the balance sheet. Therefore this approach suggests maximize returns and minimize costs.

1.2 The Process of ALM

Broadly, the process of ALM rests on the following three important pillars:

1. **ALM information system:** This comprises of availability of information accuracy and its sufficiency.
2. **ALM organization:** Setting up of asset liability management committee and organizational set up at different levels.
3. **ALM process:** Management of liquidity risk, interest rate risk, market risk, trading risk, capital planning and profit planning.

1.3 Objectives of ALM

The broad objectives of the ALM Policy are profit planning, liquidity management, interest risk management, FOREX risk management, equity risk management and commodity price risk management. .

1.4 ALM implementation process

The Asset Liability Management (ALM) process involves management of liquidity risk, interest rate risk, market risk, trading risks etc. For this purpose each bank has set up Assets Liability Committee (ALCO) comprising top level management to attend the following functions:

1. Decide on interest rate and product pricing on both assets and liabilities and to optimize Net Interest Margin (NIM) / Net Interest Income (NII) and mix of incremental Assets and Liabilities.
2. Measure and monitor liquidity risks, interest rate risk, currency risks, operational/trading risks and equity price risk.
3. Decide on the funding mix (Fixed or floating rate funds, wholesale or retail deposits, money market or capital market funding, domestic or foreign currency funding).
4. To decide maturity profile of assets and liabilities.

5. To permit and monitor the use of derivative instruments to manage risks, in accordance with applicable regulatory norms and guidelines.

II. OBJECTIVES OF THE STUDY

This paper has been developed keeping in view the following objectives;

- i) To compare the sensitive assets and liabilities of Public Sector Commercial Banks in India
- ii) To compare the sensitive assets and liabilities of Private Sector Commercial Banks in India
- iii) To compare the sensitive assets and liabilities of Foreign Sector Commercial Banks in India
- iv) To offer suitable suggestions based on the study

III. DATA AND METHODOLOGY

The secondary data used for this study. The data collected from trend and progress of Banking in India published by RBI. The data used for this purpose pertains to 2001-2015 for public, private and foreign sector banks.

IV. 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.

The motto behind this was to encourage global convergence towards common approaches and standards for banking system per-se. This body also suggested setting up of rigorous risk and capital management requirements to ensure adequate capital reserve for various risks exposure in the process of lending and borrowing operations. It infers banks need to hold larger capital amount for greater exposure of risks. This will ensure solvency and stability.

The Basel II norms (2004) focused on international standard for the amount of capital to be maintained by banks as a safeguard against various risks they come across in the banking business. Basel II proposed setting up rigorous risk and capital management requirements designed to ensure that a bank holds capital reserves appropriate to the risk the bank exposes itself to through its leading and investment practices. It infers that the greater risk to which the bank is exposed, the greater the amount of capital the bank needs to hold to ensure solvency and stability.

Gardner and Mills (1991) discussed the principles of 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.

Haslem et al (1999) used canonical analysis and the interpretive framework of asset/liability management in order to identify and interpret the foreign and domestic balance sheet strategies of large U.S. banks in the

context of the “crisis in lending to LDCs.” In their study it was revealed that the least profitable very large banks have the largest proportion of foreign loans, but they focus on asset/liability matching strategies.

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

Vaidya and Shahi (2001) studies assetliability management in Indian banks. They suggested in particular that interest rate risk and liquidity risk are two key inputs in business planning process of banks.

Rajan and Nallari (2004) used canonical analysis to examine asset-liability management in Indian banks in the period 1992-2004. According to this study, 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 found to be aggressive in profit generation, while nationalized banks were found to be excessively concerned about liquidity.

Milir Venkatesh and Bhargav (2008) focused on price matching and maintaining spreads.

Taking one step ahead, the banks now focus on integrated balance-sheet management where all the relevant factors which effect an appropriate balance sheet composition deserve consideration. Therefore various components of balance sheet are analyzed keeping in view the strengths of a bank. The earlier approach of managing certain deposits, loans and advances has no much relevance. The basic difference in earlier approach and dynamic approach can be described in term of focus on value addition, analysis of different scenarios, comprehensive risk and dynamic approach of balance sheet evaluation in the present ALM system.

Dash and Pathak (2011) proposed a linear model for asset-liability assessment. They found that public sector banks have best asset liability management positions, maintaining profitability, satisfying the liquidity constraints, and reducing interest rate risk exposure. The present study analyses the impact of RBI guidelines on effective management of ALM in banks.

GAP ANALYSIS

Liabilities	Assets
Rate Sensitive Liabilities	Rate Sensitive Assets
Fixed Rate Liabilities	Fixed Rate Assets
Total	Total

Funds Gap

- Funds gap = Risk Sensitive Assets (RSA) – Risk Sensitive Liabilities (RSL).
- A positive gap shows financing of rate sensitive assets by fixed rate liabilities.
- A negative gap shows fixed rate assets financed by rate sensitive liabilities.

Rate Sensitive Assets (RSA) = Rate Sensitive Liabilities (RSL)

The most familiar example of re-pricing assets is loans that are about to mature or are coming up for renewal. If interest rate have risen since these loans were first make, the bank will renew them only if it can get an expected

yield that approximates the higher yields currently expected on other financial instruments of comparable quality.

Interest Sensitive Gap:

A gap exists between these interest sensitive assets and interest sensitive liabilities when:

Interest Sensitive Gap = Interest Sensitive Assets – Interest Sensitive Liabilities.

V. COMPARISON OF SENSITIVE ASSETS AND SENSITIVE LIABILITIES OF PSCBS IN INDIA – T TEST

T-Test: To know the significance difference between sensitive assets and sensitive liabilities of PSCBs in India. This T-test determines significance difference between average value of sensitive assets and sensitive liabilities of PSCBs. The following hypotheses are tested with the help of T - test:

Null H0: There is no significance difference between sensitive assets and sensitive liabilities of PSCBs in India

Alt H1: There is a significance difference between sensitive assets and sensitive liabilities of PSCBs in India.

Table 1

Comparison of Sensitive Assets and Liabilities of PSCBs in India – T test

Particulars	Sensitive Assets	Sensitive Liabilities
Mean	726807.02	2766586.52
Standard Deviation	1793667.61	1838609.60
Degrees of Freedom	28	
T-Value	0.0558	
P(T<=t) Two Tail	0.9559	
T critical two tail	2.06	

Source: Computed data

Table 1 shows the result of t-test. Result indicates that weather bank is having proper assets liabilities management at significance level or not. T-test used using at 5% significant level $\alpha = 0.05$ and the degree of freedom is $28(n1+ n2 - 2 = 15 + 15 - 2)$.

T-test investigates the significant difference mean of sensitive assets and sensitive liabilities for 13years 2000-2001 to 2014-2015. Here null hypothesis is accepted therefore there is no significant difference between sensitive assets and sensitive liabilities of PSCBs in India at 0.05 significance level.

P-values for this two tailed t-test valued 0.9559 which is greater than significant level $\alpha = 0.05$ in other way t-test value 0.9559 which significance at 5% level. T-test hypothesis acceptance region is -2.06 to + 2.06. Here, t-test value is 0.0558 which is between the acceptance region -2.06 to + 2.06.

Thus the null hypothesis accepted which indicates that there is no significant difference between mean of sensitive assets and sensitive liabilities of PSCBs in India for the period 2000-2001 to 2014- 2015. Hence, testing results shows that PSCBs India has fitting assets liabilities management structure.

VI. COMPARISON OF SENSITIVE ASSETS AND SENSITIVE LIABILITIES OF PvtSCBs IN INDIA – T TEST

T-Test: To know the significance difference between sensitive assets and sensitive liabilities of PvtSCBs of India. This t-test determines significance difference between average value of sensitive assets and sensitive liabilities of PvtSCBs in India. The following hypotheses are tested with the help of T-test.

Null H0: There is no significance difference between sensitive assets and sensitive liabilities of PvtSCBs in India

Alt H1: There is significance difference between sensitive assets and sensitive liabilities of PvtSCBs in India.

Table 2

Comparison of Sensitive Assets and Liabilities of PvtSCBs in India – T test

Particulars	Sensitive Assets	Sensitive Liabilities
Mean	656894.46	670104.45
Standard Deviation	53839.61	525317.20.
Degrees of Freedom	28	
T-Value	0.0633	
P(T<=t) Two Tail	0.9500	
T critical two tail	2.06	

Source: Computed data

Table 2 shows the result of T – test. Thus the result indicates that whether bank is having proper assets liabilities management at significance level or not. T-test used at 5% significant level $\alpha = 0.05$ and the degree of freedom is $24(n1+ n2 - 2 = 15 + 15 - 2)$.

T-test investigates the significant difference mean of sensitive assets and sensitive liabilities for 15 years 2000-01 to 2014-2015. Here null hypothesis is accepted that there is no significance difference between sensitive assets and sensitive liabilities of PvtSCBs in India at 0.05 significance level.

P-values for this two tailed t-test valued 0.9500 which is greater than significant level $\alpha = 0.05$ in other way t-test value is 0.9500 which is significant at 5% level. T-test hypothesis acceptance region is -2.06 to + 2.06. Here, T-test value 0.0633 was arrived between acceptance region -2.06 to + 2.06.

Thus, results shows that the decision should be to accept the null hypothesis which indicates that there is no significant difference between mean of sensitive assets and sensitive liabilities of PvtSCBs in India for the year 2000-01 to 2014- 2015. Hence, the result shows that PvtSCBs in India has proper assets liabilities management structure.

VII. COMPARISON OF SENSITIVE ASSETS AND SENSITIVE LIABILITIES OF FCBS IN INDIA – T TEST

T-Test: To know the significance difference between sensitive assets and sensitive liabilities of FCBs in India. This t-test determines significance difference between average valued of sensitive assets and sensitive liabilities of FCBs in India. The following hypotheses are tested with the help of T-test.

Null H₀: There is no significance difference between sensitive assets and sensitive liabilities of FCBs in India.

Alt H₁: There is significance difference between sensitive assets and sensitive liabilities of FCBs in India.

Table 3

Comparison of Sensitive Assets and Liabilities of FCBs in India – T test

Particulars	Sensitive Assets	Sensitive Liabilities
Mean	211534.40	211289.10
Standard Deviation	159914.75	133979.17
Degrees of Freedom	28	
T-Value	0.0042	
P(T<=t) Two Tail	0.9967	
T critical two tail	2.06	

Source: Computed data

Table 3 shows the result of T-test. It indicates that FCBs banks having proper sensitive assets sensitive liabilities management at significance level or not. T-test used with using at 5% significant level $\alpha = 0.05$ and the degree of freedom is $24(n_1 + n_2 - 2 = 15 + 15 - 2)$.

T-test investigates the significant difference mean of sensitive assets and sensitive liabilities for the period 15 years 2000-01 to 2014-2015. Here null hypothesis test shows that there is no significance difference between assets and liabilities of FCBs India at 0.05 significance level.

P-values for this two tailed t-test valued 0.9967 which is greater than significant level $\alpha = 0.05$ in other way t-test value 0.9967 which significance at 5% level. T-test hypothesis acceptance region is -2.06 to + 2.06. Here, t-test value 0.0042 was arrived between acceptance region -2.06 to + 2.06.

Thus, results shows that the decision should be to accept the null hypothesis which indicates that there is no significant difference between mean of sensitive assets and sensitive liabilities of FCBs India for the year 2000-01 to 2014- 2015. Hence, testing results show that FCBs India has appropriate assets liabilities management structure.

VIII. SUGGESTIONS

- There are serious attempts by banks to minimize the asset liability mismatch since the implementation of RBI guidelines in 1997. Banks have made adequate follow up and monitoring arrangements at different levels.
- Individual banks have also fixed maximum tolerance limits under each time bucket for the mismatch for close monitoring.
- The study suggests much scope for banks to improve profitability by monitoring and reducing short term liquidity.
- The further break up of data into smaller rime buckets indicates negative gap.
- To fill the short term liquidity gap, banks resort to market borrowings at higher rate of interest which reduces interest margin and profitability of banks.
- Banks have greater scope to manage interest rate risk through various techniques.

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