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AN ANALYSIS OF ASSET LIABILITY MANAGEMENT ON BANKS' PROFITABILITY: INDIAN PUBLIC BANKS

Seema Kumari*, Silender Singh**

Abstract *Asset liability management (ALM) is a methodology that supervises an institution's balance sheet to consider various interest rates and liquidity conditions. Financial institutions, including banks, provide services that highlight essential categories of possible hazards, namely credit risk, interest rate risk, and liquidity risk. ALM is a process that offers entities measures to manage such risks effectively. ALM models enable institutions to assess and monitor risk while formulating appropriate strategies for its management. The research investigates the influence of ALM on the profitability of banks. This study selected 10 public sector banks in India. The data were obtained from the annual reports and website for the period 2013–23. The research is founded on analytical investigation. Panel data regression was employed to assess the data. For analysing the data SPSS 26 and EViews 12 and Excel were used. The Hausman test was employed to identify the fixed effect model and the random effect model. In this study, assets and liabilities were treated as independent variables, whereas return on assets (ROA) was designated as the dependent variable. The results indicated that asset variables significantly influenced ROA, with the exception of other assets, but liability variables had a substantial effect on ROA. The research demonstrated that ALM significantly influences the profitability of banks.*

Keywords: *Asset Liability Management, Panel Data, Random Effect Model, ROA, ALM Process, Public Banks*

JEL Classifications: *C20, G21*

INTRODUCTION

The banking sector reform and liberalization 1999, the configuration of financial markets, especially within banking institutions, has undergone rapid transformation due to global financial sector reforms. The integration of local and global markets has increased, along with the complexity and scale of the risks linked to bank operations, which require strategic management. All these factors compel us to investigate bank asset liability management (ALM). First, bank managers have always been concerned about bank asset and liability management, but in recent years, particularly in the present, its significance has increased significantly. The emergence of information technology has heightened public awareness that the press, competitors, shareholders, and customers meticulously monitor the bank's performance, governance, and management, all of which significantly influence the bank's standing. Major disruptions to the banking context are heralded by the growing competition in local and global banking markets, the shift to a monetary union, and new technological advancements. Consequently, all banks are compelled to make swift judgements to navigate the new, competitive financial and economic landscape. The aforementioned causes forced banks to seek more efficiency in managing their financial resources. The fundamental concern with ALM is to the bank's balance sheet, prompting the inquiry into the optimal composition of an asset and liability portfolio, considering the related costs and returns to achieve defined objectives, such as maximising gross revenues. One of the key issues with ALM is well known – striking the right balance between profitability, risk, and liquidity considerations. Beyond taking into account the crucial intercourse that emerges between a bank's asset composition, capital structure, and liability structure, it is impracticable to determine the most appropriate balance between these aspects. Comprehending the vulnerability to risk of the finance industry facilitates improved monetary regulation in a bank-centric country. A key step in this process

* PhD Research Scholar, Department of Commerce, Chaudhary Devi Lal University, Sirsa, Haryana, India.
Email: seemaphd216@cdlu.ac.in

** Supervisor, Chairperson of Department of Commerce, Chaudhary Devi Lal University, Sirsa, Haryana, India.
Email: silendersingh@cdlu.ac.in

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is assessing the risk appetite of the banking sector, which is influenced by the temporal variations in the valuation of banks' positions. These variations fluctuate in response to interest rates, credit propagation, foreign exchange rates, and other similar factors. The comprehensive asset liability maturity structure, aligned with the span of treasury bills, bonds, and advanced derivative instruments, is crucial for the financial institution's risk hedging.

The regulatory framework governing the operations and management of banks and other financial institutions in emerging countries such as India inhibited significant competition in the financial sector. The Reserve Bank of India (RBI) mostly sets interest rates. Due to the accrual system of accounting for income, managing the balance sheet did not present many issues. Banks had practically no vulnerability off the balance sheet. Only after the 1991 liberalisation process was put into effect did the financial services sector perceive the following necessary changes:

- Interest rate deregulation
- Income is not recorded on an accrual basis
- Increased off-balance sheet risk due to the growth of forward contracts in international transactions
- The expansion of banking product offerings
- The banking industry's expansion of fair competition.

Before bank liberalisation, public sector banks handled a substantial portion of the business; hence, there was no rivalry among banks. As a result, there were several problems with the bank's deposit liabilities. Asset management is considered to be the top priority for banks. However, liability management also evolved to be quite important during the post-liberalisation milieu. The balance sheet's arrangement is controlled to maximise net interest earnings while staying within the institution's overall risk tolerance. Included in the ALM activities are liquidity risk management, market risk management, trade risk management, funding and capital planning, profit planning, and growth projection.

ALM is a relatively new idea that emerged in India. It was first used in the Indian banking sector on April 1, 1999. ALM is focused on risk management and offers a comprehensive and flexible framework for assessing, tracking, and controlling a bank's exposure to equity, interest rate, liquidity, foreign exchange, and commodity price risks. This framework must be perfectly synchronised with the bank's overall business plan.

A crucial stage in the long-term strategic planning process is ALM. As a result, it is entitled to be a planning function for an entire period in between. The different facets of managing the balance sheet in a sense all have to do with planning, controlling, and directing the amounts, movements, and combinations of capital, liabilities, and assets.

The RBI adopted the idea of ALM in India in 1998–99, based on Narasimham Committee II. The RBI announced its preliminary ALM guidelines in February 1999, and they became operative on April 1, 1999. This rule stipulates that the basic accessibility of assets and liabilities must be at least 60%. Later, on April 1, 2000, it was raised to 100% coverage. In September 2007, the RBI divided the time bucket into three distinct phases, taking into account foreign standards and precise and focused evaluation of the effectiveness of liquidity management to grow the money market. There is some significance of ALM:

- Volatility
- Product innovations and complexities
- Regulatory environment
- Management recognition

ALM Process: There are three main components to the ALM process:

- ALM Information Systems
  - Data systems for management
  - The sufficiency, timeliness, correctness, and accessibility of details
- ALM Administration
  - Roles and responsibilities
  - The extent to which senior management is involved
- ALM Procedures
  - Risk factors
  - Identifying risks
  - Measuring risks
  - Managing risks
  - Establishing policies and tolerance thresholds for risks.
- Techniques to measure the risk
  - Gap analysis
  - Duration
  - Value at risk
  - Simulation

LITERATURE REVIEW

Gessesow and Venkateswarlu (2023), This study evaluates the impact of ALM on Ethiopian private commercial banks' profitability over the period 2013–22. This study collected secondary data, and the data were analysed through panel data and multiple regression techniques. Return on assets (ROA) had a remarkable connection with all the assets that were taken for this study. On the other hand, liabilities have a negative association with ROA. The results showed that all assets, but especially net fixed assets, loans and advances,

deposits in foreign banks, and investments in security, have a favourable impact on profitability and differ among assets. On the other hand, all liabilities – primarily savings, demand, fixed, and other deposits – have an unfavourable impact on profitability and differ among liabilities.

Oluwatosin Juliana et al. (2024), This study aims to evaluate the impact of ALM on banks' profitability in Nigerian banks. The study used the SCA to check the strength of the association among the variables. The research design is based on ex post facto research. The study collected data from 10 banks between 2013 and 2022. The study used panel data regression analysis to examine the data. Banks are divided into two categories: high profit and low profit. As per the survey, banks ought to prioritise their advances and loans to maximise their net interest income. To protect net income, they ought to emphasise non-interest-generating revenue sources such as fees and commissions.

Nazmi et al. (2022), The study examines the impact of the macroeconomic variable on banks' profitability through the ALM approach. The study collected the data of seven commercial banks in Afghanistan over the period 2011–21. This kind of research is analytical. While analysing the data, the study employed regression analysis with fixed and random effects. The results indicated that loans, advances, and other assets had a negative and insignificant association with ROA, while macroeconomic factors had a significant association with ROA. On the other hand, the liabilities side had a low correlation, except current and fixed deposits, which had a significant association.

Veni and Wudu Negash (2019), The focus of this study is to analyse the impact of ALM on banks' profitability. The study collected data from 11 commercial banks for the period 2010–17. The data were analysed through a panel regression approach and statistical cost accounting. The result revealed that, except for fixed assets, all assets had a notable connection with ROA. However, only non-interest-bearing loans had a significant impact on ROA; otherwise, all liabilities had an insignificant correlation with ROA.

Ali (2016), The study evaluates the internal and external factors affecting the banks' profitability as determined by ROA and return on equity (ROE). For this, the study collected data from 26 banks for the years 2009–13. The data were analysed through regression analysis with balanced panel data, and the findings showed that internal factors had a significant impact on banks and external factors had no significant correlation with ROA and ROE.

Nishat and Khan (2019), This study found that reserves and deposits are more correlated with the public than private sectors. Compared with other liabilities, these items have a stronger elucidating ability. All other liabilities, except capital, have a positive relationship. All have made good contributions to the bank assets in public sector banks, except for money at call and balances with the bank. However, on the assets side of private banks, the money at call and bank balance variable had made a significant contribution to banks' profitability. The study indicates that private banks' reserves, deposits, and advance contributions significantly differ compared with public banks.

Olowokudejo and Ukpong (2021), The focus of the study is to investigate the relationship of ALM on life insurance companies' profitability in Nigeria. The research used for this study was ex post facto. Panel data techniques were employed to access the data, and descriptive and inferential statistics were used to assess the data's applicability. The results showed that some assets have positive and significant coefficients, and the results showed that there is a positive and notable connection between assets and profitability. Debtors and prepayment were of lesser significance than financial assets, cash, and cash equivalents, which were all quite crucial. This suggests that liabilities and profitability have a negative relationship.

Tee (2017), This paper aims to evaluate how asset and liability management affect the profitability of Ghanaian banks. Total assets and total liabilities, in addition to economic facts, are the regressor variable factors, and ROA is the predicted variable. The results of the random effect model showed that liabilities, including savings and fixed deposits, other liabilities, and credit balances, had a remarkable and negative effect on the profitability of commercial banks. In contrast, total assets had a positive effect on ROA. Overall, there was a substantial positive relationship between ROA and asset management, primarily loans and advances. The macroeconomic variables showed that the interest rate had an insignificant effect on ROA. The study concludes that to improve their performance in providing loans and advances to beneficiaries, commercial banks should concentrate on educating the public to mobilise more savings and fixed deposits.

Abebe (2022), This study uses 106 microfinance institutions (MFIs) across Africa to investigate the effects of ALM from 2014 to 2018. The results demonstrated that certain liabilities and assets impacted both favourable and unfavourable ROA. The size of the MFI, the net loan portfolio, and other current financial liabilities all have a significant and favourable correlation with the ROA. Conversely, borrowing and deposits showed a positive correlation with ROA, whereas other assets showed a negative correlation. Overall, the study indicates that to ensure a greater financial outcome, ALM requires ample focus.

Gofe and Fayisa (2020), This study examined the impact of ALM on commercial banks in Ethiopia. For this, the study collected the data of seven private banks over the period 2005–17. The data were analysed through a panel data approach. The findings revealed that loans and advances, deposits in foreign banks, and investments in foreign security had a positive significant association with net interest margin (NIM). Fixed deposits had a negative significant association with NIM. However, savings deposits and fixed deposits had a negative significant association with NIM.

Belete (2012), The study aimed to check the impact of ALM on banks' profitability on eight commercial banks over the period 2005–10. The study chooses ROA as the dependent variable and the composition of assets and liabilities as an independent variable. According to the data, each asset – aside from fixed assets, loans, and advances – had a positive influence on ROA, while other assets had a negative impact. Savings deposits, fixed deposits, and other assets showed an inverse relationship with ROA. Real growth rate and GDP, microvariables, had a negative effect. According to the study, banks should prioritise fixed and savings deposits to improve their financial performance.

Fayisa (2019), This research explores the association between ALM and a macroeconomic factor, bank profitability. The independent variables in this study include assets, liabilities, and macroeconomic variables, while the dependent variable is NIM. The explanatory research design, panel data approach, and quantitative research methodology were used in this study. Secondary data were compiled from the yearly reports of the National Bank of Ethiopia and the bank officially. Although loans and advances, savings deposits, fixed deposits, market share, and inflation do not significantly affect NIM, the results indicated that GDP, deposits in foreign banks, and investments in foreign security created a noticeable and beneficial impact on NIM.

OBJECTIVES

The study aims to examine the influence of asset and liability characteristics on the profitability of banks.

HYPOTHESIS

H_1: There is a significant impact of advance on banks' profitability measured by ROA.

H_2: There is a significant impact of fixed assets on banks' profitability measured by ROA.

H_3: There is a significant impact of other assets on banks' profitability measured by ROA.

H_4: There is a significant impact of demand deposits on banks' profitability measured by ROA.

H_5: There is a significant impact of provision on banks' profitability measured by ROA.

H_6: There is a significant impact of borrowing on banks' profitability measured by ROA.

RESEARCH METHODOLOGY

For this study, 10 public sector banks were selected as a sample, and data were collected via annual reports and websites. The data were analysed using descriptive statistics and panel data regression. The Hausman test was employed to identify the fitted model for this.

Nature of Study: The study employs analytical research methodologies.

Period: This study included data over 10 years from 2013 to 2023.

Table 1: Variables

Variables	Description	Notation	References
Dependent	Return on assets	ROA	Rahmi and Sumirat (2021), Chaudhary and Kumar. (2022)
Independent			
Asset variables	Advance	Adv	Tsegay Araya Gessesow and P. Venkateswarlu (2023)
	Fixed asset	Fix Ass	Oluwatosin Juliana et al. (2024)
	Other asset	Oth Ass	Nazmi et al. (2022)
Liability variables	Demand deposit	Depo	Veni and Wudu Negash (2019)
	Borrowing	Borr	Abebe (2022)
	Provision	Prov	Nishat and Khan (2019

Source: Author's creation.

After an extensive literature review, it was found that ROA is the most widely used variable to evaluate the banks' profitability, and many independent variables on the asset side are loans and advances, fixed assets, other assets, and investments in securities; on the liability side, demand deposits, saving deposits, borrowings, and provision, and macro variables GDP, inflation, market share, and so on, are found. However, for the study selected variables are used.

Equation:

$ROA_{it} = \beta_0 + \beta_1 Adv + \beta_2 Fix\ Ass + \beta_3 Oth\ Ass + \beta_4 Depo + \beta_5 Borr + \beta_6 Prov + e_{it}$

it = ith cross-section in time period t

β_0 = a constant term

e_{it} = error term

$\beta_1, \beta_2, \ldots \beta_6$ = coefficient of each variable

RESULTS AND DISCUSSION

- Descriptive statistics
- Testing of assumption
- Correlation
- Random effect model

Descriptive Statistics

Table 2

Variable	N	Mean	Std Deviation	Minimum	Maximum
ROA	80	-0.507	.69165	-2.05	0.97
Adv	100	45266.05	67361.2	.102	45266.05
Fix Ass	100	984.02	2939.7	.014	984.02
Oth Ass	100	42848.9	7910.4	.0251	4248.1
Depo	100	33850	7881.7	.0715	49805.7
Borr	100	52115.1	10714.8	.0111	6135.9
Prov	100	59256.5	10661.6	.566	4680.1

Source: Computed through SPSS.

The descriptive statistics in Table 2 provides an overview of the predicted and regressor variables, including their means, standard deviations, and minimum and maximum values. The statistical summary is based on the raw data. The standard deviation of ROA was the lowest at 0.69165 tr, and its mean value was negative, while all the other variables had positive means. The minimum and greatest values are -2.05 and 0.97 respectively, with a standard deviation of 0.69165 and a negative mean of -.507 tr. Among all the asset characteristics, advance's mean value of 55266.05 tr and standard deviation of 67361.2 tr are the highest, with a maximum of 45266.05. The fixed asset variable shows a large range of values with respect to the mean, with a range of 29939.7 tr and a mean of 984.02. The liability variable provision has the second-highest mean value of 59256.5 tr and the second-largest standard deviation, with the second-lowest minimum number of 0.566. Borrowings ranks second with a mean of 52115.1 tr and the largest standard deviation of 10714.48 tr, with a minimum value of 0.0111. The average deposit amount is 38550 tr, with a standard deviation of 7910.4 tr, showing no statistically significant dispersion.

Testing of Assumption

Normality

The normality assumption relies on the residuals having a mean of zero. When the data is initially non-normative, apply the inverse distribution until stabilisation occurs. The Jarque-Bera test was employed to assess normalcy. The data was deemed normal as the p-value exceeded the 0.05 significance criterion.

Table 3

Normality Checked: Jarque-Bera Test	
Jarque-Bera	0.205372
Probability	0.902410

Source: Computed through EViews.

Multicollinearity

The variance inflation factor, or VIF, determines the correlation and severity of the association with the regressor variable. Tolerance and its inverse, referred to as the VIF, can be employed to identify multicollinearity. VIF signifies the degree to which multicollinearity is augmenting the variance of the coefficient estimate. According to the study by Obari (2015) and Dahiyat et al. (2021), a VIF value of 10 or greater indicates the presence of multicollinearity in the model. It contravenes the assumptions of the classical linear regression model (CLRM).

As per the rule, the value of variance inflation should be less than 10. Here, all variables' values are less than 10. It means there is no multicollinearity.

Table 4

Variables	VIF	Collinearity Tolerance
Adv	8.049	.124
Fix Ass	5.705	.175
Oth Ass	7.468	.134
Depo	6.012	.166
Borr	5.851	.171
Prov	6.317	.158

Source: Computed through EViews.

Autocorrelation

When there is a correlation between variables there is autocorrelation. Autocorrelation is detected by the Durbin-Watson test. Durbin-Watson's value lies between 0 and 4.

The Durbin-Watson statistic indicates that

- A value of 0 signifies a positive correlation.
- A value of 2 indicates no autocorrelation.
- A value of 4 signifies a negative correlation.

As noted by Lemma (2017) and Obari (2015), a Durbin-Watson statistic close to 2 indicates minimal evidence of autocorrelation, leading to the conclusion that the null hypothesis, which posits the absence of autocorrelation, would not be rejected. The value of the Durbin-Watson statistic is 1.867829. This indicates the absence of autocorrelation.

Table 5

	P-Value
Durbin-Watson test	1.867829

Source: Computed through EViews.

Heteroscedasticity

The Breusch-Pagan-Godfrey test was employed to assess the presence of heteroscedasticity. The probability value exceeded 0.05. This indicates the absence of heteroscedasticity.

Table 6

Heteroscedasticity Test: Breusch-Pagan-Godfrey Null hypothesis: Homoscedasticity	
Chi-square value	0.4548

Source: Computed through EViews.

Unit Root Test

To ensure the accuracy of the estimate equation, it is essential to verify the stationarity of the data. An Augmented Dickey-Fuller (ADF) unit root test was conducted for this analysis. A p-value below 5% indicates that the null hypothesis cannot be accepted. This indicates that the data exhibits stationarity.

H_0: unit root exists.

H_1: unit root does not exist.

Table 7

Variables	t-Statistics	p-Value
Dependent		
ROA	-5.921262	0.0000
Independent		
Advance	-3.065533	0.0325
Fixed asset	-3.038786	0.0348
Other assets	-3.427175	0.0123
Deposit	-12.08421	0.0001
Borrowings	-3.758953	0.0046
Provision	-3.115331	0.0286

Source: Computed through EViews.

Correlation

The coefficient of correlation possesses a value that ranges from +1 to -1. The spectrum of ideal positive correlation between the two variables is represented by +1, whereas a perfect negative relationship is denoted by a correlation coefficient of -1. A coefficient value of 0 indicates the absence of a linear correlation between the variables in question. Extensive research has revealed that the Pearson product correlation stands as the most prevalent method

employed. This arises from a tendency in empirical research to consider multiple independent variables, which results in an inaccurate and exaggerated assessment of the impacts observed while clarifying the predicted variable. Table 8 illustrates the relationship between the regressor and the predicted variables. This table illustrates that while advances, fixed assets, and deposits exhibit positive correlations with ROA, other assets, provisions, and borrowing display negative correlations. The most profound connection lies between supply and progress. The preponderance of the assets demonstrated a positive correlation with ROA. Nonetheless, a considerable segment of liabilities exhibited an inverse correlation with ROA.

Table 8

Correlation									
		I	**ROA**	**Adv**	**Fix Ass**	**Oth Ass**	**Depo**	**Prov**	**Borr**
I	Pearson correlation	1.0	-.151	-.356**	-.304**	-.333**	-.368**	-.313**	-.315**
	Sig (2-tailed)		.134	.000	.002	.001	.000	.001	.001
	N	100	100	100	100	100	100	100	100
ROA	Pearson correlation	-.151	1.0	.054	.016	-.124	.037	-.031	-.090
	Sig (2-tailed)	.134		.595	.874	.220	.712	.763	.375
	N	100	100	100	100	100	100	100	100
Adv	Pearson correlation	-.356**	.054	1.0	.863**	.881**	.880**	.884**	.881**
	Sig (2-tailed)	.000	.595		.000	.000	.000	.000	.000
	N	100	100	100	100	100	100	100	100
Fix Ass	Pearson correlation	-.304**	.016	.863**	1.0	.881**	.854**	.806**	.816**
	Sig (2-tailed)	.002	.874	.000		.000	.000	.000	.000
	N	100	100	100	100	100	100	100	100
Oth Ass	Pearson correlation	-.333**	-.124	.881**	.881**	1.0	.856**	.863**	.875**
	Sig (2-tailed)	.001	.220	.000	.000		.000	.000	.000
	N	100	100	100	100	100	100	100	100
Depo	Pearson correlation	-.368**	.037	.880**	.854**	.856**	1.0	.843**	.860**
	Sig (2-tailed)	.000	.712	.000	.000	.000		.000	.000
	N	100	100	100	100	100	100	100	100
Prov	Pearson correlation	-.313**	-.03	.884**	.806**	.863**	X.843**	1.0	.865**
	Sig (2-tailed)	.001	.763	.000	.000	.000	.000		.000
	N	100	100	100	100	100	100	100	100
Borr	Pearson correlation	-.315**	-.090	.881**	.816**	.875**	.860**	.865**	1.0
	Sig (2-tailed)	.001	.375	.000	.000	.000	.000	.000	
	N	100	100	100	100	100	100	100	100
	**Correlation is significant at the 0.01 level (2-tailed).								

Source: Computed through SPSS.

Model Specification Test

The Hausman test was employed for the purpose of model specification. If the p-value exceeds 0.05, the null hypothesis is deemed rejected. The random effect model serves as a suitable framework for the analysis of the data.

Hausman Test

H_0: The random effect model is suitable.

H_1: Fixed effect mode is suitable.

Table 9

	Coefficient
Chi-square test	3.726819
p-value	0.7136

Source: Computed through EViews.

RESULTS

Table 10

Variable	Coefficient	Std Error	t-Statistics	p-Value
Constant	-165595.0	515467.6	-0.321252	0.7488
Adv	0.625524	0.306611	2.040120	0.0445
Oth Ass	2.613319	7.784169	0.335722	0.7379
Fix Ass	-7.213252	2.478705	-2.910089	0.0046
Depo	2.004566	2.625720	0.763435	0.4473
Borr	-4.033414	1.739439	-2.318801	0.0228
Prov	1.929143	2.447493	0.788212	0.04328
F-test	2.936073			
Prob F-statistics	0.00089			
R^2	0.343961			
Adjusted R^2	0.226811			
S E of regression	63313.10			
Mean dependent var	2027.162			
S D dependent var	72003.01			
No of observations	100			
Hausman test	Random effect model			
>0.05 significant level				

Source: Computed through EViews.

In Table 10, ROA serves as a dependent variable, with the findings articulated through the application of a random effects model. A 34% variance in ROA attributable to the independent variable is elucidated by the R^2 value of 0.343961, while the prob F-test value of 0.00089, which is below the 0.05 threshold, suggests that the alternative hypothesis is valid concerning the collective influence of all independent variables on ROA, with the exception of other assets and deposits. The coefficient values indicate that borrowing at -4.033414 and fixed assets at -7.2133252 exhibit a significant negative correlation with ROA. A significant positive correlation between ROA and other assets was identified. The findings indicated that demand deposits (p-value 0.4473 > 0.05) and other assets (0.7379 > 0.05) demonstrated a positive yet statistically insignificant relationship with ROA. Conversely, advance (0.0445 < 0.05) and provisions (0.04328 < 0.05) demonstrate a noteworthy positive influence on ROA. The analysis reveals that fixed assets (0.0046 < 0.05) and borrowing (0.0228 < 0.05) exhibit a negative relationship with ROA, although this relationship is statistically insignificant.

The significance of a coefficient of a variable is in its ability to express the extent of percentage alterations in a dependent variable resulting from a one-unit change in an independent variable. The t-statistics and p-value determine the individual significance of the independent factors about the dependent variable (Keneni, 2022).

CONCLUSION

The objective of the investigation is to assess the financial consequences of asset liability management for institutions. The findings indicated that the profitability of banks was significantly influenced by the majority of the variables. The study investigates the asset and liability patterns of Indian commercial banks, as well as the strategies employed by these banks to manage their balance sheets to ensure their continued success. This study was restricted to public banks, whereas future research can be conducted on both public and private banks. This investigation demonstrated the significance of banks employing the ALM strategy and adhering to the regulations with precision. The research posits that public banks should prioritise demand deposits, advances, and fixed assets.

LIMITATION AND FURTHER RESEARCH SCOPE

This study covered the top 10 public banks. The study was analysed based on a small sample. For more useful results

further study can be done through comparison between public and private banks. For more results, large samples can be used. In this study, data were analysed through EViews software. However, today Stata software is trending with other variables.

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Author's Declaration

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