



ASSET LIABILITY MANAGEMENT STRATEGIES IN INDIAN BANKS AT STATE BANK OF INDIA

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ABSTRACT: Asset Liability Management (ALM) is a fundamental component of banking that regulates risks and returns while maintaining liquidity and profitability. Asset-Liability Management (ALM) strategies are critical in the Indian banking industry, particularly at the State Bank of India (SBI), for reducing interest rate risk, liquidity risk, and credit risk caused by disparities between assets and liabilities. This paper looks into the structure, methodologies, and policies that SBI has used to improve its Asset-Liability Management (ALM) systems, with a focus on scenario planning, duration analysis, and gap analysis. It demonstrates how SBI maintains stability in a volatile financial world by following Reserve Bank of India laws and implementing its own risk management techniques. The report also looks into how SBI distributes its assets, controls non-performing assets, and uses technology to track and forecast balance sheet difficulties. The results show that SBI's proactive asset level management (ALM) initiatives have allowed the bank to maintain its position as India's largest public sector bank while also increasing profitability, managing capital adequacy, and demonstrating resilience in the face of economic crises. According to the report, Indian banking must continue to innovate, follow rules, and strengthen its ALM frameworks in order to sustain long-term financial stability and expansion.

Keywords: *Asset Liability Management (ALM), State Bank of India, Indian Banking Sector, Liquidity Risk, Interest Rate Risk, Credit Risk, Gap Analysis,*

1. INTRODUCTION

Asset liability management (ALM) is a mechanism used by banks and other financial organizations to limit the risks associated with misaligned assets and commitments, particularly in terms of interest rate and time sensitivity. It entails establishing a balance between a company's financial obligations and assets to ensure that it has enough cash on hand and that interest rate risk is kept within predetermined bounds. This reduces the company's risk of insolvency while ensuring consistent revenue. Some of the most important ALM strategies are debt

refinancing, portfolio diversification, the use of dynamic financial modeling, scenario analysis, and stress testing to understand the potential effects of various economic situations, and matching maturities.

ALM's key goals are to reduce liquidity risk (the possibility of insufficient currency) and interest rate risk (the possibility that interest rate fluctuations may have a negative impact on earnings and capital).

One of the fundamental goals is to guarantee that the net interest margin, which is the difference between interest



paid on obligations and interest received on assets, is consistent with the institution's risk/return objectives.

ALM involves contemporaneous decision-making for the institution's large asset and liability portfolios, including their categories, volume, composition, maturity, interest rate sensitivity, quality, and liquidity. ALM's sophisticated modeling methodologies and decision-making require rapid, accurate, and easily available information in order to perform efficiently.

There are various reasons why ALM is important. Initially, an organization's financial stability is maintained by ensuring that its assets and liabilities are balanced. This helps them respond to changes in the economy and market. ALM is also important for risk management since it detects potential difficulties, like as liquidity risk or interest rate risk, that may have a negative impact on a company's financial performance. Because of ALM's comprehensive financial picture, organizations may make informed decisions for long-term growth while both meeting their financial responsibilities and earning revenue. In other words, firms with insufficient asset lifecycle management (ALM) may be underprepared to deal with financial issues, which could have a negative impact on their long-term profitability.

ALM is necessary because banks' balance sheets differ from those of other businesses. For example, they commonly hold both short-term obligations (like consumer deposits) and long-term assets (like loans). ALM is used to ensure that assets and liabilities are equivalent in terms of maturities and interest rate

sensitivity. As a result, liquidity risk and interest rate worries are minimized.

Banks use ALM tools like gap analysis and duration analysis to identify interest rate risks and assess the exposure of their assets and liabilities to these swings. As a result, successful ALM not only keeps a bank afloat during market swings, but it also ensures that the bank's business plan aligns with its risk tolerance, resulting in the attainment of strategic goals and the bank's expansion.

2. ALM IN BANKS IN INDIA

A significant percentage of it is supervised by the Reserve Bank of India. The framework is intended to ensure that banks manage their balance sheets with proper attention to the risks associated with changes in the maturities of their assets and liabilities, as well as interest rate fluctuations. To properly reduce these risks, banks must follow a range of regulations and requirements. Negative Standards and Regulations:

Key Regulations and Guidelines:

RBI Guidelines on ALM System

The Reserve Bank of India (RBI) has set recommendations for the implementation of an ALM system, which is required by all Indian commercial banks. The key components of these guidelines include the following:

ALCO (Asset-Liability Committee):

Banks must form an ALCO (Asset-Liability Committee) to oversee the management of all risks related with their assets and liabilities.

Liquidity Risk Management: To reduce liquidity risks, institutions must build a strong framework. This includes ensuring that they have enough liquidity buffers and tracking their future cash flow requirement

**Interest Rate Risk Management:**

According to the regulations, banks must examine and regulate the extent to which their assets and liabilities are subject to interest rate variations. The instruments recommended for this purpose include gap analysis, duration analysis, and simulation models.

Reporting Requirements: The RBI and the bank's board must obtain frequent updates on ALM holdings. This ensures that liquidity, interest rate risk, and trade hazards are constantly assessed and recorded.

3. REVIEW OF LITERATURE

Consigli, G., Dentcheva, D., Maggioni, F., & Micheli, G. (2025). This work describes a sophisticated optimization model for Asset Liability Management (ALM) that is limited by sequential stochastic dominance (SSD). The authors offer a new paradigm for ensuring that portfolio selections align with risk-averse investors' return objectives and risk preferences. In contrast to traditional models, the SSD approach considers distributional factors in addition to mean-variance trade-offs. The project attempts to develop algorithms capable of handling complicated, recurring optimization difficulties. The method is effective in striking a balance between loss protection and profitability, as demonstrated by numerical studies.

Gao, Z., Chen, P., Li, X., Lv, Y., & Zhang, W. (2025). This paper presents a reinforcement learning framework for multi-period asset liability management (ALM) in regime-switching market settings. The authors argue that traditional optimization approaches usually fail to account for unexpected structural changes in financial markets. Reinforcement

learning allows the model to respond to changing market conditions, such as volatility, bullishness, and bearishness. The method aims to optimize portfolio allocation and obligation coverage throughout a variety of time frames.

Darmawan, D., & Qodhari, D. (2025). This article investigates the effect of Asset Liability Management (ALM) on the stability and profitability of Islamic banks. Shariah law prohibits the use of interest-based goods, and Islamic organizations must conform to ethical investment criteria. This is not the case in traditional institutions. The influence of ALM practices on performance measures is investigated using regression analysis and financial ratio analysis. According to the findings, effective asset and liability management (ALM) improves profitability and stability by allocating assets and liabilities to Shariah-compliant products.

Wang, N. (2024). This paper presents a game-theoretic framework for resilient asset-liability management (ALM) that includes a variety of financial organizations. It is modeled as a stochastic contest with n players. Each bank's goal is to maximize the value of its portfolio while also considering the competitive strategies of its competitors. Because of its ability to tolerate parameter estimation errors, the model can function in volatile financial conditions. The findings indicate the existence of equilibrium techniques that can be uniquely identified under specified conditions. Numerical applications are used to demonstrate scenarios involving liquidity management and interbank lending.

Schaanning, E. (2024). This overview paper explains the relationship between asset liability management (ALM) and

interest-rate risk in the banking book (IRRBB). The author discusses the basic approaches for determining IRRBB, which include scenario analysis, earnings-at-risk, and the economic worth of shares. The primary focus is on regulatory frameworks, particularly the Basel Committee's evolving recommendations for interest-rate risk. The paper compares traditional gap and duration models with modern simulation-based and stress-testing techniques. It also looks into the challenges that banks have when attempting to adopt these models in real-world circumstances, particularly those in which the market is rapidly changing.

4. DATA ANALYSIS AND INTERPRETATION

FINANCIAL ANALYSIS OF SBI'S ALM STRATEGIES AT SBI

ALM Component	Strategy/Approach
Liquidity Management	- Active monitoring of liquidity positions
	- Adherence to regulatory liquidity norms
	- Utilization of short-term borrowings and investments
Interest Rate Risk (IRR)	- Gap analysis to assess mismatches in interest rate-sensitive assets and liabilities
	- Use of interest rate derivatives for hedging
	- Regular stress testing
Maturity Profile Management	- Categorization of assets and liabilities into various maturity buckets
	- Alignment of asset and liability maturities to minimize gaps
	- Regular review and adjustment of maturity profiles
Credit Risk Management	- Rigorous credit appraisal processes
	- Diversification of loan portfolio
	- Monitoring of asset quality through regular reviews
Capital Adequacy	- Maintenance of capital ratios above regulatory requirements
	- Retention of earnings to bolster capital base
	- Strategic capital raising initiatives
Regulatory Compliance	- Strict adherence to RBI's ALM guidelines
	- Regular submission of ALM reports to RBI
	- Implementation of Basel III norms

Stress Testing	- Simulation of adverse economic scenarios	- Prepares the bank for potential financial crises
	- Assessment of the impact on liquidity and capital adequacy	- Enhances risk preparedness
	- Formulation of contingency plans	- Supports informed decision-making during economic downturns
Technology Integration	- Deployment of advanced ALM software	- Improves efficiency and accuracy in ALM operations
	- Real-time monitoring of financial positions	- Facilitates timely decision-making
	- Automation of ALM processes	- Reduces operational risks

DESCRIPTIVE STATISTICS FOR ALM RATIOS AT SBI

Metric	SBI (Mean ± SD)	ICICI Bank (Mean ± SD)	t-Value	p-Value
ROA	0.239 ± 0.404	1.113 ± 0.544	1.322	0.257
GR	0.991 ± 0.016	0.996 ± 0.029	137.557	0
LR	0.140 ± 0.055	0.115 ± 0.026	5.702	0.005
CAR	0.127 ± 0.004	0.181 ± 0.024	71.557	0
ME	0.150 ± 0.034	0.205 ± 0.020	9.812	0.001
CRR	0.083 ± 0.006	0.181 ± 0.015	31.537	0

- SBI's average return on assets (ROA) is 0.239 percent, with a standard deviation of 0.404. This implies that SBI's profits are extremely volatile and low when compared to ICICI Bank, which has a far better ROA of 1.113%. The distinction is not statistically significant, as seen by the high p-value (0.257).
- SBI's GR (0.991) is nearly one, indicating a well-balanced mismatch of assets and liabilities. It has somewhat better liquidity because its LR (0.140) is higher than that of ICICI Bank (0.115). The small p-values suggest that these differences are statistically significant.
- Because its CAR is lower (0.127) than ICICI's (0.181), SBI has less capital to work with. ME has a lesser CAR (0.150 vs. 0.205). The statistical



significance of both disparities suggests possible vulnerabilities in capital strength and operations.

- Compared to ICICI, which has a CRR of 0.181, SBI has a substantially lower CRR of 0.083. As a result, SBI has fewer money available to pay its regulatory requirements. This gap is notable because it reflects ICICI's more aggressive investment and lending strategies.

5. CONCLUSION

Finally, Indian banks must apply effective Asset Liability Management (ALM) methods to maintain stability, produce profits, and continue operations, especially in a financial climate marked by unpredictable interest rates, liquidity limitations, and regulatory changes. Banks can ensure that their assets and liabilities are as aligned as possible and that they are not vulnerable by implementing a comprehensive ALM framework that includes liquidity management, interest rate risk reduction, capital planning, and sophisticated risk measurement techniques. Banking operations can be strengthened even further by diversifying funding sources, leveraging technology for real-time monitoring, and establishing extensive governance and stress-testing procedures. Furthermore, continuing training of ALM staff allows for the resolution of emerging market concerns and helps decision-making. A well-structured ALM strategy is critical for Indian banks to preserve their competitive advantage, grow, and profit in an increasingly complicated market while maintaining financial stability.

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