

THE DETERMINANTS OF PROFITABILITY IN INDIAN SCHEDULED COMMERCIAL BANK

Dr. N. Kavitha*

ABSTRACT

The business of banking consists of borrowing and lending. Banks act as financial intermediaries between savers and investors by accepting money as deposits from large number of customers and then on lending a major portion of accumulated “pool” of money to those who wish to borrow. In this process banks secure reasonable return for the savers, make funds available to the investors at a cost and earn a profit for themselves after covering the cost of funds and paying or providing for corporate taxes to the government. The present study is required to examine the profitability of banks during the period 2000-2010. To assess the profitability of banking sector in India, discriminate analysis and discriminate function analysis which measures the profitability of banks from each important parameter like the differences between the mean profitability of two periods.

Keywords: *profitability, commercial banks, investors, factors and relative contribution*

*Asst.Professor, Department of Management, College of Business and Economics, Mekelle University, Ethiopia.

INTRODUCTION

The banking system had such a low level of profitability that the banking system might itself become seriously sick on account of the transfusion of money to treat the financial anemia of the economy. It was clear that the viability of the banking system was under a grave threat in increasingly competitive business environment, and that if the system was to continue to serve its social objectives, banks should be allowed to become commercially viable units. Commercial banks enlarged and widened the network of services provided by them to their customers. The financial services, accounting services and insurance services are covered under the umbrella of the banking services provided. The improvement of the overall fund of the banking system depends profoundly on the efficiency and performance of the banking sector. With the advent of more banks into the banking foray, it has become mandatory for Indian banking structure to adopt several norms and practices of those prevalent in developed economies. This ultimately leads to the bankruptcy or merger of banks and knows light and several hidden information.

LITERATURE REVIEW

Valentina Flamini (2009), the study examines bank profits are high in Sub-Saharan Africa (SSA) compared to other regions. This paper uses a sample of 389 banks in 41 SSA countries to study the determinants of bank profitability. We find that apart from credit risk, higher returns on assets are associated with larger bank size, activity diversification, and private ownership. Bank returns are affected by macroeconomic variables, suggesting that macroeconomic policies that promote low inflation and stable output growth does boost credit expansion. The results also indicate moderate persistence in profitability.

METHODOLOGY

The analysis brings out important factors associated with the selected indicators, but they represent a group of indicators taken simultaneously and hence, some of the indicators may get relatively higher importance in two or more than two factors so derived. Therefore, it is important to look for the relative contribution of each variable in explaining the differences between the mean profitability of two periods. For this purpose, the technique of discriminate analysis has been applied. Discriminate analysis, the banks have been categorized into two groups – one having profitability above the mean value and another below mean profitability. Then the technique is applied to know if there exists a significant difference between the mean values of the two groups. In the analysis pertaining to the classifications, one is more interested in deriving out the discriminate function and in knowing the level of

misclassification of the data, on the basis of the function so derived from the analysis. For this purpose a more exact test is given by Rao. It is the variance – ratio based on D^2_p , which has ‘F’ distribution with V_1 and V_2 degrees of freedom. The variance ratio is given by:

$$F = \frac{N_1 + N_2 - (P-1)}{P} \frac{N_1 N_2}{(N_1 + N_2)(N_1 + N_2 - 2)} D^2_p$$

Where, N_1 = the number of cases in group one

N_2 = the number of cases in group two

$V_1 = P$ (the number of variable included)

$V_2 = N_1 + N_2 - (P-1)$

D^2_p = Mahalanobis D-Square

Thus, the null hypothesis of no difference between the two groups, on the basis of multiple inter-related characteristics of banks, can be tested at any pre-assigned acceptable level of significance. Therefore, the analysis shows whether the considered variables taken simultaneously, discriminate significantly between the two groups of banks.

RESULTS AND ANALYSIS

Discriminate Analysis for SBI and Associate Banks

For the purpose of the study period consists of 56 banks 4 of which are found to be low profit making units and 4 banks (out of 8) are found to be high profit making unit. Thus the search between the group differences would be done to obtain a set of variables which significantly discriminate between both groups. In the first step, both groups would be compared taking one variable at a time, through F-statistics. Subsequently, all the variables would be considered simultaneously using discriminate analysis technique. In this section an attempt has been made to identify the variables which significantly discriminate between two groups, both individually as well as combinations of other variables..

Table 1 shows the mean, standard deviation and F-values of the selected variables. It is seen that there is a no significant difference in the mean value of the profitability but the ratios of the discriminate function are: Government securities to Assets, Approved Securities to Assets, Debt Equity Ratio, Fixed Assets to Working Fund, Other Assets to Working Fund and Liquid Assets to Working Fund. This shows that there is significant variation in banks profitability as per classifications. It would be desirable to look if the selected variables also differ significantly between these groups.

Table No : 1 DISCRIMINATE ANALYSIS FOR SBI AND ASSOCIATE BANKS

Variables	Profitability				Total		Wilks's Lambda	F	Sig.
	Low		High		Mean	S.D			
	Mean	S.D	Mean	S.D					
X ₁	31.03	2.76	32.28	2.72	31.65	2.63	0.935	0.414	0.544
X ₂	1.58	0.50	1.79	0.58	1.68	0.51	0.954	0.291	0.609
X ₃	18.72	4.18	16.86	2.54	17.79	3.35	0.913	0.575	0.477
X ₄	0.54	0.14	0.58	0.08	0.56	0.11	0.967	0.207	0.665
X ₅	4.91	1.36	5.56	1.29	5.24	1.27	0.927	0.471	0.518
X ₆	7.36	0.87	8.70	1.58	8.03	1.38	0.731	2.210	0.188
X ₇	9.25	1.04	10.98	2.48	10.12	1.99	0.783	1.662	0.245
X ₈	55.58	2.88	55.81	3.51	55.69	2.97	0.998	0.011	0.920
X ₉	13.23	7.79	8.85	1.28	11.04	5.67	0.830	1.232	0.309
X ₁₀	5.34	0.65	4.92	0.46	5.13	0.57	0.846	1.089	0.337
X ₁₁	8.52	0.34	8.51	0.30	8.52	0.30	0.999	0.005	0.946
X ₁₂	5.51	0.25	5.25	0.36	5.38	0.32	0.815	1.358	0.288
X ₁₃	1.65	0.28	1.69	0.28	1.67	0.26	0.991	0.052	0.828
X ₁₄	2.51	0.44	2.29	0.22	2.40	0.35	0.879	0.823	0.399
X ₁₅	12.42	1.28	12.56	0.39	12.49	0.88	0.992	0.046	0.837
X ₁₆	1.37	0.18	1.56	0.13	1.46	0.18	0.678	2.844	0.143
X ₁₇	2.84	1.31	4.85	5.89	3.84	4.09	0.931	0.446	0.529
Y	0.78	0.04	0.96	0.22	0.87	0.17	0.692	2.671	0.153

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I.,

Mumbai Issues of relevant years

Having obtained a discriminate function it would be obvious and interested in knowing if it can significantly distinguish between the two groups. The variance-ratio based on R^2 , which has F-distribution, has been used to test the significance of discriminate function arrived. In this case R^2 is 85.5% who's goodness is fit ti the DFA model. It is cleared from the table 1 (a).

Table No 1 (a) CLASSIFICATION OF BANKS ON THE BASIS OF DISCRIMINATE ANALYSIS FOR SBI GROUP

Original	Profitability	Predicted Group Membership		Total
		Low	High	
Count	Low	4	0	4
	High	1	3	4
%	Low	100	0	100
	High	25	75	100

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I., Mumbai Issues of relevant years

87.5% of original grouped cases correctly classified

Discriminate Analysis for Nationalized Banks Group

In the table 2 there are 10 units (out of 19) which are found to be low profit making units and 9 observations (out of 19) are found to be more profit making units. Thus, the search between the group differences would be done to obtain a set of variables which significantly discriminate between the two groups. In the first step, the two groups would be compared taking one variable at a time, through F-statistics. Subsequently, all the variables would be considered simultaneously using discriminate analysis technique and will be made to identify the variables which significantly discriminate between the two groups, both individually as well as in combinations with other variables.

Table 2 shows that the mean, standard deviation and F-values of the selected variables. It is seen that there is a significant difference in the mean value of the profitability. This shows that there are significant variations in the bank's profitability as per classifications. It would be desirable to see the variables, which differ significantly between the two groups, are X_5 (Ratio of Other Assets to Working Fund), X_8 (Credit Deposit Ratio), X_{15} (Capital Adequacy Ratio) and Y (Net Profit to Working Fund) significant at 5%.

Table No : 2 Discriminate Analysis for Nationalized Banks Group

Variables	Profitability				Total		Wilkinson's Lambda	F	Sig.
	Low		High		Mean	S.D			
	Mean	S.D	Mean	S.D					
X_1	25.71	11.35	23.11	8.00	24.34	9.54	0.980	0.340	0.568
X_2	3.79	5.78	2.18	1.42	2.94	4.07	0.959	0.732	0.404

X ₃	16.82	5.90	17.89	3.20	17.38	4.57	0.986	0.245	0.627
X ₄	1.19	0.35	0.98	0.39	1.08	0.38	0.922	1.446	0.246
X ₅	6.72	3.20	3.91	0.38	5.24	2.59	0.690	7.620	0.013*
X ₆	8.11	1.09	9.11	1.24	8.63	1.24	0.831	3.463	0.080
X ₇	9.44	1.09	10.46	1.41	9.98	1.34	0.847	3.073	0.098
X ₈	47.13	5.04	52.70	4.99	50.06	5.65	0.744	5.838	0.027*
X ₉	10.03	3.96	10.14	6.45	10.09	5.27	1.000	0.002	0.968
X ₁₀	4.51	0.72	4.30	0.92	4.40	0.82	0.982	0.304	0.588
X ₁₁	7.69	2.02	10.32	5.84	9.07	4.55	0.913	1.628	0.219
X ₁₂	5.18	1.35	6.72	4.00	5.99	3.07	0.934	1.194	0.290
X ₁₃	1.20	0.36	1.73	1.14	1.48	0.89	0.907	1.738	0.205
X ₁₄	2.40	0.66	2.90	1.82	2.67	1.38	0.966	0.604	0.448
X ₁₅	11.14	0.94	12.04	0.88	11.61	1.00	0.788	4.565	0.047*
X ₁₆	0.99	0.34	1.35	0.83	1.18	0.66	0.920	1.480	0.240
X ₁₇	1.16	0.52	1.73	1.29	1.46	1.02	0.917	1.536	0.232
Y	0.33	0.37	1.08	0.44	0.73	0.55	0.522	15.597	0.001*

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I.,

Mumbai Issues of relevant years

$df_1 = 1$ and $df_2 = 17$, *Significant at 5% and ** Significant at 1% level, NS Not Significant.

Having obtained a discriminate function it would be obviously interesting in knowing if it can significantly distinguish between the two periods. The variance-ratio based on R^2 which has F-distribution with V_1 (1) and V_2 (17) degree of freedom has been used to test the significance of discriminate function arrived. In the case of R^2 it is 98 % who's goodness of fit to the DFA model. It is cleared from the table 2 (a).

Table No 2.(a) CLASSIFICATION OF BANKS ON THE BASIS OF DISCRIMINATE ANALYSIS FOR NATIONALIZED BANKS

Original	Profitability	Predicted Group Membership		Total
		Low	High	
Count	Low	9	0	9
	High	0	10	10
%	Low	100.0	0.0	100.0
	High	0.0	100.0	100.0

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I.,

Mumbai Issues of relevant years

100.0% of original grouped cases correctly classified

Discriminate Analysis for Private Banks Group

Table 3 shows the mean and standard deviations of private banks group with 17 banks (out of 29) which are found to be low profit making units and 12 banks (out of 29) of which are found to be high profit making unit. How, to obtain a set of variables which significantly discriminate between the two groups? In the first step, the two groups would be compared taking one variable at a time, through F-statistics. Subsequently, all the variables would be considered simultaneously using discriminate analysis technique. In this exercise an attempt will be made to identify the variables which significantly discriminate between the two groups.

Table No : 3 DISCRIMINATE ANALYSIS FOR PRIVATE BANKS GROUP

Variables	Profitability				Total		Wilkinson's Lambda	F	Sig.
	Low		High		Mean	S.D			
	Mean	S.D	Mean	S.D					
X ₁	16.83	9.10	20.79	7.63	18.47	8.61	0.947	1.520	0.228
X ₂	1.68	1.71	1.45	2.12	1.59	1.86	0.996	0.110	0.742
X ₃	18.20	4.77	13.99	4.23	16.46	4.95	0.818	6.002	0.021*
X ₄	2.41	1.76	2.30	2.20	2.36	1.92	0.999	0.019	0.891
X ₅	4.01	1.13	4.04	1.30	4.02	1.18	1.000	0.004	0.949
X ₆	11.25	2.78	11.69	4.56	11.43	3.55	0.996	0.104	0.750
X ₇	13.07	2.76	11.70	4.12	12.50	3.39	0.959	1.145	0.294
X ₈	52.41	7.13	49.91	7.79	51.38	7.38	0.971	0.806	0.377
X ₉	18.73	8.56	20.62	6.48	19.51	7.70	0.985	0.415	0.525
X ₁₀	5.64	3.36	4.70	2.61	5.25	3.06	0.976	0.653	0.426
X ₁₁	7.29	2.72	11.52	5.21	9.04	4.40	0.768	8.158	0.008**
X ₁₂	5.36	2.00	16.01	26.59	9.77	17.57	0.908	2.747	0.109
X ₁₃	1.41	0.58	8.54	19.36	4.36	12.66	0.920	2.342	0.138
X ₁₄	2.03	0.94	4.30	4.76	2.97	3.27	0.880	3.684	0.066
X ₁₅	10.30	2.30	11.61	1.30	10.84	2.03	0.895	3.176	0.086
X ₁₆	0.98	0.41	3.97	4.97	2.21	3.47	0.814	6.180	0.019*
X ₁₇	3.21	4.16	4.97	4.28	3.94	4.22	0.957	1.225	0.278

X ₁₈	0.32	0.31	2.13	1.88	1.07	1.51	0.637	15.386	0.001**
Y	16.83	9.10	20.79	7.63	18.47	8.61	0.947	1.520	0.228

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I.,

Mumbai Issues of relevant years

df₁ = 1 and df₂ = 17, *Significant at 5% and ** Significant at 1% level, NS Not Significant.

Table 3 shows the mean, standard deviation and F-values of the selected variables. It is seen that there is a significant difference in the mean value of the profitability of X₃ (Debt Equity Ratio), X₁₁ (Ratio of Interest Earned to WF), X₁₆ (Ratio of Provisions and Contingencies to Total Assets) and Y (Ratio of Net Profit to Working Fund) are significant at 1 % and 5% level.

This shows that there are significant variations in the banks profitability as per classifications in this period. Having obtained a discriminate function this would be obvious to know if it can significantly distinguish between the two periods. The variance-ratio based on R², which has F-distribution with V₁ (1) and V₂ (17) degree of freedom, has been used to test the significance of discriminate function arrived. In this case R² is 98 % who's goodness of fit to the DFA model. It is cleared from the table 3 (a).

Table No 3 (a) CLASSIFICATION OF BANKS ON THE BASIS OF DISCRIMINATE ANALYSIS FOR PRIVATE BANKS GROUP

Original	Profitability	Predicted Group Membership		Total
		Low	High	
Count	Low	17	0	17
	High	0	12	12
%	Low	100.0	0.0	100.0
	High	0.0	100.0	100.0

Source: Data calculated from Statistical Tables Relating to Banks in India, R.B.I.,

Mumbai Issues of relevant years

100 % of original grouped cases correctly classified

Findings of the study

Discriminate Analysis

SBI and Associate Banks

Having obtained a discriminate function it would be obvious that the researcher will be interested in knowing if it can significantly distinguish between the two groups. The variance-ratio based on R² which has F-distribution has been used to test the significance of

discriminate function arrived. In this case R^2 is 85.5 % who's goodness of fit to the DFA model.

Nationalized Banks Group

Having obtained a discriminate function it would be obvious that the researcher is interested in knowing if it can significantly distinguish between the two periods. The variance-ratio based on R^2 which has F-distribution with V_1 (1) and V_2 (17), degree of freedom has been used to test the significance of discriminate function arrived. In the case R^2 is 98 % who's goodness of fit to the DFA model.

Private Banks Group

Having obtained a discriminate function this would be obvious to know if it can significantly distinguish between the two periods. The variance-ratio based on R^2 which has F-distribution with V_1 (1) and V_2 (17) degree of freedom has been used to test the significance of discriminate function arrived. In this case R^2 is 98 % who's goodness of fit to the DFA model.

Discriminate Function Analysis

In order to understand the effect of the identified variables on bank profitability, it may be worthwhile to classify banks into two groups, one having high profitability and other with low profitability.

It is found that nearly 75 % of the variation in the Discriminate Function is due to Credit Deposit Ratio, which contributes maximally, in discriminating between the three sectors of banks. Next comes, "Priority Sector Advances to Advances", which contributes, about 68.6 % in discriminating among the three sectors followed by "Government Securities to Assets" and "Fixed Assets to Working Fund". "Capital Adequacy Ratio" seems to contribute the least in discriminating among the banking sectors in their financial performance.

Suggestions and recommendations

- To lean towards the more profit making venture, the bank can switch over to fee based services in case of traditional banking.
- Reluctance of banks in lending matters. The system of narrow banking should be avoided. Narrow banking means hesitating on the part of banks to be more open on lending money on business aspects

CONCLUSION

As a last observation that all sculpts initiated here are highly balancing. While various lending to measure the impact of disintermediation and analyzing the cost of globalisation.

By using some matching sculptps can defeat the problems recognition that occurs when limit to relating a discriminate analysis and discriminate function analysis model to analyze bank's profitability. This study tries to analyse the profitability of the banking sectors in Indian banking groups such as SBI and Associate Banks, Nationalized Banks Group and Private Banks Group. The financial sector plays an important role in the economy. Banking groups are significantly distinguished between two periods. Discriminate factor analysis helped to find the low profitability banks and high profitability banks and these low profit factors are to be given with necessary care in order to improve and to see that the high profitability factors are maintained at the same level.

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