

ROLE OF ALM IN RISK MITIGATION FOR INDIAN BANKS WITH REFERENCE TO STATE BANK OF INDIA

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ABSTRACT: The State Bank of India is employed as a case paper in this investigation to illustrate how asset-liability management (ALM) can help Indian banks stabilize their finances and reduce financial risks. Asset-Liability Management (ALM) can be implemented by banks to optimize their financing procedures and mitigate risks, including liquidity, interest rates, and credit fluctuations. SBI enhances operational efficiency and resilience by employing ALM approaches to evaluate interest rate sensitivity and maintain liquidity buffers. Stress tests and gap analyses are indispensable for the identification, assessment, and mitigation of risks within your financial institutions. The paper underscores the importance of rigorous regulatory compliance, strong internal controls, and Asset Liability Management (ALM). As per SBI's experts, the integration of asset liability management into your strategic planning process helps to improve risk control and foster long-term success.

Keywords: *Asset Liability Management (ALM); Banking risk management; Interest rate risk; Liquidity risk; Credit risk; Gap analysis; Stress testing; Financial stability; Risk assessment*

1. INTRODUCTION

Asset-liability management (ALM) is the process of managing assets and liabilities to reduce risks, such as liquidity constraints and fluctuations in interest rates. This allows financial institutions to ensure sustainability and optimize profitability over the long term.

Banks can reduce the risks associated with an excess of assets over liabilities by engaging in meticulous administration of their assets and obligations. The imbalance is frequently exacerbated by changes in the financial system, such as liquidity mandates or interest rates.

Operational capital, liquidity, and credit quality are secured by an effective ALM framework, which in turn improves long-term stability and profitability. ALM differentiates itself from other risk management systems by employing frameworks to monitor an organization's entire balance sheet. It ensures the efficient distribution of assets and mitigates long-term liabilities. Risks are classified by financial organizations based on their categories. The financial industry has become obsolete as a result of its evolution.

The purpose of asset lifecycle management (ALM) is to meticulously monitor an organization's assets and liabilities in order to enhance performance, mitigate risk, and achieve objectives. The adaptability of ALM enables companies to secure long-term stability while managing economic volatility by utilizing their resources.

Asset-liability management (ALM) assists financial institutions in maintaining a balanced relationship between their assets and liabilities, which includes credit, interest rates, cash flow, and currency, thereby reducing risk. ALM ensures that a corporation has sufficient liquidity to meet its obligations, stabilize earnings, and reduce the likelihood of insolvency or



bankruptcy by meticulously harmonizing the maturities and characteristics of its assets and liabilities.

The preservation of financial stability in institutions can be achieved through asset liability management (ALM), which regulates both assets and liabilities. Asset-liability management (ALM) systems are urgently needed by Indian financial institutions due to the rapid transition of economic conditions, interest rates, and regulatory frameworks. In order to fulfill both short- and long-term obligations, attain strategic growth, and ensure financial stability, banks can employ ALM to identify and manage funding imbalances, interest rate exposures, and liquidity deficiencies. The alignment of a bank's objectives with its risk exposure is a critical factor in its ability to withstand market volatility.

Asset Liability administration (ALM) can improve the administration of credit, market, and operational risks, thereby assisting banks in risk mitigation. Employing scenario analysis, risk forecasting, and stress testing, financial institutions can improve their preparedness for potential challenges, identify viable solutions, and maintain profitability and capital. In order to navigate the complex and competitive contemporary financial market, ALM provides systematic and coordinated risk management.

2. ALM RISK MITIGATION



ALM frameworks frequently mitigate a variety of hazards, despite their differences. Asset-Liability Management (ALM) is a widely used approach to managing liquidity risk and interest rate risk.

Interest Rate Risk

The term "interest rate risk" denotes the potential influence of fluctuations in interest rates on forthcoming financial transactions. Assets and liabilities of a financial institution may be affected by fluctuations in interest rates.

Loans and deposits are frequently utilized. A market with variable interest rates may experience an asset-liability mismatch.

Liquidity Risk

The liquidity risk of an organization is the extent to which it is able to meet its short-term and long-term cash flow obligations. The bank may encounter difficulties in fulfilling its obligations if it does not possess liquid assets.

Asset-Liability Management techniques can be employed by organizations to fulfill cash-flow obligations and reduce liquidity risk or enhance liquidity.

Other Types of Risk

ALM mitigates not only liquidity and interest-related issues, but also numerous others. Currency risk serves as an illustration of the hazards associated with fluctuating exchange

rates. An expanding disparity between multi-currency assets and liabilities may be the consequence of fluctuations in exchange rates.

Capital market risk is the term used to describe the volatility of stock prices. These hazards can often be mitigated through the use of derivatives, futures, and options.

3. LITERATURE SURVEY

According to research conducted by Prof. K. S. Menon in 2025, asset-liability management (ALM) is indispensable for the prosperity of Indian institutions amid an unstable financial climate. Banks can more effectively allocate assets, anticipate funding deficiencies, and regulate interest rate fluctuations through Asset Liability Management (ALM). Through the implementation of gap analysis, real-time monitoring, and predictive modeling, numerous organizations have achieved increased productivity and reduced risk. In order to maintain discipline, the Reserve Bank of India mandates the establishment of Asset Liability Management committees, systematic reporting, and robust governance.

According to a paper conducted by Dr. Nisha Bhatia (2024), Indian institutions are gradually implementing technology-driven Asset-Liability Management (ALM) solutions to address market, liquidity, and interest rate concerns. Real-time monitoring, stress testing, and duration analysis enable financial institutions to assess liquidity, identify funding challenges, and adapt to changing market conditions. Scenario-based simulations are advantageous for decision-making in uncertain situations. Persistent challenges include the need to adapt methodology to changing market conditions, ensure data integrity, and achieve system interoperability. The paper emphasizes the importance of regulatory adherence, governance, and reporting in order to improve the efficacy of ALM.

V. K. Nair (2023) conducted this paper to examine Asset-Liability Management (ALM), a strategic financial management strategy that Indian institutions implement to mitigate risks associated with liquidity, interest rates, and credit. Duration analysis, real-time gap analysis, and sophisticated stress testing are among the technologies that banks can employ to manage interest rate volatility and maintain liquidity. The investigation suggests that the implementation of ALM may be hindered by factors such as inadequate integration of risk data, obsolete IT systems, and decentralized architecture. By means of interdepartmental collaboration, scenario-based planning, predictive modeling, and regular reporting, the recommendations are in accordance with RBI standards.

Professor R. P. Choudhary (2022) emphasizes the growing importance of Asset-Liability Management (ALM) in helping Indian institutions overcome obstacles related to market volatility, liquidity, and interest rates. Banks may anticipate cash flow constraints and mitigate market volatility by employing transparent Asset-Liability Management strategies. Recent research suggests that operational stability is improved by scenario-based stress testing, interest rate sensitivity analysis, and capital sufficiency planning. The report posits that ALM must be comprehensively integrated into strategic planning and coordination by risk, finance, and treasury.

In 2021, Dr. R. K. Sharma conducted research that demonstrated the importance of effective asset-liability management (ALM) for Indian financial institutions to address concerns

regarding liquidity and interest rates. Banks' financial stability and resilience are enhanced when they maintain a robust equilibrium between their assets and liabilities. The results suggest that dynamic gap analysis and stress testing reduce vulnerability during economic fluctuations, while RBI regulations guarantee rigorous risk management. Sophisticated forecasting models, scenario analysis, and technological integration are recommended by experts to improve monitoring.

Dr. A. V. Deshmukh's research (2021) demonstrates that asset-liability management (ALM) protects Indian institutions from liquidity and interest rate challenges, while simultaneously assuring financial stability. Dynamic gap analysis, early warning indicators, cash flow projections, and defined asset-liability management protocols can mitigate liquidity risk by enabling businesses to balance their assets and liabilities. In order to improve governance, the Reserve Bank of India's regulatory frameworks necessitate robust Asset-Liability Management committees and reporting processes. The treasury and risk teams are still facing challenges in the areas of talent acquisition, data precision, and the integration of legacy systems with modern risk solutions.

4. ASSET LIABILITY MANAGEMENT STRATEGIES IN INDIAN BANKS

Gap Analysis Strategy

Gap analysis is employed to investigate rate-sensitive assets and liabilities over time. It facilitates a more thorough assessment of the advantages and disadvantages of interest rate fluctuations. A positive gap is created when assets respond more rapidly to fluctuations in interest rates than liabilities. In response to the increase in interest rates, liabilities undergo a prolonged adjustment period. It reduces interest rate risk by adjusting the balance sheets of banks. Continuous monitoring and prompt action are essential for the preservation of net interest income.

Duration Analysis Strategy

The time necessary to liquidate assets and resolve liabilities may be disclosed through a duration study. In contrast to gap analysis, it provides a more precise evaluation of interest rate sensitivity. By synchronizing the maturities of their assets and liabilities, institutions can protect the value of their portfolios from interest rate volatility. Additionally, it provides recommendations for optimizing profits through financial and investment strategies. This method is effective in the formulation of future strategies and the mitigation of interest rate risk.

Funds Transfer Pricing (FTP) Strategy

Revenue and expenses are distributed among business entities in accordance with the utilization of funds through funds transfer pricing. Units are motivated to supervise their assets and liabilities when accountability is implemented. For the purpose of determining the profitability of various segments of a corporation, FTP is advantageous. Organizations can improve their decision-making processes by conducting internal evaluations of capital expenditures. It ensures synchronization throughout the organization, thereby improving interest rate risk management and balance sheet management.



Matching or Hedging Strategy

The sensitivity of assets and obligations to interest rates, as well as their maturity, are aligned through hedging or matching. Consequently, the corporation's net interest revenue remains consistent and is not substantially affected by fluctuations in interest rates. Swaps and derivatives are financial products that can mitigate risk. Banks can reduce their risk exposure and increase their profitability by ensuring a unidirectional passage of capital. This is effective when there are discernible and predictable cash flow patterns.

Liquidity Management Strategy

A bank can fulfill its short-term obligations without incurring losses by implementing liquidity management measures. In order to accommodate unexpected withdrawals, institutions maintain an adequate reserve of marketable securities, credit facilities, and liquid assets. This approach heightens both public confidence and solvency challenges. Banks are able to enhance asset yields and maintain security through liquidity management. It is essential for both regulatory compliance and risk management.

Capital Adequacy Strategy

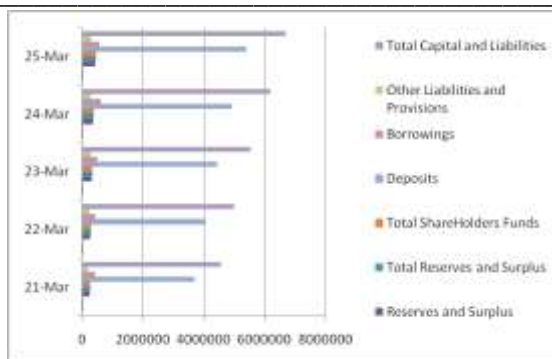
The objective of capital adequacy is to mitigate losses that arise from asset-liability mismatches by ensuring that a sufficient quantity of liquidity is maintained. Institutions implement scenario analysis and stress testing methodologies to assess the consequences of adverse circumstances. It is imperative for a company to maintain a strong capital reserve in order to ensure its expansion and sustainability. The institution protects itself from financial disruptions and market fluctuations by maintaining stakeholder confidence and complying with regulatory requirements, including Basel III.

5. RESULTS

SHAREHOLDER'S FUNDS

SHAREHOLDE R'S FUNDS	25-Mar	24-Mar	23-Mar	22-Mar	21-Mar
Equity Share Capital	892.46	892.46	892.46	892.46	892.46
Total Share Capital	892.46	892.46	892.46	892.46	892.46
Revaluation Reserve	27,355.62	27,555.65	27,756.26	23,377.87	23,577.35
Reserves and Surplus	412,914.0 4	348,798.4 3	298,959.7 3	255,817.7 3	229,405.3 8
Total Reserves and Surplus	440,269.6 6	376,354.0 7	326,715.9 9	279,195.6 0	252,982.7 3
Total ShareHolders Funds	441,162.1 2	377,246.5 3	327,608.4 5	280,088.0 6	253,875.1 9
Deposits	5,382,189. 53	4,916,076. 77	4,423,777. 78	4,051,534. 12	3,681,277. 08
Borrowings	563,572.5 2	597,560.9 1	493,135.1 6	426,043.3 8	417,297.7 0
Other Liabilities and Provisions	289,129.1 0	288,809.7 3	272,457.1 5	229,931.8 4	181,979.6 6
Total Capital and Liabilities	6,676,053. 27	6,179,693. 95	5,516,978. 53	4,987,597. 41	4,534,429. 63

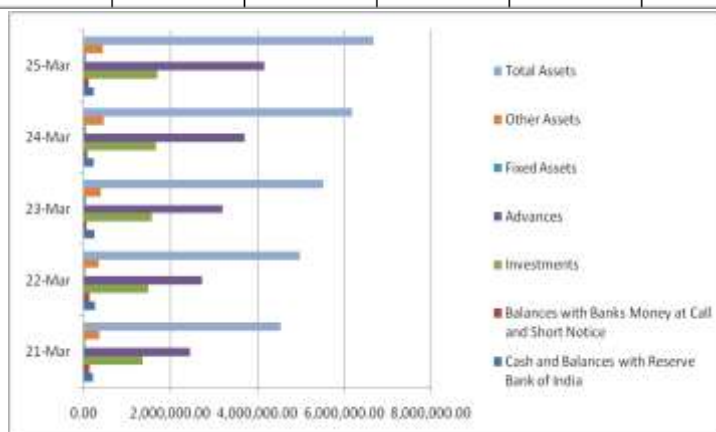




INTERPRETATION: The quantity of SBI owned by owners increased from ₹253,875.19 crore to ₹441,162.12 crore on March 25. The revaluation surplus and savings significantly increased the bank's capital. The five-year increase in deposits, which increased from 3,681,277.08 crore to 5,382,189.53 crore, was indicative of the company's expansion and the increasing confidence of its clientele. The total capital and debt increased from ₹4,534,429.63 crore on March 21 to ₹6,676,053.27 crore, which was primarily due to a slight increase in loans and commitments.

ASSETS

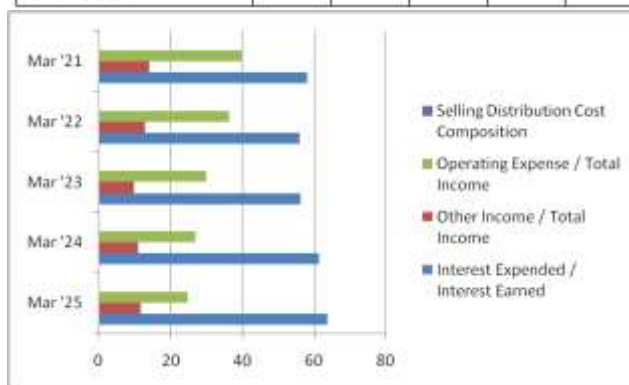
ASSETS	25-Mar	24-Mar	23-Mar	22-Mar	21-Mar
Cash and Balances with Reserve Bank of India	227,217.49	225,141.70	247,087.58	257,859.21	213,201.54
Balances with Banks Money at Call and Short Notice	113,012.19	85,660.29	60,812.04	136,693.11	129,837.17
Investments	1,690,572.75	1,671,339.66	1,570,366.23	1,481,445.47	1,351,705.21
Advances	4,163,312.10	3,703,970.85	3,199,269.30	2,733,966.59	2,449,497.79
Fixed Assets	44,107.55	42,617.25	42,381.80	37,708.16	38,419.24
Other Assets	437,831.18	450,964.19	397,061.58	339,924.86	351,768.68
Total Assets	6,676,053.27	6,179,693.95	5,516,978.53	4,987,597.41	4,534,429.63



INTERPRETATION: As a result of improvements to its balance sheet, SBI's total assets increased from ₹4,534,429.63 crore on March 21 to ₹6,676,053.27 crore. The investments, which amount to ₹1,690,572.75 crore, serve as evidence of the adept management of the finances. The escalation in advances from ₹2,449,497.79 crore to ₹4,163,312.10 crore is indicative of the substantial increase in banking activity. The Reserve Bank of India (RBI) and other financial institutions have sufficient funds (₹340,229.68 crore) to meet their financial obligations and operate their operations.

PROFIT AND LOSS ACCOUNT RATIOS

Profit And Loss Account Ratios	Mar '25	Mar '24	Mar '23	Mar '22	Mar '21
Interest Expended / Interest Earned	63.9	61.49	56.39	56.18	58.25
Other Income / Total Income	11.77	11.07	9.93	12.84	14.09
Operating Expense / Total Income	24.77	27.08	30.09	36.26	39.96
Selling Distribution Cost Composition	0.11	0.12	0.09	0.11	0.08



INTERPRETATION: As of March 2021, the bank's interest-to-expenditure ratio was 58.25 percent. In March 2025, the ratio rose to 63.9%, indicating that interest outpaced loans. On March 21, the additional earnings were 14.09%, while on March 25, they were 11.77%. This suggests that the income derived from sources other than interest was a lower proportion of the total. Between March 21 and March 25, operational costs increased from 39.96% to 24.77%. It was evident that cost control was effective.

6. CONCLUSION

In conclusion, Asset-Liability Management (ALM) is a critical instrument for protecting Indian banks from the hazards associated with liquidity, interest rates, and credit exposure. By maintaining a stable equilibrium between their assets and liabilities, financial institutions can more accurately predict their cash needs, maintain profitability, and adjust to market fluctuations. The Reserve Bank of India (RBI) is committed to the promotion of financial stability, regulatory compliance, and judicious decision-making through Asset Liability Management (ALM). ALM safeguards all stakeholders by utilizing sophisticated technology, analytics, and stress testing to improve financial stability. The Indian banking sector must prioritize sustainable expansion, long-term stability, and disciplined risk management.



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