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An Analysis of Private Banks Exposure to Asset Liability Management

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ABSTRACT

Assets and Liability Management (ALM) is a systematic and dynamic process of planning, organising, coordinating and controlling the assets and liabilities or in the sense management of balance sheet structure in such a way the net earnings from interest are maximised within the overall risk preference of the banks. This study examined the effect of ALM on the Five Private Sector Banks profitability in Indian financial market by using Gap Analysis and Ratio Analysis Technique. This paper attempt to assess the liquidity risk that all five Private Sector Banks are exposed to spread over a period from 2011 to 2015. The finding from the study revealed that banks have been exposed to liquidity risk. The study also indicated that HDFC Bank and ICICI Bank have better ALM framework in practice.
Keywords: *ALM, Private Banks, Maturity Gap, Liquidity Risk, Gap Analysis.*

Introduction

ALM is a tool used to address the risk faced by banks due to difference between assets and liabilities either due to liquidity or changes in the interest rates. It is basically a technique used by banks to manage its balance sheet by allowing alternative interest rates and liquidity scenario. Banks and other financial institution provided services, which involves various kinds of risk like credit risk, interest risk and liquidity risk. Failure to identify this risk leads to effect the financial position of those institutions. Therefore, one of the strategies to access such kind of risk is Asset Liability Management. ALM is used to analyse the difference between assets and liabilities with respect to maturities and interest rate sensitivity, so that the bank can minimize the risk arising from such gap mainly from interest risk and liquidity risk.

At the macro level, ALM leads to the formulation of critical business policies, efficient allocation of capital, and designing of product with appropriate pricing strategies. At the micro level, it aims at profitability through price matching. Price matching refers to maintaining spreads by ensuring that the deployment of liabilities will be at a rate higher than the cost. When banks works towards this, it is able to maintain profitability by borrowing short (lower cost) and lending long (higher yields). ALM is not only limited to balance sheet –assets and liabilities such as deposits and lending only, but also include off balance sheet activities such as SWAPS, FUTURES and OPTIONS. The main objective of ALM is to make bank fully prepare to face future emerging challenges. This model is applied to all private and public sector banks operating in India, resulting in the recommended optimal Asset liability mix of the banks in the sample.

In this research, Liquidity risk has been exposed by using Maturity gap analysis and Ratios like Current Ratio, Quick Ratio and Cash Reserve Ratio. This study showcases the impact of those ratios and maturity gap analysis on the profitability position of the banks.

Need for the study

ALM units create a properly aligned risk and return management process. A bank needs to realise that the right level of asset and liability need to be committed to support the function. The various risks that the banks are exposed to are- credit risk, interest rate risk, foreign exchange risk, equity or commodity pricing risk, liquidity risk and operational risk, and thus the banks need to introduce effective risk management systems. Various techniques are used to examine the mismatch in a bank's balance sheet. The need for the study is to understand the liquidity and solvency position of the private sector banks in order to predict the future risk and take remedial measures. It is indeed important to know the liquidity risk and interest rate risk of the banks in order to avoid future uncertainty by taking remedial measures.

Literature review

P. Sheela and Tejaswini Bastray (2015): In this research it was found that interest rate risk is measured through the use of gap analysis and duration analysis and to fill the short term liquidity gap, bank resort to market borrowing at high rate of interest, this cause in the reduction of interest margin and the profitability of bank. **Smith kumar Meena, Joydip Dhar (2014):** As per this research, the most important thing which banks required to manage now days is liquidity. This study analysed short term liquidity and maturity gap of the banks in order to evict risk in banking sector. This analysis help banks to reduce the risk which is very essential for all financial institution in India. **Dr. N Kavitha (2012):** In this research, it exhibits how the fund position of the bank influence for the optimal mix of assets and liabilities for the profitability of banks by using ratios like debt equity ratio, capital adequacy ratio, and so on . And greater care has to be taken for the variables of ALM like optimal mix of asset-liability, maturity, rate sensitivity, liquidation of assets and liabilities in order to reduce the predictable risk. **Dr. B. Charumathi (2008):** This is an analytical research on ICICI bank using gap analysis technique and duration analysis technique in order to access interest rate risk and expose to parallel shift in term structure of interest rate. And liquidity risk measured through gap analysis. **GV Bhavani Prasad and D Veena:** This research showcase the importance of ALM in order to avoid future risk like liquidity position, credit risk, interest risk by using ratios like cash reserve, liquid asset, loan deposit , funding of bank, accounting for problem loan and portfolio management and loan review mechanism. **Mihir Dash, K.A. Venkatesh and Bhargav B.D:** This research showcase maturity gap analysis to examine Assets-Liability Management and found that public sector banks were very conservative in the liquidity risk management. Private sector banks have good short term liquidity position and foreign banks did not have comfortable liquidity as it focus on corporate sector lending for 1-5 years. **R. Vaidyanathan:** This research analyse various types of risk and found that earlier banks were liquidity managed but now they are liability managed. The gap analysis model is used for measuring exposure of bank to interest rate risk.

Objectives

1. To study the Asset Liability Management with reference to New Private Sector Banks in India.
2. To compare and analyse the Maturity Gap of New Private Sector Banks in India to measure the liquidity risk.

Research Methodology

The research is descriptive in nature. Secondary data had been used for the analysis. The study includes Private sectors banks which are operating in India i.e ICICI Bank, Kotak Mahindra Bank, Axis Bank, Yes Bank and HDFC Bank. The data for the study is collected from the major financial source like Balance Sheet, Annual Reports and from the RBI Website.

Tools:

The tools used in this study is ratio analysis; which includes Current Ratio, Quick Ratio CRR, and GAP Analysis and Maturity Analysis were used to find out the liquidity position of the selected banks.

Analysis and interpretation

Current ratio

The current ratio is a ratio that measures a company's ability to pay short-term obligations. The current ratio considers company total current assets relative to that company's current total liabilities. The standard ratio is 2:1.

Table 1: Analysis of Current Ratio

Current Ratio					
Private sector banks	**2011**	**2012**	**2013**	**2014**	**2015**
Axis bank	6.84	9.69	6.04	5.8	4.74
HDFC bank	6.01	5.12	5.58	5.74	3.65
ICICI bank	3.06	2.85	2.83	2.94	3.93
Kotak Mahindra bank	2.59	2.62	2.73	3.35	3.62
Yes Bank	6.11	3.5	3.57	3.7	3.72

It was found by analysis of current ratio for these banks that, Current ratio express the extent to which the current liability of a bank are covered by its current assets. As per the table 1, it is clear that all the banks had maintained more than standard ratio. Axis bank and HDFC bank are consistently maintaining ratio in decreasing order and adequate enough to pay the debt easily. Current ratio of ICICI bank is quite good in the year 2011, it has been decreasing year by year till 2013 and slightly increases in 2014 and 2015. Current ratio of Kotak Mahindra bank is increasing significantly year by year which shows positive sign for the bank. Yes bank's current ratio is high in the year 2011 and suddenly decreases in the year 2012 approximately by 2.61 and starts increasing slightly by 2013. Finally, all the banks are maintaining adequate and more enough to pay off the debt or to cover the liability.

Quick Ratio

The quick ratio is a financial ratio, also knows as Acid Test Ratio used to analyse the company's liquidity. Quick ratio is a stricter measure of liquidity of a company than its current ratio. The standard ratio is 1:1.

Table 2: Analysis Of Quick Ratio

Quick ratio					
Private sector bank	**2011**	**2012**	**2013**	**2014**	**2015**
Axis bank	6.21	6.19	3.73	4.41	3.81
HDFC bank	6.84	3.42	4.02	4.9	9.61
ICICI bank	2.72	2.3	2.33	2.19	6.24
Kotak Mahindra bank	1.1	1.06	1.1	1.9	1.75
Yes Bank	3.77	1.81	1.54	2.13	2.27

It was found by analysis of quick ratio for these banks that, quick ratio of axis bank and HDFC bank is decreasing year by year and are maintaining more enough comparatively which means that a company has adequate quick assets to cover the liabilities. Quick ratio of ICICI and YES bank is fluctuating year by year and suddenly starts increasing in the year 2015 which is good sign for the bank. Kotak Mahindra bank is quite safe and it does not indicate inefficiency either.

Cash Reserve Ratio

Cash Reserve Ratio is the minimum amount of the total deposits of the customer, which commercial banks have to hold as reserve either in cash or as deposits with the central bank. As per RBI guidelines, the present CRR where the banks need to maintain is 4 % (w.e.f. 09/02/2013) and above.

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Table 3: Analysis of Cash Reserve Ratio

CRR					
Private sector bank	**2011**	**2012**	**2013**	**4.583**	**2015**
Axis bank	6.17	4.22	4.25	5.85	4.58
HDFC bank	4.59	4.33	3.24	5.01	5.85
ICICI bank	7.58	6.18	4.91	4.25	5.01
Kotak Mahindra bank	6.36	4.42	3.67	5.81	4.25
Yes Bank	6.56	4.51	4.74	5.81	5.81

From the above table it is found that CRR rate in Axis Bank, ICICI Bank and Yes Bank are above standard rate i.e 4% which means that bank had enough fund to meet its customers demand for repayment of deposited money. In case of HDFC and Kotak Mahindra bank, CRR is adequate enough to meet its future contingent and these two banks has less liquidity when compared to other three sample of banks. Totally the sample of private bank has met standard rate.

Maturity Gap Analysis

Maturity gap is a measurement tool used to analyse the liquidity risk for risk-sensitive assets and liabilities.

Table 4: Analysis of Cumulative Maturity Gap

Maturity Gap					
Private sector bank	**2011**	**2012**	**2013**	**2014**	**2015**
Axis bank	-20645	40842	143791	143791	127052
HDFC bank	123084	267545	258676	258676	208100
ICICI bank	88346	98833	126114	126114	143581
Kotak Mahindra bank	33357	21487	26703	26703	46233
Yes Bank	-7451	-3965	-2978	-2978	-35481

It was found that in the year 2011, Axis Bank and Yes bank suffering from liquidity deficiency, where HDFC Bank, ICICI Bank, Kotak Mahindra Bank had adequate liquidity. And in 2012, 2013, 2014 and 2015 expect Yes Bank all other bank had good and sufficient liquidity position.

Table 5: Analysis of Maturity Gap for the year - 2012

Banks / Maturity Period	**AXIS BANK**	**HDFC BANK**	**ICICI BANK**	**KMB**	**Yes Bank**
a) 1 - 14 days	-14613	-25673	-1445	-14904	-53091
b) 15 - 28 days	-23825	22069	27904	5282	-11014
c) 29 days to 3 months	-109984	66599	-79748	-24230	-21870
d) Over 3 months to 6 months	-79191	63610	-105382	-13819	-9786
e) Over 6 months to 1 year	-200231	163635	-232163	-18422	-63594
f) Over 1 year to 3 years	204161	-126842	-145710	26255	39773
g) Over 3 years to 5 years	165109	-31216	355742	23661	39139
h) Over 5 years	37929	-9097	269147	49535	72993
TOTAL MATURITY GAP	-20645	123084	88346	33357	-7451

As per the above table in the year 2011, it was found that all the private sector banks have liquidity deficiency in 1-14 days' time buckets. All the private sector banks have excess liquidity in 15-28 days' time bucket also out of 5 banks only two banks have liquidity deficiency in this bucket. In over 3 months to 6 months and over 6 months to 1 year time bucket, HDFC Bank had excess liquidity where all other 4 banks had deficiency liquidity. In over 1 year to 3 years' time bucket, HDFC Bank and ICICI Bank had deficiency of liquidity and all other 3 banks had adequate liquidity. And over 3 years to 5 years and over 5 years' time bucket, HDFC Bank had deficiency liquidity where all other four banks had adequate liquidity. Totally, except Axis and Yes bank all other bank have excess liquidity.

Table 6: Analysis of Maturity Gap for the year – 2012

Banks / Maturity Period	AXIS BANK	HDFC BANK	ICICI BANK	KMB	Yes Bank
a) 1 - 14 days	-62636	192619	131754	-14981	-94656
b) 15 - 28 days	-33136	15087	6467	-18093	-26242
c) 29 days to 3 months	-61149	14795	-182335	-35037	-26137
d) Over 3 months to 6 months	-134411	20656	-209300	-8472	-47165
e) Over 6 months to 1 year	-316739	148606	-336344	-13531	-88865
f) Over 1 year to 3 years	342947	44529	400345	32388	123183
g) Over 3 years to 5 years	101240	165019	123089	20609	42425
h) Over 5 years	204726	-333766	165157	58604	113492
TOTAL MATURITY GAP	40842	267545	98833	21487	-3965

As per the above table in the year 2012, 1-14 days and 15-28 days' time bucket, Axis bank, Kotak Mahindra Bank and Yes Bank had deficiency liquidity where other banks had sufficient liquidity. And in 29 days to 3 months, over 3 months to 6 months and over 6 months to 1 year HDFC bank had sufficient liquidity where all other 4 banks had deficiency in liquidity. Over 1 year to 3 years and over 3 years to 5 years' time bucket all banks had excess liquidity. And in over 5 years expect HDFC Bank had deficiency liquidity, and all banks had good liquidity. Totally Yes Bank had deficiency liquidity and all other banks had sufficient liquidity.

Table7: Analysis of Maturity Gap for the year – 2013

Banks / Maturity Period	AXIS BANK	HDFC BANK	ICICI BANK	KMB	Yes Bank
a) 1 - 14 days	83648	161924	48866	-15777	-130020
b) 15 - 28 days	5199	22894	91659	-16180	-35252
c) 29 days to 3 months	-88744	104736	-126800	-63840	-55818
d) Over 3 months to 6 months	-133982	54263	-190385	-22756	-78259
e) Over 6 months to 1 year	-271512	133879	-279649	-36238	-121661
f) Over 1 year to 3 years	240011	139031	770078	72310	189647
g) Over 3 years to 5 years	15050	82794	-95613	38386	54464
h) Over 5 years	294122	-440845	-92043	70798	173921
TOTAL MATURITY GAP	143791	258676	126114	26703	-2978

As per the above table in the year 2013, Axis bank, HDFC Bank, ICICI Bank had excess liquidity in 1-14 days and15-18 days' time bucket. Further it was found that in 29 days to 3 months, over 3 months to 6 months and over 6 months to 1 year time bucket, except HDFC Bank all other banks had liquidity deficiency. In over 1 year to 3year time bucket, all the banks had excess liquidity. In over 3 year to 5 years, except ICICI Bank and all other bank had adequate liquidity. Over 5 year time bucket, HDFC and ICICI Bank had liquidity deficiency and Axis bank, Kotak Mahindra bank and Yes bank had excess liquidity. Totally, except one of sample private banks had excess liquidity.

Table 8: Analysis of Maturity Gap for the year – 2014

Banks / Maturity Period	AXIS BANK	HDFC BANK	ICICI BANK	KMB	Yes Bank
a) 1 - 14 days	106071	226901	141483	-22949	-84316
b) 15 - 28 days	-30304	8395	50640	-8403	-48794
c) 29 days to 3 months	-166292	187392	-75852	-45945	-53668
d) Over 3 months to 6 months	-227861	83584	-118495	-31121	-136590
e) Over 6 months to 1 year	-344381	113911	-198708	-1136	-103268
f) Over 1 year to 3 years	178988	-172940	600693	34439	104909
g) Over 3 years to 5 years	98894	40798	-101942	50102	82873
h) Over 5 years	518065	-472359	-154239	78682	210581
TOTAL MATURITY GAP	133180	15679	143581	53669	-28272

As per the above table, In the year 2014 it is found that, Kotak Mahindra bank and yes bank had liquidity deficiency in 1-14 days, 15-28 days, 29 days to 3 months, over 3 months to 6 months, over 6 months to 1 year and in other time bucket, banks had excess liquidity. In ICICI Bank, except three of time bucket had liquidity deficiency. In HDFC Bank, except two of time bucket had excess liquidity. In Axis bank, except three of time bucket had excess liquidity. Totally, except Yes bank remaining bank had excess liquidity.

Table 9: Analysis of Maturity Gap for the year – 2015

Banks / Maturity Period	AXIS BANK	HDFC BANK	ICICI BANK	KMB	Yes Bank
a) 1 - 14 days	57901	3334965	141483	-24887	-60825
b) 15 - 28 days	-22890	85252	50640	-23382	-21758
c) 29 days to 3 months	-32846	211026	-75852	-17188	-4958
d) Over 3 months to 6 months	-127642	119423	-118495	-52094	-75799
e) Over 6 months to 1 year	-313535	191529	-198708	-43137	-152172
f) Over 1 year to 3 years	-163482	-237917	600693	35038	148993
g) Over 3 years to 5 years	249692	181567	-101942	74176	-83110
h) Over 5 years	479854	-677749	-154239	97707	214147
TOTAL MATURITY GAP	127052	208100	143581	46233	-35481

In the above table it is found that Axis Bank had deficiency liquidity in 15-28 days, 29 days -3 months, over 3 months to 6 months, over 6 months to 1 year, over 1 year to 3 years and in remaining time buckets it had excess liquidity. In HDFC Bank, except two of time bucket had excess liquidity. In ICICI Bank, except two of time bucket had deficiency liquidity. And further it was found that in Kotak Mahindra bank had deficiency liquidity in 1-14 days, 15-28 days, 29 days -3 months, over 3 months to 6 months, over 6 months to 1 year time bucket and in other time bucket it had excess liquidity and in Yes bank had deficiency liquidity except in over 1 year to 3 years and over 5 year time bucket. Totally, except one of sample private banks had excess liquidity.

Finding of the study

The study was observed that the banks were exposed to liquidity risk which is measured through the use of GAP Analysis. To fill the short term liquidity gap, banks resort to market borrowings at higher rate of interest which was the cause in the reduction of interest margin and the profitability of the banks. During 2011 Maturity Gap of Axis Bank is negative which shows deficiency in liquidity and in rest of the years its liquidity position was hiked. And all other banks have sufficient liquidity position among them HDFC Bank and ICICI Bank have higher liquidity position. But Yes Bank has deficiency in liquidity position for all the years where liquidity risk is too high.

Conclusion

With the onset of liberalisation in India since 1991, banks are facing high competition and exposed to more uncertainty. It makes impact to make proper asset liability management in place. Through effective liquidity management helps to avoid deficiency in liquidity and reduce barrowings from the central banks. It helps banks to reduce risk earning volatility and give opportunity to get benefited from changing interest rates. After gap analysis, critically analysed that, it bring to notice that HDFC Bank and ICICI Bank are satisfactory in term of profitability and adequacy.

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