

Comparison of banks with respect to cheque collection policy

A D Naga Venkata Ramarao, Ashish Das and Chand Midha

Department of Mathematics
Indian Institute of Technology Bombay
Mumbai-400076, India



Indian Institute of Technology Bombay
Powai, Mumbai-400 076, India

Comparison of banks with respect to cheque collection policy*

A D Naga Venkata Ramarao^{a1}, Ashish Das^{aβ2} and Chand Midha^{β3}

^aDepartment of Mathematics, Indian Institute of Technology Bombay, Mumbai-400076, India

^βDepartment of Statistics, The University of Akron, Akron, OH 44325, USA

August 31, 2009

Abstract

In 2004 RBI deregulated the standards set for cheque collections. The cheque collection policies formulated by banks post deregulation were studied by Das and Das (2006). Subsequent developments and Reserve Bank of India's intervention led to most of the banks modifying their cheque collection policies. With such revisions in place, one would expect that a comprehensive category rating (with respect to various parameters of the cheque collection policy) of the banks would indicate marked improvement. We investigate the scenario, on cheque collection policy of the banks, after more than 24 months of the release of the August 2006 Report [1]. Based on a multidimensional ranking method and the TOPSIS method for data integration, we categorize 30 banks with respect to the various parameters of the cheque collection policies as it stood during October 2008. Apart from establishing marked improvements in the policies framed, the study also identifies relative change of position of the banks with respect to the cheque collection policies. The analysis shows that RBI's intervention led to marked improvement in the performance of most banks with respect to their cheque collection policies.

1. Introduction

Cheques are one of the most accepted forms of payment for settling transactions. Money transactions through cheque collections are pertinent to banking and are an integral activity of any bank. It was recognized as early as in the 1970s that cheque collection policy for the banks in India is a matter of concern. In keeping with the spirit of economic liberalization and with a view to promote competitive zeal among banks, the Reserve Bank of India in its direction dated November 1, 2004, withdrew the rules it had set towards local/outstation cheque collections. Apparently, it appeared that it is a better option to let individual banks set their own benchmarks and offer better services to win a competitive edge over their competitors, thereby enfranchising the customers. During August, 2006, Das and Das (2006) brought out a report that compared the cheque collection policies framed by different banks with the pre-deregulation scenario. Subsequent developments and after Reserve Bank of India's intervention led to most of the banks modifying their cheque collection policies. Indian Banks' Association (IBA) also came up with a model policy. It is expected that such revisions would lead to marked improvement in the category rating of the banks with respect to various parameters of

* The views expressed in the paper are those of the authors and not necessarily of the institution to which they belong.

¹ Mr. A D Naga Venkata Ramarao is a Statistician at Cytel Statistical Software & Services Pvt. Ltd. and an ex-student of the Indian Institute of Technology Bombay. E-mail: adnvr@gmail.com

² Dr. Ashish Das is Professor with the Indian Institute of Technology Bombay (presently Visiting Professor at the University of Akron, Ohio). E-mail: ashish@math.iitb.ac.in

³ Dr. Chand Midha is Professor with the University of Akron. E-mail: chand@uakron.edu

the cheque collection policy. We investigate the scenario, on cheque collection policy of the banks, after more than 24 months of the release of the August 2006 Report [1]. Based on a Multidimensional Scaling technique and TOPSIS Method for data integration, we categorize 30 banks with respect to the various parameters of their cheque collection policies as it stood during October 2008. Apart from establishing marked improvements in the policies framed, the study also identifies relative change of position of the banks with respect to the cheque collection policies.

2. Cheque collection policies of banks

The website links for complete policy statements of the 30 banks, considered in our sample, are provided in Appendix A. These links, as of October 2008, provided the cheque collection policies. The list of these 30 banks along with the number of their branches is provided in Appendix B. The banks in our sample constitute 83% of the total commercial bank branches in India.

A sector wise break-up indicates that our sample comprises of 4 foreign banks constituting 74% representation among foreign bank offices, 6 private sector banks constituting 49% representation among private sector bank offices, and 20 public sector banks constituting 88% representation among public sector bank offices. The complete sample coverage details are presented below

Coverage of sample

Bank Group (Sample Size)	Total # of offices	# of offices of sample banks
Public Sector (20)	52880	46484
		87.90%
Private Sector (6)	7975	3876
		48.60%
Foreign (4)	277	205
		74.01%
Total (30)	61132	46585
		82.71%

Note: Percentages are based on sample coverage

Source: RBI (<http://www.rbi.org.in/scripts/PublicationsView.aspx?id=10991>)

In what follows, Table 2.1 summarizes banks' policies on immediate credit while Table 2.2 summarizes time frame and interest liabilities prescribed in the policies.

A. Immediate Credit: The summary is presented in Table 2.1 of banks' cheque collection policies on immediate credit of local/outstation cheques. The last column of Table 2.1 gives our remarks for each policy. We have included the model policy on cheque collections of the IBA among the list of policies under consideration. For some detailed discussion related to policies on cheque collections, one may refer to Das (2009).

Specific to immediate credit of local/outstation cheques our observations are

- Several banks have not mentioned about immediate credit of local cheques.
- Of the 30 banks, 6 do not reveal the type of accounts to which this facility applies.
- Of the 30 banks, 8 impose additional charges or are silent on charges for providing the facility of immediate credit.

Table 2.1: Immediate credit of Local/Outstation Cheques

S. No	Bank name	Immediate credit(Rs. Thousands)	Charges	Acc. Type revealed	Remarks
1	ABN Amro Bank	15	No	No	Immediate credit for local cheques not mentioned
2	Allahabad Bank	15	No	No	-----
3	Andhra Bank	15	No	Yes	-----
4	Bank of Baroda	20	No	Yes	Pay-in-slip
5	Bank of India	15	No	Yes	-----
6	Bank of Maharashtra	15-25	not mentioned	Yes	Credit will be allowed only up to specific period only
7	Canara Bank	15	Yes	Yes	-----
8	Central Bank of India	15	No	Yes	Charge of Rs.5/- will be recovered for local cheques exceeding Rs.5000/-.
9	Citibank	15	not mentioned	No	-----
10	Corporation Bank	15-25	No	Yes	-----
11	HDFC Bank	3	Yes	Yes	Immediate credit for local cheques not mentioned, no mention about special request
12	HSBC	15	No	No	Immediate credit for local cheques not mentioned, facility of immediate credit for outstation cheques available only for cheques drawn in HSBC branches
13	ICICI Bank	15	not mentioned	Yes	Immediate credit for local cheques not mentioned, no mention about special request
14	IDBI Bank	15	No	Yes	-----
15	Indian Bank	15	No	Yes	Pay-in-slip, endorsed cheques are not acceptable
16	Indian Banks' Association	15*	No	Yes	-----
17	Indian Overseas Bank	15	No	Yes	-----
18	Indusind Bank	15	No	Yes	-----
19	Kotak Mahindra	15	Yes	No	-----
20	Oriental Bank of commerce	15-25	No	Yes	No mention about special request
21	Punjab & Sind Bank	5	not mentioned	Yes	No mention about special request
22	Punjab National Bank	15	No	Yes	No mention about special request, Charging 20/- for Local instruments
23	South Indian Bank	15	No	Yes	-----
24	Standard chartered	5	No	Yes	No mention about special request
25	State Bank of India	20	No	Yes	No immediate credit for local cheques, no mention about special request
26	State Bank of Mysore	20	No	Yes	-----
27	Syndicate Bank	15	No	Yes	-----
28	UCO Bank	15-25	No	Yes	Pay-in-slip
29	Union Bank	15-25-50	No	Yes	5/- charge for local cheque, pay-in-slip
30	United Bank	15-20	No	Yes	No mention about special request
31	UTI Bank/Axis Bank	15	Yes	No	Immediate credit is provided to cheques that are drawn on Axis Bank centre's only

* Immediate credit amount is taken from the pre-deregulation model

B. Time Frame and Interest: We present the summary on time frame and interest on delayed cheques in Table 2.2.

On perusal of the policies with respect to the time frame and interest on delayed cheques it is noticed that

- All of the banks are not explicit on their liabilities for delay in local cheques
- Most of the banks have not mentioned time frame for local instruments
- Out of 30 banks, only 1 bank explicitly mentioned that onus of cheque doesn't lie on account holder
- Out of 30 banks, 4 banks have not defined 'abnormal length'
- Out of 30 bank, only 5 banks mentioned about the availability of policy in the branch premises
- The commitment of banks to pay interest for delayed credit without customer's asking is not incorporated in most of the bank's policies

Table 2.2: Time Frame and Interest on delayed cheques

S. No	Bank name	Metro	Capital	Others	ROI
1	ABN Amro	6	15	15/45	TD+2%
2	Allahabad	7	10	14	SB(up to 14 days of delay),TD(14-90)
3	Andhra Bank	7	10	14	SB(up to 45 days of delay),TD(45-90)
4	Bank of Baroda	7	10	14	SB(up to 14 days of delay),TD(14-90)
5	Bank of India	7	10	14	SB(up to 14 days of delay),TD(14-90)
6	Bank of Maharashtra	7	8	14	3.50%
7	Canara Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
8	Central Bank of India	8	10	14	FD
9	Citibank	5	6	8/30	FD
10	Corporation Bank	7	10	14	SB
11	HDFC Bank	7	10	14/30/60	SB(up to 14 days of delay),TD(14-90)
12	HSBC	7	10	not specified	SB
13	ICICI Bank	7	7	21	SB
14	IDBI Bank	7	10	14/21	SB(up to 14 days of delay),TD(14-90)
15	Indian Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
16	Indian Banks' Association	7	10	14	SB(up to 14 days of delay),TD(14-90)
17	Indian Overseas Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
18	Indusind Bank	7/10	10/14	14/21/30	SB(up to 14 days of delay),TD(14-90)
19	Kotak Mahindra	7	12	30/45	SB(up to 45 days of delay),TD(45-90)
20	Oriental Bank of commerce	7	10	14/25	SB(up to 14 days of delay),TD(14-90)
21	Punjab & Sind Bank	10	14	14	SB
22	Punjab National Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
23	South Indian Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
24	Standard chartered	7	10	14/40	SB(up to 14 days of delay),TD(14-90)
25	State Bank of India	6/7	8/10	10/14	5%
26	State Bank of Mysore	6/7	8/10	10/14	SB
27	Syndicate Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
28	UCO Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
29	Union Bank	10	10	14	FD
30	United Bank	7	10	14	SB(up to 14 days of delay),TD(14-90)
31	UTI Bank/Axis Bank	7	10	21	SB

It may be noted that much after the above data had been compiled, RBI on June 2, 2009 brought out a direction dated November 24, 2008 wherein it stipulated limits on the time frame as 7/10/14 days (see, reference [2]).

3. Categorization of banks through multidimensional ranking

The cheque collection policies of banks show that each bank frame its policy with its own criteria giving importance to different parameters. We examine various parameters of cheque collection policies and obtain a Bank Evaluation Model with respect to cheque collections using several of these critical parameters. The Bank Evaluation Model classifies the banks into categories based on overall ranking of the banks with respect to the parameters considered by the model.

A. Selection of Banks:

We have considered all the 30 banks that are in our sample study, representing 83% of total branches of scheduled commercial banks. Additionally, we have taken IBA's model policy on cheque collections.

B. Parameter Identification:

To see the performance in terms of cheque collections on a composite scale, several variables were identified. These variables cover, *inter alia*, the efficiency with respect to time frame; liability of the banks with respect to delayed payments; and other quantitative/qualitative aspects of their performance in deliverance of payment-settlement facilities. Tables 1, 2 and 3 in Appendix C gives details of the 20 parameters related to cheque collections. The abbreviation and description of parameters selected, with which we will be carrying out the categorization exercise, is presented in Table 1 of Appendix C. Tables 2 and 3 of Appendix C give the parameter characteristics in descriptive and quantitative terms respectively. In case of most of the parameters, the higher the value, the better it is while in case of some (e.g. time frame related parameters), the lower the value, the better it is. These directions are given at the bottom of Table 3 in Appendix C.

C. Methodology of Categorization:

Following Thorat, Maria and Das (2004) and Das and Das (2006) we use an iterative technique for scaling banks with respect to the cheque collection policy. While all the banks can be categorized according to each of the parameters separately, which would give their relative position vis-à-vis other banks according to that parameter, the categorization exercise attempts to build a scale that is comprehensive and has multidimensionality as it takes into account all the identified parameters. The directions of the parameters have been adjusted for, while preparing the categories. As the parameters identified are in different units, they are brought to common and unit free scale through standardization. The standardized values are next converted to scores from 1 to 10 using the decile points of the Standard Normal Distribution. This is done for each parameter. These scores are given in Table 4 of Appendix C. For each bank, the scores over all the parameters are added to arrive at the total score. The correlation between the total scores is calculated with the individual scores for each of the parameters. These are then tested for a null hypothesis of the correlation being zero against an alternative that it is greater than zero. The parameters for which the null hypothesis is rejected are retained and a new total score with the residual set of parameters is worked out. The correlations between the new total score and the residual set of parameters (which were used to calculate this new

total score), are again calculated and subjected to testing as above. The process is repeated till each of the parameters in the residual set has significant and positive correlation with the total score. The final total scores provide the required ranking of the banks and are used to provide the categorization of the banks (see, references [1] and [4]).

4. Categorisation of banks by TOPSIS method

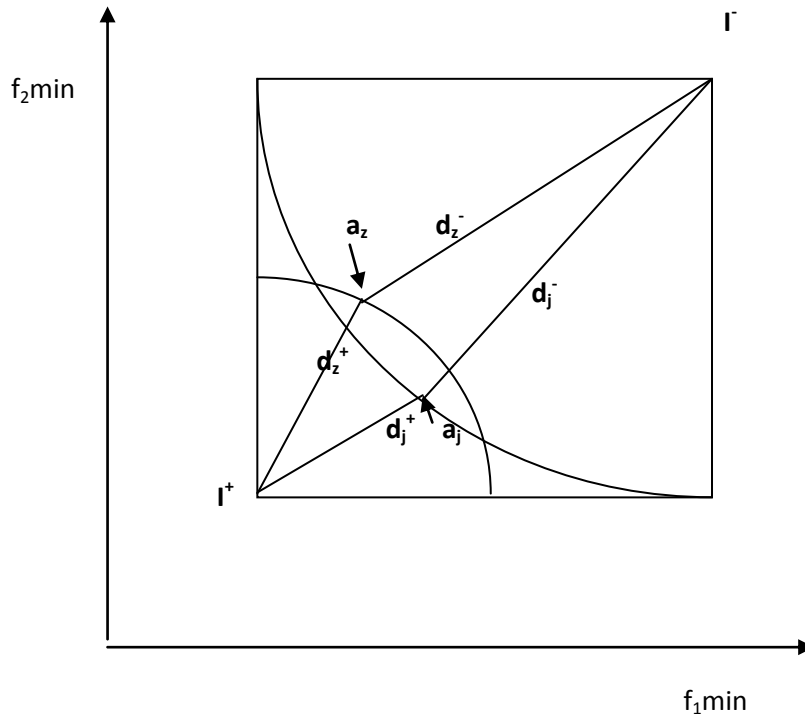
The Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS) method was developed by Hwang and Yoon (1981) for solving multi criteria decision making (MCDM) problems. A MCDM problem can be described as a problem of choosing from a set of possible alternatives using multiple criteria. The ranking of each alternative with respect to individual criteria are available. While arriving at a composite ranking, the TOPSIS method ranks that alternative as best which has the shortest distance to the positive ideal solution I^+ and the longest distance from the negative ideal solution I^- , where the distances are calculated with a particular value of p ($1 \leq p \leq \infty$) of the Minkowski's metrics

$$L_p = \left\{ \sum_{i=1}^k W_i^p |f_i(x) - f_i^*|^p \right\}^{1/p}$$

(typically $p = 1$ is *Manhattan distance*, $p = 2$ is *Euclidean distance* and $p = \infty$ is *Tchebycheff distance*). For further details see [6]. With respect to only two variables, Figure 1 exemplifies how TOPSIS works. Given an alternative like a_j , the distances d_j^+ and d_j^- to I^+ and I^- respectively are

calculated. Thereafter, a relative distance $D_j = \frac{d_j^-}{d_j^+ + d_j^-}$ comprised between $[0, 1]$ is assigned to each alternative. The final (*increasingly labeled*) order is obtained sorting the set of alternatives decreasingly in terms of D_j , i.e. from the best bank to the worst bank.

Figure 1: TOPSIS distances



The main principle governing TOPSIS is to identify as preferred solutions those banks having the shortest distance to the positive ideal solution and the longest distance from the negative ideal solution. The method induces an ordering of the solutions based on similarity to the ideal point, guiding the search towards the zone of interest. Maria and Das (2009) recently used the TOPSIS method to make inter-state comparisons for India's household consumer expenditure.

The TOPSIS computation involves the following steps –

1. Suppose S_1, S_2, \dots, S_m are m possible alternatives among which decision makers have to choose based on n criteria. Let, C_1, C_2, \dots, C_n are the criteria with which alternative performance are measured, X_{ij} is the rating of alternative S_i with respect to the criterion C_j . Thus, the data matrix is,

	C_1	C_2	C_3	\dots	C_n
S_1	x_{11}	x_{12}	x_{13}	\dots	x_{1n}
S_2	x_{21}	x_{22}	x_{23}	\dots	x_{2n}
S_3	x_{31}	x_{32}	x_{33}	\dots	x_{3n}
\vdots	\vdots	\vdots	\vdots	\ddots	\vdots
S_m	x_{m1}	x_{m2}	x_{m3}	\dots	x_{mn}

2. Determine the negative ideal and positive ideal locations as:

$$f_{\min} = \min(x_{1j}, x_{2j}, \dots, x_{mj}) = u_j, \text{ where } j=1, 2, \dots, n.$$

$$f_{\max} = \max(x_{1j}, x_{2j}, \dots, x_{mj}) = v_j, \text{ where } j=1, 2, \dots, n.$$

3. Associate some weights $W = [w_1, w_2, \dots, w_n]$ where w_j is the weight corresponding to criterion C_j , such that $\sum_{j=1}^n w_j = 1$.

4. Calculate the two measures $L_2(i, f_{\min})$ and $L_2(i, f_{\max})$ using the n -dimensional Euclidean Distance, where

$$L_2(i, f_{\min}) = \left\{ \sum_{j=1}^n w_j (x_{ij} - u_j)^2 / \sum_{i=1}^m x_{ij}^2 \right\}^{1/2}$$

and

$$L_2(i, f_{\max}) = \left\{ \sum_{j=1}^n w_j (x_{ij} - v_j)^2 / \sum_{i=1}^m x_{ij}^2 \right\}^{1/2}$$

5. Calculate the relative closeness of positive ideal location and negative ideal location, named by Composite Index [CI] and defined as

$$CI[i] = \frac{L_2(i, f_{\min})}{L_2(i, f_{\max}) + L_2(i, f_{\min})}.$$

The ratio is always between 0 and 1. An alternative having higher value of CI is better than the one having a lower value. Thus, a bank with high composite index is considered to be better bank and all the banks are sorted by the composite index.

5. Overall bank standings

In this section, we obtain the bank standings using the multidimensional ranking method and the TOPSIS method. The methods are applied to the dataset corresponding to Table 3 of Appendix C. To compare both the methods, first we apply the multidimensional ranking method. The method in the first iteration eliminated 7 of the 20 variables and in the second iteration eliminated one more variable. The correlation measures and the single tailed Karl Pearson tests are given in Table 5 of Appendix C).

The 12 (of the 20) variables which have significant correlation with total score and which are used for final ranking are

- 1 Amount of Immediate credit (in Rs. Thousand)
- 2 Additional Charges for Immediate Credit
- 3 Account type revealed for Immediate Credit
- 4 Time Frame for other centers, etc.(in days)
- 5 Time Frame for Collection in terms of days or working days
- 6 Rate of interest paid in case of delay in Outstation Cheques
- 7 SB rate end point in the ROI
- 8 Rate of interest paid in case of Abnormal Delay in Outstation Cheques
- 9 Length of Abnormal Delay (in Days)
- 10 Abnormal delay defined
- 11 BPLR interest paid in case of delay in outstation cheques of loan account
- 12 Specified interest on cheques returned unpaid

Next, we apply the TOPSIS method on the new dataset using the above 12 variables. Thus, we have $m=31$ and $n=12$ and use the data corresponding to the 12 variables in Table 3 of Appendix C. Table 5.1 compares the results obtained by multidimensional ranking method and TOPSIS method. First column of Table 5.1 gives the rankings by TOPSIS method and second column gives the rankings of multidimensional ranking (MR). In Table 5.1, the banks are ordered with respect to their ranks from 1 to 31. The banks in green color are public, in blue color are private and in red color are foreign banks.

Table 5.1

TOPSIS Results	MR results
Union Bank	Union Bank
State Bank of India	Bank of Baroda
Bank of Baroda	United Bank
United Bank	Oriental Bank of commerce
Oriental Bank of commerce	Bank of India
Bank of India	Indian Bank
Indian Bank	Indian Overseas Bank
Indian Overseas Bank	Indian Banks' Association
Indian Banks' Association	Punjab National Bank
Punjab National Bank	South Indian Bank
South Indian Bank	State Bank of India

TOPSIS Results	MR results
IDBI Bank	IDBI Bank
Indusind Bank	Central Bank of India
Central Bank of India	Indusind Bank
UCO Bank	UCO Bank
State Bank of Mysore	Allahabad
Allahabad	Andhra Bank
Canara Bank	State Bank of Mysore
Andhra Bank	Canara Bank
Corporation Bank	Syndicate Bank
Syndicate Bank	Corporation Bank
ICICI Bank	Standard chartered
Standard chartered	ICICI Bank
Bank of Maharashtra	Bank of Maharashtra
HDFC Bank	HDFC Bank
ABN Amro	Kotak Mahindra
Citibank	HSBC
Kotak Mahindra	ABN Amro
HSBC	Citibank
Punjab & Sind Bank	Punjab & Sind Bank
UTI Bank/Axis Bank	UTI Bank/Axis Bank

From Table 5.1 we observe that, except State Bank of India, all the banks differ by ± 2 in their positions. Clearly, one can see the similarity in the results obtained by the two methods. Finally, we categorized the banks into three categories (Category-1 being best and Category-3 worst) such that each bank falls in the same category by the two methods. The categories are as provided in Table 5.2.

Table 5.2

Category-1	Category-2	Category-3
Union Bank	IDBI Bank	ICICI Bank
State Bank of India	Indusind Bank	Standard chartered
Bank of Baroda	Central Bank of India	Bank of Maharashtra
United Bank	UCO Bank	HDFC Bank
Oriental Bank of commerce	State Bank of Mysore	ABN Amro
Bank of India	Allahabad	Citi Bank
Indian Bank	Canara Bank	Kotak Mahindra
Indian Overseas Bank	Andhra Bank	HSBC
Indian Bank Association	Corporation Bank	Punjab & Sind Bank
Punjab National Bank	Syndicate Bank	UTI Bank/Axis Bank
South Indian Bank		

Some conclusions which follow from both the methods are

- Public sector banks are having better cheque collection policies than the other banks.
- Among the public sector banks, Union Bank has the best policy while Punjab & Sind Bank is on the other end of the spectrum.

- Among the private sector banks, South Indian Bank comes out to be the best while Axis Bank is at the last position.
- All the four foreign banks fall in Category-3. Of the six private sector banks in our sample, four falls in Category-3, while one each in Categories 1 and 2. Except for these two private banks all the other banks in the Categories 1 and 2 are from the public sector and in fact only two public sector banks fall in the Category-3.

6. Comparison between cheque collection policies over time

In this Section, we compare the current (the data as of October 2008) cheque collection policy of each bank with the policies of 2006 as presented in the Das and Das (2006). The old data of 2006 cheque collection policies (as per [1]) is provided in Table 1 of Appendix D. We take the bank policies which are common in both the samples and consider only the common variables. The following table gives the list of 15 variables considered.

Sr. No	Parameter Abbreviation	Parameter Description
1	Immediate Credit	Amount of Immediate credit (in Rs. Thousand)
2	Charges	Additional Charges for Immediate Credit
3	Acc. Type revealed	Account type revealed for Immediate Credit
4	Metro, etc.	Time Frame for Metro, etc.(in days)
5	Capital, etc.	Time Frame for State Capitals, etc.(in days)
6	Others	Time Frame for other centers, etc.(in days)
7	Days	Time Frame for Collection in terms of days or working days
8	Local Chq Time	Time frame for Local Cheque clearance (in days)
9	ROI	Rate of interest paid in case of delay in Outstation Cheques
10	Effective Ad ROI	Rate of interest paid in case of Abnormal Delay in Outstation Cheques
11	AbDelay Length	Length of Abnormal Delay (in Days)
12	Ab. Defined	Abnormal delay defined (yes/no)
13	BPLR	BPLR interest paid in case of delay in outstation cheques of loan account (yes/no)
14	Onus	Onus of lost cheque (Not on customer/Silent/On customer)
15	BrDisp in policy	Policy mentions its display in branches (yes/no)

A. Comparison by multidimensional ranking method:

We look into all the 62 policies together, i.e., we consider the all the policies in 2006 (old data) and in 2008 (new data) as a single dataset to find the relative change in the policies. Table 2 of Appendix D provides the combined scores. Based on the single tailed Karl Pearson test (see Table 3 of Appendix D), the multidimensional ranking method applied to the combined dataset of 15 variables, results in 3 of the parameters being uncorrelated with the total score in the first iteration and none in the second iteration. The following 12 parameters are finally used to rank the 62 policies.

- 1 Amount of Immediate credit (in Rs. Thousand)
- 2 Additional Charges for Immediate Credit
- 3 Account type revealed for Immediate Credit
- 4 Time Frame for Metro, etc.(in days)
- 5 Time Frame for State Capitals, etc.(in days)

- 6 Time Frame for other centers, etc.(in days)
- 7 Time Frame for Collection in terms of days or working days
- 8 Rate of interest paid in case of delay in Outstation Cheques
- 9 Rate of interest paid in case of Abnormal Delay in Outstation Cheques
- 10 Length of Abnormal Delay (in Days)
- 11 Abnormal delay defined (yes/no)
- 12 BPLR interest paid in case of delay in outstation cheques of loan account (yes/no)

With respect to these 12 parameters, we calculated the total scores for each bank (see Table 2 of Appendix D) and the following table gives the scores of the two policies of each bank.

S. No	Bank name	Old Data Score	New Data Score	Difference
1	Pre-Deregulation Model	77	77	0
2	ABN Amro	33	57	24
3	Allahabad	84	87	3
4	Andhra Bank	60	91	31
5	Bank of Baroda	80	96	16
6	Bank of India	64	93	29
7	Bank of Maharashtra	65	67	2
8	Canara Bank	79	86	7
9	Central Bank of India	81	87	6
10	Citibank	45	54	9
11	Corporation Bank	82	79	-3
12	HDFC Bank	40	61	21
13	HSBC	40	67	27
14	ICICI Bank	27	70	43
15	IDBI Bank	29	92	63
16	Indian Bank	48	93	45
17	Indian Overseas Bank	63	93	30
18	Indusind Bank	63	88	25
19	Kotak Mahindra	26	64	38
20	Oriental Bank of commerce	67	93	26
21	Punjab & Sind Bank	49	46	-3
22	Punjab National Bank	69	93	24
23	South Indian Bank	74	93	19
24	Standard chartered	29	77	48
25	State Bank of India	86	89	3
26	State Bank of Mysore	86	86	0
27	Syndicate Bank	30	86	56
28	UCO Bank	77	88	11
29	Union Bank	88	99	11
30	United Bank	50	94	44
31	UTI Bank/Axis Bank	33	39	6

From the above analysis, we can conclude that

- There is an improvement in the cheque collection policies of the banks over time
- Around 50% of the banks are having an increment of 20 in their scores
- IDBI and Syndicate Bank show significant improvements in their policies

- Punjab & Sind Bank and Corporation Bank deteriorated slightly with respect to their policies.

The bar chart in Appendix E shows the scores of the banks. X-axis represents the bank number as in the above table and Y-axis represents the scores. The blue color bar represents the score corresponding to the old policies and the red color bar for the new policies.

B. Comparison by TOPSIS Method:

The following results are obtained when we applied the TOPSIS method to the combined dataset (old and new) with 12 variables which come out significant in the multidimensional ranking method.

S. No	Bank name	COMPOSITE INDEX		Difference
		Old Data	New Data	
1	Pre-Deregulation Model	0.7570	0.7570	0.0000
2	ABN Amro	0.3519	0.6199	0.2680
3	Allahabad	0.7887	0.7886	-0.0001
4	Andhra Bank	0.6574	0.8401	0.1827
5	Bank of Baroda	0.7772	0.8746	0.0974
6	Bank of India	0.6656	0.8546	0.1891
7	Bank of Maharashtra	0.6630	0.6780	0.0150
8	Canara Bank	0.7581	0.7916	0.0336
9	Central Bank of India	0.7680	0.7809	0.0129
10	Citi Bank	0.5062	0.6180	0.1118
11	Corporation Bank	0.7494	0.7612	0.0118
12	HDFC Bank	0.4872	0.6326	0.1455
13	HSBC	0.5404	0.6484	0.1080
14	ICICI Bank	0.4388	0.6985	0.2597
15	IDBI Bank	0.5100	0.8487	0.3387
16	Indian Bank	0.5289	0.8546	0.3257
17	Indian Overseas Bank	0.6931	0.8546	0.1615
18	Indusind Bank	0.6713	0.8316	0.1603
19	Kotak Mahindra	0.4047	0.6434	0.2388
20	Oriental Bank of commerce	0.6946	0.8614	0.1668
21	Punjab & Sind Bank	0.6280	0.6285	0.0005
22	Punjab National Bank	0.7098	0.8546	0.1449
23	South Indian Bank	0.7004	0.8546	0.1543
24	Standard chartered	0.5050	0.7128	0.2078
25	State Bank of India	0.8271	0.8561	0.0290
26	State Bank of Mysore	0.8271	0.8318	0.0046
27	Syndicate Bank	0.3414	0.7534	0.4120
28	UCO Bank	0.7299	0.7854	0.0554
29	Union Bank	0.7957	0.9046	0.1089
30	United Bank	0.6060	0.8635	0.2575
31	UTI Bank/Axis Bank	0.5297	0.5716	0.0419

The bar chart in Appendix F shows the CI's of the Banks. X-axis represents the bank number as in the above table and Y-axis represents the CI. The blue and red color bars represent the CI corresponding to the old and new policies respectively. We observe score hikes in most of the bank policies. Also, we observe that the score hike is significant for IDBI and Syndicate Bank (same as was observed in multidimensional ranking method).

7. Conclusion

In 2004 RBI deregulated the standards set for cheque collections. The cheque collection policies formulated by banks, post deregulation, were studied by Das and Das (2006). Subsequent developments and Reserve Bank of India's intervention led to most of the banks modifying their cheque collection policies. With such revisions in place, one would expect that a comprehensive category rating (with respect to the cheque collection policy) of the banks would indicate marked improvement. We base our investigation on a multidimensional ranking method and the TOPSIS method for data integration. This allows us to associate scores to the cheque collection policies and thus categorize the 30 banks that we have considered (with respect to the various parameters of the cheque collection policies as it stood during October 2008). We establish marked improvements in the policies framed. We also identify the relative change of position of the banks from year August 2006 to October 2008, with respect to the cheque collection policies. Score hike is observed in most of the bank policies. The analysis shows that RBI's intervention led to marked improvement in the performance of most banks with respect to their cheque collection policies.

Acknowledgement

Part of the work is a culmination of an Applied Statistics and Informatics project undertaken at Department of Mathematics, IIT Bombay. The author thanks Dr. Praggya Das, Reserve Bank of India, Mumbai for going through an earlier draft and for offering comments, which significantly improved the presentation of the paper.

References

- [1] Das, Ashish and Das, Praggya (2006). On benchmarking cheque collections in India. ISI Technical Report isid/ms/2006/08.
<http://www.isid.ac.in/~statmath/eprints>
- [2] Delays in Cheque Clearing - Case before National Consumer Disputes Redressal Commission. DPSS.CO. (CHD) No. 873 / 03.09.01/ 2008-09 dated November 24, 2008.
<http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=5008&Mode=0>
- [3] Maria, Pardeep and Praggya Das (2009). Household Consumer Expenditure in India 2006-07- A review and inter-state comparisons. Presented at the 11th annual conference of the society of statistics, computer and applications, Madras University, Chennai.
- [4] Thorat, Y. S. P., Maria, Pardeep and Das, Praggya (2003). Performance Evaluation Method for Primary Non-Agricultural Credit Societies. *IFC Bulletin* 16, 141-158.
- [5] Trend and Progress of Banking in India. RBI Publication, December 2008.
<http://www.rbi.org.in/scripts/AnnualPublications.aspx?head=Trend%20and%20Progress%20of%20Banking%20in%20India>
- [6] Hwang, C.L. and Yoon, K. (1981). *Multiple Attribute Decision Making: Methods and Applications*. A state of the art survey. Springer-Verlag, Berlin.
- [7] Das, Ashish (2009). Some issues related to policies on cheque collections.
http://www.math.iitb.ac.in/~ashish/workshop/some_issues.pdf

Appendix A: Website links of Cheque Collection Policies of banks

S. No.	Bank name	Link of the cheque collection policy
1	ABN Amro	http://www.abnamro.co.in/India/May-1-Help/Regulatory/cheque_collection_policy_consumer_bank.pdf
2	Allahabad Bank	http://www.allahabadbank.in/cheque-policy.asp
3	Andhra Bank	http://www.andhrabank.in/scripts/customerscorner.aspx
4	Bank of Baroda	http://www.bankofbaroda.com/download/cheque_collection_policy.pdf
5	Bank of India	http://www.bankofindia.com/chequepolicy.aspx
6	Bank of Maharashtra	http://www.bankofmaharashtra.in/policy.asp
7	Canara Bank	http://www.canarabank.com/English/Scripts/InstrumentsPolicy.aspx
8	Central Bank of India	http://www.centralbankofindia.co.in/english/fairpractices.asp
9	Citibank	http://www.online.citibank.co.in/portal/newgen/banking/Chq_coll_policy_final_Mar07.pdf
10	Corporation Bank	http://www.corpbank.com/asp/0100text.asp?presentID=953&headID=856
11	HDFC Bank	http://www.hdfcbank.com/common/pdf/cheque_collection_policy.pdf
12	HSBC Bank	http://www.hsbc.co.in/1/PA_1_1_S5/content/website/pdf/about/cheque_collection_policy.pdf
13	ICICI Bank	http://www.icicibank.com/Pfuser/webnews/Policy_for_collection_of_local_v2.pdf
14	IDBI Bank	http://www.idbi.com/pdf/Checkcollection-policy.doc
15	Indian Bank	http://www.indian-bank.com/ChequeCollectionPolicy.pdf
16	Indian Overseas Bank	http://iob.in/pol-cheque-coll.asp
17	Indusind Bank	http://www.indusind.com/PageProcess.aspx?pageid=537&lang=en-US&menuid=
18	Kotak Mahindra	http://www.kotak.com/Kotak_BankSite/common/pdf/cheque_collection_Revised.pdf
19	Oriental Bank of commerce	http://www.obcindia.co.in/uniquepage.asp?id_pk=70
20	Punjab & Sind Bank	http://www.psbindia.com/ccp.php
21	Punjab National Bank	http://www.pnbindia.com/cinstpolicy.pdf
22	Standard chartered	http://www.standardchartered.com/in/cb/services/collection.pdf
23	State Bank of India	http://www.sbi.co.in/viewsection.jsp?lang=0&id=0,453,640
24	State Bank of Mysore	http://www.statebankofmysore.co.in/downloads/cheque%20collection.pdf
25	Syndicate Bank	http://www.syndicatebank.in/downloads/Bank-Policy-Cheque-collection.doc
26	UCO Bank	http://www.ucobank.com/policies.htm
27	Union Bank of India	http://www.unionbankofindia.co.in/au_cheque_collection_po.aspx
28	United Bank of India	http://www.unitedbankofindia.com/cheque_policy.asp
29	UTI Bank/Axis Bank	http://www.axisbank.com/aboutus/policyoncollectionoflocalandoutstationcheques/Policy-On-Collection-Of-Local-And-Outstation-Cheques.asp
30	South Indian Bank	http://www.southindianbank.com/UserFiles/revd_cheque.pdf
31	Indian Banks' Association	http://www.iba.org.in/model_deposit.asp

Appendix B: Number of offices of the 30 selected banks

The following table shows the list of 30 banks considered in the sample along with the number of bank branches (as of March 2008). The banks are arranged in the descending order of number of branches they have.

S. No.	Bank name	Bank Type	Branches
1	State Bank of India	Public	10183
2	Punjab National Bank	Public	4178
3	Central Bank of India	Public	3324
4	Bank of Baroda	Public	2845
5	Bank of India	Public	2845
6	Canara Bank	Public	2690
7	Union Bank	Public	2324
8	Syndicate Bank	Public	2188
9	Allahabad Bank	Public	2135
10	UCO Bank	Public	1945
11	Indian Overseas Bank	Public	1879
12	Indian Bank	Public	1524
13	United Bank of India	Public	1399
14	Bank of Maharashtra	Public	1365
15	Andhra Bank	Public	1363
16	Oriental Bank of commerce	Public	1344
17	ICICI Bank	Private	1249
18	HDFC Bank	Private	1150
19	Corporation Bank	Public	964
20	Punjab & Sind Bank	Public	839
21	State Bank of Mysore	Public	650
22	UTI Bank/Axis Bank	Private	626
23	IDBI Bank	Public	500
24	South Indian Bank	Private	489
25	Indusind Bank	Private	182
26	Kotak Mahindra	Private	180
27	Standard Chartered Bank	Foreign	90
28	HSBC	Foreign	47
29	Citibank	Foreign	40
30	ABN Amro Bank	Foreign	28

Appendix C: Tables related to categorization of banks through multidimensional ranking

Table 1: Abbreviations of parameters and their description

S. No.	Parameter	Parameter Abbreviation	Parameter Description
1	V1	Immediate credit	Amount of Immediate credit (in Rs. Thousand)
2	V2	Charges	Additional Charges for Immediate Credit
3	V3	Acc. Type Revealed	Account type revealed for Immediate Credit
4	V4	Metro	Time Frame for Metro, etc.(in days)
5	V5	Capitals	Time Frame for State Capitals, etc.(in days)
6	V6	Others	Time Frame for other centres, etc.(in days)
7	V7	Days	Time Frame for Collection in terms of days or working days
8	V8	Local cheque time	Time frame for Local Cheque clearance (in days)
9	V9	ROI	Rate of interest paid in case of delay in Outstation Cheques
10	V10	SB rate endpoint	SB rate end point in the ROI
11	V11	Effective ADroi	Rate of interest paid in case of Abnormal Delay in Outstation Cheques
12	V12	AbDelay Length	Length of Abnormal Delay (in Days)
13	V13	Ab. Defined	Abnormal delay defined (yes/no)
14	V14	BPLR	BPLR interest paid in case of delay in outstation cheques of loan account (yes/no)
15	V15	Onus	Onus of lost cheque (Not on customer/Silent/On customer)
16	V16	BrDisp in policy	Policy mentions its display in branches (yes/no)
17	V17	Force Majeure	Force Majeure mentioned (yes/no)
18	V18	Int on returned cheques	Specified interest on cheques returned unpaid (yes/no)
19	V19	Int if cheque lost	Specified interest paid if cheque lost(yes/no)
20	V20	cooling off period in case of foreign cheques	Mentioned cooling off period in case of foreign period(yes/no)

Table 2: Parameter characteristics in descriptive terms

No.	Bank name	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20
1	ABN Amro	15	no	no	6	15	15\45	WD	2	TD+2%	0	TD+2%	no	no	no	on cust	no	no	no	yes	yes
2	Allahabad Bank	15	no	no	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
3	Andhra Bank	15	no	yes	7	10	14	Days	not mentioned	SB(until 45 days of delay),TD(45-90)	45	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
4	Bank of Baroda	20	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	yes	yes	yes	yes	yes
5	Bank of India	15	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	yes	yes	yes	yes	yes
6	Bank of Maharashtra	15-25	not mentioned	yes	7	8	14	WD	3	3.50%	45	SB+1.5%	45	yes	no	on cust	no	no	yes	no	no
7	Canara Bank	15	yes	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
8	Central Bank of India	15	no	yes	8	10	14	Days	3	FD	0	TD+2%	75	yes	no	not mentioned	no	no	yes	no	no
9	Citibank	15	not mentioned	no	5	6	8\30	WD	1	FD	0	FD	no	no	no	on cust	yes	yes	no	no	yes
10	Corporation Bank	15-25	no	yes	7	10	14	Days	not mentioned	SB	21	SB+2%	21	yes	no	on cust	no	yes	yes	yes	yes
11	HDFC Bank	3	yes	yes	7	10	14\30\60	WD	4	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	no	on cust	no	yes	yes	yes	yes
12	HSBC Bank	15	no	no	7	10	not specified	WD	3	SB	90	TD+2%	90	yes	yes	on cust	no	yes	no	yes	no
13	ICICI Bank	15	not mentioned	yes	7	7	21	WD	not mentioned	SB	30	TD	30	yes	yes/no	on cust	no	yes	yes	yes	yes
14	IDBI Bank	15	no	yes	7	10	14\21	days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
15	Indian Bank	15	no	yes	7	10	14	Days	3	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	yes	yes	yes	yes	no
16	Indian Overseas Bank	15	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
17	Indusind Bank	15	no	yes	7\10	10\14	14\21\30	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
18	Kotak Mahindra	15	yes	no	7	12	30\45	WD	not mentioned	SB(until 45 days of delay),TD(45-90)	45	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
19	Oriental Bank of commerce	15-25	no	yes	7	10	14\25	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
20	Punjab & Sind Bank	5	not mentioned	yes	10	14	14	Days	4	SB	200	SB	no	no	no	on cust	no	yes	yes	yes	no
21	Punjab National Bank	15	no	yes	7	10	14	Days	3	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
22	Standard chartered	5	no	yes	7	10	14\40	WD	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	no	yes	yes
23	State Bank of India	20	no	yes	6\7	8\10	10\14	Days	3	5%	0	6%	45	yes	yes	on cust	no	yes	yes	no	no
24	State Bank of Mysore	20	no	yes	6\7	8\10	10\14	Days	4	SB	45	SB+2%	45	yes	yes	not mentioned	no	no	yes	no	no
25	Syndicate Bank	15	no	yes	7	10	14	WD	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
26	UCO Bank	15-25	no	yes	7	10	14	Days	3	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	no	on cust	no	yes	yes	yes	no
27	Union Bank	15-25-50	no	yes	10	10	14	Days	not mentioned	FD	0	TD+2%	30	yes	yes	on cust	yes	yes	yes	yes	no
28	United Bank	15-20	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	yes
29	UTI Bank/Axis Bank	15	yes	no	7	10	21	WD	not mentioned	SB	200	SB	no	no	no	not on cust	no	yes	no	yes	no
30	South Indian Bank	15	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no
31	Indian Bank Association	15*	no	yes	7	10	14	Days	not mentioned	SB(until 14 days of delay),TD(14-90)	14	TD+2%	90	yes	yes	on cust	no	yes	yes	yes	no

Table 3: Parameter characteristics in quantitative terms

No.	Bank name	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20
1	ABN Amro	15	10	0	6	15	30	2	2	10	0	10	150	0	0	0	0	0	0	1	1
2	Allahabad	15	10	0	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	0
3	Andhra Bank	15	10	1	7	10	14	0	7	5.75	45	10	90	1	1	0	0	1	1	1	1
4	Bank of Baroda	20	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	1	1	1	1	1
5	Bank of India	15	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	1	1	1	1	1
6	Bank of Maharashtra	21	2	1	7	8	14	2	4	3.5	45	5	45	1	0	0	0	0	1	0	0
7	Canara Bank	15	0	1	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	0
8	Central Bank of India	15	10	1	8	10	14	0	4	8	0	10	75	1	0	1	0	0	1	0	0
9	Citibank	15	2	0	5	6	19	2	1	8	0	8	150	0	0	0	1	1	0	0	1
10	Corporation Bank	19	10	1	7	10	14	0	7	3.5	21	5.5	21	1	0	0	0	1	1	1	1
11	HDFC Bank	3	0	1	7	10	35	2	4	7.3	14	10	90	1	0	0	0	1	1	1	1
12	HSBC	15	10	0	7	10	50	2	3.5	3.5	90	10	90	1	1	0	0	1	0	1	0
13	ICICI Bank	15	2	1	7	7	21	2	7	3.5	30	8	30	1	0.5	0	0	1	1	1	1
14	IDBI Bank	15	10	1	7	10	18	0	7	7.3	14	10	90	1	1	0	0	1	1	1	1
15	Indian Bank	15	10	1	7	10	14	0	2.5	7.3	14	10	90	1	1	0	1	1	1	1	0
16	Indian Overseas Bank	15	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	0
17	Indian Bank Association	15	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	0
18	Indusind Bank	15	10	1	8.5	12	22	0	7	7.3	14	10	90	1	1	0	0	1	1	1	1
19	Kotak Mahindra	15	0	0	7	12	37.5	2	7	5.75	45	10	90	1	1	0	0	1	1	1	1
20	Oriental Bank of commerce	19	10	1	7	10	19.5	0	7	7.3	14	10	90	1	1	0	0	1	1	1	1
21	Punjab & Sind Bank	5	2	1	10	14	14	0	3.5	3.5	150	3.5	150	0	0	0	0	1	1	1	0
22	Punjab National Bank	15	10	1	7	10	14	0	2	7.3	14	10	90	1	1	0	0	1	1	1	0
23	South Indian Bank	15	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	0
24	Standard chartered	5	10	1	7	10	27	2	7	7.3	14	10	90	1	1	0	0	1	0	1	1
25	State Bank of India	20	10	1	6.5	9	12	0	3.5	5	0	6	45	1	1	0	0	1	1	0	0
26	State Bank of Mysore	20	10	1	6.5	9	12	0	4.5	3.5	45	5.5	45	1	1	1	0	0	1	0	0
27	Syndicate Bank	15	10	1	7	10	14	2	7	7.3	14	10	90	1	1	0	0	1	1	1	0
28	UCO Bank	19	10	1	7	10	14	0	2	7.3	14	10	90	1	0	0	0	1	1	1	0
29	Union Bank	26	10	1	10	10	14	0	7	8	0	10	30	1	1	0	1	1	1	1	0
30	United Bank	17	10	1	7	10	14	0	7	7.3	14	10	90	1	1	0	0	1	1	1	1
31	UTI Bank/Axis Bank	15	0	0	7	10	21	2	7	3.5	150	3.5	150	0	0	3	0	1	0	1	0
	Direction of the parameter	Higher	Higher	Higher	Lower	Lower	Lower	Lower	Lower	Higher	Lower	Higher	Lower	Higher	Higher	Higher	Higher	Higher	Higher	Higher	Higher

Table 4: Bank-wise score values of all parameters

No.	Bank name	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20
1	ABN Amro	5	8	1	9	1	1	1	10	10	8	8	1	1	1	4	4	1	1	7	9
2	Allahabad	5	8	1	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	2
3	Andhra Bank	5	8	7	6	6	7	8	3	4	4	8	5	7	8	4	4	7	7	7	9
4	Bank of Baroda	9	8	7	6	6	7	8	3	7	7	8	5	7	8	4	10	7	7	7	9
5	Bank of India	5	8	7	6	6	7	8	3	7	7	8	5	7	8	4	10	7	7	7	9
6	Bank of Maharashtra	9	1	7	6	9	7	1	8	1	4	1	9	7	1	4	4	1	7	1	2
7	Canara Bank	5	1	7	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	2
8	Central Bank of India	5	8	7	2	6	7	8	8	9	8	8	7	7	1	10	4	1	7	1	2
9	Citibank	5	1	1	10	10	5	1	10	9	8	4	1	1	1	4	10	7	1	1	9
10	Corporation Bank	8	8	7	6	6	7	8	3	1	6	1	10	7	1	4	4	7	7	7	9
11	HDFC Bank	1	1	7	6	6	1	1	8	7	7	8	5	7	1	4	4	7	7	7	9
12	HSBC	5	8	1	6	6	1	1	9	1	1	8	5	7	8	4	4	7	1	7	2
13	ICICI Bank	5	1	7	6	10	4	1	3	1	5	4	10	7	4	4	4	7	7	7	9
14	IDBI Bank	5	8	7	6	6	6	8	3	7	7	8	5	7	8	4	4	7	7	7	9
15	Indian Bank	5	8	7	6	6	7	8	10	7	7	8	5	7	8	4	10	7	7	7	2
16	Indian Overseas Bank	5	8	7	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	2
17	Indian Bank Association	5	8	7	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	2
18	Indusind Bank	5	8	7	1	2	4	8	3	7	7	8	5	7	8	4	4	7	7	7	9
19	Kotak Mahindra	5	1	1	6	2	1	1	3	4	4	8	5	7	8	4	4	7	7	7	9
20	Oriental Bank of commerce	8	8	7	6	6	5	8	3	7	7	8	5	7	8	4	4	7	7	7	9
21	Punjab & Sind Bank	1	1	7	1	1	7	8	9	1	1	1	1	1	1	4	4	7	7	7	2
22	Punjab National Bank	5	8	7	6	6	7	8	10	7	7	8	5	7	8	4	4	7	7	7	2
23	South Indian Bank	5	8	7	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	2
24	Standard chartered	1	8	7	6	6	2	1	3	7	7	8	5	7	8	4	4	7	1	7	9
25	State Bank of India	9	8	7	8	8	8	8	9	3	8	1	9	7	8	4	4	7	7	1	2
26	State Bank of Mysore	9	8	7	8	8	8	8	7	1	4	1	9	7	8	10	4	1	7	1	2
27	Syndicate Bank	5	8	7	6	6	7	1	3	7	7	8	5	7	8	4	4	7	7	7	2
28	UCO Bank	8	8	7	6	6	7	8	10	7	7	8	5	7	1	4	4	7	7	7	2
29	Union Bank	10	8	7	1	6	7	8	3	9	8	8	10	7	8	4	10	7	7	7	2
30	United Bank	7	8	7	6	6	7	8	3	7	7	8	5	7	8	4	4	7	7	7	9
31	UTI Bank/Axis Bank	5	1	1	6	6	4	1	3	1	1	1	1	1	1	10	4	7	1	7	2

Table 5: Correlations of individual scores with total scores for all 20 variables

S. No.	Variables	First iteration	Second iteration
1	Immediate credit	0.419	0.447
2	Charges	0.686	0.700
3	Acc. Type Revealed	0.577	0.619
4	Metro	-0.022	
5	Capitals	0.220	
6	Others	0.522	0.606
7	Days	0.680	0.747
8	Local cheque time	-0.244	
9	ROI	0.490	0.471
10	SB Rate endpoint	0.688	0.648
11	Effective Adroi	0.497	0.477
12	AbDelay Lenght	0.409	0.457
13	Ab. Defined	0.689	0.713
14	BPLR	0.606	0.626
15	Onus	-0.271	
16	BrDisp in policy	0.354	0.289
17	Force Majeure	0.227	
18	Int on returned cheques	0.565	0.648
19	Int if cheque lost	0.115	
20	cooling off period in case of foreign cheques	0.084	

Note: The numbers in red show that the correlation coefficients are not greater than zero at 10% level of significance using single tailed Karl Pearson test.

Appendix D: Tables related to the comparison of 2006 and 2008 policies

Table 1: Parameter characteristics in quantitative terms for year 2006

No.	Bank name	Immediate credit	Charges	Acc. Type Revealed	Metro	Capitals	Others	Days	Local cheque time	ROI	Effective Adroi	AbDelay Length	Ab. Defined	BPLR	Onus	BrDisp in policy
1	Pre-Deregulation Model	15	10	1	7	10	14	0	3	6	8	150	0	1	1	0
2	ABN Amro	15	0	1	50	50	50	0	6	0	0	200	0	0	0	0
3	Allahabad	15	10	0	7	10	14	0	4	6	8	45	1	1	3	0
4	Andhra Bank	15	2	0	7	7	10	0	3	6	8	150	0	0	1	0
5	Bank of Baroda	15	0	1	7	10	14	0	6	5.5	8	90	1	1	1	0
6	Bank of India	15	2	1	7	10	50	0	4	6	7	21	0	0	0	0
7	Bank of Maharashtra	20	10	1	8	10	14	2	4	6	8	150	0	0	1	0
8	Bharat Overseas Bank	15	10	0	10	10	14	0	6	3.5	3.5	150	0	0	3	0
9	Canara Bank	15	10	1	10	10	14	0	6	6	8	90	1	0	1	0
10	Central Bank of India	15	10	1	8	10	14	0	4	6	8	75	1	0	1	0
11	Citibank	15	10	0	30	30	30	0	6	6	6	150	0	0	1	1
12	Corporation Bank	19	10	0	6	8	8	0	4	6	8	21	1	0	1	0
13	HDFC Bank	-5	-5	-1	4.5	21	45	2	5	10	10	150	0	0	1	0
14	HSBC	0	0	0	6.9	11.9	50	2	3	8	8	150	0	0	1	0
15	ICICI Bank	15	2	0	7	50	50	2	5	0	0	200	0	0	1	0
16	IDBI Bank	15	0	0	10	14	50	2	6	1	1	150	0	0	1	0
17	Indian Bank	-5	-5	-1	10	10	14	0	6	5.5	8	150	0	0	1	0
18	Indian Overseas Bank	15	10	1	7	7	7	0	6	3.5	3.5	150	0	0	0	1
19	Indusind Bank	15	10	0	7	12	12	0	4	6	8	150	0	0	1	0
20	Kotak Mahindra	0	0	0	30	30	30	2	6	3.5	3.5	150	0	1	3	0
21	Oriental Bank of commerce	19	2	0	7	8	14	0	3	3.5	5.5	45	1	0	3	0
22	Punjab & Sind Bank	5	10	0	8	10	14	0	4	3.5	3.5	150	0	0	1	0
23	Punjab National Bank	15	10	0	7	10	14	0	3	6	6	150	0	1	1	0
24	South Indian Bank	15	10	1	7	10	14	2	4	6	8	90	1	0	3	0
25	Standard chartered	0	0	0	5	25.5	50	2	4	5.5	5.5	150	0	0	1	0
26	State Bank of India	20	10	1	7	10	14	0	4.5	3.5	5.5	45	1	1	1	0
27	State Bank of Mysore	20	10	1	7	10	14	0	4.5	3.5	5.5	45	1	1	1	0
28	Syndicate Bank	15	2	0	37.5	40.5	44.5	2	6	6	6	150	0	0	1	0
29	UCO Bank	19	10	0	7	10	14	0	6	6	8	90	1	0	1	0
30	Union Bank	26	10	1	7	10	14	0	6	6	8	30	1	0	1	0
31	United Bank	15	0	1	10	10	14	0	6	0	0	200	0	0	1	0
32	UTI Bank/Axis Bank	15	0	0	7	10	50	2	6	1	1	150	0	0	1	0
	Direction of Parameter	Higher	Higher	Higher	Lower	Lower	Lower	Lower	Lower	Higher	Higher	Lower	Higher	Higher	Higher	Higher

Table 2: Combined scores for the years 2006 & 2008

No.	Bank Name	Immediate credit	Charges	Acc. Type Revealed	Metro	Capitals	others	Days	ROI	Effective Adroi	AbDelay Length	Ab. Defined	BPLR
1	Pre-Deregulation Model	6	8	8	7	7	8	8	6	6	2	2	9
2	ABN Amro	6	1	8	1	1	1	8	1	1	1	2	2
3	Allahabad	6	8	2	7	7	8	8	6	6	9	8	9
4	Andhra Bank	6	2	2	7	8	9	8	6	6	2	2	2
5	Bank of Baroda	6	1	8	7	7	8	8	5	6	7	8	9
6	Bank of India	6	2	8	7	7	1	8	6	5	10	2	2
7	Bank of Maharashtra	9	8	8	6	7	8	1	6	6	2	2	2
8	Canara Bank	6	8	8	5	7	8	8	6	6	7	8	2
9	Central Bank of India	6	8	8	6	7	8	8	6	6	8	8	2
10	Citibank	6	8	2	1	1	3	8	6	4	2	2	2
11	Corporation Bank	8	8	2	7	8	9	8	6	6	10	8	2
12	HDFC Bank	1	1	1	8	2	1	1	10	9	2	2	2
13	HSBC	1	1	2	7	6	1	1	9	6	2	2	2
14	ICICI Bank	6	2	2	7	1	1	1	1	1	1	2	2
15	IDBI Bank	6	1	2	5	5	1	1	1	1	2	2	2
16	Indian Bank	1	1	1	5	7	8	8	5	6	2	2	2
17	Indian Overseas Bank	6	8	8	7	8	9	8	2	1	2	2	2
18	Indusind Bank	6	8	2	7	6	8	8	6	6	2	2	2
19	Kotak Mahindra	1	1	2	1	1	3	1	2	1	2	2	9
20	Oriental Bank of commerce	8	2	2	7	8	8	8	2	3	9	8	2
21	Punjab & Sind Bank	1	8	2	6	7	8	8	2	1	2	2	2
22	Punjab National Bank	6	8	2	7	7	8	8	6	4	2	2	9
23	South Indian Bank	6	8	8	7	7	8	1	6	6	7	8	2
24	Standard chartered	1	1	2	8	1	1	1	5	3	2	2	2
25	State Bank of India	9	8	8	7	7	8	8	2	3	9	8	9
26	State Bank of Mysore	9	8	8	7	7	8	8	2	3	9	8	9
27	Syndicate Bank	6	2	2	1	1	1	1	6	4	2	2	2
28	UCO Bank	8	8	2	7	7	8	8	6	6	7	8	2
29	Union Bank	10	8	8	7	7	8	8	6	6	10	8	2
30	United Bank	6	1	8	5	7	8	8	1	1	1	2	2
31	UTI Bank/Axis Bank	6	1	2	7	7	1	1	1	1	2	2	2

No.	Bank Name	Immediate credit	Charges	Acc. Type Revealed	Metro	Capitals	others	Days	ROI	Effective Adroi	AbDelay Length	Ab. Defined	BPLR
32	Pre-Deregulation Model	6	8	8	7	7	8	8	6	6	2	2	9
33	ABN Amro	6	8	2	7	5	3	1	10	9	2	2	2
34	Allahabad	6	8	2	7	7	8	8	8	9	7	8	9
35	Andhra Bank	6	8	8	7	7	8	8	6	9	7	8	9
36	Bank of Baroda	9	8	8	7	7	8	8	8	9	7	8	9
37	Bank of India	6	8	8	7	7	8	8	8	9	7	8	9
38	Bank of Maharashtra	9	2	8	7	8	8	1	2	3	9	8	2
39	Canara Bank	6	1	8	7	7	8	8	8	9	7	8	9
40	Central Bank of India	6	8	8	6	7	8	8	9	9	8	8	2
41	Citibank	6	2	2	8	8	6	1	9	6	2	2	2
42	Corporation Bank	8	8	8	7	7	8	8	2	3	10	8	2
43	HDFC Bank	1	1	8	7	7	2	1	8	9	7	8	2
44	HSBC	6	8	2	7	7	1	1	2	9	7	8	9
45	ICICI Bank	6	2	8	7	8	6	1	2	6	10	8	6
46	IDBI Bank	6	8	8	7	7	7	8	8	9	7	8	9
47	Indian Bank	6	8	8	7	7	8	8	8	9	7	8	9
48	Indian Overseas Bank	6	8	8	7	7	8	8	8	9	7	8	9
49	Indusind Bank	6	8	8	6	6	5	8	8	9	7	8	9
50	Kotak Mahindra	6	1	2	7	6	2	1	6	9	7	8	9
51	Oriental Bank of commerce	8	8	8	7	7	6	8	8	9	7	8	9
52	Punjab & Sind Bank	1	2	8	5	5	8	8	2	1	2	2	2
53	Punjab National Bank	6	8	8	7	7	8	8	8	9	7	8	9
54	South Indian Bank	6	8	8	7	7	8	8	8	9	7	8	9
55	Standard chartered	1	8	8	7	7	4	1	8	9	7	8	9
56	State Bank of India	9	8	8	7	7	8	8	4	4	9	8	9
57	State Bank of Mysore	9	8	8	7	7	8	8	2	3	9	8	9
58	Syndicate Bank	6	8	8	7	7	8	1	8	9	7	8	9
59	UCO Bank	8	8	8	7	7	8	8	8	9	7	8	2
60	Union Bank	10	8	8	5	7	8	8	9	9	10	8	9
61	United Bank	7	8	8	7	7	8	8	8	9	7	8	9
62	UTI Bank/Axis Bank	6	1	2	7	7	6	1	2	1	2	2	2

* Rows 1-31 are scores of the banks with respect to all the parameters of the 2006 policies

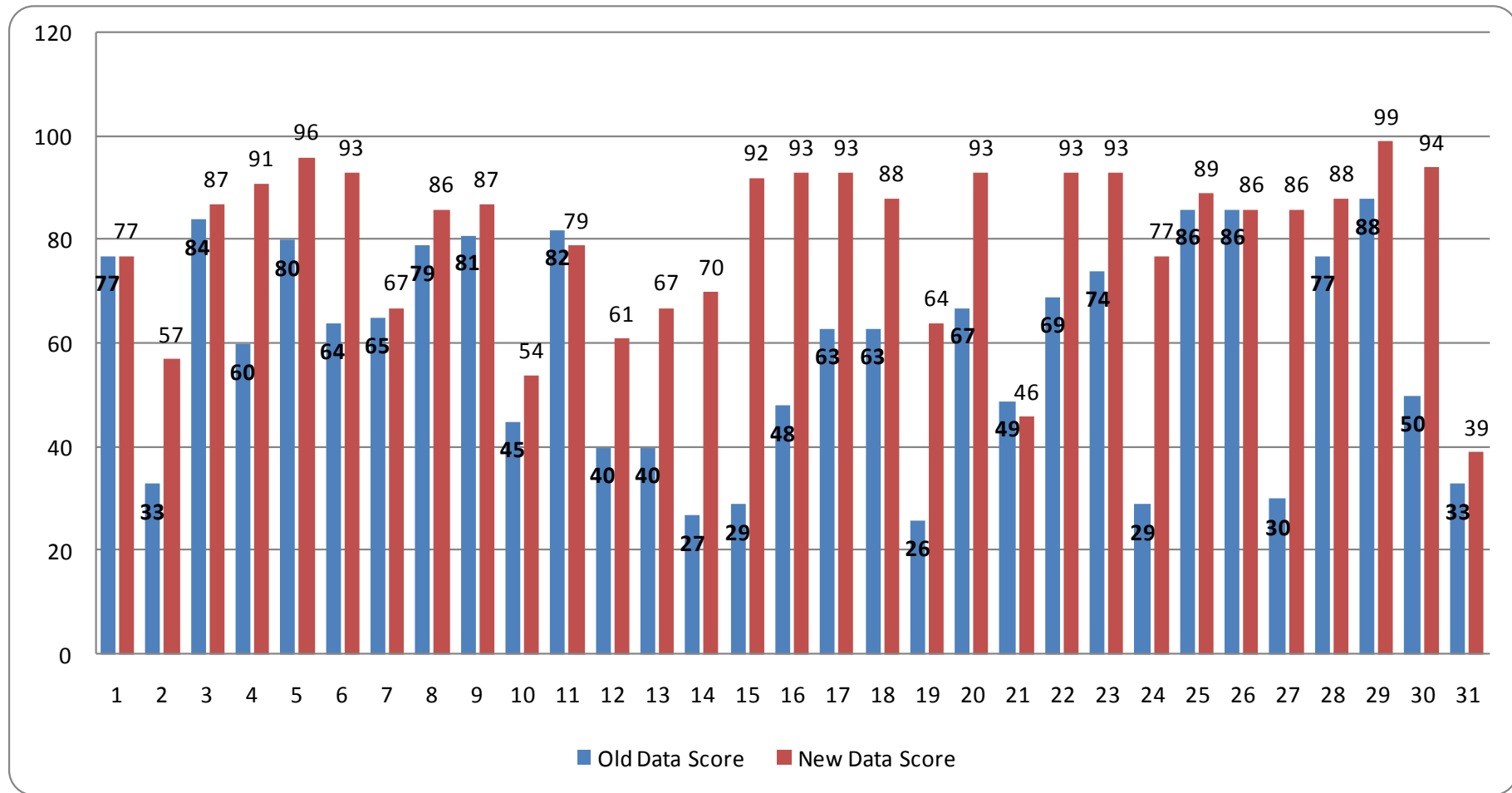
* Rows 32-62 are scores of the banks with respect to all the parameters of the 2008 policies

Table 3: Correlations of individual scores with total scores for all 15 variables

S. No.	Parameter	First iteration	Second iteration
1	Immediate credit	0.545	0.537
2	Charges	0.745	0.722
3	Acc. Type Revealed	0.580	0.630
4	Metro	0.450	0.430
5	Capitals	0.663	0.652
6	others	0.722	0.689
7	Days	0.587	0.577
8	Local cheque time	0.072	
9	ROI	0.450	0.453
10	Effective Adroi	0.607	0.650
11	AbDelay Length	0.726	0.758
12	Ab. Defined	0.762	0.812
13	BPLR	0.563	0.613
14	Onus	-0.293	
15	BrDisp in policy	0.186	

Note: The numbers in red show that the correlation coefficients are not greater than zero at 10% level of significance using single tailed Karl Pearson test.

Appendix E: Comparison of scores of the Banks



Appendix F: Comparison of Composite Index of the Banks

