Basel III: Impact analysis for Indian Banks[1]

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Abstract

The global financial crisis of 2007-08 raised the question whether the Basel Accord II was sufficient enough to protect and facilitate proper functioning of the banking systems across the globe. Sensing the need for better control and protection to the investors, the Basel Committee on Banking Supervision (BCBS) formulated Basel Accord III in 2010. As far as the Indian Banking industry is concerned, besides being subjected to domestic regulations stipulated by the Reserve Bank of India, banks in India have to comply with international regulations as well. In line with international standards, Reserve Bank of India has suggested that Indian banks implement Basel III guidelines by March 2019. However, the full implementation of Basel III Accord is still pending. Indian banks have been given specific time bound guidelines for switching to Basel III guidelines. This paper is an effort to study the probable impact of Basel III implementation for Indian banks.

The initial section of this paper discusses the background of Basel Accords I and II introduced in the past and major recommendations made by Basel Committee under Basel III Accord. Earlier studies carried out in this field are reviewed and placed in the subsequent sections. In this paper, based on past data, a relationship is established between parameters suggested by Basel Committee under Basel III Accord and its probable impact on level of advances, net Non-Performing Assets (NPAs) and net profits. The parameters considered under the study are Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio. The findings and probable impact of variation of these parameters are discussed in the concluding section.

Key words: *Basel-II, Basel III, Capital Adequacy Ratio, NPA*

Introduction

When Basel Accord I was introduced in 1988, it was expected that most of the concerns about the risks inherent in the banking industry would be taken care of by managing credit risk. Later, market risk was added to the said accord. However, a straightjacket and 'one size fits all' approach of this accord made it less effective; additionally, to address the changing industry scenario, the need was felt to revise this accord.

In response to changing needs of banking, Basel Accord II was introduced in the year 2004 in which operational risk was also given due weightage, besides credit and market risks. However, the basic guidelines were kept intact i.e. CAR >= 8%. The parameters to assign risk weightage were changed and due consideration was given to the credit worthiness of the borrower. The effectiveness of Basel II in adequately controlling and monitoring the risks in banking was questioned on occurrence of the financial crisis in year 2008 which affected the global economy. Some of the reasons for failure of Basel II as discussed by Masera (Masera, 2010, p. 302-303) are lack of strict controls on capital buffers, lack of due weightage to some of the important risks and excessive reliance on the external credit rating agencies. In response to the crisis, the Basel Committee on Banking Supervision (BCBS) introduced the Basel III accord under which most of the loopholes of the earlier accords are believed to be corrected and proper provisioning has been made for banks to sustain under tighter liquidity conditions.

This paper is an attempt to establish a relationship between parameters specified under Basel III and to study their effects on various key factors of Indian banks i.e. credit growth, profitability and level of NPA.
The major recommendations under Basel III as suggested by BCBS are as follows:

1) **Tier-I Capital**: The loss absorbing component, that is, common equity and retained earnings are declared as the predominant form of Tier-I capital and have been stipulated to be maintained at 4.5 per cent of risk weighted assets, which was permitted to be as low as 2% under Basel II.

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2) **Capital Conservation Buffer**: Over and above the minimum capital requirements i.e. Capital Adequacy Ratio at 8 per cent, Capital Conservation Buffer to the extent of 2.5 per cent of risk weighted assets in the form of Tier-I common equity is to be maintained; earlier there was no specified Capital Conservation Buffer under Basel II.

3) **Counter-Cyclical Buffer**: This type of capital buffer to control excessive growth during an economic upturn and to maintain sustainable growth during a slack period has been recommended. The range specified for this is up to 2.5 per cent of risk weighted assets in the form of equity capital which was missing in earlier accords i.e. Basel II.

4) **Leverage Ratio**: The leverage ratio i.e. ratio of Tier I capital to the bank's average total consolidated assets (sum of the exposures of all assets and non-balance sheet items) is specified to be maintained in excess of 3% under Basel III.

5) The Committee has developed Liquidity Coverage Ratio (LCR) to promote the short-term resilience of the liquidity risk profile of banks by ensuring that banks have sufficiently High Quality Liquid Assets (HQLA) to survive in a high stress scenario lasting 30 calendar days.

   LCR = (Stock of HQLA) / (Total net cash outflows over the next 30 calendar days)
   >= 100%

6) The Net Stable Funding Ratio (NSFR) which is defined as the ratio of the amount available for stable funding to the amount required for stable funding is to be maintained equal to at least 100% on an on-going basis. Available stable funding is defined as the portion of capital and liabilities expected to be reliable over the time horizon considered by the NSFR, which extends to one year. Typically Available Stable Funding (ASF) is the sum of capital, preferred stock with maturity of equal to or greater than one year, liabilities with effective maturities of one year or greater and that portion of "stable" non-maturity deposits and/or term deposits with maturities of less than one year that would be expected to stay with the institution for an extended period in an idiosyncratic stress event (George Lekatis, 2011). The amount of such stable funding required of a specific institution is a function of the liquidity characteristics and residual maturities of the various assets held by that institution as well as those of its off-balance sheet (OBS) exposures.
   NSFR = (Available amount of stable funding) / (Required amount of stable funding)
   >= 100%

Literature Review

A considerable amount of research has been done on Basel III and its probable impacts considering various parameters. One such research study done by Vigneshwara Swamy (2013) estimated the impact of Basel III implementation on Indian banks in terms of loan spread, additional capital required and cost-benefit analysis of Basel III implementation. Some of other research studies are discussed below.

Went (2010) analysed Basel III and its possible effects on banking. He concludes that to reduce the potentially devastating effects of banking crises, Basel III has combined risk-based capital and liquidity standards. However, to have higher liquidity, banks will have to have a higher amount of low-yielding liquid assets than they currently possess. This may lead to lower earnings. To cope with additional capital requirements, banks will need to raise new capital or issue new types of financial instruments. This is likely to bid up the prices of capital as well as the required return. Other ways such as reducing dividend pay outs, etc. can also be explored. All in all, this will lead to reduction in capital costs, funding expenses and equity risk premiums for banks, thus making banks less leveraged.

In their paper, Blundell-Wignall and Atkinson (2010a) have analysed Basel III and its possible effects. They stated that higher leverage of banks in the industry caused the main damage during the crisis. They suggest that instead of a capital requirement, there should be a leverage ratio which should be appropriately designed. This is to eliminate the tendency for banks to design their on- and off-balance sheet items to reduce the capital requirement. This would also remove the pro-cyclicality that is caused by minimum capital requirements; what is left would be only natural pro-cyclicality. To accompany the leverage ratio, they suggest that diversification should be rewarded. Blundell-Wignall and Atkinson (2010a) explain that pillar 2 allows supervisors, in some cases, to override pillar 1 rules if they think it is appropriate. In their paper, they suggest that it is better to let bank managers manage and let the market control. Supervisors already demonstrated in the run up to the crisis that they could not do much to prevent it even if pillar 2 was under effect. Thus, they emphasise more on stronger market discipline under pillar 3. Additionally, in an article in the OECD Journal, Blundell-Wignall and Atkinson (2010b) have again analysed Basel

III where they criticised it by stating that fundamental problems like the model's framework (One size fits all approach), regulatory and tax arbitrage as well as the need for more capital have not been addressed properly under Basel III.

In his book 'Basel III, the Devil and Global Banking' Chorafas (2012) has analysed Basel III and its possible effects stating that it is bad that Basel III Accord does not regulate Special Purpose Vehicles (SPVs) which are created to avoid regulatory constraints and could be used by banks to hide failed transactions. Some of the major reasons according to him behind the crisis were greed from bankers, bad management and regulatory arbitrage. According to him, the LCR ratio being over 100 per cent is not enough; further, the high quality term in the numerator is fuzzy and that the denominator with 30-days cash outflows varies from bank to bank. He suggests that this ratio should be over 200 per cent instead. Also the measure excludes currency risk, which is a concern for big global banks. For the NSFR, he believes that the one-year period is not long-term at all. Some of the weaknesses highlighted by him about Basel III are long implementation time and political pressure on regulators.

In his paper, Hellwig (2010) states that the excessive leverage by large organizations and the shadow banking system, which was developed before the crisis, were the main reasons for the 2007 crisis. Further, the fundamental question raised was that under Basel II accord, the focus on risk was so much that the governance angle was left un-attended. Hellwig suggests two major changes viz: regulatory capital should not be tuned to detail according to the risks banks are taking and the capital requirement should be higher, even up to twenty or thirty per cent. These proposals are based on the idea that capital should ensure the safety of the financial system as a whole.

In Indian Institute of Management (IIM), Bangalore Review, M. Jayadev (2013) discussed the various issues and challenges such as requirement of additional capital, balancing between growth and stability, decline in Return of Equity (ROE), identification of the trigger point for the release of buffers, etc. faced by Indian banks in implementation of Basel III.

Bank of Ghana, in its working paper (2011) stated the risk weighted system used under Basel III suffers from portfolio variance and some important issues like corporate governance, account manipulation and full disclosures are not addressed properly. However, Basel III is aimed at raising capital of the banks and improving loss absorbing capacity.

Shah (2013) states that Return on Equity (ROE) and profitability are likely to decline due to implementation of Basel III norms. The reasons stated for the said decline are gradual removal of some of the components of Tier-I capital, increase in the risk weight and higher cost of funds during the transition phase.

Khan and Winder (2015), in their paper, state that tighter regulations and heavy scrutiny in weaker economic zones may push away the weaker banks with lower capital reserves. Besides that, the ROE and profitability will be adversely affected overall. The requirement to maintain sufficient liquidity in the form of LCR and NSFR will force banks to move their investments from short term to long term avenues. On the macro level, the enhanced capital and liquidity standards coupled with improved risk management measures would diffuse systematic risk and the probability of individual bank failure. A concern is also expressed about consistency in implementation of Basel III regulations across the globe in the absence of which there would be scope for international regulatory arbitrage and thus, it would create a threat to the stability of the entire financial system.

Tripathy and Tandon (2015) carried out a research study to examine the preparedness of Indian Public Sector Banks (PSBs) to implement Basel III Accord and to see if Indian PSBs have capital adequacy for Basel III Accord implementation. The researchers concluded that Indian PSBs have capital adequacy and the stipulated norms under Basel III Accord can be complied with by Indian PSBs fairly well within given timelines by Reserve Bank of India.

Bucalossi, Coutinho et al. (2016) in their occasional paper series, observe that improved level of Leverage Ratio (LR) does not have a depressing effect on the repo market and the maintenance of required LR can be carried out by individual market turnover. Further, the required level of liquidity in the form of LCR can be maintained by increased usage of credit operations.

Thus, most of the earlier research studies were done either on the entire economy or focused on corrective measures to be implemented with Basel III. However, some research work has been done to study the probable impact of Basel III implementation on ROE and profitability, which is general in nature and not in quantifiable terms. Further, Basel III regulations are yet to be implemented fully in India so it is important to study the probable effects of these regulations in Indian parlance.

Research Methodology

This study mainly focuses on the relationship of parameters specified under Basel III i.e. Capital Adequacy Ratio (CAR), Leverage Ratio (LR), Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) with level of advances, profitability and level of NPA. To establish the relationship between independent variables i.e. parameters specified under Basel III and dependent variables (i.e. level of advances, profitability and level of NPA), multiple linear regression analysis is used. As multiple regression is a technique used to predict the unknown value of a dependent variable from the known value of two or more variables, this technique was employed here.

Multiple regression analysis doesn't check if the data is linear; rather it assumes that the relationship between dependent and independent variables is linear so before using this technique, it's desirable to use the scatter plots to confirm linearity. From the data presented in Table 1, some form of linearity can be seen for CAR and other dependent variables i.e. level of advances, net profits and net NPA. Further, this technique assumes non-existence of multi-collinearity i.e. independent variables are not related to each other, which must be ensured. In our case, as independent variables are specified by the BCBS, they are considered to be independent.

***Data sources and sample size*:** The data required for this research study was taken from the database of Reserve Bank of India (RBI) and financial statements of various banks published periodically. The details about CAR, LR, LCR, NSFR, level of advances, net NPA and net profits were considered for 26 public sector banks and 20 private sector banks from the year 2006 to 2014. The data collected for the purpose of this study is shown below.

Table 1: Details of level of advance, net profit and net NPA of 46 banks in India

(Values for advance, net profit and net NPA in Rs. Crore#)

Year	Advances	Net Profits	Net NPAs	CAR	LR*	LCR**	NSFR@
2014	6351324	70760.71	249135.9	0.12885	0.073507	-3.97842	2.75709
2013	5544626	79578.15	183011.8	0.1322	0.073922	-4.69829	2.61426
2012	4784366	72232.73	134757.5	0.1352	0.073136	11.20447	2.54906
2011	4052531	62373.22	92319.7	0.1488	0.070985	-5.53354	2.63200
2010	3297722	52261.91	79870.21	0.1494	0.071388	-4.57608	2.71595
2009	2828928	40474.28	64433.3	0.1459	0.070237	-9.80238	2.52826
2008	2335751	36100.8	53099.39	0.1424	0.072925	-3.61084	2.10603
2007	1868305	26954.6	47608.3	0.1216	0.063346	-2.31526	2.43714
2006	1430352	21860.81	48184.47	0.1216	0.065753	-4.97426	2.65378

Source: Reserve Bank of India statistical tables relating to banks in India, www.dbie.rbi.org.in, and author's own calculations
*# 1 Crore = 10 million, * Leverage Ratio is calculated as ratio of Tier 1 capital to average total assets; detailed calculation is shown in Annexure 3.*
*** Liquidity Coverage Ratio is ratio of cash or highly liquid assets to net cash outflow for 30 days; detailed calculation is shown in Annexure 3.*
@ Net Stable Funding Ratio is calculated as ratio of available stable funding to required stable funding; detailed calculation is shown in Annexure 3.
$list of 26 public sector banks under study is given in Annexure 1 and list of 20 private sector banks under study is given in Annexure 2.

A) Relationship between advances and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR):

Based on the data available from secondary data sources, multiple regression analysis was carried out to obtain the relationship between level of advances and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR); the following results were obtained.

Table 2: Regression results for relationship between advances and parameters specified under Basel III i.e. CAR, LR, LCR and NSFR

Particulars	Co-efficient (b)	Standard Error SE (b)	Standardised Coefficient (β)	P- Value
Common intercept	-27634732	7682907		0.225
CAR	-49739028	37975156	-.322	0.260
LR	412571337	112351123	.896	0.021
LCR	13694	62903	.047	0.838
NSFR	3501183	1728762	.402	0.113

Source: Author's calculations

We find that R square value is .848 confirming that 84.8 % variance in data is explained by this regression model. The beta values of independent variables CAR, LR, LCR and NSFR are -0.322, 0.896, 0.047 and 0.402 respectively indicating negative relationship of CAR with advances and positive relationship of the remaining three independent variables with level of advances. LR has the largest impact among all the four independent variables. The estimated equation for advances of the bank is as follows:

Advance = -27634732 -49739028 * CAR + 412571337 * LR + 13694 * LCR + 3501183 * NSFR

B) Relationship between net NPA and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR):

Based on the data available from secondary data sources, regression analysis was carried out to obtain the relationship between net NPA and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR); the following results were obtained.

Table 3: Regression results for relationship between Net NPA and parameters specified under Basel III i.e. CAR, LR, LCR and NSFR

Particulars	Co-efficient (b)	Standard Error SE (b)	Standardised Coefficient (β)	P- Value
Common intercept	-1000049.783	278118.091		.023
CAR	-4030973.258	1374685.065	-.630	.043
LR	18259932.441	4067064.508	.958	.011
LCR	-1088.375	2277.068	-.089	.658
NSFR	141999.970	62580.491	.393	.086

Source: Author's calculations

We find that R square value is .884 confirming that 88.4 % variance in data is explained by this regression model. The beta values of independent variables CAR, LR, LCR and NSFR are -0.630, 0.958, -0.089 and 0.393 respectively indicating negative relationship of CAR and LCR with net NPA and positive relationship of the remaining two independent variables with net NPA. LR has the largest impact among all the four independent variables. The estimated equation for net NPA of the bank is as follows:

Net NPA = -1000049.783 - -4030973.258 * CAR+ 18259932.441 * LR -1088.375 * LCR + 141999.970 * NSFR

C) Relationship between net profits and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR):

Based on the data available from secondary data sources, regression analysis was carried out to obtain the relationship between Net Profit and parameters specified under Basel III i.e. Capital Adequacy Ratio, Leverage Ratio, Liquidity Coverage Ratio and Net Stable Funding Ratio (NSFR); the results were obtained.

Table 4: Regression results for relationship between Net Profit and parameters specified under Basel III i.e. CAR, LR, LCR and NSFR

Particulars	Co-efficient (b)	Standard Error SE (b)	Standardised Coefficient (β)	P- Value
Common intercept	-349846.529	98579.619		.024
CAR	-156281.508	487260.393	-.081	.764
LR	4507202.156	1441580.695	.788	.035
LCR	741.341	807.112	.203	.410
NSFR	41785.060	22181.804	.386	.133

Source: Author's calculations

We find that R square value is .838 confirming that 83.8 % variance in data is explained by this regression model. The beta value of all independent variables CAR, LR, LCR and NSFR are -.081, 0.788, 0.203 and 0.386 respectively indicating negative relationship of CAR with net profits and positive relationship of the remaining three independent variables with net profits. LR has the largest impact among all the four independent variables. The estimated equation for net profits of the bank is as follows:

Net Profit = -349846.53 - 156281.5 * CAR + 4507202.15 * LR+741.34 * LCR + 41785.06 * NSFR

Findings

As can be observed, the co-relation co-efficient for CAR is negative for all three dependent variables i.e. advances, net NPAs and net profits; however, in varying magnitude. We can infer that keeping all other parameters intact, if there is a rise in capital to risk weighted assets ratio, there is a fall in advances, net NPAs and net profits by 0.322, 0.630 and 0.081 standard deviations.

The correlation coefficient for LR is positive and the highest in magnitude for all three dependent variables. We can infer that higher the amount of Tier-1 capital, higher the level of advances, net NPAs and net profits. One of the possible explanations for this can be the fact that increase in Tier I capital can be compensated by a corresponding fall in other forms of capital and keeping CAR intact, business growth will be higher due to high loss absorbing capacity.

The correlation coefficient for LCR is positive for two dependent variables viz: advances and net profits. Thus, short term liquidity helps in maintaining growth of advances and net profits. However, with net NPA, the correlation coefficient is negative but by a very small magnitude confirming that short term liquidity does not have much impact on net NPA. The possible explanation for this may be the fact that NPA declaration norms become effective only after 90 days from the date the interest or principle becomes overdue for a loan whereas LCR pertains more to liquidity for 30 days.

The correlation coefficient for NSFR is positive for three dependent variables. This can form the basis for us to believe that better the bank is in maintaining stable source of funding for a year, the level of advance and corresponding net NPA along with net profits is expected to rise but in varying magnitude.

Conclusion

Considering the present situation, Indian banks appear to be well placed as far as implementation of Basel III guidelines is concerned. The precautionary measures already implemented by Reserve Bank of India (RBI) such as raising CAR to 9% compared to internationally suggested level of 8% have impacted Indian banks positively. Further, as per the analysis of the results, the CAR, Capital Conservation Buffer and Counter Cyclical Buffer will force banks to infuse more capital, but at the same time, liquidity measures suggested like LCR and NSFR will help banks to maintain sufficient liquidity in the system. Leverage Ratio will help banks in maintaining quality capital and thus, will help to keep the banking business protected from systematic thrusts.

According to Basel III monitoring report (2017) released by BCBS, which covers 210 banks (consisting of 100 internationally active banks categorised as group-1 and 110 banks categorised as group-2), all banks meet the risk based minimum capital requirements. Further 98% of the banks in group -1 and 96% of the banks in group-2 had NSFR of more than 90% (which is to be achieved to 100%). Additionally, 88 % of group-1 banks and 94% of group-2 banks had LCR of more than 100%. Thus, we can infer that there is overall good progress towards full implementation of Basel III accord internationally.

However, higher capital and minimum liquidity requirements are likely to cause an adverse impact on return on equity, although coupled with LCR and NSFR, more liquidity is expected to remain in the system and growth in short tenure assets can be expected. In conclusion, it can be stated that the guidelines issued under Basel III Accord are effective in theory to protect the banking system from financial adversities; however, the real effectiveness of Basel III implementation can be analysed only after its actual implementation. Additionally, inconsistency in implementation of Basel III across nations would impact the flow of capital adversely.

Managerial Application

This study is an effort to assess the relationship of three vital indicators of growth for the banking industry (viz: level of advances, net NPAs and net profits) with the parameters specified under Basel III guidelines. Such a relationship will work as a logical tool for decision makers to see how any particular growth indicator changes vis-à-vis change in parameters specified under Basel III. It will also help decision makers to make a better choice from available options while designing strategies for growth of banks. Additionally, based on the relationship among the parameters as discussed in the section on findings, the decision makers can set their short term and long term goals (in the form of dependent variables considered here) keeping in view the deadline for implementation of Basel III regulations and other industry level parameters. Thus, in total, it is expected that this study will serve as a handy tool for quick reference and for making well-informed decisions.

Limitations of the Study

In this study, the relationship of dependent variables (i.e. advances, net NPAs and net profits) with CAR, LR, LCR and NSFR was derived considering all other factors were constant; however, in the practical sense, there may be many other factors like the bank's book size, government policies and macro economic conditions which affect these dependent variables. So this study can be extended to include the effect of all these variables for a better practical approach.

Further, data for this study is taken from the public domain, which is published data by the Reserve Bank of India (RBI) and respective banks' published financial statements at various points of time, so any possible omission in published data can be a source of error in the outcome of the study.

The time period considered for this study is 2006 to 2014; however, for a much better approach, the data for an extended period of time can be considered.

Scope for Further Research

This research study can be extended further to cover the study of the possible effects of Basel III regulations on banks by employing industry level variables like average industry growth rate, overall GDP growth and probable loss due to systematic crises based on past data. Further, the use of much advanced technique like scenario analysis can give a clearer picture of the situation post implementation of Basel III.

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Annexures

Annexure-1: List of Public Sector Banks taken under Study

Sr. No.	Name of the Bank
1	Allahabad Bank
2	Andhra Bank
3	Bank of Baroda
4	Bank of India
5	Bank of Maharashtra
6	Canara Bank
7	Central Bank of India
8	Corporation Bank
9	Dena Bank
10	Indian Bank
11	Indian Overseas Bank
12	Oriental Bank of Commerce
13	Punjab & Sind Bank
14	Punjab National Bank
15	Syndicate Bank
16	UCO Bank
17	Union Bank of India
18	United Bank of India
19	Vijaya Bank
20	State Bank of Bikaner & Jaipur
21	State Bank of Hyderabad
22	State Bank of Mysore
23	State Bank of Patiala
24	State Bank of Travancore
25	IDBI Bank Ltd.

Annexure-2: List of Private Sector Banks taken under Study

Sr. No.	Name of the Bank
1	City Union Bank Ltd.
2	ING Vysya Bank Ltd.
3	Tamilnad Mercantile Bank Ltd.
4	The Catholic Syrian Bank Ltd.
5	Dhanlaxmi Bank Ltd
6	The Federal Bank Ltd.
7	The Jammu & Kashmir Bank Ltd.
8	The Karnataka Bank Ltd.
9	The Karur Vysya Bank Ltd.
10	The Lakshmi Vilas Bank Ltd.
11	Nainital Bank Ltd.
12	RBL Bank
13	The South Indian Bank Ltd.
14	Axis Bank Ltd.
15	Development Credit Bank Ltd.
16	HDFC Bank Ltd.
17	ICICI Bank Ltd.
18	Indusind Bank Ltd.
19	Kotak Mahindra Bank Ltd.
20	YES Bank

Annexure-3: Calculation of Leverage Ratio, Liquidity Coverage Ratio and Net Stable funding Ratio

1) Calculation of Leverage Ratio

Year	Capital (Rs Crore)	Reserves+ Surplus (Rs Crore)	Total Tier 1* (Rs Crore)	Total Assets** (Rs Crore)	Leverage Ratio = (Tier 1) / Total Assets
2013-14	76,067	729,832	805,899	10,963,475	0.073507624
2012-13	70,310	638,604	708,914	9,589,952	0.073922581
2011-12	63,664	544,898	608,562	8,320,890	0.073136648
2010-11	58,975	450,944	509,919	7,183,398	0.070985765
2009-10	48,648	381,476	430,124	6,025,141	0.071388205
2008-09	43,289	324,658	367,947	5,238,642	0.070237096
2007-08	39,963	275,524	315,487	4,326,166	0.072925311
2006-07	29,559	189,616	219,175	3,459,946	0.063346364
2005-06	25,207	157,972	183,179	2,785,851	0.065753337

* *Total Tier 1 is sum of capital and (Reserves + Surplus)*

** *Data on Total assets taken from consolidated balance sheet of Scheduled commercial banks published on www.dbie.rbi.org.in, 1 crore= 10 million*

2) Calculation of Liquidity Coverage Ratio

Year	Cash and Balances with RBI* (Rs Crore)	Balances with Banks and Money at Call and Short Notice* (Rs Crore)	Stock of High Quality Liquid Assets (HQLA) adjusted for private and public sector banks** (Rs Crore)	Stock of HQLA for 30 days (Rs Crore)	Net cash outflow for one year*** (Rs Crore)	Net cash outflow for 30 days (Rs Crore)	LCR= Stock of HQLA/ Net cash out Flow
2013-14	471,729	406,304	827,985.119	68,998.76	-208,119	-17,343.2	-3.97842
2012-13	375,174	334,879	669,579.979	55,798.33	-142,516	-11,876.3	-4.69829
2011-12	373,746	243,676	582,228.946	48,519.08	51,964	4,330.333	11.20447
2010-11	458,783	184,082	606,221.695	50,518.47	-109,554	-9,129.5	-5.53354
2009-10	365,812	183,455	517,958.781	43,163.23	-113,188	-9,432.35	-4.57608
2008-09	297,267	196,516	465,637.369	38,803.11	-47,502.5	-3,958.54	-9.80238
2007-08	322,971	109,109	407,451.44	33,954.29	-112,841	-9,403.42	-3.61084
2006-07	195,264	158,298	333,408.966	27,784.08	-144,005	-12,000.4	-2.31526
2005-06	144,474	116,440	246,041.902	20,503.49	-49,463	-4,121.92	-4.97426

* *Data for cash balance and balance with other banks taken from consolidated balance sheet of scheduled commercial banks published on www.dbie.rbi.org.in*

** *Stock for HQLA is proportion @of private and public sector banks in sum of cash balance with RBI and balance with other banks, data taken from consolidated balance sheet of scheduled commercial banks published on www.dbie.rbi.org.in,*

@ *Proportion of public and private sector banks is derived from their contribution in total deposits and advances in consolidated balance sheet of scheduled commercial banks i.e. .0.946 of total sum.*

*** *Net cash outflow is the net of cash inflow and cash outflow for public sector banks and private sector banks in India, data taken from the cash flow of respective banks. Negative figure indicates net cash inflow.*

3) Calculation of Net Stable Funding Ratio

Year (End-March)	Capital (Rs Crore)	Deposits (Rs Crore)	Assets Available for Stable funding i.e. Capital + Deposits* (Rs Crore)	Investments* (Rs Crore)	Loans and Advances* (Rs Crore)	Contingent Liability i.e. off balance sheet exposure# (Rs Crore)	Investments +Loans and Advances+ Contingent Liability (Rs Crore)	Assets required for stable funding $ (Rs Crore)	NSFR= Assets requiredf or stable funding / Assets available for stable funding
2013-14	76,067	8,533,138	8,596,802	2,882,853	6,735,232	5,972,240.7	15,590,326	3,118,065.1	2.7570951
2012-13	70,310	7,429,677	7,488,652	2,613,051	5,879,773	5,829,842.2	14,322,666	2,864,533.2	2.6142661
2011-12	63,664	6,453,549	6,502,197	2,233,903	5,073,559	5,446,629.1	12,754,091	2,550,818.2	2.5490633
2010-11	58,975	5,615,874	5,659,163	1,923,633	4,297,488	4,529,536.1	10,750,657	2,150,131.4	2.632008
2009-10	48,648	4,752,456	4,792,419	1,719,185	3,497,054	3,606,476	8,822,715	1,764,543	2.7159548
2008-09	43,289	4,063,201	4,092,760	1,449,551	2,999,924	3,644,526.9	8,094,001.9	1,618,800.4	2.5282673
2007-08	39,963	3,320,061	3,345,268	1,177,329	2,476,936	4,287,842	7,942,107	1,588,421.4	2.1060331
2006-07	29,559	2,696,934	2,696,934	950,977	1,981,235	2,600,759	5,532,971	1,106,594.2	2.4371481
2005-06	25,207	2,164,679	2,164,679	866,505	1,516,810	1,695,160	4,078,475	815,695	2.6537848

* *Data for capital, deposits, investments, loans and advances is taken from consolidated balance sheet of scheduled commercial banks published on www.dbie.rbi.org.in, , Proportion of public and private sector banks is derived from their contribution in total deposits and advances in consolidated balance sheet of scheduled commercial banks i.e. 0.946 of respective parameter.*

\# *Data for contingent liability for public and private sector banks is taken from the details available from the website www.dbie.rbi.org.in,*

$ *Assets required for stable funding is 20% of sum of investments, loans and advances and contingent liabilities.*

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