Determinants Of Profitability Of Public Sector Banks By An Empirical Estimation Of Profit Function Models

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ABSTRACT

The present work is an attempt to analyze the profitability and its determinants in banking sector in India. Profitability in the bank is a function of several variables that may be called as different determination of profitability. Now the question arises what are the factors that contribute to the improvement in profitability and mainly what are the factors responsible for deterioration in profitability of banks. Therefore, an attempt has been made in this study to estimate the impact of selected factors on bank profitability. Therefore, State Bank of India was chosen to critically examine the determinants of profitability of the banks for the present study. An empirical estimation of profit shows that credit deposit ratio, NPA as percentage to net advances, provisions and contingencies, operating expenses and business per employee are the significant determinants of profitability of SBI during the study period. To conclude, banking industry in the new millennium is never going to be like what it was in the last century. Banks in India have marched ahead during the post-banking sector reforms period in fostering economic growth of the country and have shown tremendous resilience and vibrancy in their strategies, processes and operating to remain competitive in the globalized environment.

Keywords:
Public Sector Banks, State Bank of India, Associate Banks, Efficiency, Bank Profitability and Profit Trend.

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Introduction

Capital is one of the factors which invigorate the economic development of a nation. Capital is the consequence of investment. Higher the investment, higher is the growth of economy. The rate of investment is directly proportional to the savings of the general public. It is in regard of mobilizing people's savings the financial institutions come into play a very important role. Among the financial entities, commercial banks are the predominant financial intermediaries. Commercial banks are the kingpin of all economic activities.

The growing importance of these banks is reflected in business, agriculture and industries in India. These banks are most important in terms of their strength and sweep among the financial institutions. It is well recognized that the commercial banks are instrumental in shaping the economic destiny of a country. They are considered as the nerve centers of economic and finance of a nation and the parameters of its economic prospective. The role of commercial banks in achieving balanced regional development can hardly be over emphasized. They help in this direction by suitably designing their policies in favour of backward and unbanked areas. By opening their branches in backward areas, banks make credit facilities available to the disadvantage sectors. Also, the funds collected from developed regions, may be channelised for investment in underdeveloped regions of the country. Since the banks have stupendous investment potential, they can make a significant contribution in eradicating poverty and unemployment and can bring about a progressive reduction in inter-regional/state, inter-sectoral and inter-personal disparities.

As a result of globalization of financial markets banking institutions face today a fast paced, dynamic and a competitive environment at the global scale. Within such a competitive environment, banking institutions are forced to examine their performance because their survival in the dynamic economics of Twenty-first century will be dependent upon their productive efficiencies. Hence, in response, banking firms have been trying to adapt and to adjust themselves to improve their productive efficiencies in the changing social and economic environment. The present work is an attempt to analyze the profitability and its determinants in banking sector in India.

Review of Literature

There are a number of cross sectional studies that provide direct evidence about the determinants of profits. Those studies includes Mishra (1992), Satyamurthy (1994), Mohini (1994), Sarkar and Das (1997), Bhattacharya (1997), Das (1999), Singla & Arora (2005), Manish Mittal and Aruna Dhade (2007), Siva Reddy Kalluru and Sham Bhat (2008), Manjappa and Mahesha (2008) and Uppal (2009). The review of empirical works facilitates understanding of various structural and non-structural variables that determine profitability. It gives an idea of extensive and diversified works on determinants of profitability.

Statement of the problem

Narasimham Committee 1991 observed that banks' profitability since nationalization has been under severe stress. The committee viewed that system of direct investment in terms of minimum Statutory Liquidity Ratio and the system of direct credit program in the form of rural banking and priority sector lending have been the major factor which constricted operation flexibility of banks and depress their earnings.

Thus, Public sector bank managements in India are at present confronted with the twin challenge of achieving greater efficiency on the one hand and improving profitability on the other. Allocative efficiency to a greater extent is associated with profitability. Profitability in the bank is a function of several variables that may be called as different determinants of profitability. Now the question arises what are the factors that contribute to the improvement in profitability and mainly what are the factors responsible for deterioration in profitability of banks. Therefore, an attempt has been made in this study to estimate the impact of selected factors on bank profitability.

Selection of the State Bank of India and its Associates

The State Bank of India is the biggest commercial bank in whole of Asia. It has occupied a unique place in the Indian money market, as it commands more than one-third of India's banking resources. It commands resources of public confidence through its dedicated service. The State Bank of India extends its co-operation to the government in its pursuit of building up an egalitarian society with a rising standard of living by designing its lending policies accordingly. Already developed sector but towards the under-developed and neglected sector of the economy. It helps the nation in the removal of poverty, creation of more employment opportunities and in overcoming the disparities in the distribution of income and wealth. In the present era of banking sector reforms, the State Bank of India has witnessed deregulation with a strong capital base and expenses-to-income rate which is comparable with world class banks. Moreover, the State Bank of India continued to retain its position of the pioneer in the Indian Banking Industry by reorienting itself in terms of market strategies, organizational structures systems and processes to enable it to meet the emerging challenges surely.

In the area of developing banking, the State Bank of India has eminently fulfilled its pioneering role during the five decades of its existence. The development banking considerable changes are in the offering. A large part of the priority sector lending has been de-regulated for interest rate purposes and is displaying some commercial characteristics, participating the growing financial sectors as an efficient and responsible player, the State Bank of India represent no less contribution to national economic development. To retain the banks position as the premier Indian financial services group with the world class standard and significant global business committed to excellence in customer and diversifying financial services sector, while continuing to emphasis on its development of banking role. Therefore, SBI have been chosen to critically examine the determinants of profitability of the banks for the present study.

Significance of the study

In the process of financial intermediation, banks have come to acquire the nature of multi-product firms. However their primary functions remain same and these form the most remunerative functions of banks. The performance of these functions pre-supposes that after various cost of such functions are met, a margin of profit is left and level of profit should be taken as an index of the efficiency of working of organization. For that matter, profit as an indicator of working efficiency is applicable to any business unit. Depending on their size, banks are multi-product firms and they compare with each other for profits. There is growing evidence of concern by the authorities on the declining profitability of the banking system due to unsecured loans and advances. The approach of policy makers towards profitability has changed, with the result that low profits have become a fact of life. Therefore, it is high time to concentrate on analysis of the profitability performance and factors leading to profitability. A sound, efficient and profitable banking sector would be able to resist negative shocks and contribute to the stability of the financial system by making financial resources accessible to economic needs. Therefore, the determinants of bank performance have attracted the attention of the academic researchers as well as of the policy makers.

It is to the credit of Indian banks that the adjustment process to the reform measures has been smooth and bereft of any major eventuality. Today, most of the Indian banks can boast of moving progressively towards international benchmarks in terms of accounting standards, transparency, profitability and compliance with other important international norms. It is also to the credit of these banks, and the regulatory and supervisory climate that the Indian financial system by the large proved immune to the spate of recent contagions. As a result of reforms, attempts are now visible to right size of the operations, tone up the functional skills and build up a cushion against possible shocks from within and overseas. The most redeeming features of the reforms relate to its gradual nature as a result of which, banks have been afforded the necessary lead time to tide over possible adversities. There is a flip side as well to the success of banking reforms especially relevant to the Public Sector Banks.

More specifically, in connection with the profitability, last few years have seen many of the Public Sector Banks posting handsome profits and improving profitability levels. However, sustaining the profit momentum is best with issues like progressive of decline in interest spread, volatile business environment, fierce competitive pressures and the negative externalities associated with the large size of these banks.

The ensuing banking sector will presuppose a shift in focus from size-related issues to concern about profitability, profit monitoring and efficiency in operations. Thus, the financial sector reforms made by the Government of India in 1991 and 1998, as per the recommendations of Narasimhan Committee, have brought significant improvement in the strength, resilience and competitiveness of the Indian Banking system. It is, therefore, relevant to study the efficiency with reference to the profitability of Public Sector Banks in general and State Bank of India and its Associates in particular in the post reform era of banking sector.

Hypothesis

The hypotheses of the present study are

(I) Spread, Non-interest Income, Credit/Deposit ratio, Business per Employee and Profit Per Employee were positively associated with the profitability of Bank.

(ii) NPA/Advances ratio, provisions and contingencies and operating expenses were negatively associated with the profitability of bank.

Sample Design

It is nearly more than 20 years since reform process has been started in Indian Banking Industry. It is necessary to know whether the reforms are being fruitful or not keeping in this view, it is decided to analyze the performance of public sector banks in globalized economy. The review of various study on literature on banking revealed that there is not enough study that covered the performance of State Bank of India and its Associates bank in relation to financial aspects. State Bank India is the biggest commercial bank in whole of Asia. It has occupied a unique place in the Indian banking system as it commands more than one-third of India's banking resources. Moreover even in the present era banking sector reform, State Bank of India continue to retain its position as the pioneer in the Indian banking industry by re-orienting itself in terms of market strategies, organizational structures, systems and process to enable it to meet the emerging challenges squarely. Therefore, this study is primarily based on financial performance of State Bank of India and its associates.

Period of study

The period 1996-97 to 2009-10 is selected for this study. This 14 year period is chosen in order to have a fairly long, cyclically well balanced period, for which reasonable homogeneous, reliable and up-to-data financial data would be available. Further, the span chosen for the study is the period of the beginning of reform measures introduced by the Government of India. Hence, the period 1996-97 to 2009-10, is era of growth of performance in the banking sector and has got genuine economic significance of its own.

Sources of data

This study is primarily based on secondary data. The major source of data analyzed and interpreted in this study related to all those selected banking companies is collected from PROWESS database, which is the most reliable on the empowered corporate database of Centre for Monitoring Indian Economy (CMIE). The database provides financial statements, ratio analysis, funds flow and cash flows etc. Besides the prowess database, relevant secondary data have been collected from capitaline database of Bombay Stock Exchange, Bombay Stock Exchange Official Directory, CMIE publication, various publications of RBI – Banking Statistics Research's (BSR's), Banking Statistics, Statistical tables relating to banking in India and Report on trends and progress of banking in India, Reports on Currency and Finance, Economic Survey, Libraries of various research institutions, Indian Banks Association bulletin, Indian Institute of Bankers Report and various Internet resources.

Data Analysis

The role of statistical tool is important in analyzing the data and drawing inferences there from. In order to derive the open handed results from the information collected through secondary data, various statistical tools like mean, standard deviation, variance, compound annual growth rate, regression, testing of hypotheses have been accomplished through Excel, SX and SPSS software. Some of the statistical techniques particularly t-test and ANOVA have been used to interpret the sense of mathematical relationship amongst values of different variables so computed in the study. The hypothesis has been tested separately on the sample. This can be done via the mechanism of the F test and t- test.

Determinants of Profitability

Since the initiation of economic reforms in 1991-92, the banking sector in India has seen numerous developments and policy changes. The more important reforms initiated in the banking sector includes adoption of prudential norms in terms of capital adequacy, assets classification and provisioning, deregulation of interest rates, lowering of Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR), opening of the sector to private participation, permission to foreign banks to expand their operations through subsidiaries, the introduction of Real Time Gross Settlement (RTGS) and liberalization of FDI norms. The main thrust of the banking sector reforms has been the creation of efficient and stable financial institutions and development of the banking industry.

Introduction of banking sector reforms have changed the face of Indian banking industry. The national, institutional and international boundaries are becoming less important. The globalization of operations and development of new technologies are taking place at a rapid place. A paradigm shift in marketing philosophy of banks is visible from the rising focus towards quality of service for customers. All this has led to the increase in resource productivity, increasing level of deposits, credits and profitability and decrease in non-performing assets. However, the banks are now facing a number of challenges such as frequent changes in technology required for modern banking, stringent prudential norms, increasing competition, warring level of NPA's, rising customer expectations, increasing pressure on profitability, assets-liability management, liquidity and credit risk management, rising operating expenditure, shrinking size of spread and so on. The reforms in banking sector have also brought the profitability under pressure. RBI's efforts to adopt international banking standards have further forced the banks to shift the focus to profitability for survival.

Hence, profitability has become major areas of concern of banks in addition to productivity, financial and operational efficiency. An efficient management of banking operations aimed at ensuring growth in profits and efficiency requires up to date knowledge of all those factors on which the bank's profit depends. This is only possible through research studies conducted by researchers, economists and analysts.

The objective of this part is to examine determinants of profitability of State Bank of India during the study period of 1996-2010. Determinants of profitability are analyzed using the techniques of ordinary least squares. Based on existing theories and relevant economist empirical works variables are selected. The variables occurring in the models and their measurement and their expected relationship with net profit are described in Table 1.

Table 1

Variable Definition and Expected Relationship

Variables	Definition	Measurement	Expected Relationship with Profit After Tax
S	Spread	Interest income (-) Interest Expenses	+
NII	Non-Interest Income	Total Income (-) Interest Income	+
C / D	Credits / Deposits	Advances / Deposits	+
NPA / Net Advances	Non-performing Assets / Advances	NPA/Advances	-
P&C	Provisions and Contingencies	Provisions and Contingencies	-
OE	Operating Expenses	Includes establishment expenditure salary expenditure and expenditure on technology upgradation.	-
BPE	Business Per Employee	Business (Deposits + Advances) / Total number of Employees	+
PPE	Profit Per Employee	Net Profit / Total number of Employees	+

Source: Constructed.

Specification of the Profitability Model

The variables considered for the present study include Spread (S), Non-interest Income (NII), Credit / Deposit Ratio (C/D), NPA as percentage to Net Advances (NPA/advances), Provision and Contingencies (P&C), Operating Expenses (OE), Business Per Employee (BPE), Profit Per Employee (PPE) and Net Profit (NP). The data relating to these variables have been collected from the annual reports of banks, Journal of Banking Association, RBI's Bulletin and Internet (www.rbi.org.in.). In order to identify the variables that have explanatory powers and are therefore, more important in managing the operations of a bank, Multiple Regression Model is applied.

$$Y=a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5+b_6x_6+b_7x_7+b_8x_8+u$$

Where,

Y = Net Profit (Profit After Tax PAT)

a = Constant term,

b_1 to b_8 = Regression Co-efficient for the respective variables,

X_1 = Spread,

X_2 = Non-Interest Income (NII),

X_3 = Credit / Deposit Ratio (C/D),

X_4 = NPA as percentage to Net Advances (NPA/Net Advances),

X_5 = Provision and Contingencies (P&C),

X_6 = Operating Expenses (OE),

X_7 = Business Per Employee (BPE),

X_8 = Profit Per Employee (PPE),

U = Error term.

Here, Y (i.e.Net Profit) is the dependent variable, while the rest x_1 to x_2 are independent variables. The test of significance of overall multiple regression models were made through F-test. This test has been used to answer the basic question: Is there a linear relationship between dependent variable and any of the independent variables under consideration? To carry out the F-test, the Analysis of Variance (ANOVA) is performed. Further multiple co-efficient of determination (R^2) and adjusted multiple co-efficient of determination (Adjusted R-Square) were also compiled to measure the explanatory power of multiple regression model used herein. With the aim of evaluating the significance of individual regression co-efficient (b_i), t-test is performed at 0.01, 0.05 and 0.10 levels of significance. While using the regression techniques efforts made to reduce the problem of multi-collinearity and auto correlation. The data collected is processed and analyzed with the help of SPSS software. The nature of relationship expected between the dependent variable (i.e. Net profit) and the independent variables considered for the present study for State Bank of India is presented in the Table 2.

Analysis of results

The model described above has been estimated for State Bank of India during the study period. The results of beta co-efficient and 't' values of the variables are presented in the Table 2.

Table 2

Determinants of Profitability in State Bank of India-Multiple Regression Model
[Dependent variable: Profit After Tax]

$$[PAT= -315.77+0.32x_1+0.28\ x_2+11.43\ x_3-9.97x_4+0.38x_5-0.35\ x_6+7.93\ x_7+3.68\ x_8]$$

Variables	Co-efficient	t-value	Significant / Not-Significant
Constant	-315.77		Significant *
Spread (X_1)	0.32	2.72	Significant *
Non-Interest Income (X_2)	0.28	3.96	Significant *
Credit / Deposit Ratio (X_3)	11.43	4.37	Significant *
NPA as percentages to net Advances (X_4)	-9.97	2.98	Significant *
Provisions and Contingencies (X_5)	0.38	3.97	Significant *
Operating Expenses (X_6)	-0.35	1.25	Not Significant
Business per Employee (X_7)	7.93	3.62	Significant *
Profit per Employee (X_8)	3.68	2.54	Significant **
R^2 = 0.99 Adj R^2 = 0.96 F = 35.32 Significance = 0.006			

* - Significant at 0.01 level
** - Significant at 0.05 level
Source: Computed

For the State Bank of India, Table 2 reveals that F value is significant at one per cent level. This result clearly indicates that variation caused by independent variables in the net profit of State Bank of India is significant and cannot left to chance factor. It is also noteworthy that the model explained 99 percentage of variations in the net profit of State Bank of India. The analysis shows that all the variables except operating expenses are found to be statistically significant in explaining profits of State Bank of India. It is evident from the result that credit / deposit ratio is the strongest determinants of profits followed by business per employee, profit per employee, provisions and contingencies, spread, non-interest income, NPA as percentage to net advances and operating expenses . The spread, non-interest income, credit / deposit ratio, NPA as percentage to net advances, operating expenses, business per employee and profit per employee did support hypothesis with expected sign. However the co-efficient of provisions and contingencies did not support our hypothesis rather appear with opposite sign. It is evident from the result that co-efficient of spread shows an increase of 0.32 units in profits as a result of one unit increase in spread which is statistically significant at one per cent level. The co-efficient of non-interest income and credit / deposit ratio indicates that the increase of 0.28 units and 11.43 units in profits as a result of one unit increase in non-interest income and credit / deposit ratio which is also significant at one per cent level.

Correlation Matrix

	Spread	NII	C/D	NPA	P&C	OE	BPE	PPE
Spread	1							
NII	0.114	1						
C/D	0.300	0.486	1					
NPA	-0.486	-0.162	-0.370	1				
P&C	0.503	0.274	0.255	-0.562	1			
OE	0.380	0.466	0.524	-0.603	0.377	1		
BPE	0.709	0.384	0.573	-0.4772	0.402	0.635	1	
PPE	0.484	0.495	0.429	-0.345	0.344	0.373	0.549	1

Source: Computed

The co-efficient of provisions and contingencies, business per employee and profit per employee shows that the increase of 0.38 units, 7.93 units and 3.68 units increase in profits respectively during the study period. All these co-efficient are statistically significant. It is also apparent from the table that co-efficient of NPA as percentage to net advances and operating expenses shows that 9.97 units and 0.35 units decrease in profits as a result of one unit increase in these variables respectively. However, the operating expenses turn as insignificant during the study period. The overall explanatory power of the regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is the measure of extent of movement in the dependent variable and that is explained by the independent variables. It is 99 per cent and adjusted explanation is around 96 per cent.

Conclusion

The analysis of determinants of profitability of SBI has brought out that the explanatory power of some variables significantly high. Such variables includes credit deposit ratio, NPA as percentage to net advance and business per employee. However, some variables namely spread, non-interest incomes, provisions and contingencies and operating expenses are found with low explanatory power. Among them one variable i.e., operating expenses found to have negative relationship. An empirical estimation of profit shows that credit deposit ratio, NPA as percentage to net advances, provisions and contingencies, operating expenses and business per employee are the significant determinants of profitability of SBI during the study period. To conclude, banking industry in the new millennium is never going to be like what it is in the last century. Banks in India have marched ahead during the post-banking sector reforms period in fostering economic growth of the country and has shown tremendous resilience and vibrancy in their strategies, processes and operating to remain competitive in the globalized environment. Although, public sector banks are lagging behind in many efficiency parameters, but they has also started to modernize their activities to compete with their counterparts. Therefore, SBI should expand their market base in rural sector and at the same time in the global market with modern techniques. Their survival will dependant upon their change in mind-set and competitive new vision.

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