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PROFITABILITY DETERMINANTS OF SCHEDULED COMMERCIAL BANKS IN INDIA

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ABSTRACT

The Indian banking industry plays an important role in the economic development of the country and is considered to be the most dominant segment of the financial sector. The structure of the Indian Banking Industry is growing wider with the development of products and services. The financial stability and profitability pose to be a great challenge to the banks in the highly competitive global era. This paper attempts to identify the determinants of the earnings of the banks. A sample of 40 banks was selected and the study period covers from 1999-2000 to 2014-2015. Correlation Analysis and Step-wise Multiple Regression Analysis were used to analyze the data and it was found that the quality advances and the effective business operations improve the earnings of the banks.

KEYWORDS

profitability, advances, business operations.

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INTRODUCTION

The Indian banking industry plays an important role in the economic development of the country and is considered to be the most dominant segment of the financial sector. Its role is crucial in the attainment of macro-economic objectives and acts as a catalyst for socio-economic transformation by channelizing the savings to investments that have potential to yield returns and encourages the economic growth. The scheduled commercial banks having a massive share in the business operations further diversified their activities to cater to the needs of trade and industry.

The structure of the Indian Banking Industry has been vibrant since the reforms in 1991. The financial sector reforms stirred the banking industry from a regulated arrangement to a deregulated market economy and have brought many private and foreign banks into the Indian banking scenario. The economic development through liberalization and globalization augmented the intermediation role of the banks. The expansion of international integration enabled Indian banks to explore global markets and deregulation induced banks to explore new business opportunities. This increased the scope and significance of the Indian banking industry. The WTO agreement in 2002 is another best part where the economy grew exponentially not just by number but also by magnitude. Many innovative financial products were introduced in the domestic financial market due to the increasing international trade and competitive edge among the banks. But still maintaining the earnings and financial stability pose to be a great challenge to the banks in India.

LITERATURE REVIEW

Nicolae Petria, *et al.* (2015) assessed the main determinants of banks' profitability in EU27 over the period 2004-2011. The authors divided the factors that influence bank profitability into two large groups: bank-specific (internal) factors and industry specific and macroeconomic (external) factors. As proxy for banks profitability, the return on average assets (ROAA) and the return on average equity (ROAE) were considered. The empirical findings stated that credit and liquidity risk, management efficiency, the diversification of business, the market concentration/competition and the economic growth have influence on bank profitability, both on ROAA and ROAE. Further, an interesting and valuable result proved was the positive influence of competition on bank profitability in EU27. **Sara Kanwal and Muhammad Nadeem (2013)** investigated the impact of macroeconomic variables on profitability of public limited commercial banks in Pakistan from 2001-2011, based on vital contribution of the commercial banks to economic progress of Pakistan. Pooled Ordinary Least Square (POLS) method was used to examine the effect of 3 major external factors; inflation rate, real gross domestic product (GDP) and real interest rate on profitability indicators like return on assets (ROA), return on equity (ROE) and equity multiplier (EM) ratios in 3 separate models. The empirical findings indicated a strong positive relationship of real interest rate with ROA, ROE and EM. Secondly, real GDP was found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. Inflation rate, on the other hand, had a negative link with all 3 profitability measures. Overall, the selected macroeconomic factors were found to have a negligible impact on earnings of commercial banks. **Vincent Okoth Ongore and Gemechu Berhanu Kusa (2013)** studied the moderating effect of ownership structure on bank performance. The authors analyzed the parameters using linear multiple regression model and Generalized Least Square on panel data. The result showed that bank specific factors significantly affect the performance of commercial banks in Kenya, except for liquidity variable. However the overall effect of macro-economic variables was unconvincing at 5% significance level. The moderating role of ownership identity on the financial performance of commercial banks was insignificant. Therefore, the study concluded that the financial performance of commercial banks in Kenya is driven mainly by board and management decisions, while macro-economic factors have insignificant contribution. **Yong Tan and Christos Floros (2012)** scrutinized the effect of GDP growth on bank profitability in China over the period 2003 to 2009. The one-step system GMM estimator was used to test the persistence of profitability in the Chinese banking industry. The empirical findings showed that cost efficiency was positively related to bank profitability, while lower profitability was due higher taxes paid by banks. In addition, there was a negative relationship between GDP growth and bank profitability. The results also showed that the profitability in the Chinese banking industry was significantly affected by the level of non-performing loans, and Chinese banks with higher levels of capital were found to have lower profitability. Finally, the authors found that the departure of banks from a perfectly competitive market structure in the Chinese banking industry was relatively small. **Sehrish Gul, et al. (2011)** examined the relationship between bank-specific and macro-economic characteristics over bank profitability by using data of top fifteen Pakistani commercial banks over the period 2005-2009. The pooled Ordinary Least Square (POLS) method was employed to investigate the impact of assets, loans, equity, deposits, economic growth, inflation and market capitalization on major profitability indicators, i.e., return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) separately. The empirical results have found strong evidence to show that both internal and external factors have a strong influence on the profitability.

STATEMENT OF THE PROBLEM

The operating environment of the banking industry underpinned by globalization, deregulation and advancement in information technology resulted in intense competitive pressures. To withstand the mounting challenges, the banks diversified their businesses through the organic growth of existing business and through acquisitions. This exposed the banking sector to newer risks and posed grim regulatory challenges. Therefore, the regulatory and supervisory policies have been refined from time to time, to meet the emerging challenges. In spite of exclusive measures taken by the bank, the earnings and financial stability pose to be a great challenge to the banks in India. Thus, it is required to find the determinants of the profitability of the banks.

OBJECTIVE OF THE STUDY

The primary objective of the study is to find the determinants that influence the profitability of the Scheduled Commercial Banks in India.

RESEARCH METHODOLOGY

The research is descriptive in nature. The data for the study were gathered from the secondary sources. The study was carried from 1999-2000 to 2014-2015 wrapping 16 years in total. Out of 90 scheduled commercial banks, a sample of 40 banks was selected based on the advances provided by the banks amounting to a minimum of Rs. 1500 billion as on 31-03-2014. Few banks were omitted due to the non-availability of continuous data, negative capital adequacy and the banks that were not commercial banks throughout the study period.

FINDINGS OF THE STUDY

The objective to stumble on the determinants that affect the profitability of the banks was examined considering the industrial ratios as internal indicators and macro-economic variables as external indicators during the study period from 1999-2000 to 2014-2015. All the ratios that measure the financial performance of the banks are internal indicators and, GDP and average inflation rate are considered as external indicators. GDP was taken into account, since it influences the economic activity and in turn impacts the operations of the banks. The average inflation rate was considered, as that impacts the lending activity of the banks and is important for the banks, because they typically deal in nominal financial instruments. The Net Interest Margin, Return on Assets, Return on Equity, being the important indicators of profitability are the dependent variables.

To identify the variables influencing earning efficiency the following multivariate techniques have been employed:

i) Correlation Analysis, and

ii) Step-wise Multiple Regression Analysis

i) CORRELATION ANALYSIS

Correlation Analysis is used to ascertain the relationship between the dependent and independent variables. The correlation co-efficient of the independent variables, with the earning efficiency indicators identifies the most significant variables that affect the profitability of the banks. The correlation matrix has been formed to establish the correlation coefficient of internal and external indicators with the dependent variables.

The correlation of the internal and external variables with the dependent variables Net Interest Margin, Return on Assets, Return on Equity of the select Scheduled Commercial Banks during the study period is presented in Table 1.

TABLE 1: CORRELATION OF INTERNAL AND EXTERNAL VARIABLES WITH PROFITABILITY INDICATORS

Variables	Net Interest Margin		Return on Assets		Return on Equity	
	r	p	r	p	r	P
Capital Adequacy Ratio	-.466	.040*	.430	.055	.090	.375
Debt - Equity Ratio	.360	.094	-.176	.266	.322	.121
Ratio of Advances to Assets	-.569	.013*	.043	.439	-.451	.046*
Investments in Government Securities to Assets	.637	.005**	.281	.155	.622	.007**
Investments in Government Securities to Investments	-.319	.123	.398	.071	-.047	.434
Return on Investments	.471	.038*	-.285	.152	.190	.249
Return on Advances	-.258	.176	-.416	.061	-.266	.169
Net NPA to Advances	.426	.057	-.321	.122	.152	.295
Priority Sector Advances to Total Advances	.125	.329	.294	.144	.202	.235
Interest Income to Total Assets	.065	.408	-.421	.059	-.134	.317
CASA	.576	.012*	.260	.174	.686	.002**
Total Advances to Total Deposits	-.382	.080	.047	.434	-.390	.075
Business per Employee	-.536	.020*	-.086	.380	-.522	.023*
Profit per Employee	-.421	.059	.185	.255	-.263	.172
Intermediation Cost to Total Assets	.709	.002**	-.164	.280	.299	.140
Burden to Total Assets	.277	.159	-.779	.000**	-.759	.001**
Net Interest Margin	1.000	-	.056	.422	.838	.178
Return on Assets	.056	.422	1.000	-	.891	.000**
Return on Equity	.256	.178	.860	.000**	1.000	-
Non-interest Income to Total Assets	.355	.097	.480	.035*	.257	.000**
Operating Profits to Total Assets	.368	.089	.791	.000**	-.314	.000**
Cash- Deposit Ratio	-.086	.380	.037	.448	.212	.178
Term Deposits to Total Deposits	-.446	.048*	-.332	.113	-.145	.127
Liquid Assets to Total Assets	.359	.094	-.245	.189	.277	.224
Liquid Assets to Demand Deposits	.060	.415	-.412	.063	.176	.303
Liquid Assets to Total Deposits	.490	.032*	-.119	.336	-.243	.159
GDP	.071	.401	.355	.097	.256	.265
Average Inflation Rate	-.670	.003**	.106	.354	.860	.191

Source: Computed data

**Correlation is significant at the 0.01 level ($p<0.01$) *Correlation is significant at the 0.05 level ($p<0.05$)

It is understood from Table 1 that Investment in Government Securities to Assets and Intermediation Cost to Total Assets were positively correlated and the average inflation rate was inversely correlated at 1% level of significance to Net Interest Margin. Return on Investments, CASA and Liquid Assets to Total Deposits were observed to have positive correlation with Net Interest Margin, while Capital Adequacy Ratio, Ratio of Advances to Assets, Business per Employee and Term Deposits to Total Deposits recorded a negative correlation at 5% level of significance.

The variables Return on Equity and Operating Profits to Total Assets were observed to have high positive correlation with Return on Assets while Burden to Total Assets established highly negative correlation, statistically significant at 1% level of significance. The Non-Interest Income to Total Assets was found to have positive correlation with Return on Assets at 5% level of significance.

Investment in Government Securities to Assets, CASA, Return on Assets and Non-Interest Income to Total Assets were found to have highly positive correlation, while an inverse correlation was observed in Burden to Total Assets and Operating Profits to Total Assets with Return on Equity, statistically significant at 1% level of significance. Ratio of Advances to Assets and Business per Employee were negatively correlated with Return on Equity at 5% level of significance.

ii) STEP-WISE REGRESSION ANALYSIS

The Step-wise Regression analysis was applied to study the best combination of independent (predictor) variables that would predict the dependent (predicted) variable. To study the influence of internal and external variables in relation to the earning efficiency variables like Net Interest Margin, Return on Assets and Return on Equity, the forward selection method of stepwise regression analysis was used to form the best model by entering one independent variable with the strongest positive and negative correlation at each step. The addition of the variables is repeated till the model is found to be fit. The internal variables include all the variables measuring each component of the financial performance in the study, while the external variables consist of annual GDP and average inflation rate.

a) Step-Wise Multiple Regression Analysis for Net Interest Margin

The model summary for the dependent variable Net Interest Margin using step-wise regression analysis from 1999-2000 to 2014-2015 of Scheduled Commercial Banks is presented in Table 2.

TABLE 2: MODEL SUMMARY OF NET INTEREST MARGIN

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.709	0.502	0.464	0.15048	0.502	13.124	1	13	0.003
2	0.863	0.745	0.703	0.11204	0.243	11.449	1	12	0.005
3	0.908	0.824	0.776	0.09737	0.078	4.888	1	11	0.049
Model 1 : (Constant), Intermediation cost to Total Assets									
Model 2 : (Constant), Intermediation cost to Total Assets, Liquid Assets to Total Assets									
Model 3 : (Constant), Intermediation cost to Total Assets, Liquid Assets to Total Assets, Debt-Equity Ratio									

Source: Computed data

It is inferred from the model summary of Net Interest Margin that, by including the variables Intermediation cost to Assets, Liquid Assets to Assets and Debt Equity ratio in model 3, the R value increased from 0.709 in model 1 to 0.908 in model 3 indicating highest correlation among the variables. The Adjusted R square increased from 0.464 in model 1 to 0.776 in model 3 and f value is found to be statistically significant at 5% level.

TABLE 3: STEP-WISE MULTIPLE REGRESSION ANALYSIS FOR NET INTEREST MARGIN

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	2.497	0.371		6.723	0.000
	Intermediation cost to Total Assets	1.168	0.179	1.819	6.533	0.000
	Liquid Assets to Total Assets	-0.070	0.028	-0.694	-2.497	0.030
	Debt-Equity Ratio	-0.089	0.040	-0.601	-2.211	0.049
Dependent Variable: Net Interest Margin						

Source: Computed data

Table 3 shows variables that determine the Net interest Margin. The standardized β coefficient value for Intermediation cost to Assets is 1.168, Liquid Assets to Assets is -0.070 and Debt-Equity is -0.089. Intermediation cost to Assets will affect the Net interest margin by 1.168 units stating that the rise in operating expenses inversely influences the profitability of the banks. Liquid Assets to Assets impacts the dependent variable at -0.070 units, stating that the liquid assets should be utilized for business operations effectively, besides meeting their Statutory Liquidity Ratio (SLR) at 20 percent. The decrease in the Debt-Equity will increase the dependent variable at 0.089 units, as the reduction in the interest expenses increases the Net interest margin of the banks.

The equation formed for the dependant variable Net Interest Margin is

$Y_1 = 2.497 + 1.168\ X1_1 - 0.070\ X2_1 - 0.089\ X3_1$

where,

Y_1 = Net Interest Margin

$X1_1$ = Intermediation cost to Assets

$X2_1$ = Liquid Assets to Assets

$X3_1$ = Debt – Equity Ratio

b) Step-wise Regression Analysis for the dependant variable Return on Assets

The model summary for the dependent variable Return on Assets using step-wise regression analysis from 1999-2000 to 2014-2015 of Scheduled Commercial Banks is presented in Table 4.

TABLE 4: MODEL SUMMARY OF RETURN ON ASSETS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.860	0.740	0.720	0.08261	0.740	37.027	1	13	0.000
2	0.987	0.974	0.970	0.02723	0.234	107.630	1	12	0.000
3	0.992	0.984	0.979	0.02254	0.010	6.515	1	11	0.027
Model 1: (Constant), Return on Equity									
Model 2 : (Constant), Return on Equity, Advances to Assets									
Model 3 : (Constant), Return on Equity, Advances to Assets, Net Interest Margin									

Source: Computed data

It is indicated from the model summary of Return on Assets that by including the variables Return on Equity, Advances to Assets and Net Interest Margin in model 3, the R value increased from 0.860 in model 1 to 0.992 in model 3 signifying maximum correlation among the variables. The Adjusted R square increased from 0.720 in model 1 to 0.979 in model 3 and f value is found to be highly significant at 99% confidence level in model 1 and model 2 while it is significant at 5% in model 3.

TABLE 5: STEP-WISE MULTIPLE REGRESSION ANALYSIS FOR RETURN ON ASSETS

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	-.693	0.150		-4.625	0.001
	Return on Equity	0.051	0.002	1.105	25.559	0.000
	Advances to Assets	0.012	0.001	0.610	12.005	0.000
	Net Interest Margin	0.091	0.036	0.120	2.553	0.027
Dependent Variable: Return on Assets						

Source: Computed data

Table 5 portrays the variables that impact the Return on assets. The β coefficient value for Return on Equity, Advances to Assets and Net Interest Margin are 0.051, 0.012 and 0.091 respectively. The Return on Equity will have an effect on Return on Assets by 0.051 units, stating that the efficient use of net worth in high earning investments will increase the dependent variable. Advances to Assets will increase 0.012 units of dependent variable which signifies that more the advances provided by the bank, more will be its Return on Assets. Net Interest Margin will increase the dependent variable at 0.091 units, stating more of interest income generated by the banks will enhance the Return on Assets.

The proposed equation for the dependant variable Return on Assets is

$Y_2 = -0.693 + 0.051X1_2 + 0.012X2_2 + 0.091X3_2$

where,

Y_2 = Return on Assets

$X1_2$ = Return on Equity

$X2_2$ = Advances to Total Assets

$X3_2$ = Net Interest Margin

c) Step-wise Regression Analysis for the dependent variable Return on Equity

The model summary for the dependent variable Return on Equity (EE3) using step-wise regression analysis from 1999-2000 to 2014-2015 of Scheduled Commercial Banks is presented in Table 6.

TABLE 6: MODEL SUMMARY OF RETURN ON EQUITY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.891	0.794	0.778	1.59143	0.794	50.192	1	13	0.000
2	0.957	0.916	0.902	1.05826	0.122	17.399	1	12	0.001
3	0.976	0.952	0.939	0.83255	0.036	8.388	1	11	0.015
Model 1: (Constant), Operating Profits to Assets									
Model 2: (Constant), Operating Profits to Assets, Cash-Deposit Ratio									
Model 3: (Constant), Operating Profits to Assets, Cash-Deposit Ratio, Return on Assets									

Source: Computed data

It is understood from the model summary of Return on Equity that, by including the variables Operating Profits to Assets, Cash- Deposit Ratio and Return on Assets in model 3, the R value increased from 0.891 in model 1 to 0.976 in model 3 stating highest correlation among the variables. The Adjusted R square increased from 0.778 in model 1 to 0.939 in model 3 and the f value is statistically significant at 1% level of significance in model 1 and at 5% level of significance in model 3.

TABLE 7: STEP-WISE MULTIPLE REGRESSION ANALYSIS FOR RETURN ON EQUITY

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	-21.015	1.841	-	-11.418	0.000
	Operating Profits to Assets	3.410	0.932	0.321	3.657	0.004
	Cash-Deposit Ratio	0.359	0.130	0.135	2.755	0.020
	Return on Assets	14.222	1.864	0.657	7.629	0.000
Dependent Variable: Return on Equity						

Source: Computed data

Table 7 shows the variables that contribute to the Return on Equity. The standardized β coefficient value for Operating Profits to Assets is 3.410, stating that the rise in operating profit of the banks will improve their Return on Equity. The standardized β coefficient value for Cash-Deposit Ratio is 0.359, indicating that cash used by the banks for their effective operations and investments, besides meeting their Cash Reserve Ratio (CRR) at 4 percent will improve the profitability of banks. Return on Assets will increase the dependent variable at 14.222, signifying that the quality assets and efficient use of assets will enable the banks to generate more earnings.

The equation proposed for the dependent variable Return on Equity is

$Y_3 = -21.015 + 3.410X1_3 + 0.359X2_3 + 14.222X3_3$

where,

Y_3 = Return on Equity

$X1_3$ = Operating Profits to Assets

$X2_3$ = Cash Deposit Ratio

$X3_3$ = Return on Assets

CONCLUSION

The advances provided by the banks is of prime importance in improving its profitability. As far as the business operations of the banks are considered, the earnings of the banks are highly dependent on its basic function of lending. Further, the disbursements made by the banks must be secured in order to avoid adverse loan impairment. Thus, the strategies worked out by the banks must be able to balance the risks in the business operations and must increase their operating profit.

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