CHAPTER 9

ANALYSIS OF THE RESULTS AND INTERPRETATION

Table 8.3 contains the correlation matrix of the finally selected ratios.

From Table 8.3, the worthiness of the sub-hypotheses can be checked as given below :

Section I

Test of the Sub-hypotheses

It was found that :

$$PE_1 = -0.4772910^{-1} X_1$$

$$PE_2 = -0.2401110^{-1} X_2$$

$$PE_3 = 0.52736 X_3$$

$$PE_4 = -0.22909 X_4$$

$$PE_5 = -0.7707810^{-1} X_5$$

Data pertaining to X_6 and X_7, as per the sub-hypotheses were not available.

From the test of the sub-hypotheses, it results that :

The Interest and Discount as percentage to Working Funds and the Profit Efficiency are negatively (negligible correlation) correlated. This is due to the multicolinearity which exists between X_1 and X_2.

TABLE 8.3 : Correlation Matrix - II

Sr. No.	X_2	X_5	X_7	X_9	X_{11}	X_{12}	X_{14}
X_2	1.0000	0.27860	-0.6767910^{-1}	-0.4890910^{-1}	-0.4772910^{-1}	-0.41121	-0.25983
X_5	0.27860	1.0000	0.7505510^{-1}	0.14002	-0.2401110^{-1}	0.2781810^{-1}	0.67178
X_7	-0.6767910^{-1}	0.7505510^{-1}	1.0000	0.49386	0.52736	-0.12864	-0.16131
X_9	-0.4890910^{-1}	0.14002	0.49386	1.0000	0.29020	-0.5543910^{-1}	0.8888210^{-1}
X_{11}	-0.4772910^{-1}	-0.2401110^{-1}	0.52736	0.29020	1.0000	-0.22909	-0.7707810^{-1}
X_{12}	-0.41121	0.2781810^{-1}	-0.12864	-0.5543910^{-1}	-0.22909	1.0000	0.28605
X_{14}	-0.25983	0.67178	-0.16131	0.8888210^{-1}	-0.7707810^{-1}	0.28605	1.0000

Note : E -01 is replaced by 10^{-1}

X_j refers to the selected ratios.

The profit Earning ratio, X_3, affects positively the Profit Efficiency. It is found that, if the Profit - Earning ratio increases by pay 100, the Profit Efficiency (or Return on Working Funds) increases by 53.

The Priority Sectors advances, X_4, affects negatively the profitability of banks. It is found that, for every Rs. 100 lent to the priority sectors, the profitability of banks decreases by Rs. 23. This illustrates well the conflict between profitability and the social objectives.

It is also found that, the maximum utilisation of resources, X_5, does not mean necessarily maximisation of return on working founds. In other words, it is not obvious that the more a bank utilises its resources, the more its return on working founds increases. This may be true, if the expenses of the bank are kept at an optimum level and borrowers motivated to pay back the bank credit. The relatively small correlation between X_5 and PE_5 is explained by the high correlation between X_5 and X_2 .

After having checked the worthiness of the sub-hypotheses, the next step consists in analysing and interpreting the results pertaining to the determinants of Credit Management Efficiency consisting of Profit Efficiency, Advances Efficiency, Recovery Efficiency , Time Efficiency and Disbursement Efficiency. In other words we are going to prove the main hypotheses stating that :

$$C\ M\ E = F (PE, AE, RE, TE, DE)$$

Profit Efficiency . This is shown in Table 9.1.

Table 9.1 : Profit Efficiency - Ratios (%)

Sr. No.	Banks	Advances/ Working Funds	Interest Discount/ Total Earnings	Profit/ Earnings	Return on Working Funds
1	SBI	59.25	85.70	1.25	0.100
2	PATLA	49.93	87.50	0.36	0.022
3	Hyder	50.75	83.44	0.28	0.017
4	BK and J.P.	55.35	86.10	0.57	0.045
5	YRVCR	52.67	89.33	0.67	0.048
6	MYSOR	56.40	88.82	0.59	0.047
7	SRSTR	57.54	89.37	0.37	0.030
8	INDOR	59.31	85.55	0.43	0.036
9	BARODA	52.19	91.55	1.93	0.159
10	INDIA	58.11	89.72	1.69	0.136
11	PNB	52.72	93.64	1.70	0.124
12	CNTRL	56.90	92.17	1.37	0.107
13	CANRA	53.41	92.57	2.15	0.165
14	U C O	59.40	93.81	1.22	0.099
15	SYNDI	59.84	92.05	1.91	0.145
16	IOB	61.04	90.95	2.56	0.205
17	UNION	55.01	90.66	1.71	0.130
18	UNTED	49.61	94.84	1.06	0.081
19	INDIN	59.04	92.77	0.97	0.088
20	ALAHA	52.68	92.07	1.71	0.141
21	DENA	54.07	94.05	1.46	0.120
22	MAHA	55.20	92.93	0.84	0.072
23	ANDRA	53.62	93.90	3.13	2.339
24	PN and SB	60.86	89.66	0.66	0.056

contd...

Table 9.1 contd...

Sr. No.	Banks	Advances/ Working Funds	Interest Discount/ Total Earnings	Profit/ Earnings	Return on Working Funds
25	NEW BK	52.58	90.46	1.80	0.140
26	VIJYA	49.46	92.80	0.54	0.045
27	ORTL	52.30	97.17	1.67	0.129
28	CORPN	44.87	86.28	3.70	0.232

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On the basis of the information contained in Table 9.1, an inter bank comparison can be done.

Firstly, the ratio Advances/working Funds, which is nothing but the maximum utilisation of funds is compared with the ratio Interest and Discount/Total earnings and secondly, the Profit-Earning ratio is compared with the Return on Working Funds ratio. By the end of the process, we shall know the ratios among these four ratios which determine most the Profit Efficiency.

As per the test of the hypotheses and from Table 9.1 , it can be seen that the maximum utilisation of resources does not mean necessary maximisation of earnings. For example, the Indian Overseas Bank had a ratio of Advances/Working Funds equal to 61.04 % and its Interest and Discount/Total earnings ratio was 90.95 %. On the other hand, the Vijaya Bank uses 49.46 % of its Working Funds and its Interest and Discount/Total earnings was

92.80 % . Therefore, the Indian Overseas Bank is using more funds to earn less and the Vijaya Bank, less funds, to earn more. As a consequence, the Vijaya's advances management seems to be more efficient compared to that of the Indian Overseas Bank.

In order to draw a final conclusion, a comparison of the ratio Profit/Earnings and PE of the two banks may throw more light on the problem.

The Profit earning ratio and the Return on working funds of the Vijaya Bank were respectively 0.54 and 0.045 % , while that of the Indian Overseas Bank were respectively 2.56 and 0.205 % . These results are very interesting. This means that if the Profit Efficiency is measured by the return on advances, the Vijaya Bank is the most efficient and the Indian Overseas Bank is lagging behind. But, when the Profit Efficiency is measured either by the Profit - Earning ratio or the Return on working funds, the Indian Overseas Bank is more efficient than the Vijaya Bank. This may be due to the fact that the Indian overseas Bank is controlling its expenses better which is an additional advantage.

A second example can be taken, the case of two banks which have almost the same Advances - working Funds ratio , viz., the United Commercial Bank and the Syndicate Bank. In this example, the Syndicate Bank is using its working Funds upto 59.84 % and its Interest and Discount/Total Earnings ratio, Profit - Earning ratio and Return on working Funds were respectively 92.05, 1.91 and 0.45 % , on the other hand, the United Commercial Bank utilises its working Funds upto 59.40 % and its Interest and Discount/Total earnings, Profit-Earning ratio and Return

on Working Funds ratio were respectively 93.81, 1.22 and 0.099 % . Here also, it can be observed that, when the same logic as in the above case is adopted, the Syndicate Bank controls its expenses better because it has the highest Profit - Earning ratio and Return on Working Funds. Therefore, the Profit Efficiency can be measured either by the Profit - Earning ratio or by the Return on Working Funds.

It is to be noted that a higher Interest and Discount/Total earnings ratio does not necessary mean higher profitability. The United Commercial Bank is having the highest Interest and Discount/ total earnings ratio (94.84 %) but it occupied 18th position in the profitability list.

The conclusion reached from this inter bank comparison is that the Return on Working Funds is a function of the Profit-Earning ratio. The higher this ratio, the better the Return on Working Funds. This sustains well our sub-hypothesis according to which there exists a positive correlation between the two ratios. As a consequence, the Return on Working Funds can be considered as the best indicator of Profit Efficiency.

On the basis of the Return on Working Funds, commercial banks have been ranked as shown in Table 9.2 .

Table 9.2 : Ranking the Banks in terms of Profit Efficiency.

Sr. No.	Banks	Advances/ Working Funds	Interests and Discount/ Total Earnings	Profit/ Earnings	Return on Working Funds	PE/X_3
1	ANDRA	53.62	93.90	3.13	2.339	0.74
2	CORPN	44.87	86.28	3.70	0.232	0.06
3	I O B	61.04	90.95	2.56	0.205	0.08
4	CANRA	53.41	92.57	2.15	0.165	0.08
5	BARODA	52.19	91.55	1.93	0.159	0.08
6	SYNDI	59.84	92.05	1.91	0.145	0.08
7	ALAHA	52.68	92.07	1.71	0.141	0.08
8	New BK	52.58	90.46	1.80	0.140	0.08
9	INDIA	58.11	89.72	1.69	0.136	0.08
10	UNION	55.01	90.66	1.71	0.130	0.08
11	ORTL	52.30	97.17	1.67	0.129	0.08
12	P N B	52.72	93.54	1.70	0.124	0.73
13	DENA	54.07	94.05	1.46	0.120	0.08
14	CNTRL	56.90	92.17	1.37	0.107	0.08
15	S B I	59.25	85.70	1.25	0,100	0.08
16	U C O	59.40	93.81	1.22	0.099	0.80
17	INDIAN	59.04	92.77	0.97	0.088	0.09
18	UNTED	49.61	94.84	1.06	0.081	0.08
19	MAHA	55.20	92.93	0.84	0.072	0.08
20	PN and SB	60.86	89.66	0.66	0.056	0.08
21	TRVCR	52.67	89.33	0.67	0.048	0.07
22	MYSOR	56.40	88.82	0.59	0.047	0.08
23	BK and	55.35	86.10	0.57	0.045	0.08
24	VIJAYA	49.46	92.80	0.54	0.045	0.08
25	INDOR	59.31	85.55	0.43	0.036	0.08
26	SR.TR	57.54	89.37	0.37	0.030	0.08
27	PATLA	49.93	87.50	0.36	0.022	0.06
28	HYDER	50.75	83.44	0.28	0.017	0.06

Notes : (i) Total X_3 = 35.6104

(ii) $\bar{X}_3 = \frac{35.6104}{28}$

= 1.2718

(iii) X_3 = Profit/Earnings.

From Table 9.2, one can see that the most profitable banks in 1981 were the Andhra Bank followed by the Corporation Bank, the Indian Overseas Bank, the Canara Bank etc. It can be also noted that except the State Bank which occupies 15th Position in the profitability list, almost all its 7 associates are the last ones in the same list.

In order to forecast the Profit Efficiency of Banks, an equation has been formulated, such as :

Dependent variable : Return on Working Funds

Independent variables : X_1, X_2, X_3, X_4, and X_5.

This would give the following equation.

$$PE = B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5$$

whereas B_1, B_2, B_3, B_4 and B_5 are the regression coefficients and X_1 X_2, X_3, X_4 and X_5 the selected ratios as mentioned in the sub-hypotheses.

But initially, from the correlation Matrix , it is observed that only the Profit - Earning ratio has a coefficient of correlation statistically

significant (i. e. above .5). As a consequence, the Profit Efficiency Equation is worked out as:

$$PE = B_3 X_3$$

After having determined the Profit Efficiency equation, the next point consists in studying the Advances Efficiency.

II - Advances Efficiency

From the sub-hypothesis, it has been stated that $AE = a_8 X_8$ where as a_8 is the stipulated target for the priority sectors (i. e. 40%) and X_8 is the total bank credit.

As the advances to the priority sectors affect the profitability of banks negatively, only the stipulated target of 40 % should be disbursed to these sectors. Commercial banks should not over finance the priority sectors otherwise their profitability will be adversely affected. But, commercial banks should not escape and go for under financing the priority sectors in order to maximise their profitability, they should also fulfil their large social responsibilities in financing the weaker sections of the Society.

On the basis of the priority sectors target (i.e. 40 %) the commercial banks have been ranked in order to detect those which are fulfilling their social responsibilities. This is dealt with in Table 9.3 .

Table 9.3: Advances Efficiency

Sr. No.	Banks	Priority sector advances as percentage to total bank credit
1.	PATLA	46.35
2.	HYDER	44.11
3.	TRVCR	43.15
4.	PN and SB	42.64
5.	DENA	41.49
6.	ANDRA	39.90
7.	CORPN	39.77
8.	BARODA	39.56
9.	MYSOR	39.56
10.	INDIA	39.49
11.	SYNDI	39.13
12.	P N B	39.06
13.	BK and JP	38.83
14.	U C O	38.75
15.	S B I	38.70
16.	CNTRL	38.34
17.	INDOR	37.97
18.	SRSTR	37.43
19.	I O B	37.30
20.	CANRA	37.13
21.	UNION	36.85
22.	MAHA	36.69
23.	VIJYA	36.52
24.	ALAHA	35.86
25.	NEW BK	34.06
26.	INDIN	33.84
27.	UNTED	32.66
28.	ORTL	32.47

Table 9.3 relating to Advances Efficiency when compared to Table 9.2 relating to Profit - Efficiency shows interesting results.

In Table 9.2, the most profitable banks were the Andhra Bank, the Corporation Bank, the Indian Overseas Bank, the Canara Bank etc say the first four banks in the profitability list . On the other hand, in Table 9.3, the same banks listed above occupied different positions.

The Andra Bank which was the most profitable banks occupied the 6th position in financing the priority sectors. The remaining banks, as listed above, occupied respectively 7th, 19th and 20th position. This means that the more a bank assits the priority sectors, the less is its profitability. It has been already stated in the worthiness of the hypotheses that for every Rs.100 lent to the priority sectors, the profitability of the bank decreases by Rs. 23.

In Table 9.3, 5 banks viz. the State Bank of Patiala, the State Bank of Hyderabad, the State Bank of Tranvancore, the Punjab and Sind Bank and the Dena Bank have lent more than the stipulated target of 40 %. As a consequence, their profitability has been adversely affected because they could have lent the surplus to the traditional sectors to earn more and thereby improve their profitability.

Except the above listed banks and the Andra Bank, almost all the remaining banks are under financing the priority sectors and as a consequence since they have lent more to the Priority

sectors, their profitability has been increased accordingly.

But the case of the Andra Bank shows that a commercial bank can fulfil the stipulated target for the priority sectors and still be profitable. This bank has achieved the target of 40 % for the priority sectors and still occupy the first position in the profitability list.

However, the efficiency of credit management should not be measured only in terms of Profit Efficiency. The Recovery Efficiency, The Time Efficiency and the Disbursement Efficiency are also to be taken into consideration.

When the Profit Efficiency, the Advances Efficiency, the Recovery Efficiency, the Time Efficiency and the Disbursement Efficiency are known, an Index of Credit Management Efficiency can be worked out.

Section III

Index of Credit Management Efficiency

As stated earlier, $CME = F(PE, AE, RE, TE, DE)$

and $ICME = IPE + IAE + IRE + ITE + IDE.$

The Profit Efficiency equation obtained in the previous analysis is

$$PE = B_3 X_3$$

Whereas $PE = \frac{\text{Profit Margin}}{\text{Working Funds}}$

B_3 = the coefficient of regression and

X_3 = Profit Margin/Earnings. PE' and X_3 being determined, it is easy to worked out B_3 by the following formula.

$$B_3 = \frac{1}{n} \sum_{i=1}^{n=28} PE/X_3$$

The data for the calculation of B_3 are already contained in Table 9.2 . Therefore the average B_3 = 0.08 and consequently PE = 0.08 X_3 .

From the same Table the mean value of X_3 has been worked out as equal to 1.2718.

Finally, we come to the final result that PE= 0.08 x 1.2718 = 0.101744 say around 0.10.

0.10 is the standard Profit Efficiency of all the 28 commercial banks. The banks which have a Profit Efficiency higher or equal to 0.10 are within the average profitability, while those which are below 0.10 have a poor performance in terms of Profit Efficiency and should locate the factors responsible for this poor performance.

In doing such an exercise, a commercial Bank compares itself with the Profit Efficiency of other banks. Therefore, the cut-off point of the Profit Efficiency helps for an inter bank comparison.

After determining the cut-off point for the profit Efficiency, the same exercise is to be done for the Advances Efficiency. The Cut off point for the Advances Efficiency is determined by the target of 40 % to the priority sectors. In short the Cut off point for the advances efficiency is 0.4.

Because of the lack of data, the same exercise could not be done for the cut-off point of the Recovery Efficiency, the Time Efficiency and the Disbursement Efficiency.

For the calculation of the I C M E, performance marks are given on the basis of the cut off points of Profit Efficiency, Advances Efficiency, Recovery Efficiency, Time Efficiency and Disbursement Efficiency.

Since data are available only for the Profit and Advances Efficiency, these two components are only taken into consideration in our illustration keeping well in mind that the other components viz., Recovery Efficiency, Time Efficiency and Disbursement Efficiency are to be integrated in the final model.

I - Index of Profit Efficiency

The logic in determining the I P E is :

If PE is equal to or more than 0.10 , then give 1

If PE is less than 0.10, then give 1.

This can be summarised as under :

PE	IPE
More than or equal to 0.10	1
Less than 0.10	-1

II - Index of Advances Efficiency

The same methodology as in the above case is also

used here. The cut-off point being .4 , if a bank gives more than required, it is fulfilling its social objectives but its profitability will be less due to the conflict between the social objectives and profitability.

In giving marks, we felt that it is not fair to give a mark of -1 to a bank which fulfils its social objectives in over - financing the priority sectors. The following marks are given to banks in accordance to their involvement in priority sectors financing keeping in mind the stipulated target of 40 %.

AE	IAE
More than 40 %	0.5
Equal to 40 %	1.0
Less than 40 %	-1

III - Index of Recovery Efficiency Index of Time Efficiency and Index of Disbursement Efficiency.

If the data were available, a cut-off point could have been found and the same logic used in the above cases could have been applied and therefore marks given.

Finally, the ICME could be calculated as below :

$$ICME = IPE + IAE + IRE + ITE + IDE.$$

In the absence of IRE, ITE and IDE only the IPE and the IAE have been taken into consideration for the calculation of the ICME.

IV - Practical Application of the ICME

On the basis of the above results, an I C M E can be determined for the 28 commercial Banks constituting the number of observations of our study. This is shown in Table 9.4 which is nothing but the combination of Table 9.2 and Table 9.3 .

Table 9.4 : Calculation of the I C M E

Sr. No.	Bank	Profit Efficiency (PE)	Advance Efficiency (AE)	IPE	IAE	I C M E (IPE+IAE)
1.	ANDRA	2.339	40	1	1	2
2.	CORPN	0.232	40	1	1	2
3.	I O B	0.205	37	1	-1	0
4.	CANRA	0.165	37	1	-1	0
5.	BARODA	0.159	40	1	1	2
6.	SYNDI	0.145	39	1	-1	0
7.	ALAHA	0.141	36	1	-1	0
8.	NEW BK	0.140	34	1	-1	0
9.	INDIA	0.136	40	1	1	2
10.	UNION	0.130	37	1	-1	0
11.	ORTL	0.129	32	1	-1	0
12.	PNB	0.124	39	1	-1	0
13.	DENA	0.120	41	1	0.5	1.5
14.	CNTRL	0.107	38	1	-1	0
15.	SBI	0.100	39	1	-1	0
16.	UCO	0.099	39	-1	-1	-2
17.	INDIN	0.088	34	-1	-1	-2

Contd..

Table 9.4 (contd..)

Sr. No.	Bank	Profit Efficiency (PE)	Advance Efficiency (AE)	IPE	IAE	I C M E (IPE+IAE)
18.	UNTED	0.081	33	-1	-1	-2
19.	MAHA	0.072	37	-1	-1	-2
20.	PN and SB	0.056	43	-1	0.5	-0.5
21.	TnVCR	0.048	43	-1	0.5	-0.5
22.	MYSOR	0.047	40	-1	1	0
23.	BK and JP	0.045	39	-1	-1	-2
24.	VIJAYA	0.045	37	-1	-1	-2
25.	INDOR	0.036	38	-1	-1	-2
26.	SnSTR	0.030	37	-1	-1	-2
27.	PATLA	0.028	46	-1	0.5	-0.5
28.	HYDER	0.017	44	-1	0.5	-0.5

Table 9.4 shows interesting results. The most efficient banks in managing their credit function were those which got an Index of Credit Management Efficiency (ICME) equal to 2. These banks made good profits and fulfilled the target of 40 % of the priority sectors. The four most efficient banks were : The Andra Bank, the Corporation Bank, the Bank of Baroda and the Bank of India.

In the second group, were those banks which had an I C M E equal to 1.5 . This means that they made profits but over financed the priority sectors. To improve their credit management efficiency, they could have decreased their assistance to the priority

sectors in order to have a good Index of Credit Management Efficiency.

In the third rank, were those banks which made good profits but did not fulfil the target laid down for the priority sectors. In other words, they under financed the priority sectors. As a consequence, to have a good ICME, they could have increased their assistance to the priority sectors. The ICME for this group was 0 .

In the fourth group were found those banks which were below the average of Profit Efficiency but which over financed the priority sectors. The ICME for this category were -0.5 . To improve their Index of Credit Management Efficiency, they could have decreased their assistance to the priority sectors upto 40 % and could have lent the surplus to the traditional sectors in order to have a Profit Efficiency within the average and consequently to increase their I C M E.

In the last group were those banks which were below the average Profit Efficiency and which were under financing the priority sectors. They were supposed to find out the factors responsible for this poor performance in order to increase their Profit Efficiency . It is already stated that the Profit Efficiency is explained mainly by the Profit - Earning ratio and therefore any increase in the Profit Efficiency passes through an increase in this ratio. The evolution of this ratio should be well monitored. In case of a continual decrease, the reasons should be found.

To make a final judgement, the Index of Recovery Efficiency, the Index of Time Efficiency and the Index of Disbursement Efficiency, could have been included in our illustration so as to determine the most efficient bank in terms of credit management. The most efficient bank in credit management is the one which has an optimum, I C M E . The optimum I C M E is a function of an optimum IPE, IAE, IRE, ITE and IDE.

Being practically useful, the ICME should be built for every financial year to enable bankers to measure their credit management efficiency and also to take the necessary corrective actions.