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DETERMINANTS OF PROFITABILITY OF PRIVATE SECTOR BANKS IN INDIA

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Abstract

The empirical study critically investigates the relationship between return on assets of 10 private sector banks in India and bank specific determinants for the period 2013-14 to 2022-23. the study aims to find the association between Return on Assets (ROA) and bank specific determinants with the help of statistical tools such as descriptive statistics, multiple correlation analysis and multiple regression analysis.

Keywords

Return on Assets, Net Interest Margin, private sector banks, Return on Investment and Multiple Regression Analysis.

Introduction

Modern banking borrowing and lending activities help in the economic development of the country. Accepting deposits and lending activities expose the bank to various financial risks that are “credit risk, liquidity risk, market risk, and operational risk.”The efficient management of these risks is an important factor behind bank profitability. The capital requirement of banks also depends on the management of these risks by the banks. As banks are highly leveraged financial institutions, the depositor’s money must be kept safe by the bank in adverse situation, and therefore, risk management becomes paramount for banking institutions. Any adverse situation faced by the banks can affect other sectors of the economy as well. Therefore, regulators greatly emphasize the effectiveness and stability of risk management in the banking system of an economy. Recent technological developments have also made the banking system even riskier. Therefore there is a need for the adoption of the best risk management practices by banks that offer different products and services to different customers across the globe.

Commercial banks are significant for the Indian economy and are considered the heart of the financial system. The RBI is the main regulator of commercial banks in India. Commercial banks are classified as “public sector, private, and foreign banks.” Recognizing the significance of commercial banks economic development, 14 banks were nationalized in 1969, followed by another 6 in 1980. later reforms in the highly regulated banking sector began in 1991 in India as a part of the overall structured reforms.

Financial deregulation and innovation in banking products and services have increased the importance of credit risk management. The Indian banking system has entered into a transition phase, and financial stability has becomes a need of the hour due to rising nonperforming assets. Credit risk management practices in banks affect the bank’s performance. The objective of the study is thus to assess the impact of bank performance determinants on bank performance.

Regression problems are prevalent in machine learning, and regression analysis is the most often used technique for solving them. It is based on data modeling and entails determining the best fit line that passes through all data points with the shortest distance possible between the line and each data point. While there are other techniques for regression for regression analysis, linear and logistic regressions are

the most widely used. Ultimately, the type of regression analysis model we adopt will be determined by the nature of the data.

Objectives of the study

The study aims to achieve the following objectives

- To find the bank's performance determinants.
- To analyze the impact of bank-specific variables on the financial performance of private sector banks using regression analysis.
- To study the impact of banking regulations on the performance of private sector banks using regression analysis.

Research methodology

The present study relies on secondary data on selected parameters of the private sector banks operating in India. The RBI database has been used to extract data on selected parameters of the private sector for a period from 2013-14 to 2022-23. ten banks were chosen as a sample of private sector banks operating in India. All those private sector-owned banks that were operating in India during 2013-14 to 2022-23, and whose data were available for all the selected parameters, were selected for the present study.

Review of literature

Singh (2006) studied the performance of Indian banks with their global counterparts based on ROA, ROE, Cost/Income ratio and NPA/ asset ratio. The study covered the period 2000 to 2005. despite being small in terms of capital base and assets, Indian banks are much ahead of their global counterparts in respect of ROA, Net Interest Margin and Capital Adequacy Ratio, Prudential norms and other regulatory measures undertaken by the Reserve Bank of India and the government of India were give the full credit for such a remarkable performance.

Makesh (2008) conduct a study to evaluate the financial management practices of federal bank Dhanalakshmi bank along with the SBI, for the financial year 2006-2007. His study revealed that all the three banks maintained capital in excess of the stipulated norms (Basel I,II & III) of the reserve bank of India. Federal bank had maintained it in efficient way compare to its rivals. Dhanalakshmi bank maintained a very high liquidity to tackle short-term needs of finance. But federal bank performed well in term of cost management compared to the SBI and Dhanalakshmi bank.

Shah & Jain (2014) used top private commercial banks in Pakistan in the study based on secondary data. The dependent variables used for the study were return on asset and interest income whereas the independent variables were bank size, asset management and operational efficiency. The tools used for the analysis were regression analysis and correlation technique, the study concluded that size of banks and operational efficiency are negatively related with ROA and had positive relationship with asset management ratio.

Geetu Gupta and Amandeepkaur (2013) conducted a study on productivity and performance of public sector banks in India on the basis of branch productivity and employee productivity for the period of 1991-2010. the statistical tools like Mean, Standard Deviation and Co- efficient of Variation have been used to analyze the productivity. It is suggested that banks need to improve their productivity apart to this improvements in profitability, maintain efficiency level and technology and exploring available cost-effective solutions.

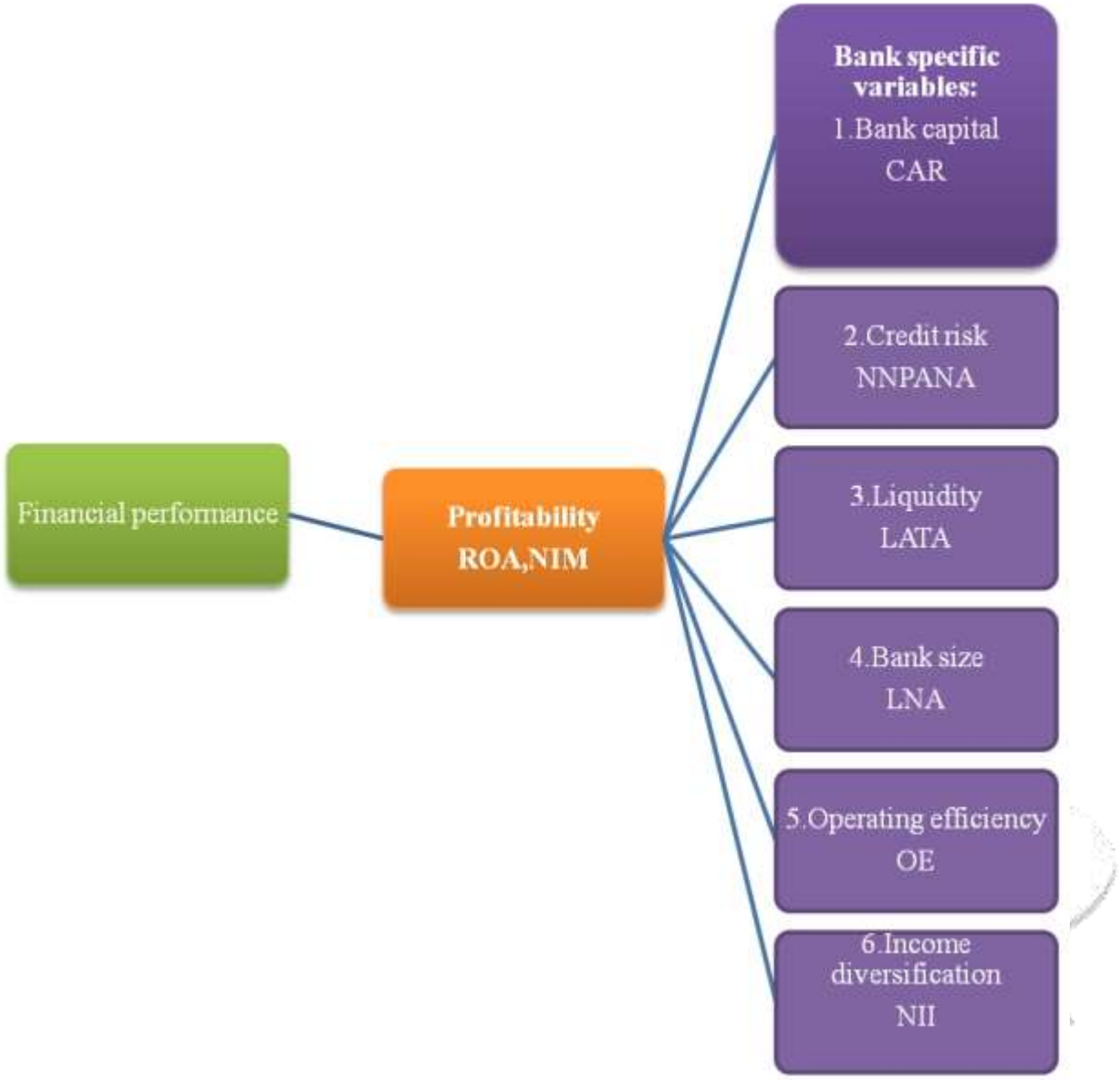
Jha,D.K.and Sanghi,D.S (2011) seven public sector and private banks performance were evaluated for the year 2009-10. They have used eleven ratios in the study to analysis the financial performance, efficiency and operating performance of the selected banks. The end result was Axis bank had been the first in overall performance, followed by HDFC bank, Punjab national bank, IDBI, bank of India, SBI and ICICI respectively.

Description of variables of the study

Parameters	**Proxy measures**	**Acronym**
Performance variables:	Return on assets	ROA
Profitability	Net interest margin	NIM
Bank- Specific variables:		
Bank capital	Capital adequacy ratio	CAR
Credit risk	Net nonperforming assets to net advance	NNPANA
Liquidity	Liquidity assets to total assets ratio	LATA
Bank size	Log assets	LNA
Operating efficiency	Operating expenses	OE
Income diversification	Non-interest income	NII

highlights various financial parameters used in the study to analyze the impact of the financial performance of private sector banks in India. These variables have been classified as “bank performance variables, bank specific variables” used in the study period.

Financial performance chart of the study:



Regression Model

The empirical model for all the banks has been framed having considered after careful scrutiny for existence of the multi-collinearity p. the bank specific Return on Assets and Net Interest Margin variable are fitted into multiple regression.

The study analyzed the impact of bank-specific variables on private sector banks performance. For this purpose, the following models were developed based on previous literature:

$$ROA = x_1+\beta_1 CAR_i+\beta_2 NNPAA_i+ \beta_3 LATA_i+\beta_4 LOGA_i+\beta_5 OE_i+\beta_6 NII_i+ e_i$$
$$NIM = x_1+\beta_1 CAR_i+\beta_2 NNPAA_i+ \beta_3 LATA_i+\beta_4 LOGA_i+\beta_5 OE_i+\beta_6 NII_i+ e_i$$

Expected relationship of study variables

Variables	Bank performance
Capital adequacy ratio (CAR)	+
Bank size (LNA)	–
Credit risk (NNPANA)	–
Liquidity (LATA)	–
Cost inefficiency (OE)	+
Income diversification (NII)	+

Table: 1

Descriptive Statistics

		ROA	NIM	CAR	NNPAA	LATA	LOGA	OE	NII
N	Valid	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0
Mean		.8510	3.0384	15.8674	1.7565	.0740	5.4410	2.0998	1.5105
Median		1.0450	2.9000	16.0000	1.0000	.0700	5.4900	2.0200	1.4900
Std. Deviation		1.08741	.88290	2.61828	2.57169	.02778	.46039	.48859	.52757
Minimum		-4.71	1.58	8.50	-6.00	.00	4.26	1.00	.67
Maximum		2.23	8.84	22.69	17.00	.16	6.39	4.08	4.59

Reports the descriptive analysis of variables under study. It is evident that mean values of ROA and NIM are 0.85% and 3.03%, respectively, while their maximum values are 2.23% and 8.84%, respectively, and their minimum values are -4.71% and 1.58%,respectively. The mean value of CAR during the study period (15.86%) has been higher than the required capital adequacy ratio of 13% in India. The mean value for NNPANA measures for credit risk for banks in the study is 1.75%. The maximum and minimum values for NNPANA are 22.69% and 8.50%. The average value of NII, a measure of business diversification, is 1.51%. Table 3 depict that the average value of OE, a measure of inefficiency used in the study, is 1.51%. The table also shows the mean value of liquidity (LATA) as 0.07%. The maximum and minimum values of LATA vary from a maximum of 0.16%.

Table: 2

Correlation matrix for the dependent and independent variables

		ROA	NIM	CAR	NNPANA	LATA	LOGA	OE	NII
ROA	Pearson Correlation	1	.500**	.488**	-.569**	-.058	.137	.352**	.135
	Sig. (2-tailed)		.000	.000	.000	.567	.174	.000	.180
	N	100	100	100	100	100	100	100	100
NIM	Pearson Correlation	.500**	1	.522**	-.347**	.278**	.253*	.570**	.274**
	Sig. (2-tailed)	.000		.000	.000	.005	.011	.000	.006
	N	100	100	100	100	100	100	100	100
CAR	Pearson Correlation	.488**	.522**	1	-.354**	.352**	.459**	.347**	.021
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.838
	N	100	100	100	100	100	100	100	100
NNPANA	Pearson Correlation	-.569**	-.347**	-.354**	1	.018	.112	-.336**	.035
	Sig. (2-tailed)	.000	.000	.000		.860	.268	.001	.731
	N	100	100	100	100	100	100	100	100
LATA	Pearson Correlation	-.058	.278**	.352**	.018	1	.102	.248*	.172
	Sig. (2-tailed)	.567	.005	.000	.860		.311	.013	.088
	N	100	100	100	100	100	100	100	100
LOGA	Pearson Correlation	.137	.253*	.459**	.112	.102	1	-.159	.092
	Sig. (2-tailed)	.174	.011	.000	.268	.311		.113	.362
	N	100	100	100	100	100	100	100	100
OE	Pearson Correlation	.352**	.570**	.347**	-.336**	.248*	-.159	1	.450**
	Sig. (2-tailed)	.000	.000	.000	.001	.013	.113		.000
	N	100	100	100	100	100	100	100	100

NII	Pearson Correlation	.135	.274**	.021	.035	.172	.092	.450**	1
	Sig. (2-tailed)	.180	.006	.838	.731	.088	.362	.000	
	N	100	100	100	100	100	100	100	100

Table: 3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.696[a]	.484	.451	.80554	1.308

a. Predictors: (Constant), NII, CAR, NNPAA, LATA, LOGA, OE

b. Dependent Variable: ROA

The adjusted R Square value in the above clearly tells us that 45.1% of variation in the dependent variable Return on Asset is explained by the explanatory variables. This indicates a good explanatory power of the regression model.

Table: 4

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.717	6	9.453	14.568	.000[a]
	Residual	60.347	93	.649		
	Total	117.063	99			

a. Predictors: (Constant), NII, CAR, NNPANA, LATA, LOGA, OE

b. Dependent Variable: ROA

Gives the results of the ANOVA technique applied to test our null hypothesis against alternative hypothesis. The sig. value clearly indicates that model is significant at 5% chosen level of significant (0.000<0.05).thus, null hypothesis is accepted which states that NII, CAR, NNPANA, LATA, LOGA, OE Ratio have significant impact on ROA of selected private sector banks.

Table: 5
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.907	1.125		-1.695	.093		
	CAR	.157	.047	.377	3.332	.001	.433	2.309
	NNPAA	-.175	.037	-.413	-4.715	.000	.724	1.382
	LATA	-9.041	3.246	-.231	-2.785	.006	.806	1.241
	LOGA	.079	.235	.033	.337	.737	.562	1.779
	OE	.180	.233	.081	.771	.443	.505	1.982
	NII	.293	.187	.142	1.563	.121	.671	1.490

a. Dependent Variable: ROA

Multiple R value in the model is 0.696 indicates that there is a moderate level of relationship between dependent and independent variables taken together. In R square value is 0.484 that means that the linear regression explains 48.4% of the variance in selected private sector banks. The Dubin- Watson d= 1.308 which is between the two critical values $1.5 < d < 2.5$ and therefore, assumed that there is no first order linear auto correlation.

Also explains the F test, the linear regression's F test has the null hypothesis stated that there is no linear relationship between the variables [R^2=0]. this model with the F test is 14.568 with P-value is 0.000, the result F test highly significant that reject the null hypothesis and accept the alternate hypothesis. Thus, it could be assumed that there is a linear relationship between the variables in our model.

The coefficient of **capital adequacy** is (0.157) and insignificant (t-value=3.332,p-value=0.001). this indicates that bank's having higher capital adequacy have relatively high Return on Assets (ROA).

The coefficient of **Net nonperforming Assets to Net Advance** is (-0.175) and the result is significant (t-value=-4.715, P-value=0.000).when the proportion of NNPAA is increased by one unit. The profitability (ROA) decreased by -0.175 units which was statistically significant.

The coefficient of **Liquidity Assets to Total Assets** is (-9.041) and not significant (t-value=-2.785, P-value=0.006). when LATA is increased by one unit, the Return on Assets decreased by (-9.041) units which were statistically insignificant.

The coefficient of **LOGA** is (0.079) which indicates a positive relationship with profitability and result is insignificant (t-value=0.337,p-value=0.737). when the LOGA in increased by one unit, then Return on Assets decreased by (0.079) units. Which is statistically insignificant.

The coefficient of **Operating Expenses** is (0.180) which profitability and result is significant (t-value=0.077,p-value=0.443).When the OE is increased by one units, then Return on on Assets increased by (0.180) units. Which is statistically insignificant.

Finally, the coefficient of **Non Interest Income** is (0.293) which indicates a positive relationship with profitability and result is statistically insignificant(t-value=1.563,p-value=0.121). when the bank's NII is increased by one unit, then Return on Assets decreased by (0.293) units which is statistically insignificant.

Table: 6

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.709[a]	.503	.471	.64231	1.656

a. Predictors: (Constant), NII, CAR, NNPAA, LATA, LOGA, OE

b. Dependent Variable: NIM

The adjusted R Square value in the above clearly tells us that 47.1% of variation in the dependent variable Net Interest Margin is explained by the explanatory variables. This indicates a good explanatory power of the regression model.

Table: 7

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.803	6	6.467	15.675	.000[a]
	Residual	38.369	93	.413		
	Total	77.172	99			

a. Predictors: (Constant), NII, CAR, NNPANA, LATA, LOGA, OE

b. Dependent Variable: NIM

Gives the results of the ANOVA technique applied to test our null hypothesis against alternative hypothesis. The sig. value clearly indicates that model is significant at 5% chosen level of significant (0.000<0.05). Thus null hypothesis is accepted which states that NII, CAR, NNPANA, LATA, LOGA, OE have significant impact on NIM of selected private sector banks.

Table: 8

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.520	.897		-2.809	.006		
	CAR	.049	.037	.144	1.298	.198	.433	2.309
	NNPAA	-.058	.030	-.168	-1.955	.054	.724	1.382
	LATA	2.567	2.589	.081	.992	.324	.806	1.241
	LOGA	.520	.187	.271	2.782	.007	.562	1.779
	OE	.860	.186	.476	4.626	.000	.505	1.982
	NII	.040	.149	.024	.269	.789	.671	1.490

a. Dependent Variable: NIM

Multiple R-value in the model is 0.709 indicates that there is a moderate level of relationship between a dependent Net Interest Margin and independent variables taken together. In R square value is 0.503 that

means that the regression explains 50.3% of the variance is selected private sector Banks. The Dubin-Watson d=1.656 which is between the two critical values 1.5 < d < 2.5 and therefore, assumed that there is no first order auto-correlation.

Also explains the F- test, the regression's F- test has the null hypothesis stated that there is no relationship between the variables [R^2 =0]. this model with the F-test is 15.675 with P-value is 0.000,the result F-test is highly significant, that reject the null hypothesis and accept the alternate hypothesis. Thus, it could be assumed that there is a relationship between the variables in our model.

Provides the regression coefficients and collinearity statistics of the selected independent variables. The multicollinearity in the multiple linear regression model explains the tolerance value should be greater than 0.1 [or VIF<10] for all the selected variables.

The coefficient of **capital adequacy** is passive (0.049) and significant (t-value = 1.298, P-value = 0.198). this indicates that banks having higher capital adequacy have relatively high Net Interest Income (NIM).

The coefficient of **Net nonperforming Asset to Net advance** is (-0.058) and the result is insignificant (t-value=1.955, p-value=0.054). when the proportion of NNPAA is increased by one unit, the Profitability (NIM) decreased by -0.058 units. Which was statistically insignificant.

The coefficient of **Liquidity Asset to Total Assets** is (2.567) and not significant (t-value=0.992, p-value=0.324). When LATA is increased by one unit, the Net Interest Income (NIM) decreased by 2.567 units. Which were statistically insignificant.

The coefficient of **LOGA** is (0.520) which indicates a result is significant (t-value=4.626, p-value=0.000). when the LOGA is increased one unit, then Net Interest Income (NIM) decreased by 0.520 units. Which is statistically insignificant.

The coefficient of **Operating Expenses** is (0.860) which indicates with Profitability and result insignificant (t-value 4.626, p-value = 0.000). when the OE is increased by one unit, then Net Interest Income (NIM) decreased by 0.860 units which is statistically insignificant.

Finally, the coefficient of **Non Interest Income** is (0.040) which indicated profitability and the result is statistically significant (t-value= 0.269, P-value= 0.789). when the bank's NII is increased by one unit, then NII decreased by 0.040 units which his statistically.

Conclusion

This study empirically analyzed the relationship between bank specific determinants and return on assets and net interest margin of ten private sector banks for the period 2013-2014 to 2022-2023 using multiple regression analysis. The empirical results of multiple regression analysis revealed that bank. Profitability, Bank capital, Credit risk, Liquidity, Bank size, Operating efficiency, Income diversification using variables in the study period.

The null hypothesis has been rejected for all the banks. The selected variables are Bank capital, Credit risk, Liquidity, Bank size, Operating efficiency, Income diversification have significant impact on profitability of the selected banks. Capital has been the major impact factor in determining the profitability of all the Banks. The volume, size and growth are the important factor after capital for determining the profitability of the selected banks.

References

1. A.Derbali, "determinants of the performance of moroccan bank," Journal of Business and Socio-economic Development, vol,,1, pp.102-117, 2021.
2. L.jamel, M.B.Ltaifa, A.K.Elnagar, and A.Derbali, "Impact of corporate social performance on financial performance: case of firms listed on the stock exchange of caseblanca," Risk and Financial Management, vol.2,no.1, pp. 51-61,2020.
3. M.T.H. Majumder and X.Li,"Bank risk and performance in an emerging marke setting: the case bangladesh," Journal of Economics, Finance and Administrative Science, vol. 23, 2018.
4. M. M. Rahman, M. K. Hamid, and M. A. M. Khan, "Determinants of profitability: Empirical evidence from Bangladesh," International Journal of Business and Management, vol. 10, no. 8, p.135, 2015.
5. M.N. Abdullah, k. Parvez, and S. Ayreen, "Bank specific, industry specific and macroeconomic determinants of commercial bank profitability: a case Bangladesh,' World, vol.4,no.3, pp.82-96,2014.