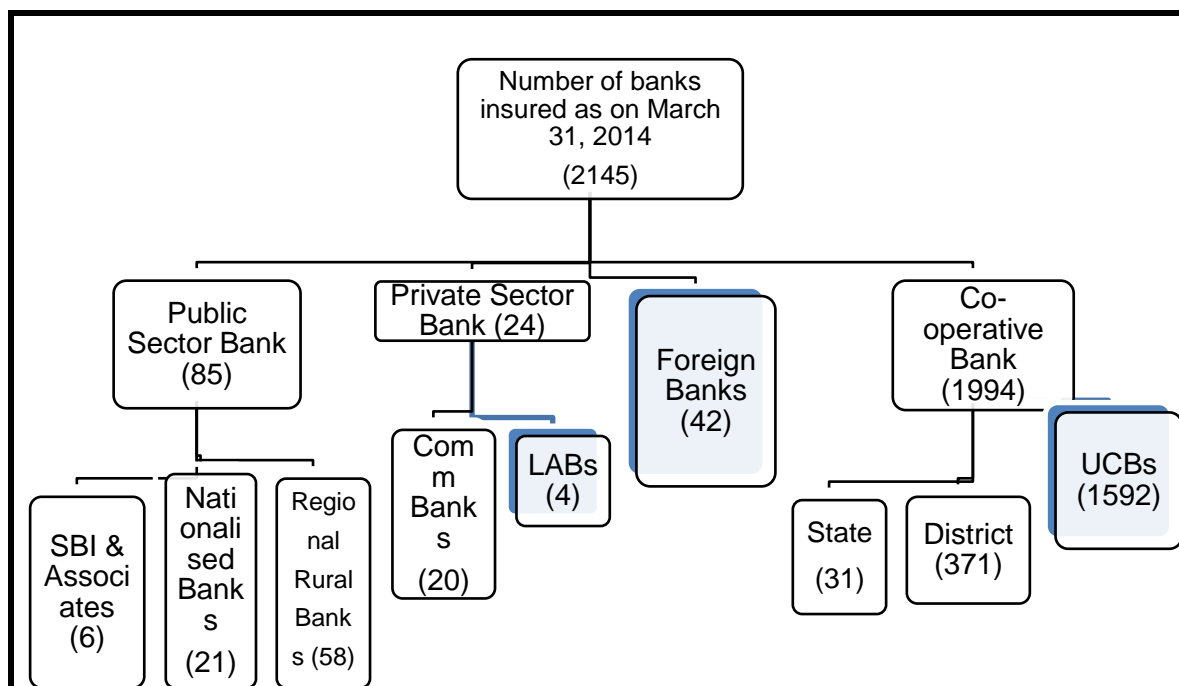


Developing the Rating Model

Introduction

4.1 As stated elsewhere in Chapter 3 of the Report, the Committee desired that the Rating Model for the banks be robust, simple and easy to understand. The important parameters based on which the banks in India have usually been subjected to rating process are both quantitative and qualitative. In Indian supervisory rating process, CAMELS approach has been used over a long period of time, which is currently being replaced by forward looking risk-based assessment in stages. Acronyms in CAMELS indicate respectively Capital Adequacy (signifying solvency), Asset Quality, Management Quality, Earnings, Liquidity and (Internal) Systems and Controls. Similar indicators have been used elsewhere in the world for rating of banks.

4.2 The Committee had a look at the sector structure of the banks insured by DICGC. The universe of insured banks in India comprise of public sector banks, private sector banks, Regional Rural Banks, Co-operative banks, local area banks and foreign banks (Chart 1).

Chart 1: Sector Structure of Insured Banks in India

4.3 The banking system has three major categories of banks based on the mode of incorporation and ownership characteristics, namely, public sector banks, private sector banks and cooperative banks. The sub-categories within the major categories are closely similar. All the public sector banks, private sector banks (other than Local Area Banks (LABs)), RRBs and State (Apex) Cooperative Banks are listed under Second schedule of the RBI Act 1934. Other banks in co-operative sector however are scheduled as well as non-scheduled. A scheduled status provides banks with certain privileges e.g. access to RBI's liquidity window, subject to compliance with other eligibility criteria.

4.4 Indian banking sector is highly skewed. Although the number of banks with non-scheduled status far exceeds that of scheduled banks, the Indian banking sector is primarily under the domination of scheduled banks. Non-scheduled banks are small in size in terms of business, have a limited area of

operation; many of them being single branch banks. Among the scheduled banks too, it is the Scheduled Commercial Banks (SCBs) i.e. other than RRBs that play the most important role. As on end March 2014, about 94 per cent of the banking business (deposits and credit) of all scheduled banks was with the SCBs. These banks therefore assume huge systemic significance for the Indian banking sector and thus for the Indian financial system. In view of the systemic importance of the SCBs in India, a brief analysis of risks assumed by these banks is presented below. The analysis is based on major financial parameters of these banks as per their audited annual accounts for the financial years ended March 2012, March 2013 and March 2014.

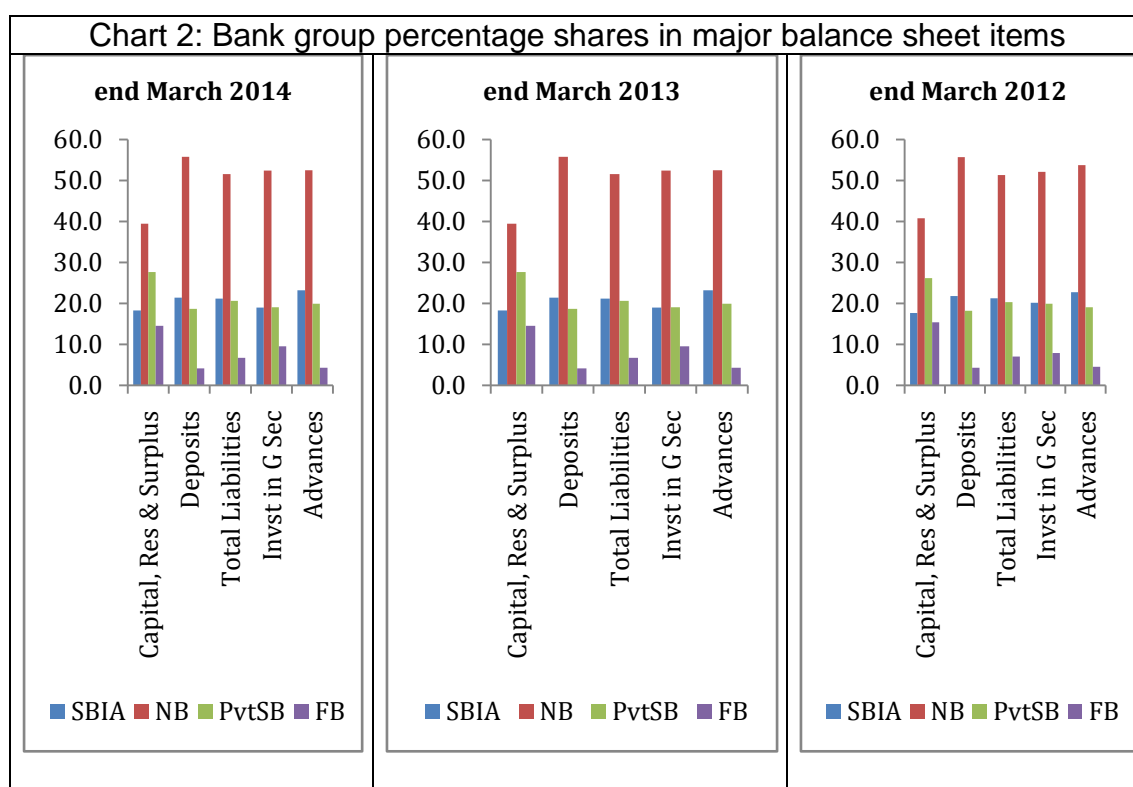
Balance Sheet Analysis of SCBs

Ownership pattern

4.5 SCBs comprise of State Bank of India and its associates (SBIA), nationalised banks (NB), private sector banks and foreign banks. SBIA and NBs are called public sector banks as major shares of these banks are held by the Government of India (GoI). A major part of the equity in private sector banks is held by private shareholders. Foreign Banks (FBs) are the branches of foreign banks having presence in India. There were 90 SCBs operating in India at end March 2014 of which 6 were SBIA, 21 were NBs, 20 private sector and 43 were FBs.

Bank group wise share in major balance sheet items

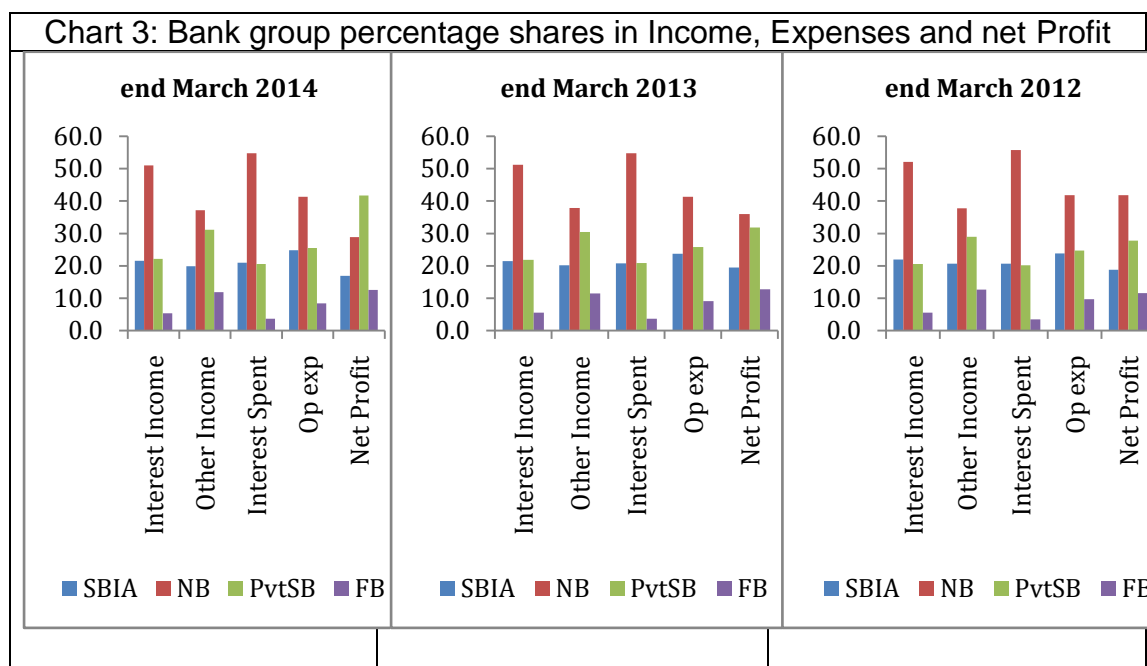
4.6 NBs accounted for the majority shares in deposits and advances followed by SBIA. In respect of capital and reserves and surplus also NBs accounted for the major share followed by private sector banks. Regarding investments in government securities too, NBs accounted for the major share followed by near equal share by SBIA and private sector banks (Chart 2).



Source: Statistical Tables Relating to Banks in India (www.rbi.org.in)

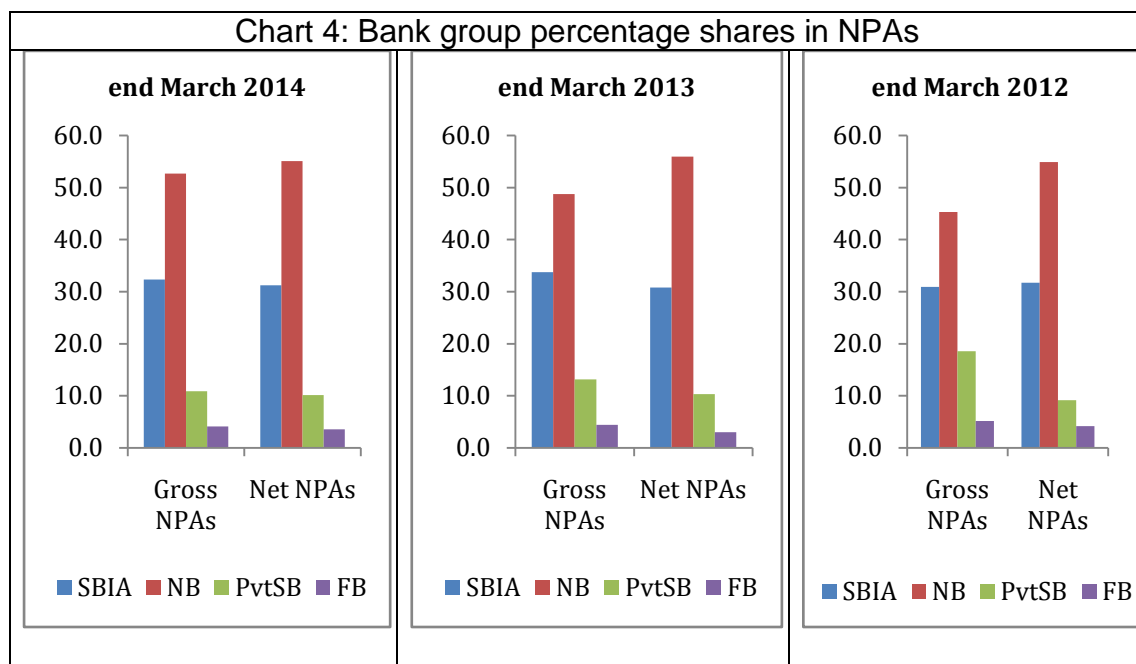
Bank group Share in Income, Expenses and net Profit

4.7NBs had major share in interest income followed by nearly equal share by SBIA and private sector banks (Chart 3). In case of other income, share of private sector banks came very close to that of NBs and remained significantly above that of SBIA and FBs. In case of expenses, SBIA and private sector banks performed almost equally well and their share in expenses remained noticeably lower to that of NBs (Chart 3). Share of private sector banks was the highest in net profit in 2013-14 and remained next to that of NBs that had the highest share in the previous two financial years.



Bank group Share in NPAs

4.8 Share of NB was the highest in non-performing assets followed by SBIA (Chart 4).



Adopting Risk Parameters

4.9 The Committee acknowledges that there are a myriad of parameters under which a financial institution could be evaluated for its risk. The Committee was of the view that for introduction of a Differential Premium System, it was enough to devise a protocol under which banks could be differentiated from one another for being placed in an inter-se order and to provide this as incentive for banks to avoid excessive risk taking. Therefore the model did not require a measurement and quantification of exact quantum of insurer risk in monetary value terms for each institution so as to get the DICGC compensated for that through premium. Against this background, the Committee decided to devise the rating model to be one akin to CAMELS model. As highlighted in Chapter 2, a good number of Deposit Insurance Agencies (DIAs) too have deployed some elements of CAMELS model in rating the insured institutions. Prominent elements among them are Solvency, Profitability, Asset Quality and Liquidity. Some DIAs have used additionally Supervisory Inputs to capture qualitative aspects, which have been sourced under information sharing arrangements between the DIAs and the supervisors. The Committee was aware of the limitations on the availability of supervisory ratings as an input in India. ***It therefore decided to propose the following parameters to be used as model inputs:***

- (a) Capital Adequacy and quality of its composition (weight 25%),***
 - (b) Asset Quality (weight 25%),***
 - (c) Profitability (weight 20%)***
 - (d) Liquidity (weight 20%), and***
 - (e) Other information (weight 10%)***
- (Recommendation 22)***

4.10 A brief detail of the significance of each of these indicators is presented below.

(a) Capital Adequacy and quality of its composition

The use of capital as a primary risk differentiation measure is intended to provide greater protection for the deposit insurance fund by recognising capital's role in cushioning against losses, and bringing in owner's stake in ensuring sound operations. Therefore it was decided to include the following risk factors under capital adequacy viz. capital to risk weighted asset ratio (CRAR) and the presence of Tier I Capital. While, CRAR reflects the overall soundness of the bank, the level and nature of Tier I capital helps to assess the quality of the capital. The scheduled commercial banks other than RRBs have been brought under the Basel III regime under a transition arrangement (Table 1) while rest of the banks are still subjected to Basel I norms. It may be added that State and District Central Cooperative Banks are being brought under the Capital Adequacy of 9% (as applicable to other banks under Basel I) by March 2017. It is observed from the Table that the composition of Capital Ratios under Basel III is materially different from that under Basel I. While under Basel I, Tier 2 Capital cannot be more than 100% of tier I Capital, Basel III, requires the banks to have as on April 31, 2014 a Tier I share not below 6.5% points in Capital ratio of 9% points. This difference would reflect in the evaluation of the quality of capital as part of rating model.

Table 1: Transitional Arrangements under BASEL III-Scheduled Commercial Banks(excluding LABs and RRBs)

(% of RWAs) Minimum capital ratios	April 1, 2013	March 31, 2014	March 31, 2015	March 31, 2016	March 31, 2017	March 31, 2018	March 31, 2019
Minimum Common Equity Tier 1 (CET1)	4.5	5	5.5	5.5	5.5	5.5	5.5
Capital conservation buffer (CCB)	-	-	-	0.625	1.25	1.875	2.5

Minimum CET1+ CCB	4.5	5	5.5	6.125	6.75	7.375	8
Minimum Tier 1 capital	6	6.5	7	7	7	7	7
Minimum Total Capital	9	9	9	9	9	9	9
Minimum Total Capital +CCB	9	9	9	9.625	10.25	10.875	11.5
Phase-in of all deductions from CET1 (in %)	20	40	60	80	100	100	100

(b) Asset Quality

For asset quality, it was decided to use the following risk factors related to non-performing assets viz. the percentage of Gross NPAs to Gross Advances to reflect overall asset quality, percentage of Net NPAs to Net Advances to assess the strength of balance sheet based on the provisions made for NPAs and share of sub-standard advances in Gross NPAs which is indicative of quality of NPAs in terms of higher probability of NPA movement into standard category.

(c) Liquidity

For this factor, the Committee decided to have model inputs based on share of term deposits in total deposits and the ratio of liquid assets to total deposits and borrowings. The consideration for term deposits is based on the assumption that term deposits provide funding stability and technically their repayment in case of bank failure can be deferred till their maturity thus helping the Deposit Insurance Agency to manage its liquidity. Therefore higher the share of term deposit, the better from the perspective of a DIA. As regards liquidity on the balance sheet, the Committee held the view

that all market assets and the assets maturing within one month would denote liquidity. The Committee accordingly decided that the liquid assets would consist of cash and bank balances (including balances with RBI), monies placed with counterparties (interbank) and maturing within one month, and investments in government securities. In a typical state of bank liquidation, these assets would generate cash more easily. Therefore, higher the share of such assets, more liquid is the balance sheet.

(d) Earnings

Performance under the earnings parameters provides a useful insight into a member bank's potential to sustain its capital ratios. Under earnings, three risk factors were selected viz. Return on Assets (RoA), cost to income ratio and Net Interest Margin (NIM). RoA will be compiled as percentage ratio of profit after tax to average total assets and is indicative of the productivity of assets. Cost to income ratio, is defined as percentage ratio of operating expenses to total of net interest income plus non-interest income and reflects the degree of efficiency of expense management. Lastly the NIM depicts pricing efficiency of liabilities and assets. It also captures the adverse effect of NPAs as they generate no interest income. A higher margin reflects a better acceptance of the bank by the public and the businesses.

e) Other Information

It will include such risk factors that are not covered above. These risk factors may be related to state of adoption of technology, access to Reserve Bank funding, regulatory penalties, DICGC's own assessment of a member bank in compliance with various deposit insurance related requirements, etc.

4.11 Based on the quality/significance of the different indicators, the Committee decided to allot Reward Points (RPs) to each bank and aggregate them to arrive at the overall score.

Proposing a Model

Framework of the model

4.12 *The Committee decided to build a model based on the risk factors proposed earlier and called it Comprehensive Risk Assessment Module (CRAM). For each risk factor, a bank is given a Reward Point based on the risk assumed in respect of that risk factor. A bank will get a higher RP for lower risk exposure. The framework of the model is presented below (Table 2). (Recommendation 23)*

Table 2: Framework of the Comprehensive Risk Assessment Module (CRAM)

Risk factors	Reward point (RP)
1. Solvency <i>of which</i>	0 - 25
(i) CRAR (in %)	0 - 15
(ii) Quality of capital	0 - 10
(a) For SCBs: Tier I capital ratio (other than RRBs) (%)	
(b) For RRBs, LABs and Cooperative banks: Tier I to Tier II ratio	
2. Asset quality <i>of which</i>	0 - 25
(i) Ratio of Gross NPAs to Gross advances (in %)	0 - 12
(ii) Ratio of net NPA to net Advances (in %)	0 – 8

(iii) Ratio of Sub-standard assets to Gross NPAs (in %)	0 - 5
3. Liquidity	0 - 20
(i) Liquid assets [cash in hand, balance with RBI, balances with banks, money at call & short notice, market value of government securities held (in India)] to total of deposits & borrowings (in %);	0 - 15
(ii) Ratio of term deposits to total deposits (%)	0 - 5
4. Profitability <i>of which</i>	0 - 20
(i) Return on Assets (PAT to Total Average Assets) (in %)	0 - 10
(ii) Cost to income ratio (in %)	0 - 5
(iii) Net Interest Margin (in %)	0 - 5
5. Miscellaneous	0 - 10
Access to RBI liquidity support, state of technology adoption, regulatory penalties, and compliance with DICGC's various requirements, etc.	0 - 10
Total	0 - 100

Rules for assigning reward point

4.13 The rules for assigning RP for each of the risk factors outlined with the exception of the 'other information' are presented below (Tables 3, 4 and 5). (Recommendation 24)

Table 3: Rules for Assigning RPs: Solvency

1. Solvency					
CRAR		For SCBs only		For RRBs, LABs, and Cooperative Banks only	
(i) CRAR(%)	RP	(ii) Tier 1 capital(%)	RP	(ii) Tier 1 to tier 2 ratio ^{\$}	RP
<6	0	< 5.0	0		
≥6 but < 7	6	≥ 5.0 but < 5.5	1	≥1.0 but <1.2	4
≥7 but <8	7.5	≥5.5 but < 6.0	3	≥1.2 but <1.4	6
≥8 but < 9	9.0	≥ 6.0 but < 6.5	5	≥1.4 but <1.6	8
≥9 but <10	10.5	≥6.5 but <7.0	7	≥ 1.6	10
≥10 but <11	12.0	≥7.0 but <7.5	9		
≥11 but <12	13.5	≥ 7.5	10		
≥12	15				

^{\$} banks can not have this ratio below 1;

It may be observed that though the minimum CRAR prescribed is 9%, a CRAR level below the minimum prescribed too has value from the solvency perspective. Therefore, the Committee considers that a CRAR below 6% maximises the risk and consequently minimises the RPs.

Table 4: Rules for Assigning RPs: Asset quality

2. Asset Quality

(i) Ratio of GNPA's to Gross Advances (%)*	RP	(ii) Ratio of net NPA to net Advances (%)	RP	(iii) Ratio of Sub-standard assets to GNPA's (%)	RP
≥ 8	0	≥ 2.7	0	< 50	0
≥ 7 but < 8	1.5	≥ 2.4 but < 2.7	1	≥ 50 but < 55	1
≥ 6 but < 7	3	≥ 2.1 but < 2.4	2	≥ 55 but < 60	2
≥ 5 but < 6	4.5	≥ 1.8 but < 2.1	3	≥ 60 but < 65	3
≥ 4 but < 5	6	≥ 1.5 but < 1.8	4	≥ 65 but < 70	4
≥ 3 but < 4	7.5	≥ 1.2 but < 1.5	5	≥ 70	5
≥ 2 but < 3	9	≥ 0.9 but < 1.2	6		
≥ 1 but < 2	10.5	≥ 0.6 but < 0.9	7		
< 1	12	< 0.6	8		

Table 5: Rules for Assigning RPs: Liquidity and Profitability

3. Liquidity				4. Profitability					
(i) Liquid Assets (Cash in hand, balance with RBI, balances with banks, money at call & short notice, investment in govt securities in India) to total of	RP	(ii) Term deposits to total deposits	RP	(i) Return on Assets (%)	RP	(ii) Cost to income Ratio (%)	RP	(iii) Net Interest Margin (%)	RP

deposits & borrowing s (in %)									
<21.5	0	< 10	0	< 0.0	0	>= 60	0	< 1	0
≥21.5 but < 23.0	1.5	≥10 but < 20	1	≥0.0 but < 0.1	1			≥1 but <1.5	1
≥23.0 but <24.5	3	≥20 but <30	2	≥0.1 but < 0.2	2	≥=50 but < 60	1	≥1.5 but < 2.0	2
≥24.5but < 26.0	4.5	≥30 but <40	3	≥0.2 but <0.3	3	≥=40 but < 50	2	≥2.0 but <2.5	3
≥26.0 but <27.5	6	≥40 but<50	4	≥0.3 but <0.4	4	≥=30 but < 40	3	≥2.5 but <3.0	4
≥27.5but <29.0	7.5	≥= 50	5	≥0.4 but < 0.5	5	≥=20 but < 30	4	≥ 3.0	5
≥29.0but <30.5	9			≥0.5 but <0.6	6	< 20	5		
≥30.5but < 32.0	10. 5			≥0.6 but < 0.7	7				
≥32.0 but <33.5	12. 0			≥0.7 but < 0.8	8				
≥33.5 but	13.			≥0.8	9				

<35.0	5			but					
				<0.9					
>= 35	15			≥ 0.9	10				

The average normal liquid assets build up has been reckoned around 28% constituted of minimum SLR (21.5%) largely represented by government securities and cash in hand, CRR (4%), and short term funds (upto a tenor 30 days) with other banks (2.5%).

4.14 In order to make the rating model more futuristic and make the premium capture the future risks, a point was raised whether trends of some important parameters be studied for capturing the direction of risk and used as model inputs. However, after a detailed discussion, it was decided not to complicate the model at this stage and consider the same in future once the model stabilises.

Rating Review

4.15 The proposed DPS System recommends adoption of transparency in the rating process (Chapter 3). The member banks would therefore be able to assess themselves even before receiving the rating communication from the Corporation. The Committee did not rule out the possibility of errors creeping in while the rating score is being calculated and member bank appeals for the rating review. The basis of appeal may also be an error in the quantitative information provided by the member bank. To deal with the situation, the ***Committee recommends that Corporation may institute a rating review system for member banks. Rating calculation may be subjected to a review on receipt of an appeal from a member bank. The appeal may be submitted within the time period prescribed after the score/rating is communicated to the member bank. Notwithstanding the appeal, the requesting bank must pay the premium on or before the due date for the relevant insurance period. (Recommendation 25).***

Classification Methods

4.16 The Committee discussed the two key approaches viz. Percentile Method and Benchmark Method, in classification of banks into different risk categories based on their aggregate RPs.

4.17 Under percentile method, percentiles and percentile ranks are frequently used as indicators of performance. Percentiles and percentile ranks provide information about how a person or thing relates to a larger group. They however fail to appreciate the significance of a score on standalone basis. A DIA's risk is also a function of varying general economic conditions. Therefore, in a weak economic scenario or in a downturn, all the key parameters would deteriorate but the significance of deterioration in absolute scores would go unappreciated in a percentile method. Similarly, in good times, in spite of good performance by all banks, the model would penalise banks despite having improved their financial position.

4.18 In the Benchmark based Method, pre-determined levels or benchmarks in the score ladder are used to classify the objects into different groups and the benchmarks/levels are supposed to remain static in varying economic conditions unless changed after a conscious review.

4.19 The Committee considered the pros and cons of the two approaches. The Committee also observed that as per the practices elsewhere, DIAs have mostly used benchmark based methods in grouping. The Committee accordingly decided to go in for Benchmark based approach in classifying the banks. (Recommendation 26)

Benchmarks and Risk Categories

4.20 The Committee decided to assess the risk assumed by a bank based on total RPs assigned to it. It was also decided to apply benchmark RPs to

classify the banks into various risk zones according to increasing order of risks assumed. ***Accordingly, banks will be classified into low risk, moderate risk, medium risk and high risk zones as per the criteria presented below:***

- (i) Low Risk (LR) banks - banks with total RPs 80 and above;***
- (ii) Moderate Risk (MoR) banks - banks with total RPs 65 and above but below 80;***
- (iii) Medium Risk (MeR) banks - banks with total RPs 50 and above but below 65;***
- (iv) High Risk (HR) banks - banks with total RPs below 50;***

Benchmarks proposed above are in tune with the ones used internationally.

(Recommendation 27)

Simulation

4.21 One of the terms of reference for the Committee was to recommend a matrix of premium rates corresponding to risk-ratings in a manner that there was least disturbance to the levels of existing premium inflows. For this exercise, the Committee recognised that it should categorise the banks into different risk groups based on the proposed rating model and discover the appropriate premium rates to achieve the objectives of this term of reference.

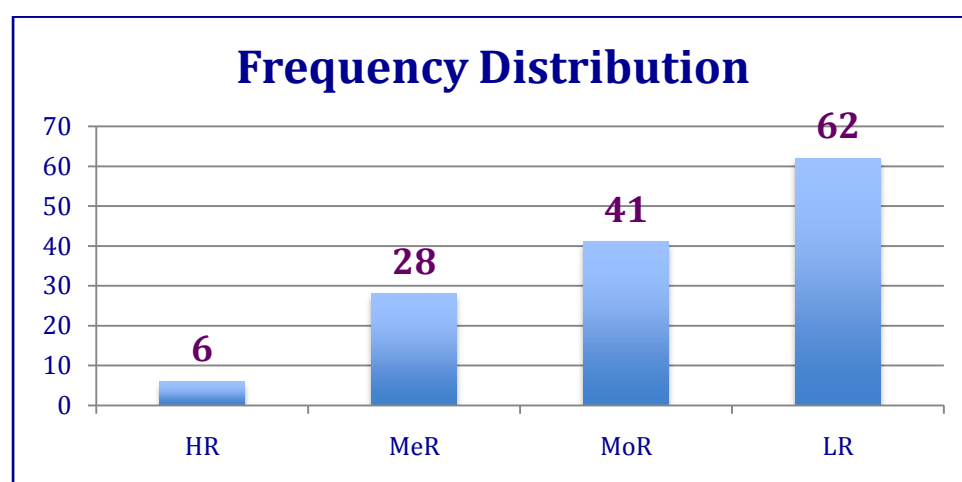
4.22 The Committee also took cognisance of the fact that DICGC's membership was large in number and varied in characteristics. The Committee therefore adopted a sample based approach for simulation exercise. The Committee felt the need to capture 90% or above of the assessable deposits through the sample. It found that the kind of data required for the model was more readily available in respect of all scheduled commercial banks and scheduled urban cooperative banks with the respective supervisors. The Committee therefore decided to restrict the simulation exercise to these banks. The Committee selected a sample of 87 commercial banks and 50 scheduled UCBs. These banks together, captured 92% of total assessable deposits as on March 31, 2014. The banks in sample

were subjected to evaluation under the rating model proposed and the model generated a frequency distribution of banks under broad categories as per Table 6 (Chart 5) below.

Table 6: Frequency Distribution of Bank Groups as per RPs
(Scenario 1)

RP Range	Zone	Frequency Distribution
<50	HR	6
50 - 65	MeR	28
65-80	MoR	41
=>80	LR	62
Total		137

Chart 5: Frequency Distribution of Bank Groups as per RPs
(Scenario 1)



The distribution reveals a mixed pattern among the various banking groups with foreign banks faring among the best.

Premium Rates and Spreads

4.23 The Committee argued that premium should progress along the rating scale in a curvilinear manner so as to build up an incentive in the form of

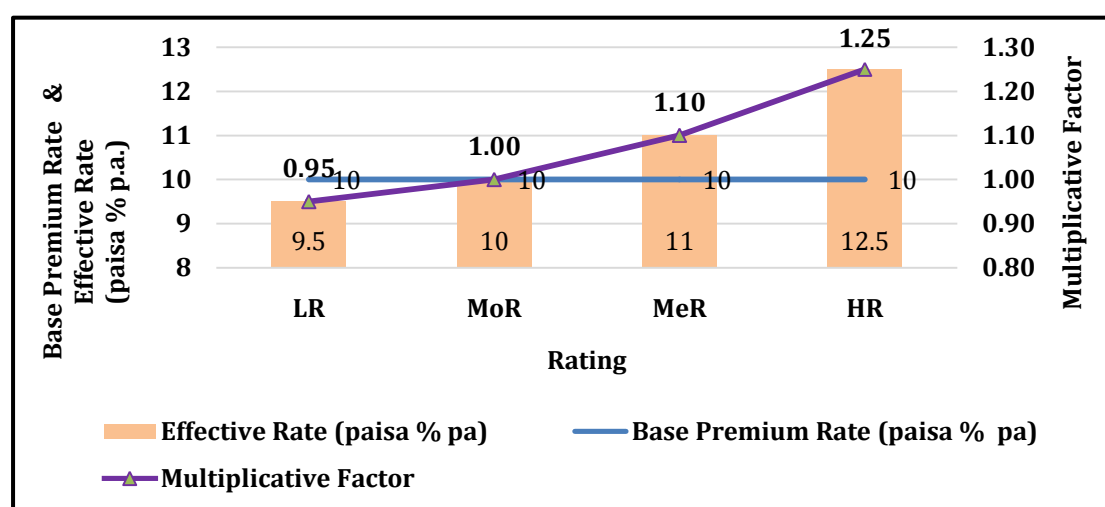
material gain through premium saving if a bank improved to better risk category. **Committee accordingly recommends the following premium rate structure (Table 7, Chart 6) with a rising step up as the rating deteriorates.**

Table 7: Premium Rates and Spreads

Rating	Base Premium Rate * (paisa % pa)	Multiplicative Factor*	Effective Premium Rate	Step Up
(1)	(2)	(3)	(4)=(2)*(3)	
LR	10.00	0.95	9.5	-
MoR	10.00	1.00	10.0	0.5
MeR	10.00	1.10	11.0	1.0
HR	10.00	1.25	12.5	1.5

* For discussion on Base Premium Rate and Multiplicative Factor, please refer to paragraph 3.17

Chart 6: The Premium Rate Curve



(Recommendation 28)

4.24 The Committee worked on the classification of the sample based on the financial results of banks as on March 31, 2014. As recommended in Chapter 3, the rating discovered based on the financial results of March 31, 2014 would hypothetically apply to the insurance period Oct. 2014 – Sep. 2015.

Based on this principle, the Committee applied the above rates in respect of the banks in the sample and observed the following results (Table 8).

Table 8: Changes in Premium Collectible for the Half Year October 2014 to March 2015 (Amount in RsMn)
Scenario I (Proposed)

Risk Category	LR	MoR	MeR	HR	Total
Premium at Existing Rates	9,409	22,001	7,494	30	38,934
Premium at Revised Rates	8,938	22,001	8,244	37	39,220
Excess (+)/Short (-) Collection (%)	-5.00	0.00	10.00	25.00	+0.73

It is observed therefrom that the Corporation would be collecting a small excess of 0.73% as premium.

Assigning Premium Categories during Transition

4.25 In the context of the transition, the Committee recommends that in the first year of implementation, banks could be given a concession of 5 points in categorizing them as per their respective scores as under:

- (i) Low Risk (LR) banks - banks with total RPs 75 and above;
- (ii) Moderate Risk (MoR) banks - banks with total RPs 60 and above but below 75;
- (iii) Medium Risk (MeR) banks - banks with total RPs 45 and above but below 60;
- (iv) High Risk (HR) banks - banks with total RPs below 45;

(Recommendation 29)

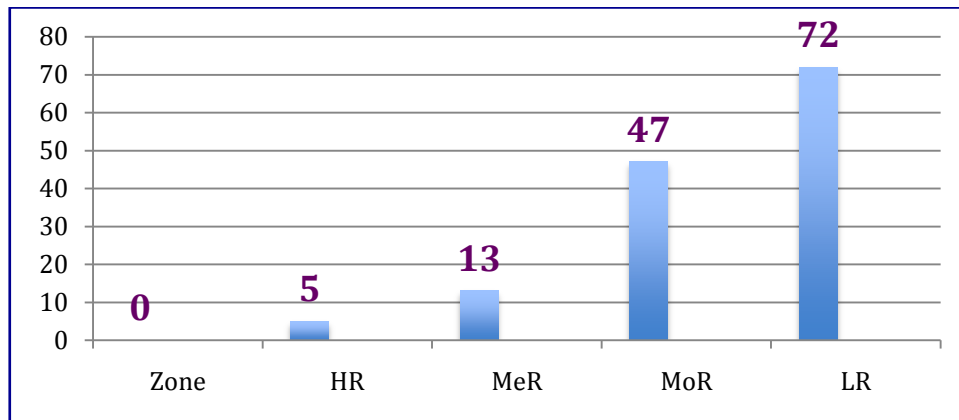
Transition would help banks to take note of the disadvantages of being high in the risk category and therefore provide one year to improve their financials.

4.26 The application of relaxed standards results in the following classification of the banks in the sample (Table 9, Chart 7).

Table 9: Frequency Distribution of Bank Groups as per RPs
(Scenario 2)

RP	Zone	Frequency Distribution
<45	HR	5
45 - 60	MeR	13
60-75	MoR	47
=>75	LR	72
Total		137

Chart 7: Frequency Distribution of Bank Groups as per RPs



The changes in the premium accruing to the DICGC are as under:

Table 10: Scenario 2 (Benchmark relaxed for Year 1)

Risk Category	LR	MoR	MeR	HR	Total
Premium at Existing Rates	13,230	22,892	2,794	17	38,933
Premium at Revised Rates	12,568	22,892	3,074	21	38,557
Excess (+)/Short (-) Collection %	-5.00	0.00	10.00	+25.00	-0.97%

It is observed that there would be a small **undercollection** of premium by 0.97% from banks in the sample.

Reserve Ratio Target and Premium Rates

4.27 As stated in Chapter 3, the Corporation is striving to reach an informal target Reserve Ratio of 2.5, which as on 31 March 2015 stood at 1.93. There is a need to adopt a Target Reserve Ratio on a more scientific basis. The target for Reserve Ratio in general should, at minimum, cover the potential losses, as deposit insurance agency may suffer under normal circumstances. Internationally, the DIAs that have set up the Reserve Ratio targets have largely adopted two approaches while doing so – (1) Historical Loss Method and (2) Credit Portfolio Approach. The Target Reserve Ratio should also be dynamic so as to be responsive to evolving banking conditions, be these be bank specific or general. It may therefore be re-assessed periodically that it reflects the contemporary insurance risk of the Corporation. **The Committee therefore recommends the Corporation too should work towards setting up Target Reserve ratio after a due process and it is subjected to periodic review so that it remains current and is reflective of Corporation's ongoing insurance risk. (Recommendation 30)**

4.28 Once the Target Reserve ratio is achieved, there would be case for having a relook at the premium rates. the Corporation may revisit the premium rates and if the need be, moderate them to appropriate levels

while ensuring that the Target remains achieved on a continuous basis. Similarly, in case the Reserve ratio falls below the Target, the premium rates may be revised upward to restore the Reserve Level to the Target. *(Recommendation 31)*