

Assessing Liquidity Risk Vulnerabilities: An Empirical Analysis of ICICI Bank During Basel II Transition Era

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Abstract—The present study has been undertaken as very few studies were found on risk management in banking sector. To study the risk management in banking sector, liquidity risk ratios for the ICICI BANK have been studied and analyzed. ICICI BANK is selected for the study, because RBI designated SBI and ICICI Bank as Domestic Systemically Important Banks (D-SIBs) due to their size, cross-jurisdictional activities and complexity. The statistical tools such as percentages, averages, compound annual growth rate, and annual growth rate have been used to analyze the collected data. The period of study covers a seven years period i.e., from 2007 to 2013, since, in 2005 the RBI issued the first draft guidelines on Basel II implementation in which an initial target date for Basel II compliance was set for March 2007 for all commercial banks. Ratios are used to measure the liquidity risk in State Bank of India. The liquidity risk ratios can be used as a proxy for measuring the magnitude of liquidity risk in ICICI Bank and also to control, monitor and maintain CAR at levels prescribed by the RBI.

Index Terms—Risk management, Banking Sector, Liquidity risk, liquidity risk ratios, ICICI Bank and CAR,

I. INTRODUCTION

Risk management is one of the main functions of any banking services. Risk management does not mean risk elimination or risk reduction. Risk management enables banks to bring their levels of risk to manageable proportions without severely reducing their income. Thus, risk management enables a bank to take required level of risk exposures in order to achieve its profit targets. This balancing act between the profits and risk levels needs to be planned. The acceptable levels of risk exposure differ from country to country and institution to institution. Risk Management does not aim at risk elimination. Risk Management is an attempt to identify, measure, monitor and manage uncertainty. It enables the banks to bring their risks to manageable proportions while not severely

affecting their income.

Liquidity is a bank's ability to generate cash quickly and at a reasonable cost. Bank needs liquidity to meet its routine expenses, such as overhead costs and interest payments. As financial intermediaries, Banks need liquidity to meet unexpected liquidity shocks, such as large deposit withdrawals or heavy loan demand. The most extreme consequence of a liquidity shock is a bank run.

Liquidity risk arises when the bank may not be able to fund increase in assets or meet liability obligations as they fall due without incurring unacceptable losses.

II. REVIEW OF LITERATURE

B. L. Chandak (2013), in the article described credit and liquidity are the life blood of the economic activities. Liquidity and Credit market imbalances can create crisis even when the economic fundamentals are strong. They trigger uncertainty which undermines the confidence in trade and industry. It is also noted that economic downturn in terms of poor performance of industry, export and rising NPAs are basically due to systematic imbalances in liquidity and credit environment.

Ibe (2013), studies the impact of liquidity management on profitability on banks in Nigeria. The work was necessitated by the need to find solution to liquidity management problem in Nigerian banking industry. Three banks were randomly selected to represent the entire banking industry in Nigeria. The proxies for liquidity management include cash and short term fund, bank balances and treasury bills and certificates, while profit after tax was the proxy for profitability.

G. Satish (2011), in his Doctoral thesis, made a comparative study of Risks in Public Sector Banks, Private sector Banks and Foreign Banks operating in India. The study focused on the overall riskiness of banks using the insolvency risk measure, Risk Index (Z). A comparison is made between each of the banking groups for each of the risks by applying inferential Statistical tests like t-test, Kruskal-Wallis test. The size of the study is 80 Banks viz. SBI and its associates (7), Nationalized Banks (20), Private Banks (22) and Foreign Banks (31).

Olagunju et al.(2011), in their study concluded that for the success of operations and survival, commercial banks in Nigeria should not compromise efficient and effective liquidity management and that both illiquidity and excess liquidity are "financial diseases" that can easily erode the profit base of a bank as they affect bank's attempt to attain high profitability-level.

Vijayaraghavan (2008), in his paper revealed that the Indian banking has undergone a sea change over the last 150 years. The 1990s saw the banking industry embracing technology in a massive way. Technology has made a tremendous impact on the banking industry and brought about many changes. The study summarised the present day banking in three 'T's viz., Trans-formation, Technology and Transparency. The study concluded that we live in a world of change and change should not be viewed as problem presenting but as challenges offering. The future is full of challenges and the banks which have the ability to respond to these changes very fast and be proactive, can alone stay in the race ahead.

Bratanovic and Greuning (2000), recommended that credit risk ratios can be used as a measure of the credit risk associated with the banking sector and highlighted the usefulness of such ratios for banks to internally lower the ratio and avert any catastrophic failures.

III. RESEARCH GAP

A review of the existing literature, indicates that extensive research have been conducted on various issues related to banking sector such as performance of banks, mergers and acquisitions, customer satisfaction etc., However, systematic empirical investigations focusing specifically on liquidity risk management remain noticeably limited. Against this back drop, the present study titled “Assessing Liquidity Risk Vulnerabilities: An Empirical Analysis of ICICI Bank During Basel II Transition Era” systematically addresses this critical research gap.

IMPORTANCE OF THE STUDY

Risk is the concept which cannot be eliminated completely from the banking operations. The Indian banking sector is making great advancement in terms of expansion, quality, quantity, diversification and is keeping up with the updated technology, stability, ability and thrust of a financial system, where the commercial banks play a very important role, emphasize the special need for a effective and strong control system with extra concern for the risk involved in the business. Ability to gauge the risks and take appropriate positions will be the key to success.

The present study evaluates the structural magnitude and trend patterns of liquidity risk vulnerabilities in India’s private sector banking. The study assesses the operational performance and balance sheet durability of India’s largest private-owned lender, the ICICI bank, throughout the definitive Basel II implementation and transition window.

IV. OBJECTIVE OF THE STUDY

The objective of the present study is:

1. To measure the magnitude of liquidity risk in ICICI Bank.

METHODOLOGY OF THE STUDY:

The present study is empirical and exploratory in nature. It uses an exploratory approach to identify eight key liquidity risk ratios and show how they can be effectively used to measure and manage liquidity risk. The study is based on secondary data. The required data are collected from RBI reports, annual reports of the ICICI Bank, articles from journals, M.Phil. dissertations and Ph.D. theses.

The statistical tools such as compound annual growth rate (CAGR), percentages, averages, and annual growth rates have been used to analyze the collected data.

Parameters for measuring risk:

Ratios are used to measure the liquidity risk in State Bank of India.

I. To measure the magnitude of liquidity risk the following ratios are used:

1. Ratio of Core Deposit to Total Assets
2. Ratio of Total Loans to Total Deposits
3. Ratio of Time Deposit to Total Deposits
4. Ratio of Liquid Assets to Total Assets
5. Ratio of Prime Asset to Total Assets
6. Ratio of Short-Term Liabilities to Liquid Assets
7. Ratio of Market Liabilities to Total Assets
8. Ratio of Short-Term Liabilities to Total Assets

SCOPE OF THE STUDY:

The present study is confined to risk management in banking sector. ICICI Bank was selected from private sector as it is the largest private-owned bank. ICICI Bank is selected for the study, because RBI designated ICICI Bank and SBI as Domestic Systemically Important Banks (D-SIBs) due to their size, cross-jurisdictional activities and complexity.

PERIOD OF THE STUDY

The period of study covers a seven years period i.e., from 2007 to 2013, since, in 2005 the RBI issued the first draft guidelines on Basel II implementation in which an initial target date for Basel II compliance was set for March 2007 for all commercial banks, but this deadline was postponed to March, 2008 for internationally active banks, and March 2009 for domestic commercial banks.

SOURCES OF THE DATA:

The present study is based on secondary data. The secondary data are collected from RBI reports, annual reports of ICICI bank, articles from journals, M.Phil., dissertations and Ph.D., theses.

V. LIMITATIONS OF THE STUDY

The following are the limitations of the study:

1. The present study is confined to one bank, findings cannot be generalised.
2. The present study is confined to only liquidity risk management, though there are other risks associated with management of banks viz, operational risk management, interest rate risk management, exchange rate risk management etc.,
3. The present study period is limited to seven years only.
4. There are no universally accepted standards for measuring liquidity risk of the banking institution. Benchmarks are not available for -all liquidity risk ratios.

VI. RESULTS & DISCUSSION

MEASURING THE MAGNITUDE OF LIQUIDITY RISK IN SBI BANK

The liquidity risk ratios analysed in this study are:

1. Ratio of Core Deposit to Total Assets (CD/TA)
2. Ratio of Total Loans to Total Deposits (TL/TD)
3. Ratio of Time Deposit to Total Deposits (TMD/TD)
4. Ratio of Liquid Assets to Total Assets (LA/TA)
5. Ratio of Prime Asset to Total Assets (PA/TA)
6. Ratio of Short-Term Liabilities to Liquid Assets (STL/LA)
7. Ratio of Market Liabilities to Total Assets (MKTL/TA)
8. Ratio of Short-Term Liabilities to Total Assets (STL/TA)

VII. MEASURING THE MAGNITUDE OF LIQUIDITY RISK IN ICICI BANK

1. RATIO OF CORE DEPOSITS TO TOTAL ASSETS:

Higher the ratio better is the liquidity position of the bank. The indicative ratio of Core Deposits to Total Assets for a bank is 50%.

The details of core deposits, total assets, and the ratio of Core Deposits to Total Assets of ICICI Bank are presented in table 1

TABLE 1 RATIO OF CORE DEPOSITS TO TOTAL ASSETS

(Rs.In Crores)

YEAR	CORE DEPOSITS		TOTAL ASSETS		CD/TA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	230510		344658		66.88
2007-08	244431	6	399795	16	61.14
2008-09	218347	-11	379300	-5	57.57
2009-10	202016	-7	363399	-4	55.59
2010-11	225602	11	406233	11	55.54
2011-12	255500	13	473647	16	53.94
2012-13	292613	14	536794	13	54.51
CAGR	4.06		7.66		

Source: RBI Reports, 2007 - 2013

It is noticed from table 1 that the total assets of ICICI Bank in 2006-07 is Rs.3,44,658 crores increased to Rs.5,36,794 crores in 2012-13 with CAGR 7.66 percent. The total assets of ICICI Bank increased by, 16% in 2007-08. In 2008-09 and 2009-10 the total assets of the Bank is Rs.3,79,300 crores and Rs.3,63,399 crores respectively. The annual growth of bank's total assets decreased by, 5 percent and 4 percent in 2008-09 and 2009-10 respectively. In 2008-09, total assets decreased primarily due to decrease in cash and balances with RBI, reduction in CRR requirement,

decrease in investments and decrease in advances. In 2009-10 total assets decreased primarily due to a decrease in advances, offset, in part, by an increase in investments.

In 2010-11, 2011-12 and 2012-13 there is an increase in total assets of ICICI Bank by 11 percent (Rs.4,06,233 crores), 16 percent (Rs.4,73,647 crores) and 13 percent (Rs.5,36,794 crores) respectively.

It is also observed from table 1 that the total deposits of ICICI Bank in 2006-07 is Rs.2,30,510 crores increased to Rs.2,92,613 crores with CAGR 4.06 percent. The annual growth of total deposits of ICICI Bank increased by 6% in 2007-08, decreased by 11% in 2008-09 and 7% in 2009-10. The annual growth of total deposits of ICICI Bank, increased by 11% in 2010-11, 13% in 2011-12 and 14% in 2012-13.

The Total Deposits of ICICI Bank increased in 2007-08 due to the bank's focus on increasing funding (i.e. deposits, borrowings and subordinated debts) through low-cost deposits and retail deposits. In 2008-09, total deposits decreased primarily due to the bank's conscious strategy of paying off wholesale deposits. Lower growth in term deposits resulted in decrease in total deposits in 2009-10.

It can also be observed from table 1 that, the ratio of Core Deposits to Total Assets of ICICI Bank during the study period is stable. A low ratio indicates higher liquidity risk because more of the asset base is being financed with volatile funds. A stable or increasing trend is desirable. The ratio of Core Deposits to Total Assets of ICICI Bank during the period 2006-07 to 2011-12, decreased and there is a marginal increase in the ratio in 2012-13. The ratio decreased from 66.88 percent in 2006-07 to 54.51% in 2012-13. It indicates that the liquidity risk of the bank increased during the study period and the bank should control and monitor the ratio. However, during the period of study 2006-07 to 2012-13 the ratio is above 53% indicating that the bank's liquidity position is favourable. The indicative ratio of Core Deposits to Total Assets is 50%.

2. RATIO OF TOTAL LOANS TO TOTAL DEPOSITS:

This ratio indicates the amount of funds lend out of the deposits mobilized by the banker. If the ratio is greater than one, the bank borrowed money which it re loaned at higher rates, rather than relying entirely on its own deposits. If, on the other hand, the ratio is lower than one, the bank relied on its own deposits to make loans to its customers, without any outside borrowing. If the ratio is too high, the banks might not have enough liquidity to cover any unforeseen funding requirements or economic crises. Banks may not be earning an optimal return if the ratio is too low.

The higher the ratio, the higher the loan-assets created from deposits. The outcome of this ratio reflects the ability of the bank to make optimal use of the available resources. Lower the ratio better is the liquidity position of the bank. The ideal ratio of TL/TD as per the RBI is between 65 to 75 percent. The ideal ratio is dictated by operational constraints such as cash reserve ratio and statutory liquidity ratio.

The details of total loans, total deposits and the ratio of Total Loans to Total Deposits of ICICI Bank are presented in table 5.10.

It is evident from the table 2 the total deposits of ICICI increased from Rs.2,30,510 crores to Rs.2,92,613 crores during the study period 2006-07 to 2012-13 with CAGR 4.06 percent. The total loans of ICICI Bank increased from Rs.19586 crores in 2006-07 to Rs.2,90,249 crores in 2012-13 with CAGR 6.77 percent during the study period. The total loans of the bank in 2008-09 and 2009-10 is Rs.2,18,310 crores and Rs.1,81,205 crores respectively. The loans advanced by the bank in 2008-09 and 2009-10 decreased by 3% and 17% respectively. Since 2010-11, the bank's total loans show an increasing trend. In 2010-11, 2011-12 and 2012-13 the total loans of the Bank is Rs.2,16,365 crores, Rs.2,53,727 crores and Rs.2,90,249 crores respectively.

TABLE 2 RATIO OF TOTAL LOANS TO TOTAL DEPOSITS

(Rs. In Crores)

YEAR	TOTAL LOANS		TOTAL DEPOSITS		TL/TD (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	195865		230510		84.97
2007-08	225616	15	244431	6	92.30
2008-09	218310	-3	218347	-11	99.98
2009-10	181205	-17	202016	-7	89.70
2010-11	216365	19.40	225602	11	95.91
2011-12	253727	17	255500	13	99.10
2012-13	290249	14	292613	14	99.19
CAGR	6.77		4.06		

Source: RBI Reports, 2007 - 2013

It can be observed from table 2 that the ratio of Total Loans to Total Deposits of ICICI Bank is above 85% during the study period 2006-07 to 2012-13. It indicates that almost all the available funds beyond mandatory reserves were deployed as credit, leaving a slim margin for unforeseen deposit withdrawals. It also indicates the bank is highly efficient. The ratio increased all the years of study except in 2009-10 (89.70%), as depicted in the table 2. In 2008-09 the ratio is at the historical peak 99.98%. This was not due to reduced lending, it was because of "flight to safety" deposits during global financial crisis (GFC). The ratio increased from 84.97% in 2006-07 to 99.19% in 2012-13. In 2007-08, 2008-09, 2010-11, 2011-12 and 2012-13 the ratio of ICICI Bank is 92.31%, 99.98%, 95.90%, 99.31% and 99.19% respectively. In 2006-07 and 2009-10 the ratio is 84.97 and 89.70 respectively. The ratio decreased in 2009-10. The Ideal ratio for the Total Loans to Total Deposits is between 65 to 75%. The ratio of the bank during the study period 2006-07 to 2012-13 is above 84%, this indicates that the liquidity position of the bank is unfavourable.

This indicates that ICICI bank was increasingly reliant on non-deposit resources like market borrowings. A rising TL/TD ratio suggested that long-term assets (loans) were growing faster than stable, long term liabilities i.e. deposits. This increased the liquidity risk of ICICI bank as the bank

became more vulnerable to sudden market interest rate hikes. The ICICI TL/TD ratio rose from 84.97% (2006-2007) to a historical peak of 99.19% (2012-2013), this indicates that ICICI bank followed aggressive lending practices that could result in systemic risk. However the bank managed this risk and mitigated the liquidity stress by maintaining a high capital adequacy ratio which remained above 16%, bank's shift toward the Base Rate System in July 2010 and tighter monitoring of "stock ratios".

3. RATIO OF TIME DEPOSIT TO TOTAL DEPOSITS: Time deposits provide stable level of liquidity and negligible volatility. Higher the ratio better is the liquidity position of the bank. The details of time deposits, total deposits and the ratio of Time Deposits to Total Deposits of ICICI Bank are presented in table 3.

TABLE 3 RATIO OF TIME DEPOSITS TO TOTAL DEPOSITS

(Rs. In Crores)

YEAR	TIME DEPOSITS		TOTAL DEPOSITS		TMD/TD (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	180295		230510		78.22
2007-08	180650	0.20	244431	6	73.91
2008-09	155679	-13.82	218347	-11	71.30
2009-10	117800	-24.33	202016	-7	58.10
2010-11	123955	5.22	225602	11	54.94
2011-12	144480	16.56	255500	13	56.55
2012-13	170037	17.69	292613	14	58.11
CAGR	-0.97		4.06		

Source: RBI Reports, 2007 - 2013

It can be observed from the table 3 that, the value of time deposits of ICICI Bank decreased from Rs.1,80,295 crores in 2006-07 to Rs.1,70,037 crores in 2012-13 with CAGR -0.97 percent, this is due to the bank's conscious strategy of paying off wholesale deposits. The value of total deposits of the bank increased from Rs.2,30,510 crores in 2006-07 to Rs.2,92,613 crores in 2012-13 with CAGR 4.06 percent.

It can also be observed from the table that the ratio of Time Deposits to Total Deposits of ICICI Bank decreased during the study period 2006-07 to 2012-13, from 78.22 percent to 58.11 percent. It indicates that the liquidity position of the bank is unfavourable because higher the ratio better is the liquidity position. The ratio is above 54% during the study period 2006-07 to 2012-13. During the period 2006-07 to 2008-09 the ratio is 71% and above. There is a sharp decrease in the ratio in 2009-10, from 71.3 percent in 2008-09 to 58.10 percent in 2009-2010. In 2007-08, though the time deposits and total deposits of the bank increased the ratio of Time Deposits to Total Deposits of ICICI Bank decreased. This is due to, percentage increase in total deposits is more than the percentage increase in time deposits. In 2008-09 and 2009-10 the decrease in ratio is due to

decrease in time deposits and total deposits of the bank. It was because of “flight to safety” deposits as depositors moved funds to public sector banks during global financial crisis (GFC). In 2010-11 and 2011-12, the decrease in ratio is due to percentage increase in total deposits is more than the increase in time deposits of bank. In 2012-13, the increase in the ratio is due to increase in total deposits and time deposits of ICICI Bank.

The ratio of Time Deposits to Total Deposits of ICICI Bank from 2009-10 to 2012-13 is between 54% to 59% and to offset the liquidity risk the bank maintained high Capital Adequacy Ratio reaching 19.4% in 2010 far exceeding the regulatory norms. This capital buffer served as the ultimate liquidity backstop. This allowed the ICICI Bank to trade off “Liquidity Duration” for “Capital Solvency.”

4. RATIO OF LIQUID ASSETS TO TOTAL ASSETS: It is the ratio of liquid assets and total assets. Higher the ratio of Liquid Assets to Total Assets better is the liquidity position of the bank. As per the RBI, the ideal ratio is between 18% to 20%.

The details of liquid assets, total assets and the ratio of Liquid Assets to Total Assets of ICICI Bank are presented in table 4.

It is evident from table 5.12 that the liquid assets of ICICI Bank recorded a fluctuating trend, during the study period 2006-07 to 2012-13. The value of liquid Assets of ICICI Bank increased from Rs.37,121 crores in 2006-07 to Rs.41,417 crores in 2012-13, with CAGR of 1.84 percent. In 2007-08, the liquid assets of the bank increased by 2.48 percent and the value of liquid assets is Rs.38,041 crores. In 2008-09, the liquid asset of the bank declined by 21.23 percent and the value of liquid assets is Rs.29,966 crores. In 2009-10 the liquid assets increased by 29.72 percent and the value of liquid assets is Rs.38,873 crores. In 2010-11, 2011-12 and 2012-13 the value of liquid assets of ICICI Bank is Rs.34,090 crores, Rs.36,229 crores and Rs.41,417 crores respectively. In 2010-11 the liquid assets of the bank declined by 13.31 percent, in 2011-12 and 2012-13 the liquid assets increased by 6.28 percent and 14.32 percent respectively.

TABLE 4 RATIO OF LIQUID ASSETS TO TOTAL ASSETS

(Rs. In Crores)

YEAR	LIQUID ASSETS		TOTAL ASSETS		LA/TA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	37121		344658		10.77
2007-08	38041	2.48	399795	16	9.52
2008-09	29966	-21.23	379300	-5	7.90
2009-10	38873	29.72	363399	-4	10.70
2010-11	34090	-13.31	406233	11	8.39
2011-12	36229	6.28	473647	16	7.65
2012-13	41417	14.32	536794	13	7.72
CAGR	1.84		7.66		

Source: RBI Reports, 2007 - 2013

It is also observed from the table 4 that the total assets of the bank increased from Rs.3,44,658 crores in 2006-07 to Rs.5,36,794 crores in 2012-13 with CAGR 7.66 percent.

It is noticed from the table that during the period of study 2006-07 to 2012-13, the ratio of Liquid Assets to Total Assets of ICICI decreased from 10.77% to 7.72%. In 2006-07, 2007-08, 2008-09 and 2009-10, the ratio of Liquid Assets to Total Assets of ICICI Bank is 10.77%, 9.52%, 7.90% and 10.69% respectively. In 2007-08 the ratio decreased due to percentage increase in total assets of the bank is more than the percentage increase in liquid assets. In 2008-09 the ratio decreased due to decrease in liquid assets and total assets of the Bank. In 2009-10, the ratio increased due to increase in liquid assets of ICICI bank. In 2010-11, 2011-12 and 2012-13 ratio of Liquid Assets to Total Assets of ICICI Bank is 8.39%, 7.65% and 7.72% respectively. In 2010-11, the ratio of the bank decreased due to decrease in liquid assets. In 2011-12, the ratio decreased due to percentage increase in total assets is more than the percentage increase in liquid assets of ICICI Bank. In 2012-13 there is a marginal increase in the ratio.

The ratio of Liquid Assets to Total Assets of ICICI Bank during the study period 2006-07 to 2012-13 is much below the ideal ratio. The ideal ratio of Liquid Assets to Total Assets for a bank is between 18 percent and 20 percent. It indicates that the liquidity position of the bank is unfavourable.

5. RATIO OF PRIME ASSET TO TOTAL ASSET: Prime assets may include cash balances with the bank and balances with banks including central bank which can be withdrawn at any time without any notice.

The details of prime assets, total assets and the ratio of Prime Assets to Total Assets of ICICI Bank for the period of study 2006-07 to 2012-13 are presented in table 5..

It is noticed from table 5, the value of prime assets of ICICI Bank decreased from Rs.33,762 crores in 2006-07 to Rs.33,637 crores in 2012-13 with CAGR -0.06 percent. The prime assets of the bank recorded a mixed trend during the study period 2006-07 to 2012-13. In 2007-08, the prime assets of bank increased by 4.83 percent and decreased by 23.34 percent in 2008-09. In 2009-10 the prime assets increased by 40.33 percent and decreased by 25.15 percent in 2010-11. In 2011-12 and 2012-13 the prime assets of the bank increased by 6.23% and 11.10% respectively. The total assets of the bank increased from Rs 3,44,658 crores in 2006-07 to Rs.5,36,794 crores in 2012-13 with CAGR 7.66 percent.

TABLE 5 RATIO OF PRIME ASSETS TO TOTAL ASSETS

(Rs. In Crores)

YEAR	PRIME ASSETS		TOTAL ASSETS		PA/TA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	33762		344658		9.8
2007-08	35393	4.83	399795	16	8.85
2008-09	27134	23.34	379300	-5	7.15
2009-10	38077	40.33	363399	-4	10.48

2010-11	28500	-25.15	406233	11	7.02
2011-12	30276	6.23	473647	16	6.392
2012-13	33637	11.10	536794	13	6.27
CAGR	-0.06		7.66		

Source: RBI Reports, 2007 - 2013

It can also be observed from table 5 that, the ratio of Prime Assets to Total Assets of ICICI Bank in 2006-07, 2007-08, 2008-09 and 2009-10 is 9.80%, 8.85%, 7.15% and 10.48% respectively. The ratio decreased in 2007-08 because the percentage increase in total assets is more than percentage increase in prime assets of ICICI Bank. In 2008-09, the decrease in the ratio is due to decrease in total assets and prime assets of the bank. In 2009-10, the ratio recorded at 10.48 percent which is the highest during the study period and the ratio increased due to increase in prime assets. In 2010-11, 2011-12 and 2012-13 the ratio of Prime Assets to Total Assets of ICICI Bank is 7.02 percent, 6.39 percent and 6.27 percent respectively. In 2010-11, the ratio decreased, due to decrease in prime assets. In 2011-12 and 2012-13 the ratio decreased because the percentage increase in total asset is more than the percentage increase in prime assets. The ratio of Prime Assets to Total Assets of ICICI Bank decreased from 9.8 percent in 2006-07 to 6.27 percent in 2012-13 during the study period. It indicates that the liquidity position of the bank is unfavourable because higher the ratio better is the liquidity position of the bank.

6. RATIO OF SHORT-TERM LIABILITIES TO LIQUID ASSETS: Short-term liabilities are required to be redeemed at the earliest. Therefore, they will require ready liquid assets to meet the liability. It is expected to be lower in the interest of liquidity. Short-Term Liabilities represents Demand deposits, Saving deposits and Bills payable.

The details of short term liabilities, liquid assets and the ratio of Short Term Liabilities to Liquid Assets of ICICI Bank are presented in table 6.

TABLE 6 RATIO OF SHORT TERM LIABILITIES TO LIQUID ASSETS

(Rs. In Crores)

YEAR	SHORT TERM LIABILITIES		LIQUID ASSETS		STL/LA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	54448		37121		146.68
2007-08	66681	22.47	38041	2.48	175.29
2008-09	64492	-3.28	29966	-21.23	215.22
2009-10	86922	34.78	38873	29.72	223.6
2010-11	105076	20.89	34090	-13.31	308.23
2011-12	114575	9.04	36229	6.28	316.25
2012-13	77767	-32.13	41417	14.32	187.77
CAGR	6.12		1.84		

Source: RBI Reports, 2007 - 2013

It can be observed from table 6 that the value of short term liability of ICICI increased from Rs.54,448 crores in 2006-07 to Rs.77,767 crores, with CAGR 6.12 percent. In 2007-08 short term liabilities of the bank increased by 22.47 percent and in 2008-09, it decreased by 3.28 percent. In 2009-10, 2010-11 and 2011-12 the short term liability of ICICI Bank increased by 34.78 percent, 20.89 percent and 9.04 percent respectively. In 2012-13, it decreased by 32.13 percent.

It can also be observed that the value of liquid assets of the bank increased from Rs.37,121 crores in 2006-07 to Rs.41,417 crores in 2012-13, with CAGR 1.84 percent.

It is noticed from the table 6 that the ratio of Short Term Liabilities to Liquid Assets of ICICI Bank, during the period 2006-07 to 2011-12 has an increasing trend. In 2006-07, 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12, the ratio of Short Term Liabilities to Liquid Assets of ICICI Bank is 146.68%, 175.29%, 215.22%, 223.60%, 308.23% and 316.25% respectively. The increase in the ratio is mainly due to increase in short term liabilities. In 2012-13 the ratio declined due to decline in short term liabilities of ICICI Bank. The ratio increased from 146.68 percent in 2006-07 to 187.77 percent in 2012-13. This indicates that the liquidity risk position of the bank increased during the study period because lower the ratio lower is the liquidity risk.

7. RATIO OF MARKET LIABILITIES TO TOTAL ASSETS: Market liabilities may include money market borrowings, interbank liabilities repayable within a short period. Lower the ratio better it is.

The details of market liabilities, total assets and the ratio of Market Liabilities to Total Assets of ICICI for the period of study 2006-07 to 2012-13 are presented in table 7.

TABLE 7 RATIO OF MARKET LIABILITIES TO TOTAL ASSETS

(Rs. In Crores)

YEAR	MARKET LIABILITIES		TOTAL ASSETS		MKTL/TA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	51256		344658		14.87
2007-08	65648	28.08	399795	16	16.42
2008-09	93155	41.90	379300	-5	24.56
2009-10	94263	1.19	363399	-4	25.93
2010-11	109554	16.22	406233	11	26.97
2011-12	140164	27.94	474647	16	29.59
2012-13	145341	3.69	536794	13	27.08
CAGR	18.97		7.66		

Source: RBI Reports, 2007 - 2013

It is observed from table 7 that the market liabilities of ICICI increased from Rs.51,256 crores in 2006-07 to Rs.1,45,341 crores in 2012-13, with CAGR 18.97 percent. The total assets of the bank increased from Rs 3,44,658 crores in 2006-07 to Rs.5,36,794 crores in 2012-13 with CAGR 7.66 percent.

It can also be observed from the table that the ratio of Market Liabilities to Total Assets of ICICI bank has an increasing trend all the years of study except in 2012-13. The ratio of Market Liabilities to Total Assets of ICICI bank is below 30% during the study period 2006-07 to 2012-13. The ratio increased from 14.87 percent in 2006-07 to 27.08 percent in 2103. This indicates that the liquidity risk exposure of ICICI Bank increased during the study period because lower the ratio better it is.

8. RATIO OF SHORT-TERM LIABILITIES TO TOTAL ASSETS: Short-term liabilities include demand deposits, saving deposits and bills payable. A lower ratio is desirable.

The details of short term liabilities, total assets and the ratio of Short Term Liabilities to Total Assets of ICICI are presented in table 8.

TABLE 8 RATIO OF SHORT-TERM LIABILITIES TO TOTAL ASSETS

(Rs. In Crores)

YEAR	SHORT TERM LIABILITIES		TOTAL ASSETS		STL/TA (%)
	Rs.	Growth %	Rs.	Growth %	
2006-07	54448		344658		15.8
2007-08	66681	22.47	399795	16	16.68
2008-09	64492	-3.28	379300	-5	17
2009-10	86922	34.78	363399	-4	23.92
2010-11	105076	20.89	406233	11	25.87
2011-12	114575	9.04	473647	16	24.29
2012-13	77767	-32.13	536794	13	14.49
	6.12		7.66		

Source: RBI Reports, 2007 - 2013

It can be observed from table 8 that the value of short term liability of ICICI Bank increased from Rs.54,448 crores in 2006-07 to Rs.77,767 crores, with CAGR 6.12 percent. The total assets of the bank increased from Rs.3,44,658 crores in 2006-07 to Rs.5,36,794 crores in 2012-13 with CAGR 7.66 percent.

As evident in table 8, the ratio of Short Term Liabilities to Total Assets (STL/TA) of ICICI Bank showed an increasing trend, during the period 2006-07 to 2010-11. In 2011-12 and 2012-13 the ratio declined from 25.87% in 2010-11 to 14.49% in 2012-13. Decreasing trend is a favorable sign from liquidity risk point of view. The ratio of Short Term Liabilities to Total Assets of ICICI Bank during the study period decreased from 15.8% in 2006-07 to 14.49% in 2012-13.

VIII. SUMMARY, CONCLUSION AND SUGGESTIONS

Findings

1. It is observed that during the study period, the ratio of Core Deposits to Total Assets of ICICI Bank is above the benchmark 50 percent. This indicates that the liquidity risk position of the bank is favourable.
2. It is noticed that the total deposits of ICICI Bank increased in 2008 due to the bank's focus on increasing funding (i.e. deposits, borrowings and subordinated debts) through low-cost deposits and retail deposits. In 2008-09, total deposits decreased primarily due to the bank's conscious strategy of paying off wholesale deposits. Lower growth in term deposits resulted in decrease in total deposits in 2009-10.
3. It is noticed that the ratio of Total Loans to Total Deposits of ICICI Bank during the study period 2006-07 to 2012-13 is above 84 percent and is above the Ideal ratio which is between 65 to 75 percent. This indicates that the liquidity position of the ICICI bank is unfavourable.
4. A rising TL/TD ratio suggested that long-term assets (loans) were growing faster than stable, long term liabilities i.e. deposits. This increased the liquidity risk of ICICI bank as the bank became more vulnerable to sudden market interest rate hikes.
5. ICICI bank followed aggressive lending practices that could result in systemic risk. However the bank managed this risk and mitigated the liquidity stress by maintaining a high capital adequacy ratio which remained above 16%, bank's shift toward the Base Rate System in July 2010 and tighter monitoring of "stock ratios".
6. In 2008-09 the ratio of Total Loans to Total Deposits is at the historical peak 99.98%. This was not due to reduced lending, it was because of "flight to safety" deposits during global financial crisis (GFC)
7. It is observed that the value of time deposits of ICICI Bank decreased during the study period with CAGR -0.97 percent, due to the bank's conscious strategy of paying off wholesale deposits.
8. It is also observed that there is a significant decrease in the ratio of Time Deposits to Total Deposits of ICICI Bank during the study period, and that the liquidity risk exposure of the bank increased because higher the ratio better is the liquidity position. It is further observed that during the period 2006-07 to 2008-09 the ratio is 71 percent and above. There is a sharp decline in the ratio from 71.3 percent in 2008-09 to 58.10 percent in 2009-10.
9. The ratio of Time Deposits to Total Deposits of ICICI Bank from 2009-10 to 2012-13 is between 54% to 59% and to offset the liquidity risk the bank maintained high Capital Adequacy Ratio reaching 19.4% in 2010 far exceeding the regulatory norms. This capital buffer served as the ultimate liquidity backstop. This allowed the ICICI Bank to trade off "Liquidity Duration" for "Capital Solvency."
10. It is noticed that the liquid assets of ICICI Bank recorded a fluctuating trend, during the study period.

11. It is observed that during the period of study, the ratio of Liquid Assets to Total Assets of ICICI Bank decreased. It is observed that the ratio of Liquid Assets to Total Assets of ICICI Bank is much below the ideal ratio 18 percent to 20 percent in all the years of study. The liquidity risk exposure of the bank increased during the study period.
12. It is noted that the value of prime assets of ICICI Bank decreased during the study period with CAGR -0.06 percent.
13. It is also noted that the ratio of Prime Assets to Total Assets of ICICI Bank decreased from 9.8 percent in 2007 to 6.27 percent in 2013 during the study period. Thus, indicates that the liquidity risk position of the bank increased because higher the ratio better is the liquidity position of the bank.
14. It is observed that the value of short term liability of ICICI Bank increased from Rs.54,448 crores in 2007 to Rs.77,767 crores, with CAGR 6.12 percent.
15. It is also observed that the ratio of Short Term Liabilities to Liquid Assets of ICICI Bank, during the study period recorded an increasing trend. The ratio increased mainly due to increase in short term liabilities. In 2013 the ratio declined due to decline in short term liabilities of ICICI Bank. The ratio increased from 146.68 percent in 2006-07 to 187.77 percent in 2012-13, indicating that the liquidity risk exposure of the bank increased because lower the ratio lower is the liquidity risk.
16. It is noted that the market liabilities of ICICI Bank increased during the study period with CAGR 18.97 percent. It is also noted that the ratio of Market Liabilities to Total Assets of ICICI bank recorded an increasing trend all the years of study except in 2012-13. The ratio of ICICI bank is below 30% during the study period. However, the ratio increased from 14.87 percent in 2006-07 to 27.08 percent in 2012-13. The liquidity risk exposure of ICICI Bank increased.
17. It is noted that the ratio of Short Term Liabilities to Total Assets of ICICI Bank during the study period decreased from 15.8 percent in 2007 to 14.49 percent in 2013.

Conclusions

1. The total deposits of ICICI Bank had a mixed trend during the study period. The Total Deposits of ICICI Bank increased due to the Bank's focus on increasing funding (i.e. deposits, borrowings and subordinated debts) through low-cost deposits and retail deposits. Total deposits decreased due to the bank's conscious strategy of paying off wholesale deposits and lower growth in term deposits.
2. The value of time deposits of ICICI Bank decreased due to the bank's conscious strategy of paying off wholesale deposits.
3. The ratio of Core Deposits to Total Assets of ICICI Bank is above the bench mark 50 percent and hence it may be concluded that the liquidity risk exposure of the bank is within the acceptable limits during the study period.

4. ICICI did not comply with the ideal ratio of Total Loans to Total Deposits which is between 65 to 75 percent and hence, it is concluded that the liquidity risk exposure of the banks is unfavourable.
5. The ratio of Liquid Assets to Total Assets of ICICI Bank is much below the ideal ratio which is between 18 to 20 percent in all the years of study. Hence, it may be concluded that the liquidity position of the bank is unfavourable.
6. From the analysis of the ratio of Core Deposits to Total Assets and ratio of Short Term Liabilities to Total Assets of ICICI it may be concluded that the liquidity risk position of SBI is favourable.
7. From the analysis of the ratio of Total Loans to Total Deposits, ratio of Time Deposits to Total Deposits, ratio of Liquid Assets to Total Assets, ratio of Prime Assets to Total Assets, ratio of Short Term Liabilities to Liquid Assets and ratio of Market Liabilities to Total Assets of ICICI, it may be concluded that the Bank liquidity risk exposure increased during the study period. To offset the liquidity risk the bank maintained high Capital Adequacy Ratio

It is therefore, concluded that liquidity risk ratios can be used as a proxy for measuring the magnitude of liquidity risk in ICICI bank.

SUGGESTIONS

For better risk management in ICICI Bank the following suggestions are made to manage and monitor credit risk management and liquidity risk management.

1. In order to attain Capital Adequacy Norms, the banks are increasing the Tier I Capital mainly by increasing the Reserves and Surplus. Creating Tier I Capital by huge ploughing back of profit will discourage the investors. It is suggested that along with the creation of Reserves and Surplus, banks should make fresh Equity Issue to increase the Own Fund.
2. It is suggested that the select banks should have independent and effective audit to ensure the proper handling of credit risk and liquidity risk.
3. ICICI Bank, ratio of Total Loans to Total Deposits is above the Ideal ratio fixed by the RBI i.e. 65 to 75 percent. The banks should avoid borrowing from the repo window (overnight refinance facility provided by the central bank) and call money market to fuel credit growth.
4. The select bank should introduce incentive schemes for employees and interest discounts for prompt repayments.
5. Lack of understanding among employees regarding the Basel accords affects banks negatively as these are the basis for any banking action. Hence, there is a need for banks to train their employees to have sufficient understanding of Basel accords in order to guide the banking growth rate in the positive direction.
6. Liquidity risk management needs to be addressed at the highest level of bank management, the board of directors. It is important that the board understands every aspect of liquidity risk management.

7. Bank should develop well-established strategies, policies, and procedures for managing both the sources and uses of an institution's funds. This includes assessing and planning for short-term, medium-term, and long-term liquidity needs.
8. Adequate Internal controls and internal audit reviews have to be implemented to ensure compliance with internal liquidity management policies and procedures.
9. The ratio of Liquid Assets to Total Assets of ICICI bank is below the ideal ratio during the study period. The ideal ratio of Liquid Assets to Total Assets is 18% to 20%. ICICI Bank should improve their ratio of Liquid Assets to Total Assets
10. The liquidity strategy and policies should be communicated to all the employees in the Bank.
11. It is suggested that the select bank in the present study should set benchmarks for the liquidity risk ratios, in order to maintain liquidity risk at acceptable levels.
12. The RBI may set bench marks to liquidity risk ratios in order to manage liquidity risk at acceptable levels by all the banks in Indian banking sector.
13. The liquidity risk ratios can be used as a proxy for measuring the magnitude of liquidity risk in ICICI Bank and also to control, monitor and maintain CAR at levels prescribed by the RBI.
14. It is suggested that ICICI Bank should control and monitor the ratio Core Deposits to Total Assets to maintain the capital adequacy ratio at prescribed levels as per RBI.
15. The maximum limit the select banks have to maintain the ratio of Core Deposits to Total Assets is 89.53 percent. Therefore, the banks ratio should be 89.53 percent in order to maintain the CAR at 9%.
16. The RBI introduced the concept of D-SIBs (Domestic Systemically Important Banks). The perceived expectation of government support amplifies risk-taking, reduces market discipline, creates competitive distortions and increases the probability of distress in the future. In light of this, it is suggested that the bank should not indulge in such activities which may cause disruption to the essential services they provide to the banking system.

IX. SCOPE FOR FUTURE RESEARCH

From the present study, the following areas have been identified for future research work in Risk Management in Banking Sector:

1. Impact of Basel III in India.
2. Operational Risk Management at ICICI Bank.
3. Awareness and Perception of Basel II and Basel III Norms Across Indian Banks.
4. A study on Domestic Systemically Important Banks (D-SIBs) framework.

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