

## A STUDY ON ASSETS AND LIABILITIES MANAGEMENT

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### ABSTRACT

*Assets and Liabilities Management (ALM) is a dynamic process of planning, organizing, coordinating and controlling the assets and liabilities - their mixes, volumes, maturities, yields and costs in order to achieve a specified Net Interest Income. As all transactions of the banks revolve around raising and deploying the funds, Asset - Liability Management (ALM) gains more significance as an initiative towards the risk management practices by the Indian banks. Measuring and managing liquidity risk is an important dimension of ALM. Mismatch in the maturity profile of assets and liabilities exposes the balance sheet to liquidity risk. This paper is aimed at measuring the liquidity Risk in SBI & associate banks in India, by using Gap Analysis Technique (maturity profiling). Using publicly available information, this paper attempts to assess the liquidity risk carried by the sample banks in the year 2011 - 2012. The findings revealed that the banks are exposed to liquidity risk.*

### 1.1 INTRODUCTION

Asset and liability management (often abbreviated ALM) is the practice of managing financial risks that arise due to mismatches between the assets and liabilities as part of an investment strategy in financial accounting. ALM sits between risk management and strategic planning. It is focused on a long-term perspective rather than mitigating immediate risks and is a process of maximizing assets to meet complex liabilities that may increase profitability. ALM includes the allocation and management of assets, equity, interest rate and credit risk management including risk overlays, and the calibration of company-wide tools within these risk frameworks for optimisation and management in the local regulatory and capital environment. Often an ALM approach passively matches assets against liabilities (fully hedged) and leaves surplus to be actively managed.

### 1.2 OBJECTIVES

- 1.To study the concept of Assets and Liabilities Management in ICICI Bank
- 2.To study the process of cash flows and outflows in ICICI Bank
- 3.To study risk management under ICICI Bank
- 4.To study reserves cycle of ALM under ICICI Bank

### 1.3 NEED OF THE STUDY

- An asset-liability study is a comprehensive toolkit for making decisions on a fund's asset allocation and investment risk that align with the liabilities those funds support
- Aon believes optimal decisions regarding pension/OPEB plan management are made when they are based on a clear understanding of the assets and liabilities of the plan(s) and how they interact. From this study, we can better ascertain the risk preferences of the investment program to best achieve the plan goals.
- For a formal review of the asset-liability modeling, Aon suggests conducting asset-liability

studies every three to five years depending on

client specifics, or more frequently should circumstances dictate (e.g., material changes to the liability profile, etc.).

- Identify future trends in the financial health of the fund (e.g., funded ratio, contributions, etc.) based on economic uncertainties that may not be evident from an actuarial valuation, which provides only a snapshot at a point in time.

#### **1.4 SCOPE OF THE STUDY**

The scope of the ALM function to a larger extent covers the following processes:

1. Liquidity risk: the current and prospective risk arising when the bank is unable to meet its obligations as they come due without adversely affecting the bank's financial conditions. From an ALM perspective, the focus is on the funding liquidity risk of the bank, meaning its ability to meet its current and future cash-flow obligations and collateral needs, both expected and unexpected. This mission thus includes the bank liquidity's benchmark price in the market.
2. Interest rate risk: The risk of losses resulting from movements in interest rates and their impact on future cash-flows. Generally because a bank may have a disproportionate amount of fixed or variable rate instruments on either side of the balance-sheet. One of the primary causes are mismatches in terms of bank deposits and loans.
3. Capital markets risk: The risk from movements in equity and/or credit on the balance sheet. An insurer may wish to harvest either risk or fee premia. Risk is then mitigated by options, futures and derivative overlays which may incorporate tactical or strategic views.
4. Currency risk management: The risk of losses resulting from movements in exchange rates. To the extent that cash-flow assets and liabilities are denominated in different currencies.
5. Funding and capital management: As all the mechanisms to ensure the maintenance of adequate capital on a continuous basis. It is a dynamic and ongoing process considering both short- and longer-term capital needs and is coordinated with a bank's overall strategy and planning cycles (usually a prospective time-horizon of 2 years).
6. Profit planning and growth.
7. In addition, ALM deals with aspects related to credit risk as this function is also to manage the impact of the entire credit portfolio (including cash, investments, and loans) on the balance sheet. The credit risk, specifically in the loan portfolio, is handled by a separate risk management function and represents one of the main data contributors to the ALM team.

The ALM function scope covers both a prudential component (management of all possible risks and rules and regulation) and an optimization role (management of funding costs, generating results on balance sheet position), within the limits of compliance (implementation and monitoring with internal rules and regulatory set of rules). ALM intervenes in these issues of current business activities but is also consulted to organic development and external acquisition to analyze and validate the funding terms, options, conditions of the projects and any risks (i.e., funding issues in local currencies).

Today, ALM techniques and processes have been extended and adopted by corporations other than financial institutions; e.g., insurance.

## 1.5 RESEARCH METHODOLOGY:

The study of ALM Management is based on two factors.

1. Primary data collection
2. Secondary data collection

### SECONDARY DATA COLLECTION

Collected from books regarding banking, journal, and management containing relevant information about ALM and Other main sources were

1. Annual report of the ICICI Bank
2. Published report of the Bank
3. RBI guidelines for ALM
4. Tools used

### SAMPLE DESIGN:

A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or procedure to adopt in selecting items for the sample. Sample design may as well lay down the items to be included in the sample i.e. the size of the sample. Sample design is determined before data are collected. There are many sample designs in which some designs are more precise and easier to apply than others.

### STATISTICAL TOOLS:

- GAP Analysis
- $GAP = RSA - RSL$
- Net Worth

$$\% \text{Change in Net Worth} = \% \text{Change in Assets} - \% \text{Change in Liabilities}$$

### LIMITATIONS OF THE STUDY:

1. This subject is based on past data of ICICIBank
2. The analysis is based on structural liquidity statement and gap analysis
3. The study is mainly based on secondary data
4. Detailed study of the topic was not possible due to the limited size of the project.
5. There was a constraint with regard to time allocation for the research study i.e. for a period of 45 days.

### DATA ANALYSES & INTERPRETATION

#### RISK MANAGEMENT SYSTEM

Arbitrage pricing models range from simple equations to large scale numerically sophisticated algorithms. Cash flow generators also vary from a single formula to a simulator that accounts for the dependence of cash flows on the history of the risk factors. Financial engineers are continuously incorporating advances in econometric techniques, asset pricing models, simulation techniques and optimization algorithms to produce better risk management systems. The important ingredient of

the risk management approach is the treatment of risk factors and securities as an integrated portfolio. Analyzing the correlation among the real, financial and strategic assets of an organization leads to clear understanding of risk exposure. Special attention is paid to risk factors, which translate to correlation among the values of securities. Identifying the correlation among the basic risk factors leads to more effective risk management.

### **RISK MANAGEMENT IN Hdfc Bank**

**Narasimham committee II**, advised to address market risk in a structured manner by adopting **Asset and Liability Management** practices with effect from April 1<sup>st</sup> 1989. Asset and liability management (ALM) is “the Art and Science of choosing the best mix of assets for the firm’s asset portfolio and the best mix of liabilities for the firm’s liability portfolio”. It is particularly critical for Financial Institutions. For a long time it was taken for granted that the liability portfolio of financial firms was beyond the control of the firm and so management concentrated its efforts on choosing the asset mix. Institutions treasury department used the funds provided by deposits to structure an asset portfolio that was appropriate for the given liability portfolio. With the advent of Certificate of Deposits (CDs), a tool by which to manipulate the mix of liabilities that supported their Asset portfolios, which has been one of the active management of assets and liabilities. Asset and liability management program evolve into a strategic tool for management, the main elements of the ALM system are:

- ALM INFORMATION.
- ALM ORGANISATION.
- ALM FUNCTION.

### **ALM INFORMATION:**

**ALM** is a risk management tool through which Market risk associated with business are identified, measured and monitored to maintain profits by restructuring Assets and Liabilities. The **ALM** framework needs to be built on sound methodology with necessary information system as back up. Thus the information is key element to the **ALM** process.

There are various methods prevalent worldwide for measuring risks. These range from the simple Gap statement to extremely sophisticated and data intensive *Risk adjusted profitability measurement* (RAPM) methods. The central element for the entire **ALM** exercise is the availability of adequate and accurate information. However, the existing systems in many Indians do not generate information in manner required for the **ALM**. Collecting accurate data is the biggest challenge before, the particularly those having wide network of branches, but lacking full-scale computerization. Therefore the introduction of these information systems for risk measurement and monitoring has to be addressed urgently.

The large network of branches and the lack of support system to collect information required for the **ALM** which analysis information on the basis of residual maturity and behavioral pattern, it would take time for s in the present state to get the requisite information.

### **MATURITY PROFILE – LIQUIDITY**

#### **A.OUTFLOWS**







creation of the assets and liabilities at fixed rates. The phased deregulations of interest rates and the operational flexibility given in pricing most of the assets and liabilities imply the need for system to hedge the interest rate risk. This is a risk where changes in the market interest rates might adversely affect financial conditions. The changes in interest rates affects in large way. The immediate impact of change in interest rates is on earnings by changing its Net Interest Income (NII). A long term impact of changing interest rates is on Market Value of Equity (MVE) or net worth as the economic value of assets, liabilities and off-balance sheet positions get affected due to variation in market interest rates. The risk from the earnings perspective can be measured as changes in the Net Interest Income (NII) OR Net Interest Margin (NIM). There are many analytical techniques for measurement and management of interest rate risk. In MIS of ALM, slow pace of computerization in and the absence of total deregulation, the traditional GAP ANALYSIS is considered as a suitable method to measure the interest rate risk.

### Data Interpretation

#### Gap Analysis:

The Gap or mismatch risk can be measured by calculating *Gaps over different time buckets as at a given date*. Gap analysis measures mismatches between rate sensitive liabilities and rate sensitive assets including off-balance sheet position.

An asset or liability is normally classified as rate sensitive if:

- If there is a cash flow within the time interval.
- The interest rate resets or reprocess contractually during the interval.
- RBI changes the interest rates i.e., on saving deposits, export credit, refinance, CRR balances and so on, in case where interest rate are administered.
- It is contractually pre-payable or withdraw able before the stated maturities

The Gap is the difference between Rate Sensitive Assets (RSA) and Rate sensitive Liabilities (RSL) for each time bucket.

The **positive GAP** indicates that **RSAs** are more than **RSLs** ( $RSA > RSL$ ).

The **negative GAP** indicates that **RSAs** are more than **RSALs** ( $RSA < RSL$ ).

They can implement **ALM** policies for the better identification of the mismatch, risk and for the implementation of various remedial measures.

#### GENERAL:

The classification of various components of assets and liabilities into different time buckets for preparation of Gap reports (Liquidity and interest rate sensitivity) may be done as indicated in Appendices I & II as a sort of **bench mark**, which are better equipped to reasonably estimate the behavioral pattern, embedded options, rolls-in and rolls-out etc of various components of assets and liabilities on the basis of past date. Empirical studies could classify them in the appropriate time buckets, subject to approval from the HDFC / Board. A copy of the note approved by the ALOC / Board may be sent to the Department of Supervision. The present framework does not capture the impact of embedded options, i.e., the customers exercising their options (premature closure of deposits and prepayment of loans and advances) on the liquidity and interest rate risks profile. The magnitude of embedded option risk at times of volatility in market interest rates is quite substantial should, therefore evolve suitable mechanism, supported by empirical studies and behavioral analysis to estimate the future behavior of assets; liabilities and off-balance sheet items to changes in

market variables and estimate the embedded options.

A scientifically evolved internal transfer pricing model by assigning values on the basis of current market rates to funds provided and funds used is an imported component for elective implementation of ALM systems. The transfer price mechanism can enhance the management of margin i.e., landings or credit spread the funding or liability spread and mismatch spread. It also helps centralizing interest rate risk at one place which facilitates effective control and management of interest rate risk. A well defined transfer pricing system also provides a rational framework for pricing of assets and liabilities.

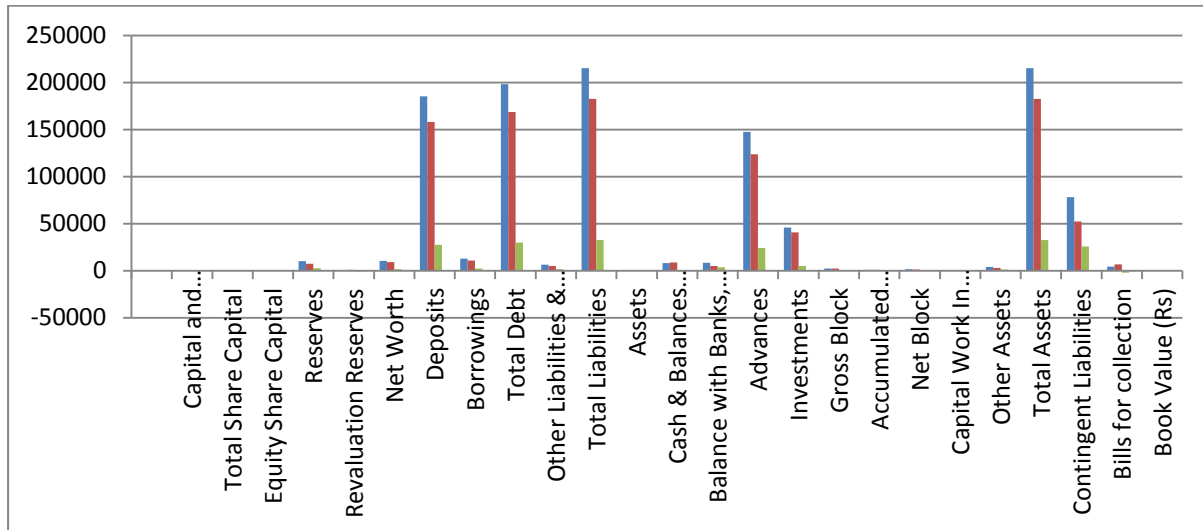
**TABLE-1 COMPARATIVE ASSET LIABILITY SHEET AS ON 31<sup>ST</sup> MARCH 2016-**

**17**

PARTICLES	Mar '17	Mar '16	Increase (+) /	Percentage
			Decrease (-)	(%)
			(in Rs)	
Capital and Liabilities:				
Total Share Capital	601.95	601.95	0	0
Equity Share Capital	601.95	601.95	0	0
Reserves	9,939.39	7,433.79	2505.6	0.33706
Revaluation Reserves	0.00	1,005.41	-1005.4	-1
Net Worth	<b>10,541.34</b>	9,041.15	1500.19	0.16593
Deposits	185,355.89	157,941.06	27414.8	0.17358
Borrowings	12,813.80	10,589.91	2223.89	0.21
Total Debt	<b>198,169.69</b>	168,530.97	29638.7	0.17587
Other Liabilities & Provisions	6,411.30	4,895.95	1515.35	0.30951
Total Liabilities	<b>215,122.33</b>	182,468.07	32654.3	0.17896
Assets				
Cash & Balances with RBI	8,095.31	8,808.63	-713.32	-0.081
Balance with Banks, Money at Call	8,488.93	5,075.64	3413.29	0.67248
Advances	<b>147,569.02</b>	123,620.18	23948.8	0.19373
Investments	<b>45,647.66</b>	40,815.06	4832.6	0.1184
Gross Block	2,255.32	2,075.30	180.02	0.08674
Accumulated Depreciation	847.94	747.46	100.48	0.13443
Net Block	<b>1,407.38</b>	1,327.84	79.54	0.0599
Capital Work In Progress	26.58	23.74	2.84	0.11963
Other Assets	3,887.44	2,796.97	1090.47	0.389881
Total Assets	<b>215,122.32</b>	182,468.06	32654.3	0.17896
Contingent Liabilities	78,034.82	52,188.20	25846.6	0.49526
Bills for collection	4,252.33	6,533.86	-2281.5	-0.3492
Book Value (Rs)	175.12	133.50	41.62	0.31176

**FIGURE-1**





**INTERPRETATION:**

The total liabilities for the year are Rs. 215,122.32 Cr is the investments are for the year Rs. 45,647.66 Cr. Therefore the assets are more than the liabilities. So there is a positive gap of Rs. **32654.3** i.e 17.89 %

**TABLE-2 -COMPARATIVE ASSET LIABILITY SHEET AS ON 31<sup>ST</sup> MARCH 2015-**

**16**

PARTICLES	Mar '16	Mar '15	Increase (+) / Decrease (-) / Percentage (%)	
			(in Rs)	(%)
Capital and Liabilities:				
Total Share Capital	601.95	573.29	<b>28.66</b>	<b>4.999215057</b>
Equity Share Capital	601.95	573.29	<b>28.66</b>	<b>4.999215057</b>
Reserves	7,433.79	6,083.66	<b>1350.13</b>	<b>22.19272609</b>
Revaluation Reserves	1,005.41	393.90	<b>611.51</b>	<b>155.244986</b>
Net Worth	9,041.15	7,050.85	<b>1990.3</b>	<b>28.22780232</b>
Deposits	157,941.06	135,596.08	<b>22344.98</b>	<b>16.47907521</b>
Borrowings	10,589.91	9,527.64	<b>1062.27</b>	<b>11.14935073</b>
Total Debt	168,530.97	145,123.72	<b>23407.25</b>	<b>16.12916896</b>
Other Liabilities & Provisions	4,895.95	4,364.22	<b>531.73</b>	<b>12.18384958</b>
Total Liabilities	182,468.07	156,538.79	<b>25929.28</b>	<b>16.56412446</b>
Assets				



<b>PARTICLES</b>	Mar '15	Mar '14	<b>Increase (+) / Decrease (-) (in Rs)</b>	<b>Percentage (%)</b>
Capital and Liabilities:				
Total Share Capital	573.29	521.97	<b>51.32</b>	<b>9.831982681</b>
Equity Share Capital	573.29	521.97	<b>51.32</b>	<b>9.831982681</b>
Reserves	6,083.66	4,700.89	<b>1382.77</b>	<b>29.41506821</b>
Revaluation Reserves	393.90	404.19	<b>-10.29</b>	<b>-2.545832406</b>
Net Worth	7,050.85	5,627.05	<b>1423.8</b>	<b>25.30277854</b>
Deposits	135,596.08	117,025.79	<b>18570.29</b>	<b>15.86854487</b>
Borrowings	9,527.64	12,172.69	<b>-2645.05</b>	<b>-21.72937946</b>
Total Debt	145,123.72	129,198.48	<b>15925.24</b>	<b>12.32618217</b>
Other Liabilities & Provisions	4,364.22	4,225.42	<b>138.8</b>	<b>3.284880556</b>
Total Liabilities	156,538.79	139,050.95	<b>17487.84</b>	<b>12.57656996</b>
Assets				
Cash & Balances with RBI	10,443.12	7,189.12	<b>3254</b>	<b>45.26284163</b>
Balance with Banks, Money at Call	1,522.53	5,544.73	<b>-4022.2</b>	<b>-72.5409533</b>
Advances	106,781.92	90,406.36	<b>16375.56</b>	<b>18.11328318</b>
Investments	35,067.62	33,010.93	<b>2056.69</b>	<b>6.230330378</b>
Gross Block	1,347.77	1,279.20	<b>68.57</b>	<b>5.360381488</b>
Accumulated Depreciation	670.73	596.72	<b>74.01</b>	<b>12.40280198</b>
Net Block	677.04	682.48	<b>-5.44</b>	<b>-0.797092955</b>
Capital Work In Progress	15.69	18.95	<b>-3.26</b>	<b>-17.20316623</b>
Other Assets	2,030.87	2,198.37	<b>-167.5</b>	<b>-7.619281559</b>
Total Assets	156,538.79	139,050.94	<b>17487.85</b>	<b>12.57657805</b>
Contingent Liabilities	49,111.58	49,817.68	<b>-706.1</b>	<b>-1.417368292</b>
Bills for collection	5,449.74	4,993.24	<b>456.5</b>	<b>9.142360471</b>



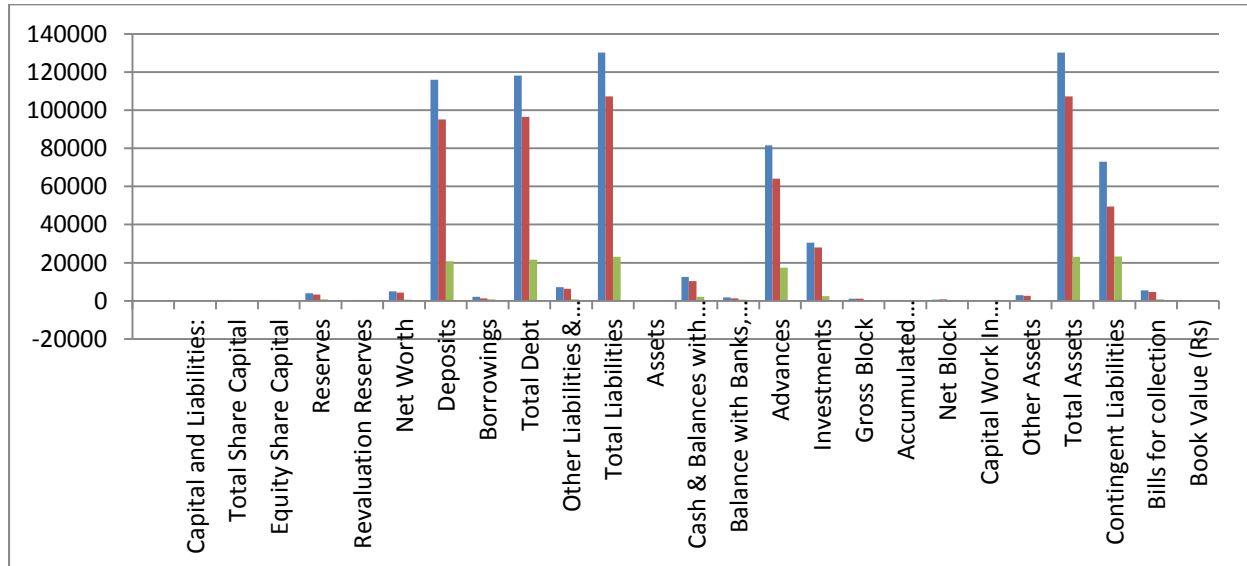


<b>PARTICLES</b>	<b>Mar '13</b>	<b>Mar '12</b>	<b>Increase (+) / Decrease (-) (in Rs)</b>	<b>Percentage (%)</b>
<b>Capital and Liabilities:</b>				
Total Share Capital	521.97	521.97	<b>0</b>	<b>0</b>
Equity Share Capital	521.97	521.97	<b>0</b>	<b>0</b>
Reserves	4,073.10	3,343.20	<b>729.9</b>	<b>21.83237617</b>
Revaluation Reserves	414.95	426.28	<b>-11.33</b>	<b>-2.657877451</b>
Net Worth	5,010.02	4,291.45	<b>718.57</b>	<b>16.74422398</b>
Deposits	115,885.14	95,170.80	<b>20714.34</b>	<b>21.76543646</b>
Borrowings	2,190.48	1,306.16	<b>884.32</b>	<b>67.70380352</b>
Total Debt	118,075.62	96,476.96	<b>21598.66</b>	<b>22.38737622</b>
Other Liabilities & Provisions	7,170.03	6,363.86	<b>806.17</b>	<b>12.66794053</b>
Total Liabilities	130,255.67	107,132.27	<b>23123.4</b>	<b>21.58397278</b>
<b>Assets</b>				
Cash & Balances with RBI	12,543.23	10,374.91	<b>2168.32</b>	<b>20.89965118</b>
Balance with Banks, Money at Call	1,861.18	1,282.24	<b>578.94</b>	<b>45.15067382</b>
Advances	81,532.27	64,051.01	<b>17481.26</b>	<b>27.2927156</b>
Investments	30,537.23	28,075.93	<b>2461.3</b>	<b>8.766584045</b>
Gross Block	1,225.00	1,153.30	<b>71.7</b>	<b>6.216942686</b>
Accumulated Depreciation	504.84	398.01	<b>106.83</b>	<b>26.84103414</b>
Net Block	720.16	755.29	<b>-35.13</b>	<b>-4.651193581</b>
Capital Work In Progress	21.87	14.23	<b>7.64</b>	<b>53.68938862</b>
Other Assets	3,039.73	2,578.67	<b>461.06</b>	<b>17.87975972</b>
Total Assets	130,255.67	107,132.28	<b>23123.39</b>	<b>21.58396144</b>



Contingent Liabilities	72,889.02	49,553.70	<b>23335.32</b>	<b>47.09097403</b>
Bills for collection	5,493.69	4,630.51	<b>863.18</b>	<b>18.6411432</b>
Book Value (Rs)	88.03	74.05	<b>13.98</b>	<b>18.87913572</b>

**FIGURE-5**



**INTERPERTATION:**

The total liabilities for the year are Rs.23123.39 i.e. 21.58 % investment for the year are Rs.2461.30 i.e.8.76 % . Therefore the assets are less than the liabilities. So there is a negative gap of Rs.35.13 Cr i.e -4.65 %

**FINDINGS, SUGGESTIONS, CONCLUSION**

**FINDINGS**

1. **ALM** technique is aimed to tackle the market risks. Its objective is to stabilize and improve Net interest Income (**NI**).
2. Implementation of ALM as a Risk Management tool is done using maturity profiles and GAP analysis.
3. ALM presents a disciplined decision making framework for s while at the same time guarding the risk levels.
4. There has been a small reduction in Gross Sales and with the performance of prefab Division the Gross Profit gap has narrowed and contributing. The Net Profit has increased considerably from 45.35 Cr in Last year to 35.24 Cr in year. The interest payment has increased by 1258.68 Cr in the Current year and the Profit before Tax at when compared to 6597.64 cr in Last year's.
5. The profit After Tax has came 2,004.42Cr to 1,313.39 in Current year because of slope in Industry.

6. The PAT is in an increasing trend from 2009-2010 because of increase in sale prices and also decreases in the cost of sale. In 2012 and 2013 even the cost of service has increased by 4% because of higher sales volume PAT has increased considerably, which leads to higher EPS, which is at 175.12 in 2013.
7. The company also increased considerably which investors in coming period. The company has taken up a plant expansion program during the year to increase the production activity and to meet the increase in the demand

### **SUGGESTIONS**

They should strengthen its management information system (MIS) and computer processing capabilities for accurate measurement of liquidity and interest rate Risks in their Books.

In the short term the Net interest income or Net interest margins (NIM) creates economic value of the which involves up gradation of existing systems & Application software to attain better & improvised levels.

It is essential that remain alert to the events that effect its operating environment & react accordingly in order to avoid any undesirable risks.

**Hdfc bank** requires efficient human and technological infrastructure which will future lead to smooth integration of the risk management process with effective business strategies.

### **CONCLUSION**

The purpose of ALM is not necessarily to eliminate or even minimize risk. The level of risk will vary with the return requirement and entity's objectives. Financial objectives and risk tolerances are generally determined by senior management of an entity and are reviewed from time to time. All sources of risk are identified for all assets and liabilities. Risks are broken down into their component pieces and the underlying causes of each component are assessed. Relationships of various risks to each other and/or to external factors are also identified. Risk exposure can be quantified 1) relative to changes in the component pieces, 2) as a maximum expected loss for a given confidence interval in a given set of scenarios, or 3) by the distribution of outcomes for a given set of simulated scenarios for the component piece over time. Regular measurement and monitoring of the risk exposure is required. Operating within a dynamic environment, as the entity's risk tolerances and financial objectives change, the existing ALM strategies may no longer be appropriate. Hence, these strategies need to be periodically reviewed and modified. A formal, documented communication process is particularly important in this step.

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