

A Study on Asset Liability Management and Profitability of select Indian Commercial Banks

P. Rekha

Research Scholar, Department of Management, Osmania University, Telangana (India)

ABSTRACT

Asset liability management policy ensures profitability and long-run sustainability of banks as assets generate income and liabilities bear cost. The study focused on determining the extent of association between asset liability management and profitability of select Indian commercial banks. To study the relationship, variables from Camel model have been selected to assess the relative financial strength of banks. The banks in India have been categorized into Public sector, Private sector, and Foreign banks. The analysis used panel data for the year 2007-2016. Financial indicators and different statistical tools like, Regression analysis, Pearson correlation, Anova and descriptive analysis have been performed to find the relationship among variables. Secured Advances to Total Advances ratio is found to have significant positive relationship with banks profitability.

Key Words: Asset Liability Management, Profitability, Loans & Advances

I. INTRODUCTION

Banking sector plays an important role in the economic development of a country. The banking sector being the life line of the economy was treated with utmost importance in the financial sector reforms. These reforms started as a follow up measure of economic liberalization and financial sector reforms in the country. The reforms were aimed at making the Indian banking industry more competitive, productive and efficient and also to follow international accounting standards.

Global changes, regulatory norms and customers demand for technology oriented, convenience linked services are significantly growing thereby exposing banks to different types of risks like credit risk, exchange rate risk, interest rate risk, liquidity risk and operational risk etc., it is essential for banks to understand the underlying risks and their measurement with appropriate tools and techniques. This note lays down broad guidelines in respect of risk management systems in banks which form part of the Asset-Liability Management (ALM) function. The initial focus of the ALM function would be to enforce a proper risk management system after assessing the various risks the bank is involved into and thereby evolve a strategic tool for bank management.

Marshal and Bansal describe ALM as “ an effort to minimize exposure to the price risk by holding the appropriate combination of assets and liabilities so as to meet the firms objectives and simultaneously minimize a firm’s risk”.

ALM is a process of planning, organizing and controlling assets and liabilities volumes, maturity rates and yields as to match the structure of liabilities with structure of assets. It is a comprehensive process to manage and mitigate the risks between assets and liabilities. Asset liability management is very important for the banks existence, stability and growth and hence forms a part of a bank’s strategy. To ensure profitability banks need to manage their assets and liabilities taking into consideration the different types of risks a bank is exposed to. To really achieve effective ALM, especially in a volatile rate environment, banks need to restructure their balance sheets in order to achieve profitability. The financial experimentation in this line helps bankers and policy makers to understand the status of ALM.

II. LITERATURE REVIEW

Salim (2016) investigated the impact of ALM policy on the profitability of banks working in Bangladesh. The study applied the Statistical Cost Accounting Model to examine the degree of relationship between select asset and liability variable with profitability using time series data for the period 2003-2014. The study found that loans and advances have a significant positive relationship with banks profitability. It was opined that an optimum asset liability portfolio mix is essential to overcome the mismanagement in the banking sector of Bangladesh. **Sheela** (2014) examined the effect of ALM on commercial banks profitability taking into consideration two public sector banks. The multivariate statistical technique and ratio analysis was used to study the nature and strength of relationship between assets and

liabilities. It is found that the two banks have a good ALM framework in practice. The study also indicated a strong relationship between fixed assets and net worth for the select banks. **Pathak (2007)** proposed a linear model for asset liability assessment and found that public sector banks have best asset liability management positions, maintaining profitability, satisfying the liquidity constraints, and reducing interest rate risk exposure. The study analyzed the impact of RBI guidelines on effective management of ALM in banks. **Khizer (2011)** examined the profitability indicators of 22 public and private commercial banks of Pakistan explored in 2006-2009. The return on assets (ROA) and return on equity (ROE) are used as profitability measures to determine the affect of bank-specific and macroeconomic indicators on profitability using descriptive, correlation and regression analysis. It was observed that efficient asset management and economic growth establish positive and significant relation with profitability in both models (measured by ROA & ROE). The high credit risk and capitalization lead to lower profitability measured by return on assets (ROA). The operating efficiency exhibited higher profitability level as measured by return on equity. **Taimur(2013)** Examined the asset and liability management of 8 Ethiopian Banks from 2005-2010 by adopting the Statistical Cost Accounting (SCA) model. It is found that the asset and liability management and customer deposit management showed a positive and significant impact on profitability. Growth in GDP had a negative impact on profitability. The study recommended increase in public awareness to mobilize more savings. The present study focused on determining the extent of association between asset liability management and profitability of select Indian commercial banks .To study the relationship, select variables from Camel model have been selected to assess the relative financial strength of banks . In India, RBI adopted this approach in 1996 followed on the recommendations of **Padmanabham Working Group (1995)** committee.

III. OBJECTIVE

To examine the impact of bank specific factors on the performance of select bank groups.

Hypothesis

- **Null Ho:** There is no significant effect of bank specific indicators on the ROA of commercial banks in India.
- **Alternative H1:** There is significant effect of bank specific indicators on the ROA of commercial banks in India.

IV. RESEARCH DESIGN

Descriptive analysis is used in the study in explaining the relationship between the variables in the study. It is sought to focus on determining the extent of association between the variables and the relationships exhibited between them. The relationship between asset liability management and profitability of select Indian commercial banks is established

Sampling Technique

Stratified sampling technique is used considering the total population of banks functioning in India. There are 146 scheduled commercial banks in the country, of which 56 are RRBs, 27 public sector banks, 23 private sector banks, 44 foreign banks as per RBI data(RBI report) .It is proposed to use a sample of 55 banks from the total population. From the study point of view banks have been categorized according to their ownership and nature of operations. Thus the following four groups (strata) are considered:

- **SBI & Its associates (6)**
- **Public Sector Banks (22)**
- **Private Sector Banks (20)**
- **Foreign Banks (7)**
- **Total Sample size (55 Banks)**

V. DATA COLLECTION

Secondary data sources were used. The data is collected from the RBI Website and from the select banks websites. Data selection is done based on the measurements of the bank specific variables under investigation. Return on Assets is considered for measuring profitability .

VI. METHODOLOGY

The study is based on panel data of select commercial banks. Data is analyzed using descriptive statistics, correlation analysis and regression model. This includes mean and standard deviation which will be used in showing the relationship between the variables. Inferential statistics will be used in establishing the relationship between Asset liability management and profitability of commercial banks in India. The summary of the output will be used to determine correlation and coefficient of determination while the tests of coefficient will be used to determine the p-values. Analysis of variance (ANOVA) will be used to test hypothesis of this study which predicts a positive

relationship between asset liability management and profitability of commercial banks. The variations in the profitability are expressed by the following regression equation:

VII. REGRESSION MODEL

A multiple linear regression model and t-statistic were used to determine the relative importance of each explanatory variable in affecting the performance of banks which is the explained variable. The performance of banks is the Return on Assets, where net profit is expressed as a percentage of average total assets. Net profit is the profit that arrived after deducting banks operating cost from total income. The coefficient constant term will measure infouws that are not related to ALM and is expected to be positive.

$$\pi_{it} = \alpha_0 + \alpha_1 CA_{it} + \alpha_2 AQ_{it} + \alpha_3 ME_{it} + \alpha_4 LM_{it} + \alpha_5 GDP_{it} + \alpha_6 INF_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where:

π_{it} = Performance of Bank i at time t as expressed by ROA

α_{it} = Intercept

CA_{it} = Capital Adequacy of bank i at time t

AQ_{it} = Asset Quality of bank i at time t

ME_{it} = Management Efficiency of Bank i at time t

LM_{it} = Liquidity Ratio of Bank i at time t

$\alpha_1 - \alpha_6$ = Coefficients parameters

GDP = Gross Domestic Product (GDP) at time t

INF = Average annual inflation rate at time t

ε_{it} = Error term where i is cross sectional and t time identifier

The explanatory variables used in the study are given below:

Table 1: Description of Variables

Variable	Measurement
ROA	<ul style="list-style-type: none"> Net Income to Total Assets
Capital Adequacy	<ul style="list-style-type: none"> Total Capital to Risk Weighted Assets
Asset Quality	<ul style="list-style-type: none"> Net NPAs to Net Advances Standard Advances to Total Advances
Management Efficiency	<ul style="list-style-type: none"> Credit to Deposit Ratio Business per Employee Profit per Employee
Liquidity	<ul style="list-style-type: none"> Cash to Deposit Ratio Investment to Deposit Ratio

Analysis and Findings

The descriptive statistics of all dependent and independent variables with their absolute values in the study have been presented in the following table. The following diagnostic tests were used to ensure that the data suits the basic assumptions of classical regression model.

Table 2: Descriptive Statistics

	Mean	Std. Deviation	N
ROA	.8027	.23459	10
CDR	7.0965	1.49091	10
CRDR	76.9323	3.26175	10
IDR	30.3775	1.80817	10
SATA	86.7427	2.46894	10
RBII	8.7272	2.19960	10
OPTA	1.9077	.15204	10
BPE	91.5145	31.12761	10
PPE	.4130	.11394	10
CAR	12.4637	.79780	10

Data compiled by researcher using SPSS Software

The descriptive statistics show the mean and standard deviation. The statistics indicate a wide variability among independent and dependent variables which have effect on banks profitability. ROA has a mean of .8027 with standard deviation of .23 percent. The independent variables Cash Deposit Ratio, Credit to Deposit Ratio, Investment to Deposit Ratio, Secured Advances to Total Assets, Interest Income to Total Assets, Operating Profits to Total Assets, Business per Employee, Profit per Employee and Capital Adequacy Ratio have the means of 7.09, 76.93, 30.37, 86.74, 8.72, 1.90, 91.51, 0.41, 12.46 with the standard deviation of 1.49, 3.26, 1.80, 2.46, 2.19, 0.15, 31.12, 0.11, 0.79. The standard deviation is more in the values of BPE.

Table 3: Pearson Correlation Matrix

Pearson Correlation	ROA	Sig. (1-tailed)	N
ROA	1.000	.	10
CDR	.436	.104	10
CRDR	-.494	.073	10
IDR	.605	.032	10
SATA	-.801	.003	10
RBII	-.497	.072	10
OPTA	.606	.032	10
BPE	-.760	.005	10
PPE	.369	.147	10
CAR	.798	.003	10

Data compiled by researcher using SPSS Software

The above correlation table gives the details of the correlation among the variables. The variables such as SATA (-.801), BPE (-.760), have a negative significance and the dependent variable ROA has a positive significance relationship with variable CAR (.798), OPTA (.606), IDR (.605) have high correlation coefficient i.e. above 0.5. The major impacting correlation is found between STATA and ROA.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.801 ^a	.642	.597	.14891	.642	14.336	1	8	.005

a. Predictors: (Constant), SATA

The reported explanatory power of the model, R-square is at satisfactory level. The result of adjusted R-square is .597 which indicates that the model has explained 59.7% variation in dependent variable caused by independent variable. The model summary table shows the R square value is .642, indicates that about 64% variations in ROA is explained by the variable STATA.

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.318	1	.318	14.336	.005 ^a
	Residual	.177	8	.022		
	Total	.495	9			

a. Predictors: (Constant), SATA

b. Dependent Variable: ROA

From the ANOVA table the F statistics value is significant (14.336) and significance value (p value) is less than 0.05. This suggests that the null hypothesis is rejected and alternate hypothesis is accepted i.e. there is significant relation among the independent variables and dependent variable ROA.

Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
-------	-----------------------------	---------------------------	---	------

	B	Std. Error	Beta		
1 (Constant)	7.406	1.745		4.245	.003
SATA	-.076	.020	-.801	-3.786	.005

a. Dependent Variable: ROA

The regression equation from the above table can be written as **ROA = 7.406+ (-.076) SATA**.

It is implied that ROA of banks are largely influenced by Secured Advances to Total Advances.

CONCLUSION

The objective of this paper is to examine the impact of ALM strategies on banks profitability based on ten years secondary data. The study examined the determinants of select Indian banks profitability by finding the inter linkage between the select variables CAR, NPANA, SATA, CDR, BPE, PPE, CDR and IDR. The study revealed that ROA formed significant relationship with all the eight variables tested. However the impact of SATA on ROA is the highest, which depicts that secured advances influence banks profitability to a large extent. However, further research option is available to conduct the study on more number of variables. It can be concluded that an optimal asset liability mix is essential to maintain a bank's profitability. The study has its implications for bank policy makers.

REFERENCES

- [1] Amit Kumar Meena, Joydip Dhar(2014) An Empirical Analysis and Comparative Study of Liquidity Ratios and Asset-Liability Management of Banks Operating In India , World Academy of Science, Engineering and Technology International Journal of Economics and Management Engineering, Vol:8, No:1, 2014.
- [2] Basel Committee on Banking Supervision (2001), Principles for the Management of Interest Rate Risk, Bank for International Settlement.
- [3] Chakraborty , S. and Mohapatra, S.(2007), "An Empirical Study of Asset Liability Management Approach by the Indian Banks," The IUP Journal of Bank Management, Vol. VIII, Nos. 3 & 4, pp. 7-13, August & November 2009, World Academy of Science, Engineering and Technology.
- [4] Database on Indian Economy, www.dbie.rbi.org.in.
- [5] Dash, M. and Pathak, R. (2011), "A Linear Programming Model for Assessing Asset-Liability Management in Banks," ICAI Journal of Risk Management.347 International Scholarly and Scientific Research & Innovation 8(1) 2014 scholar.waset.org/1307-6892/9997584 International Science Index, Economics and Management Engineering Vol:8, No:1, 2014
- [6] Ravikumar, T. (2002), Asset Liability Management, ICAI Press
- [7] Sheela.P,Tejaswini. B, (2015), " Asset Liability Management - A Comparative Study of a Public and Private Sector Bank", International Research Journal of Business and Management,Volume:8, Issue :1,2015.
- [8] Taimur Belete, (2013), " Asset Liability Management and Commercial Banks Profitability in Ethiopia",Research Journal of Finance and Accounting, Volume:4, No:10, 2013.
- [9] Vaidyanathan, R. (1999), "Asset-Liability Management: Issues and Trends in the Indian Context," ASCI Journal of Management,29(1).
- [10] Vaidya, P and Shahi, A (2001), "Asset Liability Management in Indian Banks," Spandan Rao, A V (2005), ALM Systems in Banks," Treasury Management.World Academy of Science, Engineering and Technology International Journal of Economics and Management Engineering Vol:8, No:1, 2014 348 International Scholarly