A REPORT ON

EFFICIENCY AND PROFITABILITY OF INDIAN PRIVATE SECTOR BANKS

Prepared By-

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(October 2019)

ABSTRACT

This report analyzes the relationship between efficiency and profitability of private sector banks in India. Profitability can be seen as a measure of efficiency and control and can be used to estimate the effectiveness of the banks. Profitability can be measured using profitability ratios like return on assets(ROA) and efficiency can be estimated using the efficiency ratio. This report states an empirical analysis between profitability and efficiency using the above two ratios. It considers 3 private banks - ICICI bank, HDFC bank and AXIS bank for the analysis. The last part of the report contains conclusions and findings based on the empirical analysis.

1. INTRODUCTION

Banking plays a very vital role in the economy of a nation. A modern bank provides vital services to the nation. Solid banking framework is the establishment of any economy. The development of an economy relies upon the financial presentation. A sustainable financial system not only for the economy but also for the society must be present. A good measure of performance and success of banks can be seen as profitability of the banks. This in turn affects the GDP and hence the growth and development of the economy as well as the society.

The banking sector in India has gone some phenomenal changes in the last few decades. The banking industry has moved on from traditional approach to a more modern and digitized approach. The commercial banks can be classified into two sectors - public and private. In a public sector bank, the majority of stocks are held by the government, whereas in a private banks it is held by private individuals or entities. Currently, there are 22 private sector banks and 4 local area private banks in India, with a total market share of 19.7%.

The objective of this report is to analyze the relationship between profitability and efficiency of private sector banks. It considers 3 private banks -ICICI bank, HDFC bank and AXIS bank. It uses data for previous 10 years. The reports uses return on assets (ROA) as an indicator for profitability. ROA is the ratio of Net income to average total assets. Efficiency ratio i.e. Expenses over Revenue is used as an indicator for efficiency.

The report has been divided into three parts. The first part comprises of the overview and review of the currently available literature. The second part deals with the data and empirical findings using linear regression methods. The third part consists of conclusions based on the report.

2.LITERATURE REVIEW

Adwaita Maiti and Sebak Kumar Jana in their working paper discussed majorly determinants of Profitability of Banks in India. A panel data analysis is done in the report, consisting of a total of 75 banks. The panel data regression analysis found strong evidence that profitability is highly dependent on the efficiency of the banks. (2017)

Brindadevi .V in her studies does a profitability analysis of private sector banks in India based on the performances of profitability ratios like interest spread, net profit margin, return on long term fund, return on net worth & return on asset. The paper further cited efficiency or effectiveness as a measure of profitability. (2013)

Shradha H. Budhedeo in her paper “An Assessment of Profitability and Efficiency of Commercial Banks in India” tries to determine the role of efficiency and profitability indicators on the performance of bank groups. The report shows that foreign banks have shown outstanding profitability performance and excellent management efficiency and also private sector banks that have outperformed the competing bank groups in terms of earning efficiency. (2018)

3.DATABASE

Data for Return on Assets(ROA) and Efficiency ratios were taken for a period of last 10 years for ICICI, HDFC and AXIS banks. Since the report concerns private banks, data was gathered from respective annual reports from the bank website itself and not from a particular single database. The data sources include annual reports of the respective banks as well as the following sources :

Moneycontrol: https://www.moneycontrol.com
ICICI BANK:https://www.icicibank.com/aboutus/annual.page
HDFC BANK:https://www.hdfcbank.com/personal/about-us/investor-relations/annual-reports
AXIS BANK:
https://www.axisbank.com/shareholders-corner/shareholders-information/annual-reports

4.METHODOLOGY

The return on assets(ROA) is used as an indicator for profitability and Efficiency ratio (Expenses over revenue) was used to indicate the efficiency. Expenses in efficiency ratio were so as they were not including interests. How efficiency ratio affects ROA is analyzed by using linear regression analysis, where ROA is taken to be the dependent variable and efficiency ratio to be the independent variable. The report analyses if higher efficiency(lower efficiency ratio) leads to a higher profitability.

5. EMPIRICAL ANALYSIS

The following table shows the data used for the regression analysis:

BANK	ICICI		HDFC		AXIS	
Year	ROA	EFFICIENCY RATIO	ROA	EFFICIENCY RATIO	ROA	EFFICIENCY RATIO
Mar-08	0.006988	0.875905558	0.011968	0.497281803	0.009661	0.369307637
Mar-09	0.007402	0.892858128	0.012257	0.449920314	0.012272	0.341305753
Mar-10	0.008309	1.045698746	0.013468	0.481857944	0.013719	0.42177163
Mar-11	0.011405	1.101226688	0.014358	0.435862895	0.013768	0.385351369
Mar-12	0.012333	0.79718384	0.015382	0.385131061	0.014784	0.313480336
Mar-13	0.014222	0.709903086	0.016847	0.35219319	0.015371	0.313726932
Mar-14	0.014721	0.663958447	0.017358	0.317424509	0.01633	0.32307392
Mar-15	0.014776	0.705298013	0.017605	0.319030514	0.015939	0.322389229
Mar-16	0.011041	0.881235875	0.016792	0.317501029	0.015277	0.33492719
Mar-17	0.010299	1.047571382	0.017121	0.325585839	0.006464	0.538417266
Mar-18	0.006837	1.171230012	0.016778	0.346250352	0.000648	0.637147638
Mar-19	0.003423	1.16380484	0.017274	0.331453676	0.006189	0.499518236

Table 1: ROA and Efficiency Ratio of 3 private banks from 2008-2019

6.OBSERVATIONS

Below are the correlation matrices for the three banks:

Column1	ROA	EFFICIENCY RATIO
ROA	1	
EFFICIENCY RATIO	-0.77238	1

Table 2: Correlation Matrix of ICICI Bank

Column1	ROA	Efficiency Ratio
ROA	1	
Efficiency Ratio	-0.96373	1

Table 3: Correlation Matrix of HDFC Bank

Column1	ROA	EFFICIENCY RATIO
ROA	1	
EFFICIENCY RATIO	-0.93821	1

Table 4: Correlation Matrix of AXIS Bank

The values having magnitude 0.77238, 0.96373, and 0.93821 suggest that there is a good correlation between ROA and the Efficiency Ratio.

We will now use linear regression to find how efficiency affects the profitability of all 3 banks using the linear equation:

$$\mathbf{ROA(t) = a + b*(Efficiency\ Ratio(t))}$$

The result of the linear regression is shown in the below tables:

ICICI BANK:

Regression Statistics	*Column1*
Multiple R	0.772377244
R Square	0.596566607
Adjusted R Square	0.556223268
Standard Error	0.002403527
Observations	12

Table 5: Regression Statistics of ICICI Bank

Column1	*Coefficients*	*Standard Error*	*t Stat*	*P-value*
Intercept	0.024289327	0.00374275	6.4897	6.986E-05
EFFICIENCY RATIO	-0.015350719	0.003991951	-3.84542	0.0032363

Table 6: Linear Regression Summary

HDFC BANK:

Regression Statistics	*Column1*
Multiple R	0.96373176
R Square	0.928778904
Adjusted R Square	0.921656795
Standard Error	0.000579151
Observations	12

Table 7: Regression Statistics of HDFC Bank

Column1	Coefficients	Standard Error	t Stat	P-value
Intercept	0.026735226	0.000989264	27.02537	1.113E-10
EFFICIENCY RATIO	-0.02930464	0.002566165	-11.4196	4.65E-07

Table 8: Linear Regression Summary

AXIS BANK:

Regression Statistics	Column1
Multiple R	0.938214243
R Square	0.880245966
Adjusted R Square	0.868270563
Standard Error	0.001791356
Observations	12

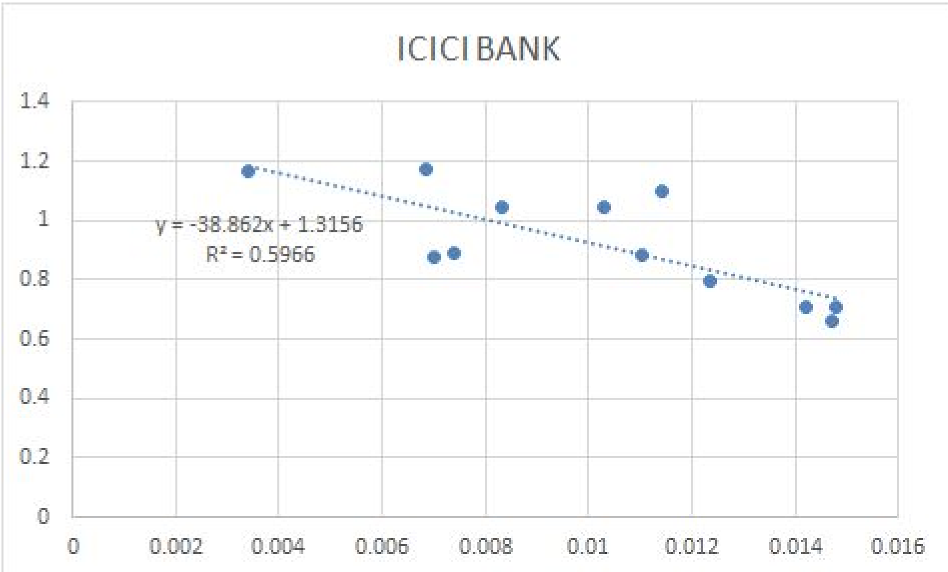
Table 9: Regression Statistics of AXIS Bank

Column1	Coefficients	Standard Error	t Stat	P-value
Intercept	0.029328989	0.002120038	13.83418	7.588E-08
EFFICIENCY RATIO	-0.044063894	0.00513956	-8.57348	6.389E-06

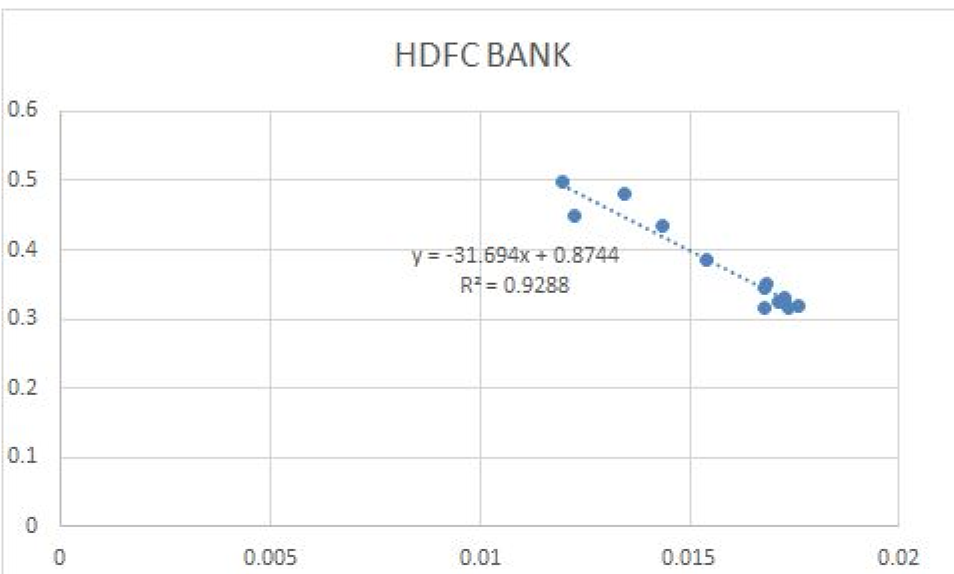
Table 10: Linear Regression Summary

From the above results it can be seen that R square has high values of 0.88, 0.92 and 0.59 for the three banks, which means that the respective percentage of variation in ROA can be explained by efficiency. Small p values indicate that the lines are a good fit.

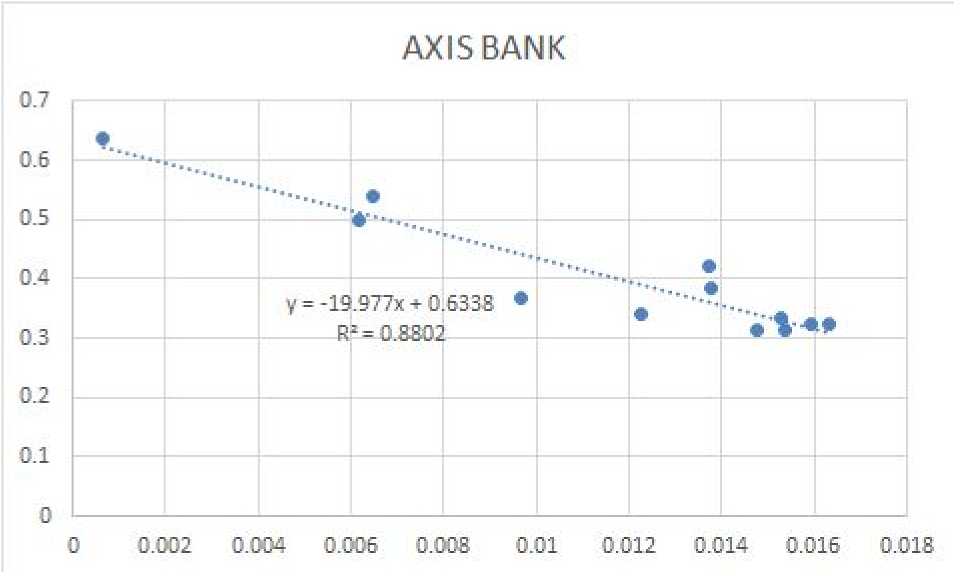
Below are the best fit lines for the above data:



Graph i : ROA(in rs. cr) vs Efficiency ratio for ICICI bank



Graph ii : ROA(in rs. cr) vs Efficiency ratio for HDFC bank



Graph iii : ROA(in rs. cr) vs Efficiency ratio for AXIS bank

It can be seen from the above graphs that lower the efficiency ratio (i.e. higher the efficiency) higher the ROA(profitability) of the banks is. We can conclude therefore a greater efficiency leads to a greater profitability.

7.CONCLUSIONS

- The purpose of this report was to analyse the relation between profitability and efficiency of Indian private sector banks. Based on empirical results , it was discovered that efficiency and profitability are positively correlated to each other. In order words to increase its profitability, bank needs to have a lower efficiency ratio or decrease their expenses as compared to revenue.

- Profitability of all private sector banks has increased over time fluctuations due to business cycles and economic conditions .

- The top 3 private banks ranked are HDFC, AXIS and ICICI with HDFC respectively as the first follows the trend of increasing efficiency (decreasing efficiency ratio).

8. REFERENCES

- *https://indianmoney.com/articles/list-of-private-banks-in-india*
- *https://www.moneycontrol.com*
- *https://www.icicibank.com/aboutus/annual.page*
- *https://www.hdfcbank.com/personal/about-us/investor-relations/annual-reports*
- *https://www.axisbank.com/shareholders-corner/shareholders-information/annual-reports*
- *https://www.researchgate.net/publication/319288117*
- *http://www.acadpubl.eu/hub/*
- *http://www.iosrjournals.org/*
- *http://www.trp.org.in/*