

On service charges of the banks in India

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Abstract

In September 2006, Reserve Bank of India came out with a report “Report of the working group to formulate a scheme for Ensuring Reasonableness of Bank Charges” highlighting various issues on reasonableness of bank’s service charges. The report identifies 27 services as “basic banking services” of banks in India. The report indicates difficulties in measuring reasonability of bank charges and states that such measurement studies are not feasible within Reserve Bank and that an outside institution may be commissioned to carry out the study. The present paper attempts to look into the issue and provide a detailed analysis of the service charges of banks in India.

1. Introduction

In 1999, the practice of Indian Banks' Association (IBA) fixing the benchmark service charges on behalf of the member banks was discontinued and the decision to prescribe the service charges was left to the discretion of the Boards of individual banks. Banks were then advised that they should ensure that the charges were reasonable and not out of line with the average cost of providing the services and that the customers with low volume of activities were not penalized. It was expected that, with time, market pressure would force the banks to price their services competitively ensuring services at a fair price. However, the Reserve Bank continued to receive representations from the public regarding unreasonable and non-transparent service charges. The plethora of complaints received indicated that the issue of fairness in fixing the service charges by the banks needed to be examined. Accordingly, in order to ensure fair practices in banking services, in terms of the Annual Policy Statement 2006-07, Reserve Bank constituted a Working Group having in it a nominee of the IBA and a representative of customers to formulate a scheme for ensuring reasonableness of bank charges, and to incorporate the same in the Fair Practices Code, the compliance of which would be monitored by the Banking Codes and Standards Board of India (BCSBI).

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In September 2006, RBI came out with a report [1] “Report of the working group to formulate a scheme for Ensuring Reasonableness of Bank Charges” highlighting various issues on reasonableness of bank’s service charges. The report recommended the following two broad parameters for identifying the basic banking services:

(A) Nature of transactions:

- a. Banking services that are ordinarily availed by individuals in the middle and lower segments will be the first parameter. These will comprise services related to deposit/loan accounts, remittance services and collection services.
- b. When the above transactions occur in different delivery channels, for the purpose of pricing, they may be treated on separate footing.

(B) Value of transactions:

Low value of transactions with customers/public upto the ceiling as given below will be the second Parameter:

- i. Remittances up to Rs. 10,000/- in each instance.
 - ii. Collections below Rs. 10,000/- in each instance.
- (Foreign exchange transactions valued upto US \$ 500/-).

As per extant RBI instructions the banks’ service charges should not be out of line with the average costs of providing the services. The report, in order to find out whether a service charge is in line with the cost for providing the services, suggested verification of the costs to the banks for providing such services. Though the report discussed the issue and recommended to Reserve Bank that suitable steps be taken to determine and evaluate the costs of the banks for providing the basic services, this may not be an easy task. However, in order to evaluate the rationality of service charges, one could also look for (i) outliers among the banks whose charges go beyond some definite statistically defined range, (ii) ranking of banks using different methods, etc.

The report indicated that in case such reasonability measurement studies are not feasible within Reserve Bank, an outside institution may be commissioned to carry out the study. Being motivated by this, we attempt a detailed analysis of the service charges of select banks.

In Section 2 we provide a list of the basic services that a bank is required to render as a financial institution serving the general public. Next, in Section 3 we discuss the work on collecting data on the service charges. The data collection process was expected to be easy, given that, banks are required to put the schedule of service charges on their website in the RBI prescribed format. However, while identifying the various charges corresponding to the variables under basic services, it was observed that several banks did not put the schedule of service charges in the format prescribed by RBI. This resulted in lots of confusion in actually identifying the correct charges for each of the variables under study. These difficulties have also been highlighted in Section 3. Categorization of banks by TOPSIS method is carried out in Section 4. In Section 5 we categorize the banks through multidimensional ranking. In

Sections 6, 7 and 8 investigate measure of skewness of charges about mean, detection of outlier banks and consistency checks between average quarterly balance and select service charges.

2. Basic services

According to the report [1] there are 27 basic service charges that should be taken into account while analyzing the service charges. These are

Service relating to deposit accounts

- 1 Cheque book facility
- 2 Issue of Pass Book (or Statement) / Issue of Balance Certificate
- 3 Issue of duplicate pass book or statement
- 4 ATM cards
- 5 Debit cards (electronic cheque)
- 6 Stop Payment
- 7 Balance enquiry
- 8 Account closure
- 9* Cheque Return - Inward (cheque received for payment)
- 10* Signature verification

Relating to Loan Accounts

- 11* No dues certificate

Remittance Facilities (Rupee or foreign exchange)

- 12 Demand Draft – Issue
- 13 Demand Draft – Cancellation
- 14 Demand Draft –Revalidation
- 15 Demand Draft – Duplicate issuance
- 16 Payment Order – Issue
- 17 Payment Order- Cancellation
- 18 Payment Order – Revalidation
- 19 Payment Order-Duplicate issuance
- 20* Telegraphic Transfer – Issue
- 21* Telegraphic Transfer –Cancellation
- 22* Telegraphic Transfer- Duplicate issuance
- 23* Payment by Electronic Clearing Services (ECS)
- 24* Transfer by National Electronic Fund Transfer (NEFT) and Electronic Funds Transfer (EFT).

Collection facilities

- 25* Collection of Local Cheques
- 26* Collection of Outstation Cheques
- 27* Cheque Return-Outward (cheque deposited for collection)

To initiate our study, we consider 16 basic service charges in the above list (ignoring the ones with asterix sign). Most of the banks (generally public sector banks) have different charges for (i) metros, (ii) urban and (iii) semi urban and rural areas. We collected all the charges and suitably took the averages in our analysis while looking at the banks together. We also did a detail analysis separately for the public sector banks and private sector banks.

3. Data on service charges

We considered 16 basic service charges as listed below. The data (as during August 2008 through February 2009) corresponding to these variables have been provided in a tabular form for 29 banks that is covered in our sample. The web links of service charges for these 29 banks are given in Appendix. By February, 2009 we could collect the service charges of 29 banks. Some of the service charges are missing as they were not available in the website of the bank. These 29 banks constitute about 80% of the total commercial bank branches in India. A sector wise break-up indicates that our sample comprises of 5 foreign banks, 6 private sector banks, and 18 public sector banks.

The 16 basic charges we considered are

1. Minimum balance required to maintain the savings bank account (both for with and without cheque facility).
 - Some of the banks require maintaining the minimum average balance per quarter and some require maintaining it per month. We have written all the required minimum balance on a quarterly basis since the banks for which the monthly balance is maintained the quarterly balance is maintained as well. But as it is easier for the customers to maintain a quarterly balance than a monthly one, we have introduced an indicator variable (V3 and V7) giving weight 0 to those who require quarterly balance and 1 to those who require monthly balance.
 - We also derive variables (V2 and V6) representing the quarterly extra interest a person would have got had he kept the extra money under a fixed deposit. Here extra money is calculated from the minimum of the minimum balance of all the banks. The extra interest computation is based on an FD rate of 8% p.a. and a SB rate of 3.5% p.a.
For illustration, in case of without cheque book account the minimum of the minimum balance to be maintained is Rs. 100. Assuming the average fixed deposit interest as 8% p.a. and with savings interest rate 3.5% p.a., on an average extra interest a person can get is $(8-3.5)=4.5\%$. We calculate for each bank $(\text{minimum balance requirement}-100)*4.5/400$, which is the extra interest in rupees per quarter. Such an interest represents cost to the account holder.
2. Charges levied for not maintaining minimum balance.
3. Cost for issuing balance certificate.
4. Cost for issuing duplicate passbook.

5. Cost for issuing the duplicate statement.
6. Cost per ledger folio.
7. Charges for account closure.
8. Charges for issue of demand draft.
9. Charges for cancellation of demand draft.
10. Charges for revalidation of demand draft.
11. Charges for issuing duplicate demand draft.
12. Charges for issuing pay-orders.
13. Charges for cancellation of pay-orders.
14. ATM charges:
 - Membership charges
 - Renewal charges
 - Replacement charges
 - Annual charges.
15. Debit card charges:
 - Membership charges
 - Renewal charges
 - Replacement charges
 - Annual charges.

The 16 variables under consideration lead to the following 48 variables. In the sequel we would be using the abbreviations for these variables. The variables under consideration and the list of banks that we have considered are given below.

VARIABLES	ACCOUNT WITH CHEQUE FACILITY
V1	MIN BALANCE PER QUARTER (with cheque facility)
V2	EXTRA INTEREST [per quarter in Rs.] (with cheque facility)
V3	INDICATOR (with cheque facility)
V4	NONMAINTENANCE CHARGE (with cheque facility)
	ACCOUNT WITHOUT CHEQUE FACILITY
V5	MIN BALANCE PER QUARTER (without cheque facility)
V6	EXTRA INTEREST [per quarter in Rs.] (without cheque facility)
V7	INDICATOR (without cheque facility)
V8	NONMAINTENANCE CHARGE (without cheque facility)
	OTHER CHARGES REGARDING SAVINGS ACCOUNT
V9	COST FOR ISSUING BALANCE CERTIFICATE
V10	INDICATOR VARIABLE SHOWING IF THE CHARGE OF BALANCE CERTIFICATE IS MENTIONED OR NOT
V11	COST FOR ISSUING DUPLICATE PASSBOOK
V12	COST FOR ISSUING DUPLICATE STATEMENT
V13	COST PER LEDGER FOLIO(40ENTRIES)

V14	INDICATOR VARIABLE SHOWING IF THE LEDGER FOLIO CHARGE IS MENTIONED OR NOT
V15	COST FOR STOP PAYMENT
V16	CHARGE FOR ACCOUNT CLOSURE BEFORE 6 MONTHS
V17	CHARGE FOR ACCOUNT CLOSURE BEFORE 1 YEAR WITH CHEQUE BOOK
V18	CHARGE FOR ACCOUNT CLOSURE BEFORE 1 YEAR WITHOUT CHEQUE BOOK
	REMITTENCE FACILITY THROUGH OWN BANK
V19	ISSUE OF DD<1000
V20	ISSUE OF DD BETWEEN 1000 AND 5000.
V21	ISSUE OF DD BETWEEN 5000 AND 10000.
V22	DD CANCELLATION <5000
V23	DD CANCELLATION BETWEEN 5000 AND 10000.
V24	DD REVALIDATION CHARGE
V25	DUPLICATE DD<5000
V26	DUPLICATE DD BETWEEN 5000 AND 10000.
V27	CHARGE FOR ISSUING PAY ORDER<1000.
V28	CHARGE FOR ISSUING PAY ORDER BETWEEN 1000 AND 5000.
V29	CHARGE FOR ISSUING PAY ORDER BETWEEN 5000 AND 10000.
V30	CHARGE FOR CANCELLATION OF PAY ORDER.
	REMITTENCE FACILITY THROUGH OTHER BANK
V31	ISSUE OF DD<1000
V32	ISSUE OF DD BETWEEN 1000 AND 5000.
V33	ISSUE OF DD BETWEEN 5000 AND 10000.
V34	DD CANCELLATION
V35	DD REVALIDATION CHARGE
V36	DUPLICATE DD<5000
V37	DUPLICATE DD BETWEEN 5000 AND 10000.
V38	CHARGE FOR ISSUING PAY ORDER<1000.
V39	CHARGE FOR ISSUING PAY ORDER BETWEEN 1000 AND 5000.
V40	CHARGE FOR ISSUING PAY ORDER BETWEEN 5000 AND 10000.
V41	CHARGE FOR CANCELLATION OF PAY ORDER.
	ATM AND DEBIT CARD CHARGES
V42	ATM MEMBERSHIP CHARGE
V43	ATM ANNUAL CHARGE
V44	ATM RENEWAL CHARGE
V45	ATM REPLACEMENT CHARGE
V46	DEBIT CARD MEMBERSHIP CHARGE
V47	DEBIT CARD ANNUAL CHARGE
V48	DEBIT CARD RENEWAL CHARGE
V49	DEBIT CARD REPLACEMENT CHARGE

We now give in a tabular form the data collected on 16 variables, and its expansion to 49 variables, for the 29 banks.

		<u>Savings bank account with cheque facility</u>					
		<u>Average monthly balance With cheque</u>				<u>MONTH/QT</u>	<u>NMC</u>
BANKS	C	V1				v3	v4
		<u>rural</u>	<u>semi urban</u>	<u>urban</u>	<u>metro</u>		
HSBC Bank	F	25000	25000		25000	0	750
Citi Bank	F	100000	100000	100000	100000	1	500
Kotak Mahindra	F	10000	10000	10000	10000	0	750
Standard chartered	F	25000	25000	25000	25000	0	750;1250;1500
ABN Amro Bank	F	10000	10000	10000	10000	1	500
State Bank of India	N	500	500	500	1000	0	50
Punjab National Bank	N	500	1000	1000	1000		150
Central Bank of India	N	250	500	1000	1000		30,60,75
Bank of Baroda	N	500	500	500	1000	1	25,50,100
Bank of India	N	500	500	500	500	0	10,15pm
Canara Bank	N	500	500	1000	1000	1	60
Union Bank of India	N	250	500	1000	1000	0	91.01
Syndicate Bank	N	500	500	500	1000	1	90
Allahabad Bank	N	500	500	500	500		60
UCO Bank	N	250	500	1000	1,000	0	40
Indian Overseas Bank	N	500	500	1000	1,000	1	21,42
Indian Bank	N	500	500	500	500	0	30 p.m.
Bank of Maharashtra	N	500	500	500	500	0	75,100
United Bank of India	N	500	500	500	500	1	40
Oriental Bank of commerce	N	250	250	1000	1000		15,35
Andhra Bank	N	250	250	500	500	1	20
Corporation Bank	N	250	500	500	500	0	23
Punjab & Sind Bank	N	100	1,000	1000	1000	1	
HDFC Bank	P	2500	2500	5000	5000	0	750
South Indian Bank	P	1000	1000	1000	1000	0	250
ICICI Bank	P	5000	5000	10000	10000	0	750
UTI Bank/Axis Bank	P	1000	2500	5000	5000	0	750
Indusind Bank	P	1500	1500	3000	5000	1	150,200,250
IDBI Bank	P	5000	5000	5000	5000	0	280,790

		<i>Savings bank account without cheque facility</i>						
		<i>Average monthly balance Without cheque facility</i>				<i>AVGE MIN BLC</i>	<i>MONTH /QT</i>	<i>NMC</i>
<i>BANKS</i>		v5					v7	v8
		<i>rural</i>	<i>semiurba</i>	<i>urban</i>	<i>metro</i>			
HSBC Bank	F	NA	NA	NA	NA	NA	NA	NA
Citi Bank	F	NA	NA	NA	NA	NA	NA	NA
Kotak Mahindra	F	NA	NA	NA	NA	NA	NA	NA
Standard chartered	F	NA	NA	NA	NA	NA	NA	NA
ABN Amro Bank	F	NA	NA	NA	NA	NA	NA	NA
State Bank of India	N	250	250	250	500	312.5	0	50
Punjab National Bank	N	500	1000	1000	1000	875		150
Central Bank of India	N	250	500	1000	1000	687.5		75
Bank of Baroda	N	500	500	500	1000	625	1	25,50,100
Bank of India	N	100	100	100	100	100	0	5,10
Canara Bank	N	100	100	500	500	300	1	60
Union Bank of India	N	100	250	500	500	337.5	0	60.67
Syndicate Bank	N	100	100	100	500	200	1	90
Allahabad Bank	N	100	100	100	100	100		30
UCO Bank	N	100	250	500	500	337.5	0	30
Indian Overseas Bank	N	100	100	500	500	300	1	21,42
Indian Bank	N	100	100	250	250	175	0	30 p.m.
Bank of Maharashtra	N	100	100	100	100	100	0	50,75
United Bank of India	N	50	100	100	100	87.5	1	
Oriental Bank of commerce	N	100	100	500	500	300		15,35p.m
Andhra Bank	N	100	250	250	500	275	1	10
Corporation Bank	N	250	500	500	500	437.5	0	23
Punjab & Sind Bank	N	100	500	500	500	400	1	
HDFC Bank	P	2500	2500	5000	5000	3750	0	750
South Indian Bank	P	500	500	500	500	500	0	100
ICICI Bank	P						0	
UTI Bank/Axis Bank	P	1000	2500	5000	5000	3375	0	750
Indusind Bank	P	NA	NA	NA	NA	NA	NA	NA
IDBI Bank	P	NA	NA	NA	NA	NA	NA	NA

	<u>Other savings bank account related charges</u>									
	<u>Balance certificate</u>	<u>indicator</u>	<u>Duplicate Passbook</u>	<u>Duplicate Statement</u>	<u>ledger folio</u>	<u>m/n</u>	<u>Stop Payment</u>	<u>Acc Clos<6 months</u>	<u>Acc Clos. Wc<1 year</u>	<u>Acc clos. Woc<1 year</u>
BANKS	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18
HSBC Bank		1	100	100		0	100	500	nil after 6	nil after 6
Citi Bank		1		50		0	50	0		
Kotak Mahindra			250	100		1	100	600	nil fter 6	nil fter 6
Standard chartered				100			100	500		
ABN Amro Bank				100		1	100	500	500	500
State Bank of India	100	0	100	100	100	0	50	100	100	100
Punjab National Bank	50	0	75	75	75	0	40	150	150	150
Central Bank of India	25	0	20	20	25	0	30	20	20	20
Bank of Baroda	20	0	50	50	50	0	50	150	150	150
Bank of India	25	0	40	0		1	80	100	100	100
Canara Bank		1	50	50	50	0	50	100	100	50
Union Bank of India	26	0	38.2	38.2	46.07	0	89.89	113.48	113.48	76.4
Syndicate Bank	40	0	40	40	25	0	40	100	100	100
Allahabad Bank	50	0	50	50	60	0	50	100	100	75
UCO Bank	50	0	40	40	40	0	50	150	150	100
Indian Overseas Bank		1	18,23	18,23		1	18,23			
Indian Bank		1	30	30	60	0	30		50	50
Bank of Maharashtra		1	50		10	0	50		150	100
United Bank of India		1				1				
Oriental Bank of commerce	10,25	0	25	25	40+10	0	25	20	20	20
Andhra Bank		1	15	15	15	0	55	100	100,50	100,50
Corporation Bank	23	0	28	28		1	28	56	56	56
Punjab & Sind Bank		1	20	20	20	0	25			
HDFC Bank	0,250	0	100	100		1	50	100		
South Indian Bank	50	0	50	50	50	0	100	25,50	20	10
ICICI Bank	50	0	100	100	25	0	50	0,500	500	500
UTI Bank/Axis Bank	25	0				1	100	100	nil fter 6	nil fter 6
Indusind Bank	25		0	10		1	100	250	200	200
IDBI Bank	280		85					115	nil fter 6	nil fter 6

BANKS	<u>demand draft issue</u>			<u>dd cancellation</u>		<u>DD reval</u>	<u>Duplicate DD</u>		<u>PO issue</u>			<u>PO Cancel</u>
	v19	v20	v21	v22	v23	v24	v25	v26	v27	v28	v29	v30
HSBC Bank	50	50	50	100	100	0	0	0	50	50	50	100
Citi Bank	0	0	0	0	0	0	0	0	0	0	0	0
Kotak Mahindra	50	50	50	100	100	100	100	100	50	50	50	100
Standard chartered	50*	50	50	250	250	250	250	250	50	50	50	250
ABN Amro Bank		50	50	50	50	50	50	50				
State Bank of India	30	30	30	100	100	100	100	100	30	30	30	100
Punjab National Bank	35	35	35	70	70	45	65	65	35	35	35	45
Central Bank of India	20	30	30	50	50	50	30	30	20	30	30	50
Bank of Baroda	20	35	35	75	75	0	75	75	20	35	35	75
Bank of India	30	40	40	40	40	40	50	50	25	40	50	40
Canara Bank	25	35	35	75	75	50	75	75	25	35	35	75
Union Bank of India	14.23	25.845	38.2	12.36	21.35	16.855	12.36	21.35	14.6	24.72	31.46	16.85
Syndicate Bank	20,30	40	40	50	50	40	50	50	20	40	40	50
Allahabad Bank	25	35	40	100	100	100	100	100	25	35	40	100
UCO Bank	30	30	30	100	100	100	100	100	30	30	30	100
Indian Overseas Bank	10.5	16	23			14,17	31	31	5.5	15.5	20.5	
Indian Bank	30	30	30	30,60	60	50	75	75				
Bank of Maharashtra	25	30	35	100	100	40	50	100	20	25	30	100
United Bank of India	17	28	34	50	50	50	60	60	17	28	34	50
Oriental Bank of commerce	15	15	20	35	35	20	25	25	15	15	20	35
Andhra Bank	15	25	30	50	50	50	100	100	15	25	30	50
Corporation Bank	14	23	28	28	28	28	56	56	11	23	28	28
HDFC Bank	50	50	50	50	50	50			50	50	50	50
South Indian Bank	25	25	25	50	50	50	50	50	25	25	25	50
ICICI Bank	50	50	50	100	100	100	100	100	75	75	75	100
UTI Bank/Axis Bank	50	50	50	50	50	50	50	50	50	50	50	50
Indusind Bank	25	25	25	100	100	50	100	100	25	25	25	100
IDBI Bank	70	70	70	60	60				60	60	60	60

	REMITTANCE FACILITY THROUGH OTHER BANK										
	<u>DD issue</u>			<u>DD Cancel</u>	<u>DD Reval</u>	<u>duplicate DD</u>		<u>ISSUE OF PAY ORDER</u>			<u>POCancel</u>
BANKS	v31	v32	v33	v34	v35	v36	v37	v38	v39	v40	v41
HSBC Bank	100	100	100	100				100	100	100	
Citi Bank	0	0	0	100							
Kotak Mahindra	50	50	50	100	100	100	100	50	50	50	
Standard chartered	150	150	150	250	250	250	250	150	150	150	250
ABN Amro Bank	50	50	50	50	50	50	50				0
State Bank of India	30	30	30	100	100	100	100	30	30	30	100
Punjab National Bank	35	35	35	70	45	65	65	35	35	35	45
Central Bank of India	20	30	30	50	50	30	30	20	30	30	50
Bank of Baroda	20	35	35	75	0	75	75	20	35	35	75
Bank of India	30	40	40	40	40	50	50	25	40	50	40
Canara Bank	25	35	35	75	50	75	75	25	35	35	75
Union Bank of India	14.23	25.845	38.2	12.36,21.35	16.855	12.36	21.35	14.6	24.72	31.46	16.85
Syndicate Bank	20,30	40	40	50	40	50	50	20	40	40	50
Allahabad Bank	25	35	40	100	100	100	100	25	35	40	100
UCO Bank	30	30	30	100	100	100	100	30	30	30	100
Indian Overseas Bank	10	15.5	20.5		15.5	31	31	5.5	15.5	20.5	
Indian Bank	30	30	30	30,60	50	75	75				
Bank of Maharashtra	25	30	35	100	40	50	100	20	25	30	30
United Bank of India	17	28	34	50	50	60	60	17	28	34	50
Oriental Bank of commerce	15	15	20	35	20	25	25	15	15	20	35
Andhra Bank	15	25	30	50	50	100	100	15	25	30	50
Corporation Bank	14	23	28	28	28	56	14	14	23	28	28
HDFC Bank	60,65	75	80	50	50			50	50	50	50
South Indian Bank	25	25	25	50	50	50	50	25	25	25	50
ICICI Bank	50	50	50	100	100	100	100				
UTI Bank/Axis Bank	50	50	50	50	50	50	50	50	50	50	50
Indusind Bank	50	50	50	100	50	100	100	50	50	50	100
IDBI Bank	90	90	90					90	90	90	

	<u>ATM and DEBIT card charge</u>							
	<u>ATM Membership</u>	<u>ATM Annual</u>	<u>ATM renewal</u>	<u>ATM Replacement</u>	<u>Debit Card Membership</u>	<u>Debit Card Annual</u>	<u>Debit Card renewal</u>	<u>Debit Card Replacement</u>
BANKS	v42	v43	v44	v45	v46	v47	v48	v49
HSBC Bank	0	150		100	0	150		100
Citi Bank	0	0	0	0	0	0	0	0
Kotak Mahindra					0	100		200
Standard chartered								
ABN Amro Bank				0		180	0	0
State Bank of India	0	50			0	50		
Punjab National Bank	0	100		100	0	100		100
Central Bank of India	0				0			
Bank of Baroda	0	0	113	169	0	0	113	169
Bank of India	0	0		0	0	0		0
Canara Bank	0	0	0	50	0	0	0	50
Union Bank of India	0	112.36	0	112.36	0	112.36	0	112.36
Syndicate Bank	0							
Allahabad Bank	0	100	100	100	0	100	100	100
UCO Bank	0	0	0	0	0	0	0	0
Indian Overseas Bank	0	0	0	100	0	0	0	100
Indian Bank	0	0	0	150	0	0	0	150
Bank of Maharashtra								
United Bank of India	0	0	0	135	0	0	0	135
Oriental Bank of commerce		0		0		100		0
Andhra Bank		50				50		
Corporation Bank	0	75	0	0	0	99	0	140
HDFC Bank	0			100		100	100	100
South Indian Bank	0	50	0	100	0	50	0	100
ICICI Bank	0	99		200	0	99		200
UTI Bank/Axis Bank								
Indusind Bank	0	25	0	0	0	25	0	0
IDBI Bank	0	110		115	0	120		115

Note: All the spaces marked by blue represents those variables for which data was not available in the bank's website. The cases where there were too many missing values we ignored those variable while analyzing.

The banks under consideration for our analysis involve the following 27 banks.

<u>Bank Name</u>	<u>category</u>
HSBC Bank	foreign
Citi Bank	foreign
Kotak Mahindra	foreign
Standard chartered	foreign
ABN Amro Bank	foreign
HDFC Bank	Private
South Indian Bank	Private
ICICI Bank	Private
UTI Bank/Axis Bank	Private
Indusind Bank	Private
IDBI Bank	Private
State Bank of India	Public
Punjab National Bank	Public
Central Bank of India	Public
Bank of Baroda	Public
Bank of India	Public
Canara Bank	Public
Union Bank of India	Public
Syndicate Bank	Public
Allahabad Bank	Public
UCO Bank	Public
Indian Bank	Public
Bank of Maharashtra	Public
United Bank of India	Public
Oriental Bk of Commerce	Public
Andhra Bank	Public
Corporation Bank	Public

4. Categorisation of banks by TOPSIS method

The objective in the decision-making problem is to find the best option from all possible feasible alternatives. That is, for many such problems, the decision maker wants to solve a multiple criteria decision making (MCDM) problem. TOPSIS (technique for order preference by similarity to an ideal solution) is a method related to aggregation of several variables in order to provide a comprehensive ranking of multiple subjects with respect to the variables. TOPSIS is a multiple criteria method to identify solutions from a finite set of alternatives. The basic principle is that the chosen alternative should have the shortest distance from the positive ideal solution and the farthest distance from the negative ideal solution. For details on the method we refer to the [2].

Through the TOPSIS method, a comprehensive score is obtained for 27 banks. We separately obtained the score for public sector banks, private banks and foreign banks and also obtain a

combined score for all the banks. Such scores are based on the 12 distinct variables derived from the 47 basic variables and taking averages of the similar ones. We also didn't take into account those variables for which we have many missing data. Throughout, the variables are such that lower values represent service charges favoring bank customers. This leads to TOPSIS method providing scores such that lower value of the score would mean lower service charges and vice-versa.

To rank the public sector banks we have considered 12 distinct variables. The result for the public sector banks is given in the Table 1. For the private sector banks and foreign banks we have considered 12 distinct variables and also for the combined study of all the 27 banks we have considered 12 distinct variables. The result for the private sector banks, foreign banks and ranking for all the 27 banks are given respectively in Tables 2, 3 and 4.

TABLE 1: RANK OF THE PUBLIC SECTOR BANKS

BANK	COMPOSITE INDEX	RANK
Oriental Bk of Commerce	0.183633	1
Corporation Bank	0.240562	2
Central Bank of India	0.284971	3
United Bank of India	0.344598	4
Andhra Bank	0.362526	5
Union Bank of India	0.370223	6
Indian Bank	0.376264	7
Bank of India	0.390186	8
Syndicate Bank	0.426334	9
Bank of Baroda	0.49462	10
Bank of Maharashtra	0.528032	11
Canara Bank	0.528328	12
UCO Bank	0.612923	13
Punjab National Bank	0.615382	14
Allahabad Bank	0.62705	15
State Bank of India	0.787734	16

TABLE 2: RANK OF THE PRIVATE SECTOR BANKS

BANK	COMPOSITE INDEX	RANK
South Indian Bank	0.322554	1
Indusind Bank	0.381712	2
UTI Bank/Axis Bank	0.382445	3
HDFC Bank	0.554359	4
IDBI Bank	0.557256	5
ICICI Bank	0.677406	6

TABLE 3: RANK OF THE FOREIGN BANK

BANKS	COMPOSITE INDEX	RANK
Citi Bank	0.298793	1
ABN Amro Bank	0.312274	2
HSBC Bank	0.393866	3
Kotak Mahindra	0.432677	4
Standard chartered	0.722775	5

TABLE 4: COMBINED RANK OF ALL THE BANKS

BANKS	COMPOSITE INDEX	RANK
Corporation Bank	0.13102	1
Union Bank of India	0.153207	2
Oriental Bk of Commerce	0.154685	3
Syndicate Bank	0.164431	4
Indian Bank	0.169031	5
Central Bank of India	0.17379	6
Bank of India	0.180994	7
Canara Bank	0.198283	8
Bank of Maharashtra	0.201148	9
Bank of Baroda	0.214627	10
South Indian Bank	0.224432	11
IDBI Bank	0.2385	12
Punjab National Bank	0.239517	13
UTI Bank/Axis Bank	0.239982	14
Andhra Bank	0.241227	15
UCO Bank	0.245453	16
United Bank of India	0.248615	17
Allahabad Bank	0.249382	18
Indusind Bank	0.263475	19
HDFC Bank	0.265245	20
State Bank of India	0.286749	21
ABN Amro Bank	0.296619	22
ICICI Bank	0.365486	23
Kotak Mahindra	0.371569	24
HSBC Bank	0.376346	25
Citi Bank	0.486304	26
Standard chartered	0.596585	27

5. Categorization of Banks through Multidimensional Ranking

Following Thorat, Maria and Das (2004) and Das and Das (2006) we use an iterative technique for ranking banks with respect to the service charges of banks. 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 by standardizing them. These 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. For each bank, its score over all the parameters are added to arrive at the total score. These score values and total scores are given in the Appendix.

The correlations of these aggregate scores are calculated with the individual score of each of the parameter. 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, i.e., the parameters that are positively and significantly correlated with the total score are retained and a new total score with the residual set of parameters is worked out. The correlation between the new total score and the residual set of parameters (which were used to calculate this total score), is 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. These final total scores are then standardized and the standardized values are converted to scores from 1 to 5 using the twenty-percentile points of the Standard Normal Distribution. This classifies the banks into one of the 5 categories. The banks with the highest score of 5 are Category-A banks, the ones with score 4 are Category-B banks, and so on, the last group being Category-E banks corresponding to score 1.

We used this method to rank all of the banks and then categorized them into 5 categories.

TABLE 5: RANKS OF ALL THE BAKS BY MULTIDIMENSIONAL SCALING

<u>BANKS</u>	<u>SCORES</u>	<u>RANKS</u>
Corporation Bank	37	1
Oriental Bank of Commerce	38	2
Union Bank of India	40	3
Central Bank of India	45	4
Syndicate Bank	45	5
Indian Bank	45	6
Bank of India	48	7
Citi Bank	49	8
Bank of Maharashtra	53	9
Canara Bank	54	10
Bank of Baroda	56	11
United Bank of India	57	12
South Indian Bank	58	13
Punjab National Bank	60	14
UCO Bank	61	15
Andhra Bank	61	16
UTI Bank/Axis Bank	63	17
IDBI Bank	63	18
Allahabad Bank	63	19
HDFC Bank	70	20
Indusind Bank	70	21
State Bank of India	72	22
ABN Amro Bank	77	23
HSBC Bank	89	24
Kotak Mahindra	96	25
ICICI Bank	96	26
Standard chartered	109	27

We find that all the variables taken into account are positively correlated and so no further reduction of variable were required. So we categorize all the banks in 5 categories based on the above ranking.

CATEGORISATION OF BANKS BY MULTIDIMENSIONAL SCALING

CATEGORY A

Corporation Bank	Public
Oriental Bk of Commerce	Public
Union Bank of India	Public
Central Bank of India	Public
Syndicate Bank	Public
Indian Bank	Public

CATEGORY B

Bank of India	Public
Citi Bank	Foreign
Bank of Maharashtra	Public
Canara Bank	Public
Bank of Baroda	Public
United Bank of India	Public

CATEGORY C

South Indian Bank	Private
Punjab National Bank	Public
UCO Bank	Public
Andhra Bank	Public
UTI Bank/Axis Bank	Private
IDBI Bank	Private
Allahabad Bank	Public

CATEGORY D

HDFC Bank	Foreign
Indusind Bank	Private
State Bank of India	Public
ABN Amro Bank	Foreign

CATEGORY E

HSBC Bank	Foreign
Kotak Mahindra	Foreign
ICICI Bank	Private
Standard chartered	Foreign

TABLE 6: COMPARISON BETWEEN TOPSIS METHOD AND MULTIDIMENSIONAL RANKING

	Ranked by MR Method	Ranked by Topsis
1	Corporation Bank	Corporation Bank
2	Oriental Bk of Commerce	Union Bank of India
3	Union Bank of India	Oriental Bk of Commerce
4	Central Bank of India	Syndicate Bank
5	Syndicate Bank	Indian Bank
6	Indian Bank	Central Bank of India
7	Bank of India	Bank of India
8	Citi Bank	Canara Bank
9	Bank of Maharashtra	Bank of Maharashtra
10	Canara Bank	Bank of Baroda
11	Bank of Baroda	South Indian Bank
12	United Bank of India	IDBI Bank
13	South Indian Bank	Punjab National Bank
14	Punjab National Bank	UTI Bank/Axis Bank
15	UCO Bank	Andhra Bank
16	Andhra Bank	UCO Bank
17	UTI Bank/Axis Bank	United Bank of India
18	IDBI Bank	Allahabad Bank
19	Allahabad Bank	Indusind Bank
20	HDFC Bank	HDFC Bank
21	Indusind Bank	State Bank of India
22	State Bank of India	ABN Amro Bank
23	ABN Amro Bank	ICICI Bank
24	HSBC Bank	Kotak Mahindra
25	Kotak Mahindra	HSBC Bank
26	ICICI Bank	Citi Bank
27	Standard chartered	Standard chartered

Note: **Red** is used for public sector banks, **Blue** is used for foreign banks and **orange** is used for private banks

REMARKS:

We notice from the above results that though we have taken the same set of variables to rank all the banks in both of the methods, some of the banks have changed their position drastically.

- Citibank was ranked 8 by MR method but it was ranked 26 in Topsis method.
- IDBI bank is ranked 18 in MR method but it has been ranked 12 by Topsis method.
- United bank of India was ranked 12 in MR method but it has been ranked 17 in Topsis method.

Except the above three cases rest of the banks have shifted only one, two or at most three position when ranked by two different methods.

6. Measure of skewness of charges about mean

We study the skewness of the data. It is seen that the banks are mostly skewed above the average service charge or below the average service charge. We carry out a detailed analysis on each of the charges. We separately analyze private sector banks, public sector banks and foreign banks. A combined analysis is also done. For each of the distinct variables taken into account we find the number of banks having charges greater than the average and number of banks having charges less than the average. The following tables give the details separately for the banks in each category.

PUBLIC SECTOR BANKS:

TABLE 7: THE NUMBER OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
No of banks having charges greater than average	9	9	4	6	9	10	7	8	8	9	7	8
No of banks having charges less than average	7	7	12	10	7	6	9	8	8	7	9	8

TABLE 8: THE % OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
Percentage of banks having charges greater than average	56.25%	56.25%	25.00%	37.50%	56.25%	62.50%	43.75%	50.00%	50.00%	56.25%	43.75%	50.00%
Percentage of banks having charges less than average	43.75%	43.75%	75.00%	62.50%	43.75%	37.50%	56.25%	50.00%	50.00%	43.75%	56.25%	50.00%

PRIVATE SECTOR BANKS:

TABLE 9: THE NUMBER OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
No of banks having charges greater than average	2	2	3	3	3	3	2	1	2	4	2	2
No of banks having charges less than average	4	4	3	3	3	3	4	5	4	2	4	4

TABLE 10: THE % OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
Percentage of banks having charges greater than average	33.33%	33.33%	50.00%	50.00%	50.00%	50.00%	33.33%	16.67%	33.33%	66.67%	33.33%	33.33%
Percentage of banks having charges less than average	66.67%	66.67%	50.00%	50.00%	50.00%	50.00%	66.67%	83.33%	66.67%	33.33%	66.67%	66.67%

FOREIGN BANKS:**TABLE 11: THE NUMBER OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE**

<u>BANKS</u>	<u>Average quarterly balance</u>	<u>Cost</u>	<u>Non - mainten</u>	<u>Duplicate statement</u>	<u>stop payment</u>	<u>demand draft</u>	<u>dd cancellation</u>	<u>DD reval</u>	<u>Duplicate DD</u>	<u>PO issue</u>	<u>PO Cancel</u>	<u>account closure</u>
NO OF BANKS HAVING CHARGES GREATER THAN AVERAGE	1	3	3	3	4	2	1	2	2	2	2	4
NO OF BANKS HAVING CHARGES LESS THAN AVERAGE	4	2	2	2	1	3	4	3	3	3	3	1

TABLE 12: THE % OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

<u>BANKS</u>	<u>Average quarterly balance</u>	<u>Cost</u>	<u>Non - mainten</u>	<u>Duplicate statement</u>	<u>stop payment</u>	<u>demand draft</u>	<u>dd cancellation</u>	<u>DD reval</u>	<u>Duplicate DD</u>	<u>PO issue</u>	<u>PO Cancel</u>	<u>account closure</u>
NO OF BANKS HAVING CHARGES GREATER THAN AVERAGE	20.00%	60.00%	60.00%	60.00%	80.00%	40.00%	20.00%	40.00%	40.00%	40.00%	40.00%	80.00%
NO OF BANKS HAVING CHARGES LESS THAN AVERAGE	80.00%	40.00%	40.00%	40.00%	20.00%	60.00%	80.00%	60.00%	60.00%	60.00%	60.00%	20.00%

Now we give a combined summary of the number of banks having charges more than average and less than average.

TABLE 13: THE NUMBER OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
No of banks having charges greater than average	5	5	13	8	9	9	11	7	12	8	9	6
No of banks having charges less than average	22	22	14	19	18	18	16	20	15	19	18	21

TABLE 14: THE % OF BANKS HAVING CHARGES GREATER AND LESS THAN AVERAGE

	<i>Avg MIN Bal</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avg</i>	<i>DD Cancel avg</i>	<i>DD Reval avg</i>	<i>Duplicate DD avg</i>	<i>Issue of PO avg</i>	<i>Avg PO Cancel</i>	<i>Avg Acc Closure</i>
Percentage of banks having charges greater than average	18.52%	18.52%	48.15%	29.63%	33.33%	33.33%	40.74%	25.93%	44.44%	29.63%	33.33%	22.22%
Percentage of banks having charges less than average	81.48%	81.48%	51.85%	70.37%	66.67%	66.67%	59.26%	74.07%	55.56%	70.37%	66.67%	77.78%

COMMENTS:

From the above tables, it is observed that within the bank sectors (i.e., Public/Private/Foreign) the distribution of the service charges about the mean is skewed in either directions depending on the service type. However, when considering all the 26 banks, it is seen that the distribution of the charges about the overall mean is skewed to the right. To be specific, overall on an average there are more that 69% of the banks which are charging less than the mean charge.

7. Detection of outlier banks

Assuming that service charges for each of the variables under study are normally distributed we first find the statistics $T1 = (\text{mean charge}) - 1.648 * (\text{standard deviation})$ and $T2 = (\text{mean charge}) + 1.648 * (\text{standard deviation})$ for each distinct variable separately. We then check if any of the values of the service charges are greater than T2 thereby indicating an outlier. Note that in only about 5% of the cases we expect a bank to have service charge value greater than T2.

Outlier checking for public sector banks:

The ranges for 11 variables considered for public sector banks are given below. The charges which are beyond this range are considered to be outliers and should be taken care of.

$\mu+1.648\sigma$	806.5058852	77.476196	79.097059	76.2535	152.4265	38.864	106.53	96.84866402	110.4084	37.499	100.83
$\mu-1.648\sigma$	380.9941148	7.2988038	0.677941	17.98275	23.00347	19.439	19.502	0.633212229	21.19849	19.544	16.648

TABLE 15: OUTLIER CHARGES FOR PUBLIC SECTOR BANKS

public sector banks	Avg MIN BLC with cheque	Pass Book Duplicate	Statement Duplicate	Payment Stop	AVG Acc Closure	Avg DD Issue	Avg DD Cancel	Avg Revalidation	Avg DD Duplicate	Avg PO Issue	Avg PO Cancel
State Bank of India	O.K.	exceeds	exceeds	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.
Punjab National Bank	exceeds	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Central Bank of India	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Bank of Baroda	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.
Bank of India	O.K.	O.K.	exceeds	exceeds	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.
Canara Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Union Bank of India	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.
Syndicate Bank	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.	O.K.	O.K.
Allahabad Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.
UCO Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.
Indian Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Bank of Maharashtra	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
United Bank of India	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Oriental Bk of Commerce	O.K.	O.K.	O.K.	O.K.	exceeds	exceeds	O.K.	O.K.	O.K.	exceeds	O.K.
Andhra Bank	exceeds	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Corporation Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.

The charges highlighted as “exceeds” are those which go beyond the range and considered as outliers. The charges which are within ranges are marked as “o.k.”

Outlier checking for private sector banks

The range calculated for the 12 variables considered for private sector banks are given below. We also provide the table showing the outlier charges in case of private sector banks.

	<u>AVGE MIN BLC</u>	<u>COST</u>	<u>NMC</u>	<u>Balance certificate</u>	<u>Duplicate Passbook</u>	<u>Stop Payment</u>	<u>DD Issue avg</u>	<u>DD Cancel avg</u>	<u>DD Reval Avg</u>	<u>Duplicate DD Average</u>	<u>Issue of PO average</u>	<u>Average PO Cancel</u>
$\mu+1.648\sigma$	7521.472348	321.5913	963.8399	308.44336	133.204549	133.946	86.47974	109.25774	92.96	109.257745	78.1770436	109.25774
$\mu-1.648\sigma$	270.1943184	-4.71626	114.4934	-81.77669	-21.5378827	-0.61265	36.02026	27.408922	27.04	27.40892171	20.9896231	27.408922

TABLE 16: SHOWING OUTLIER FOR PRIVATE SECTOR BANKS

<u>BANKS</u>	<u>AVGE MIN BLC</u>	<u>COST</u>	<u>NMC</u>	<u>Balance certificate</u>	<u>Duplicate Passbook</u>	<u>Stop Payment</u>	<u>DD Issue avg</u>	<u>DD Cancel avg</u>	<u>DD Reval Avg</u>	<u>Duplicate DD Average</u>	<u>Issue of PO average</u>	<u>Average PO Cancel</u>
HDFC Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
South Indian Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
ICICI Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	exceeds	O.K.	O.K.	O.K.
UTI Bank/Axis Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Indusind Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
IDBI Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.

From the above matrix we can conclude that only one charge i.e. "DD Revaluation charge of ICICI bank" is out of the range $\mu \pm 1.648\sigma$

Outlier checking of foreign banks

The range calculated for the foreign banks considering 12 variables are given below.

	Average quarterly balance	Cost	Non - maintenance charge	Duplicate statement	stop payment	demand draft issue	dd cancellation	DD reval	Duplicate DD	PO issue	PO Cancel	account closure
$\mu+1.648\sigma$	96046.71	30.72	1182.56	143.70	126.85	163.95	254.16	250.87	250.87	128.94	248.77	813.45
$\mu-1.648\sigma$	-28,046.71	-9.72	284.10	-3.70	53.15	-23.95	-54.16	-90.87	-90.87	-8.94	-78.77	26.55

TABLE 17: TABLE SHOWING OUTLIERS AMONG THE FOREIGN BANKS

BANKS	Average quarterly balance	Cost	Non - maintenance charge	Duplicate statement	stop payment	demand draft issue	dd cancellation	DD reval	Duplicate DD	PO issue	PO Cancel	account closure
HSBC Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Citi Bank	EXCEEDS	O.K.	O.K.	O.K.	EXCEEDS	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	EXCEEDS
Kotak Mahindra	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.
Standard chartered	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	EXCEEDS	O.K.
ABN Amro Bank	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.	O.K.

Combined analysis of all the banks

Next we combine all the banks and try to find the outliers among them. Given below is the range figures which are used to find the outliers among all the banks.

	<u>AVGE MIN BLC</u>	<u>COST</u>	<u>NMC</u>	<u>Duplicate Passbook</u>	<u>Stop Payment</u>	<u>DD Issue avg</u>	<u>DD Cancel avg</u>	<u>DD Reval Avg</u>	<u>Duplicate DD Average</u>	<u>Issue of PO average</u>	<u>Average PO Cancel</u>	<u>Average Acc Closure</u>
$\mu+1.648\sigma$	39909.33	1779.04	968.54	105.48	107.81	93.27	146.02	137.23	146.73	76.70	141.57	460.48
$\mu-1.648\sigma$	-24881.55	-1136.54	-169.45	-4.50	10.99	-5.58	-3.92	-23.17	-8.74	1.36	-10.09	-133.65

Now we look for the outliers for all the 27 banks considered. We can observe that most of the outliers corresponds to the charges of the foreign bank due to their high difference of charges from the public sector banks. The following table shows the outlier banks.

TABLE 18: OUTLIER BANKS AMONG ALL THE 27 BANKS

<i>Bank Name</i>	<i>category</i>	<i>AVGE MIN BLC</i>	<i>COST</i>	<i>NMC</i>	<i>Duplicate Passbook</i>	<i>Stop Payment</i>	<i>DD Issue avq</i>	<i>DD Cancel avq</i>	<i>DD Reval Avq</i>	<i>Duplicate DD Average</i>	<i>Issue of PO average</i>	<i>Average PO Cancel</i>	<i>Average Acc Closure</i>
HSBC Bank		o.k.	o.k.	o.k.	o.k.	o.k.	exceeds	o.k.	o.k.	o.k.	exceeds	o.k.	exceeds
Citi Bank		exceeds	exceeds	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	exceeds	o.k.	o.k.
Kotak Mahindra		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	exceeds
Standard chartered		o.k.	o.k.	exceeds	o.k.	o.k.	exceeds	exceeds	exceeds	exceeds	exceeds	exceeds	exceeds
ABN Amro Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	exceeds
HDFC Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
South Indian Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
ICICI Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	exceeds
UTI Bank/Axis Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Indusind Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
IDBI Bank		o.k.	o.k.	o.k.	o.k.	exceeds	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
State Bank of India		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Punjab National Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Central Bank of India		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Bank of Baroda		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Bank of India		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Canara Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Union Bank of India		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Syndicate Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Allahabad Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
UCO Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Indian Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Bank of Maharashtra		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
United Bank of India		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Oriental Bk of Commerce		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Andhra Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.
Corporation Bank		o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.	o.k.

The banks and their corresponding service charges that are being detected as outliers, as per the above limits, are presented below.

Public Sector Banks

<u>Bank name</u>	<u>Variable</u>	<u>values</u>
State Bank of India	Duplicate pass book	100.00
State Bank of India	Duplicate statement	100.00
State Bank of India	DD Revalidation	100.00
Punjab National Bank	Average Quarterly balance	875.00
Central Bank of India	Account Closure Charge	20.00
Bank of Baroda	DD Revalidation	0.00
Bank of India	Duplicate Statement	0.00
Bank of India	Stop Payment	80.00

Canara Bank	PO Issue	31.67
Union Bank of India	Duplicate DD Issue	16.86
Syndicate Bank	DD Issue	40.00
Allahabad bank	DD Revalidation	100.00
UCO Bank	DD Revalidation	100.00
Oriental Bank of Commerce	Account Closure Charge	20.00
Oriental Bank of Commerce	DD Issue	16.67
Oriental Bank of Commerce	PO Issue	16.67
Andhra Bank	Average Quarterly balance	375.00
Private Sector Banks		

Public Sector Banks

<u>Bank Name</u>	<u>Variable</u>	<u>Values</u>
ICICI Bank	DD Revalidation Charge	100.00

Foreign Banks

<u>Bank Name</u>	<u>Variable</u>	<u>Values</u>
Citibank	Average Quarterly balance	100000.00
Citibank	Stop Payment	50.00
Citibank	Account Closure	0.00
Standard Chartered Bank	PO Cancellation	250.00

8. Consistency checking between all the variables

In this section we check if all the charges are consistent with the average quarterly balance (AQB) and for finding this we check the consistency of all the variables with the AQB. If the AQB is more than the average and the other charges are less than the average then we can say that it is reasonable. If both of them are below average then also we can conclude it as good. But if the AQB is greater than average and the other charges are also greater than average then we can possibly conclude existence of some component of inconsistency. As we cannot expect that a customer maintaining a higher quarterly balance in his account should pay high other charges, thus we conclude that such situations lead unreasonableness and categorized as “exceeds”. We checked this condition from the binary matrix obtained while studying the skewness.

Consistency checking from binary matrix

The table given below shows the result obtained for public sector banks using the binary matrix provided in Appendix. The banks for which the AQB is less than average but the other charges are high we conclude “indecisive”.

Public Sector banks

<u>Banks</u>	<u>Avg MIN BLC with cheque</u>	<u>Pass Book Duplicate</u>	<u>Statement Duplicate</u>	<u>Payment Stop</u>	<u>AVG Acc Closure</u>	<u>Avg DD Issue</u>	<u>Avg DD Cancel</u>	<u>Avg evalidation</u>	<u>Avg DD Duplicate</u>	<u>Avg PO Issue</u>	<u>Avg PO Cancel</u>
State Bank of India	1	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds
Punjab National Bank	1	Exceeds	Exceeds	good	Exceeds	Exceeds	Exceeds	good	good	Exceeds	good
Central Bank of India	1	good	good	good	good	good	good	Exceeds	good	good	good
Bank of Baroda	1	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	good	Exceeds	Exceeds	Exceeds
Bank of India	0	good	good	Exceeds	Exceeds	Exceeds	good	good	good	Exceeds	good
Canara Bank	1	Exceeds	Exceeds	Exceeds	good	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds
Union Bank of India	1	good	good	Exceeds	Exceeds	good	good	good	good	good	good
Syndicate Bank	1	good	Exceeds	good	Exceeds	Exceeds	good	good	good	Exceeds	good
Allahabad Bank	0	indecisive	Exceeds	Exceeds	good	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds
UCO Bank	1	good	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds
Indian Bank	0	good	good	good	good	Exceeds	good	Exceeds	Exceeds	Exceeds	Exceeds
Bank of Maharashtra	0	indecisive	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	good	Exceeds	good	Exceeds
United Bank of India	0	good	good	good	good	good	good	Exceeds	good	good	good
Oriental Bk of Commerce	1	good	good	good	good	good	good	good	good	good	good
Andhra Bank	0	good	good	Exceeds	good	good	good	Exceeds	Exceeds	good	good
Corporation Bank	0	good	good	good	good	good	good	good	good	good	good

Private Sector Banks

<u>BANKS</u>	<u>AVGE MIN BLC</u>	<u>COST</u>	<u>NMC</u>	<u>Balance certificate</u>	<u>Duplicate Passbook</u>	<u>Stop Payment</u>	<u>DD Issue avg</u>	<u>DD Cancel avg</u>	<u>DD Reval Avg</u>	<u>Duplicate DD Average</u>	<u>Issue of PO average</u>	<u>Average PO Cancel</u>
HDFC Bank	0	good	indecisive	indecisive	indecisive	good	indecisive	good	good	good	indecisive	good
South Indian Bank	0	good	good	good	good	indecisive	indecisive	good	good	good	good	good
ICICI Bank	0	Exceeds	Exceeds	good	Exceeds	good	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds	Exceeds
UTI Bank/Axis Bank	1	good	indecisive	good	good	indecisive	good	good	good	good	indecisive	good
Indusind Bank	0	good	good	good	good	indecisive	good	indecisive	good	indecisive	good	indecisive
IDBI Bank	1	Exceeds	good	Exceeds	Exceeds	good	good	good	good	good	Exceeds	good

Foreign Banks

<u>BANKS</u>	<u>Average quarterly balance</u>	<u>Cost</u>	<u>Non-maintenance charge</u>	<u>Duplicate statement</u>	<u>stop payment</u>	<u>demand draft issue</u>	<u>DD cancellation</u>	<u>DD reval</u>	<u>Duplicate DD</u>	<u>PO issue</u>	<u>PO Cancel</u>	<u>account closure</u>
HSBC Bank	0	indecisive	indecisive	indecisive	indecisive	indecisive	good	good	good	indecisive	good	indecisive
Citi Bank	1	good	good	good	good	good	good	good	good	good	good	good
Kotak Mahindra	0	indecisive	indecisive	indecisive	indecisive	good	good	indecisive	indecisive	good	indecisive	indecisive
Standard chartered	0	indecisive	indecisive	good	indecisive	indecisive	indecisive	indecisive	indecisive	indecisive	indecisive	indecisive
ABN Amro Bank	0	good	good	indecisive	indecisive	good	good	good	good	good	good	indecisive

To carry out a more comprehensive study involving all the 10 explanatory variables and to check our intuitive feeling on a relationship existing between the response and explanatory variables, we fitted a regression line taking the average minimum balance as the response variable and the 10 important service charges as explanatory variables. We adopted the Forward as well as the Backward Selection procedure to arrive at the model fitted.

The 10 variables under consideration are:

Avg MIN BLC with cheque	Pass Book Duplicate	Statement Duplicate	Payment Stop	AVG Acc Closure	Avg DD Issue	Avg DD Cancel	Avg Revalidation	Avg DD Duplicate	Avg PO Issue	Avg PO Cancel
Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10

The data on 16 public sector banks are

Public Sector Banks	Avg MIN BLC with cheque	Pass Book Duplicate	Statement Duplicate	Payment Stop	AVG Acc Closure	Avg DD Issue	Avg DD Cancel	Avg Revalidation	Avg DD Duplicate	Avg PO Issue	Avg PO Cancel
	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
State Bank of India	625.00	100.00	100.00	50.00	100.00	30.00	100.00	100.00	100.00	30.00	100.00
Punjab National Bank	875.00	75.00	75.00	40.00	150.00	35.00	70.00	45.00	65.00	35.00	45.00
Central Bank of India	687.50	20.00	20.00	30.00	20.00	26.67	50.00	50.00	30.00	26.67	50.00
Bank of Baroda	625.00	50.00	50.00	50.00	150.00	30.00	75.00	0.00	75.00	30.00	75.00
Bank of India	500.00	40.00	0.00	80.00	100.00	36.67	40.00	40.00	50.00	38.33	40.00
Canara Bank	750.00	50.00	50.00	50.00	75.00	31.67	75.00	50.00	75.00	31.67	75.00
Union Bank of India	687.50	38.20	38.20	89.89	94.94	26.09	25.28	16.86	16.86	23.59	16.85
Syndicate Bank	625.00	40.00	40.00	40.00	100.00	40.00	50.00	40.00	50.00	33.33	50.00
Allahabad Bank	500.00	50.00	50.00	50.00	87.50	33.33	100.00	100.00	100.00	33.33	100.00
UCO Bank	687.50	40.00	40.00	50.00	125.00	30.00	100.00	100.00	100.00	30.00	100.00
Indian Bank	500.00	30.00	30.00	30.00	50.00	30.00	60.00	50.00	75.00	30.00	60.00
Bank of Maharashtra	500.00	50.00	50.00	50.00	125.00	30.00	100.00	40.00	75.00	25.00	65.00
United Bank of India	500.00	27.00	27.00	36.00	75.00	26.33	50.00	50.00	60.00	26.33	50.00
Oriental Bk of Commerce	625.00	25.00	25.00	25.00	20.00	16.67	35.00	20.00	25.00	16.67	35.00
Andhra Bank	375.00	15.00	15.00	55.00	75.00	23.33	50.00	50.00	100.00	23.33	50.00
Corporation Bank	437.50	28.00	28.00	28.00	56.00	20.67	28.00	28.00	56.00	23.08	28.00

The model arrived at through forward section of variables (using SAS) is

$$Y=608.06+3.82X_2-2.53X_8$$

with $R^2 = 0.4726$ (No other variable met the 0.1000 significance level for entry into the model.)

The model arrived at through backward section (using SAS) is

$$Y=355.80+3.82X_2-2.53X_8$$

With $R^2 = 0.4726$ (All variables left in the model are significant at the 0.1000 level.)

We see that at a significance level of 0.1, both forward and backward selection procedures lead us to the same model involving the two explanatory variables X_2 and X_8 . However, the R^2 value of 0.4726 is not very high.

Acknowledgement

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References

[1] Report of the working group to formulate a scheme for Ensuring Reasonableness of Bank Charges, RBI report, September, 2006.

<http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/72575.pdf>

[2] A D Naga Venkata Ramarao, Das, Ashish and Midha, Chand (2009). Comparison of banks with respect to cheque collection policy.

<http://www.math.iitb.ac.in/~ashish/paper.htm>

[3] 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>.

[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] Analysis of service charges of banks in India by Amrita Ganguly, ASI project, Department of Mathematics, IIT Bombay, April 2009.

Appendix

Websites of the service charges of the banks considered

<u>BANKS</u>	<u>website links</u>
State Bank of India	http://www.sbi.co.in/viewsection.jsp?lang=0&id=0,10,547
Punjab National Bank	http://www.pnbindia.com/english_web/service_charges.pdf
Central Bank of India	http://www.centralbankofindia.co.in/english/default.asp
Bank of Baroda	http://www.bankofbaroda.com/servicecharges.asp
Bank of India	http://www.bankofindia.com/servicecharge.aspx
Canara Bank	http://www.canarabank.com/English/Scripts/ServiceCharges.aspx
Union Bank of India	http://www.unionbankofindia.co.in/SC_RBI_format.aspx
Syndicate Bank	http://www.syndicatebank.in/scripts/servicecharges.aspx
Allahabad Bank	http://www.allahabadbank.com/
UCO Bank	http://www.ucobank.com/service_charges.htm
Indian Overseas Bank	http://iob.in/ServiceCharges.aspx
Indian Bank	http://www.indian-bank.com/ServiceCharges&FeesRBI%20format.htm
Bank of Maharashtra	http://www.bankofmaharashtra.in/service%20_and_charges.asp
United Bank	http://www.unitedbankofindia.com/concise-servicecharge.asp
Oriental Bank of commerce	https://www.obcindia.co.in/obcnew/site/sevice_charges.aspx
Andhra Bank	http://www.andhrabank.in/scripts/servicecharges.aspx
HDFC Bank	http://www.hdfcbank.com/common/fees_default.htm
Corporation Bank	http://www.corpbank.com/asp/0100text.asp?presentID=501&headID=0
Punjab & Sind Bank	http://www.psbindia.com/servmain07.php
ICICI Bank	http://www.icicibank.com/pfsuser/webnews/rates&fees.htm
UTI Bank/Axis Bank	http://www.axisbank.com/serviceschargesandfees/serviceschargesandfees.asp
South Indian Bank	http://www.southindianbank.com/serviceCharge/serviceChargeList.aspx
IDBI Bank	http://www.idbibank.com/idbi/schedule_of_charges.as
Indusind Bank	http://www.indusind.com/downloads/statement-cla-priv-final-aw-front.pdf
Kotak Mahindra	http://www.kotak.com/Kotak_BankSite/personal/default.htm#
Standard chartered	http://www.standardchartered.co.in/_documents/service-charges-fees/SoSc_SA_1208.pdf
HSBC Bank	http://www.hsbc.co.in/1/2/miscellaneous/service-charges
Citi Bank	http://www.online.citibank.co.in/portal/newgen/service/service_charges.htm
ABN Amro Bank	http://www.abnamro.co.in/India/May-I-Help/Service-Ch/index.htm

Table of scores and total scores used in MR Method

<i><u>Bank Name</u></i>	<i><u>AVGE MIN BLC</u></i>	<i><u>COST</u></i>	<i><u>NMC</u></i>	<i><u>Duplicate Passbook</u></i>	<i><u>Stop Payment</u></i>	<i><u>DD Issue avg</u></i>	<i><u>DD Cancel avg</u></i>	<i><u>DD Reval Avg</u></i>	<i><u>Duplicate DD Average</u></i>	<i><u>Issue of PO average</u></i>	<i><u>Average PO Cancel</u></i>	<i><u>Average Acc Closure</u></i>
	var 1	var 2	var 3	var 4	var 5	var 6	var 7	var 8	var 9	var 10	var 11	var 12
Corporation Bank	4	4	2	3	2	3	2	5	3	3	4	2
Oriental Bk of Commerce	4	4	2	2	1	4	2	3	2	4	2	8
Union Bank of India	4	4	2	4	9	3	2	2	2	3	2	3
Central Bank of India	4	4	9	2	2	3	4	5	3	3	4	2
Syndicate Bank	4	4	2	4	3	5	4	4	4	4	4	3
Indian Bank	4	4	2	3	2	3	5	5	6	3	5	3
Bank of India	4	4	2	4	8	4	3	4	4	5	3	3
Citi Bank	10	10	7	5	5	1	1	2	1	1	4	2
Bank of Maharashtra	4	4	2	5	5	3	8	4	6	3	5	4
Canara Bank	4	4	2	5	5	4	6	5	6	4	6	3
Bank of Baroda	4	4	8	5	5	3	6	2	6	3	6	4
United Bank of India	4	4	2	4	2	6	4	5	3	7	6	10
South Indian Bank	4	4	4	5	10	9	4	5	4	3	4	2
Punjab National Bank	4	4	10	8	3	4	5	4	6	4	4	4
UCO Bank	4	4	2	4	5	3	8	8	8	3	8	4
Andhra Bank	4	4	2	6	2	6	4	8	3	7	6	9
UTI Bank/Axis Bank	5	5	9	1	10	6	4	5	4	7	4	3
IDBI Bank	5	5	7	9	1	5	5	5	5	8	5	3
Allahabad Bank	4	4	2	5	5	4	8	8	8	4	8	3
HDFC Bank	5	5	9	10	5	9	4	5	4	7	4	3
Indusind Bank	5	5	3	1	10	6	8	5	8	5	8	6
State Bank of India	4	4	8	10	5	3	8	8	8	3	8	3
ABN Amro Bank	6	6	7	10	10	6	4	5	4	7	2	10
HSBC Bank	9	9	9	10	10	10	8	2	1	10	1	10
Kotak Mahindra	6	6	9	10	10	6	8	8	8	7	8	10
ICICI Bank	6	5	9	10	5	9	8	8	8	10	8	10
Standard chartered	9	9	10	1	10	10	10	10	10	10	10	10

Binary Matrices Used In The Measure Of Skewness And Consistency Checking

Public Sector Banks

<u>Banks</u>	<u>Avg MIN BLC</u>	<u>Pass Book</u>	<u>Statement</u>	<u>Payment</u>	<u>AVG Acc</u>	<u>Avg DD</u>	<u>Avg DD</u>	<u>Avg</u>	<u>Avg DD</u>	<u>Avg PO</u>	<u>Avg PO</u>
	<u>with cheque</u>	<u>Duplicate</u>	<u>Duplicate</u>	<u>Stop</u>	<u>Closure</u>	<u>Issue</u>	<u>Cancel</u>	<u>revalidatio</u>	<u>Duplicate</u>	<u>Issue</u>	<u>Cancel</u>
State Bank of India	1	1	1	1	1	1	1	1	1	1	1
Punjab National Bank	1	1	1	0	1	1	1	0	0	1	0
Central Bank of India	1	0	0	0	0	0	0	1	0	0	0
Bank of Baroda	1	1	1	1	1	1	1	0	1	1	1
Bank of India	0	0	0	1	1	1	0	0	0	1	0
Canara Bank	1	1	1	1	0	1	1	1	1	1	1
Union Bank of India	1	0	0	1	1	0	0	0	0	0	0
Syndicate Bank	1	0	1	0	1	1	0	0	0	1	0
Allahabad Bank	0	1	1	1	0	1	1	1	1	1	1
UCO Bank	1	0	1	1	1	1	1	1	1	1	1
Indian Bank	0	0	0	0	0	1	0	1	1	1	1
Bank of Maharashtra	0	1	1	1	1	1	1	0	1	0	1
United Bank of India	0	0	0	0	0	0	0	1	0	0	0
Oriental Bk of Commerce	1	0	0	0	0	0	0	0	0	0	0
Andhra Bank	0	0	0	1	0	0	0	1	1	0	0
Corporation Bank	0	0	0	0	0	0	0	0	0	0	0

Private Banks

<u>BANKS</u>	<u>AVGE MIN BLC</u>	<u>COST</u>	<u>NMC</u>	<u>Balance certificate</u>	<u>Duplicate Passbook</u>	<u>Stop Payment</u>	<u>DD Issue avg</u>	<u>DD Cancel avg</u>	<u>DD Reval Avg</u>	<u>Duplicate DD Average</u>	<u>Issue of PO average</u>	<u>Average PO Cancel</u>
HDFC Bank	0	0	1	1	1	0	1	0	0	0	1	0
South Indian Bank	0	0	0	0	0	1	1	0	0	0	0	0
ICICI Bank	1	1	1	0	1	0	1	1	1	1	1	1
UTI Bank/Axis Bank	0	0	1	0	0	1	0	0	0	0	1	0
Indusind Bank	0	0	0	0	0	1	0	1	0	1	0	1
IDBI Bank	1	1	0	1	1	0	0	0	0	0	1	0

Foreign Banks

	<u>Average quarterly balance</u>	<u>Cost</u>	<u>Non-maintenance charge</u>	<u>Duplicate statement</u>	<u>stop payment</u>	<u>demand draft issue</u>	<u>dd cancellation</u>	<u>DD reval</u>	<u>Duplicate DD</u>	<u>PO issue</u>	<u>PO Cancel</u>	<u>account closure</u>
HSBC Bank	0	1	1	1	1	1	0	0	0	1	0	1
Citi Bank	1	0	0	0	0	0	0	0	0	0	0	0
Kotak Mahindra	0	1	1	1	1	0	0	1	1	0	1	1
Standard chartered	0	1	1	0	1	1	1	1	1	1	1	1
ABN Amro Bank	0	0	0	1	1	0	0	0	0	0	0	1

Tables Giving The Summarized Data Used For All Analysis

Public Sector Banks

Public Sector Banks	Avg MIN BLC with cheque	Pass Book Duplicate	Statement Duplicate	Payment Stop	AVG Acc Closure	Avg DD Issue	Avg DD Cancel	Avg Revalidation	Avg DD Duplicate	Avg PO Issue	Avg PO Cancel
	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
State Bank of India	625.00	100.00	100.00	50.00	100.00	30.00	100.00	100.00	100.00	30.00	100.00
Punjab National Bank	875.00	75.00	75.00	40.00	150.00	35.00	70.00	45.00	65.00	35.00	45.00
Central Bank of India	687.50	20.00	20.00	30.00	20.00	26.67	50.00	50.00	30.00	26.67	50.00
Bank of Baroda	625.00	50.00	50.00	50.00	150.00	30.00	75.00	0.00	75.00	30.00	75.00
Bank of India	500.00	40.00	0.00	80.00	100.00	36.67	40.00	40.00	50.00	38.33	40.00
Canara Bank	750.00	50.00	50.00	50.00	75.00	31.67	75.00	50.00	75.00	31.67	75.00
Union Bank of India	687.50	38.20	38.20	89.89	94.94	26.09	25.28	16.86	16.86	23.59	16.85
Syndicate Bank	625.00	40.00	40.00	40.00	100.00	40.00	50.00	40.00	50.00	33.33	50.00
Allahabad Bank	500.00	50.00	50.00	50.00	87.50	33.33	100.00	100.00	100.00	33.33	100.00
UCO Bank	687.50	40.00	40.00	50.00	125.00	30.00	100.00	100.00	100.00	30.00	100.00
Indian Bank	500.00	30.00	30.00	30.00	50.00	30.00	60.00	50.00	75.00	30.00	60.00
Bank of Maharashtra	500.00	50.00	50.00	50.00	125.00	30.00	100.00	40.00	75.00	25.00	65.00
United Bank of India	500.00	27.00	27.00	36.00	75.00	26.33	50.00	50.00	60.00	26.33	50.00
Oriental Bk of Commerce	625.00	25.00	25.00	25.00	20.00	16.67	35.00	20.00	25.00	16.67	35.00
Andhra Bank	375.00	15.00	15.00	55.00	75.00	23.33	50.00	50.00	100.00	23.33	50.00
Corporation Bank	437.50	28.00	28.00	28.00	56.00	20.67	28.00	28.00	56.00	23.08	28.00

Private Banks

BANKS	AVGE MIN BLC	COST	NMC	Balance certificate	Duplicate Passbook	Stop Payment	DD Issue avg	DD Cancel avg	DD Reval Avg	Duplicate DD Average	Issue of PO average	Average PO Cancel
HDFC Bank	3750	151.875	750	250	100	50	75	50	50	50	50	50
South Indian Bank	1000	28.125	250	50	50	100	75	50	50	50	25	50
ICICI Bank	7500	320.625	750	50	100	50	75	100	100	100	75	100
UTI Bank/Axis Bank	3375	135	750	25	0	100	50	50	50	50	50	50
Indusind Bank	2750	106.875	200	25	0	100	50	100	50	100	37.5	100
IDBI Bank	5000	208.125	535	280	85	0	42.5	60	60	60	60	60

Charges written in " **ORANGE** " are estimated from other charges or assumed to be zero as it was not available in the website

Foreign Banks

BANKS	category	Average quarterly balance	Cost	Non - maintenance charge	Duplicate statement	stop payment	demand draft issue	dd cancellation	DD reval	Duplicate DD	PO issue	PO Cancel	account closure
HSBC Bank	foreign	25000.00	11.25	750.00	100.00	100.00	100.00	100.00	0.00	0.00	100.00	0.00	500.00
Citi Bank	foreign	100000.00	0.00	500.00	50.00	50.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00
Kotak Mahindra	foreign	10000.00	11.25	750.00	100.00	100.00	50.00	100.00	100.00	100.00	50.00	100.00	600.00
Standard chartered	foreign	25000.00	30.00	1166.67	0.00	100.00	150.00	250.00	250.00	250.00	100.00	250.00	500.00
ABN Amro Bank	foreign	10000.00	0.00	500.00	100.00	100.00	50.00	50.00	50.00	50.00	50.00	25.00	500.00