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Empirical Analysis of the Impact of Non - Performing Assets, Liquidity and Risk on the Profitability of Public and Private Sector Banks in India

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Abstract

This study is an attempt to explore the present challenges in Indian banking sector with special emphasis on the rising problem of non- performing assets of the banks in India. For this, net profit ratio was taken as a dependent factor representing the profitability of the banks. Three independent factors were taken into consideration representing different factors affecting the financial performance of banks specifically- Net NPA Ratio, Current Ratio, Capital Adequacy Ratio. A sample size of 10 Indian Banks was taken into consideration, specifically top five public sector banks and top 5 private sector banks on the basis of total assets owned. The financial data taken was of three years i.e. 2016-2018. According to popular literature the Net NPA Ratio and current ratio have a negative relationship with the net profit and the capital adequacy has a positive relationship. The statistical tests that were applied were correlation and regression. Apart from that a graphical analysis of the banks taken as sample size was also done. The results revealed what popular literature states and that is net NPA and current ratios having a significant negative relationship and capital adequacy having a significant positive relationship. The analysis also showed the financial performances of each banks and gave us useful insights on the overall conditions of the private and public sector banks in India

Key Words: *NPAs, Current Ratio, Capital Adequacy Ratio, Public Sector Banks, Private Sector Banks*

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INTRODUCTION

The economy of a country and banks share a very strong relationship. If an economy is not functioning well then the performance of banks will be affected, and if the banks are not doing well then the economy overall will be affected. The role of banks in developing a country and supporting it is very huge. This is the reason why after independence all the banks functioning in India were taken under the government's ownership so that the banks could be used for the greater social and economic benefit and not the benefit of just a few.

To sum up we can say that it is of the utmost importance that banks and the overall banking sector are in unstable shape as it plays a very critical role in the growth and development of an economy specially in case of a developing country like India. The stable banking system will obviously be able to carry out all the functions effectively and play the important role discussed above.

Thus, promoting financial stability should be the top most priority of the government in order to make sure that the public has a general trust and confidence in the banking system. But the bigger question here is how the government ensures a stable banking sector. The answer is simple – by analyzing the banking business as a whole and specially the finances of the banks in order to see how and where exactly the banks are headed off to. It is important to analyze the banks' financials in order to pinpoint the general problems regarding the banking sector and make certain amendments and changes in the monetary policy in order to address the issue.

REVIEW OF LITERATURE

Several studies have been conducted around the world highlighting the relationship between liquidity and profitability of banks. One of the popular studies (Graham & Bordeleau, 2010) determined the relationship between liquidity and profitability of large banks in the U.S. and Canada and also evaluated the impact of liquidity on profitability of the banks. A sample size of 10 Canadian banks and 55 bank holding companies of the United States were taken, the time period was from 1997 to year 2002 and an econometrics model was used where the dependent variable was the profitability of banks and the independent variable was the liquid asset holdings. The results concluded that these were a positive relationship between liquidity and profitability. This means that an increased profitability was seen in banks with high liquid asset holdings, but after a certain point of time high liquidity was linked to low profitability Another very large-scale study was conducted on the European banks by (Staikouras & Wood, 2004). The aim was to determine the internal and external factors that affect the bank's profitability. The internal factors taken were loans to asset ratio, equity to asset ratio, provision to loan losses to total loans and concentration ratio. For the external factors the variables like level of interest rates, their variability and growth rate of GDP are taken into consideration. A sample size of 2162 banks all across the European continent was taken and an OLS and Fixed effect model was constructed for analysis. Correlation and regression among the variables was also used. The dependent variable taken was ROA. The results reveal that banks with high equity to asset ratio have a high profitability, but the loan to asset ratio is found to be inversely related to the returns. The loan losses to provision ratio is negatively correlated. The levels of interest rates have a positive relation while the GDP growth rates and variability are found to have a negative relation to the return on assets. Another study determined the factors that affect the profitability of banks in Spain. A sample size of all the Spanish banks was taken. The time period in study was 1999-2009. The dependent variable taken was return on assets and return on equity. The independent variables taken were asset structure, asset quality, bank capitalization, financial structure, efficiency, size, and revenue diversification. The test applied was System GMM estimator. The high bank profitability during these years is associated with a large percentage of loans in total assets, a high proportion of customer deposits, good efficiency, and a low credit risk. In addition, higher capital ratios also increase the bank's return, although this finding applies only when using return on assets (ROA) as the profitability measure (Ponce, 2013). Further scholars examined the relationship between the

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ownership structure of banks with their risk, profitability and cost efficiency. A sample size of 181 banks operating across 15 European countries was taken and the time period was 1999-2004.correlation and regression were used. The study concluded that the profitability of public sector banks was less as compared to private sector banks. The asset quality of private sector banks was better than public sector banks indicating the risk of NPAs being higher in public sector banks. Lastly, a high ownership concentration was related to higher asset quality and lower insolvency (Sironi, Nocera, & Iannotta, 2007).

Some scholars explored the area in the context of developing economies. For example, (Saleem & Rehman, 2011) studied the impact of liquidity ratios on profitability of oil and gas companies of Pakistan. A sample size of 26 oil and gas companies being traded on Karachi stock exchange were taken, time period being 2004-2009. The dependent variables were return on assets, return on equity and return on investment. Whereas the independent variables were current ratio, quick ratio and liquid ratio. Linear regression was used. The results revealed that there was a negative relationship between liquidity and profitability of oil and gas companies in Pakistan. Another study was conducted pertaining to profitability and non-performing assets of banks in Pakistan was conducted where the aim was to determine the impact of risk management policies on the non-performing assets and profitability of the banking sector of Pakistan. A total of 5 banks were taken as sample size for the data to be collected. A simple bar and chart analysis was used to make observations. The results concluded that there were no proper risk management mechanisms in banks of Pakistan, non-performing loans are increasing due to improper risk management practices. This is also affecting the profitability of banks negatively (Riaz, Haneef, Ramzan, Rana, Ishaq, & Karim, 2012). Moreover, a study on the liquidity and profitability trade off was conducted among the joint stock companies of Saudi Arabia aiming at examining the relationship of liquidity with the profitability of a company. Correlation and regression were used. The sample size was 29 joint stock companies being publicly traded and the time period was 1996-2000. The dependent variable was the net sales, total assets, net operating income of the firms and the independent variable was the current ratio and the cash conversion cycle. The results revealed that there is a negative relationship between the profitability and liquidity of the firms measured by the current ratio and longer cash conversion cycle. The cash conversion cycle was found to be a better determinant of the relationship of liquidity and profitability (Eljelly, 2004).

In the context of emerging economies like India, a comparative study of the private and public sector banks was conducted aimed at determining the efficiency of these banks with respect to Non-performing assets. The data analyzed was of 27 public sector banks and 22 private sector banks of India. The analysis was done through tables for non-performing assets whereas a comparative study of the promotional tools used by banks was also done. The study concluded that the efficiency of private sector banks is greater as compared to the public sector banks. The no. and amount of non-performing assets were larger in case of public sector banks. Overall trends in NPA were pretty high and growing with years thus it was also suggested that proper policies should be made and employees need to be trained better in order to tackle the problem of NPAs in the banking sector of the country (Sharma & Chaudhary, 2011).

In the context of India, currently the problem that the Indian banks are facing is the problems of mounting Non-performing assets and the inability of banks to recover from those despite the country being one of the fastest growing economies of the world. A country that has a growing business will also facilitate the use of more and more banking systems leading to a growth of the banking sector as well. Thus, it is very important for these kinds of studies to be taken up in the banking sector so that we are able to know the current situation and taking cue from these studies the law makers can actually make efforts to solve the problems. A growing economy would require a strong financial system which can only be provided by a stable banking system. The studies empirically studying the impact of NPA, liquidity and risk on the financial performance has been very limited in the context of emerging economies like India. This study will try to fill the gap.

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OBJECTIVES AND METHODOLOGY

The objectives of this study are defined as follows: -

- To financially analyze the public sector and private sector banks in India on the basis of their profitability.
- To determine the relationship between liquidity and its impact on the profitability of public and private sector banks in India.
- To determine the relationship between risk taken and its impact on the profitability of the public and private sector banks in India.
- To determine the relationship between the non-performing assets and its impact on the profitability of the public and private sector banks of India.

SCOPE

The time period in study was from the year 2015-16 to 2017-18. In order to analyze the financial performance of the banking sector the net profit ratio was used. In the case of the banking sector the revenue of the firms is the interest income being generated on the different kinds of loans being given by the banks. The risk taken by the banks is analyzed by the capital adequacy ratio. It basically analyzes that the banks have sufficient capital in order to absorb the losses before the banks' become bankrupt. The liquidity of the banks is represented by the current ratio. In case of the banks the current assets would be the short-term loans and current liabilities of the banks would be the short-term deposits that the people do in the banks. The non-performing assets of the banks are analyzed by the net non-performing assets ratio.

SOURCES OF DATA

This research study was secondary data based only. The sources from where the data was taken was the balance sheet and the statement of profit and loss of the sample of public and private sector banks. The data was available on the banks' website in their annual reports. Apart from that the data and other statistics put in the research study were taken from various research papers, authenticated websites, articles, magazines etc.

The reliable data from the companies was obtained and the data was collected without questioning or disturbing any person. All the data that was collected was done by reviewing the balance sheets and statements of profit and loss carefully and taking out the values that were required.

The population of this study is the banking sector of India which includes both public and private sector banks. This means that the population of the study are the 22 private sector banks in India and 27 public sector banks in India. Out of the population a sample of 5 public sector and private sector banks was taken into consideration and the data analyzed was of three years starting from 2015-16 to 2017-18. The sample was taken on the basis of certain criteria which will be discussed below.

Data Analysis and Interpretation

Regression Statistics

Table 1: Regression Analysis of Net Profit Ratio

ANOVA	*Df*	*SS*	*MS*	*F*	*Significance F*
Regression	3	6592.790512	2197.596837	65.96975927	2.75791E-12
Residual	26	866.1168148	33.31218518		
Total	29	7458.907327			

a. Margin of Error = 0.05

b. This is the overall regression analysis of all the independent factors and Net Profit Ratio.

c. P – Value =2.75791E-12 < 0.05

d. Therefore, we reject the H_0 (Null Hypothesis) accept H_1 (alternate) hypothesis stating that the independent factors significantly affect the net profit of the banks.

Table 2: Regression analysis with each Independent Variable

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-3.647301711	10.60732624	-0.343847415	0.733726331	-25.45097284	18.15636942	-25.45097284	18.15636942
Net NPA Ratio	-2.342805613	0.355163157	-6.596420738	5.38228E-07	-3.07285393	-1.612757296	-3.07285393	-1.612757296
current Ratio	-0.027385441	0.013948552	-1.963317867	0.060389029	-0.0560571	0.001286218	-0.0560571	0.001286218
Capital Adequacy Ratio	1.610638462	0.621009866	2.593579507	0.015394847	0.334134413	2.887142511	0.334134413	2.887142511

a. Level of Significance = 0.05

b. This is the individual regression analysis of all the independent factors with the net profit ratio of the banks

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c. The independent factors which significantly affect Net Profit ratio of banks are:

- Net NPA Ratio
- Current Ratio
- Capital Adequacy Ratio

1. Net NPA Ratio

P – value = 5.38228E-07< 0.05

Therefore, we reject the H0 (Null Hypothesis) and accept the H1 (alternate) hypothesis stating that the Net NPA Ratio has a significant effect on the Net Profit Ratio of the banks.

2. Current Ratio

P –value =0.060389029 > 0.05

Therefore, we reject the H1 (alternate) hypothesis and accept H0 (Null Hypothesis) stating that the current ratio does not have a significant effect on the Net Profit Ratio of the banks.

But as the value is just above 0.05 we can say that the Current Ratio has a moderately significant relationship with the Net Profit Ratio of the Banks.

3. Capital Adequacy Ratio

P –value =0.015394847 < 0.05

Thus we reject the H0 (Null Hypothesis) and accept the H1 (alternate) hypothesis stating that the Capital Adequacy Ratio has a significant effect on the Net Profit Ratio of the banks.

Table 3: Net Profit Ratio Regression Summary

Regression Statistics	
Multiple R	0.940149745
R Square	0.883881542
Adjusted R Square	0.870483259
Standard Error	5.771670918
Observations	30

a. The R Square (R^2) value is 0.883881542. This means that the Net NPA Ratio, Current Ratio and the Capital Adequacy Ratio together account for 88.38% of variations in the Net Profit Ratio.

CORRELATION STATISTICS

Table 4: Correlation of Net Profit Ratio with Independent Variables

	Net Profit Ratio	*Net NPA Ratio*	*Current Ratio*	*Capital Adequacy Ratio*
Net Profit Ratio	1			
Net NPA Ratio	-0.891133866	1		
Current Ratio	-0.770648305	0.658386706	1	
Capital Adequacy Ratio	0.75369832	-0.605149674	-0.686010674	1

1. Correlation of Net Profit Ratio with Net NPA Ratio

a. The correlation of Net Profit Ratio with Net NPA Ratio is -0.891133866. This value is greater than 0.5 thus the two factors have a very strong correlation with each other.

b. The value of correlation is negative. This means that the Net Profit Ratio and Net NPA Ratio share a negative correlation with each other. This indicates that if the Net NPA ratio rises then the Net Profit Ratio if the banks would surely decline by a huge amount.

c. If we look at this relationship from the financial perspective, we see that if the net NPAs of banks decline then this would mean that the borrowers are not defaulting on their loan payments and the banks are getting a steady income in the form of interest payments from the borrowers. This would increase their revenue and thus the net profit. Thus, explaining the relationship.

2. Correlation of Net Profit Ratio with Current Ratio

a. The correlation of Net Profit Ratio with Current Ratio is -0.770648305. This value is greater than 0.5 thus the two factors have a very strong correlation with each other.

b. The value of correlation is negative. This means that the Net Profit Ratio and Current Ratio share a negative correlation with each other. This indicates that if the Current ratio raises then the

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Net Profit Ratio if the banks would surely decline by a huge amount.

If we look at this relationship from the financial perspective, we see that if the current ratio is increasing meaning that either the current assets are increasing keeping the current liabilities constant or the current liabilities are declining keeping the current assets constant. If the current assets are increasing this would mean that the bank has to keep a larger amount of cash balances with themselves and with the Reserve Bank of India. This would hinder the banks from giving more loans thus leading to decline in profitability. If the current liabilities are declining, then this means that the people are depositing less money at banks which would give less money to banks to give loans further thus leading to a decline in profitability.

3. Correlation of Net Profit Ratio with Capital Adequacy Ratio

a. The value of correlation of Net Profit Ratio with Capital Adequacy ratio is 0.75369832. The value is greater than 0.5 thus the two factors share a strong correlation with each other.

b. The value of correlation is positive. This means that the CAR and Net Profit ratio share a positive relationship with each other. This indicates that if the CAR of the Banks increase then the Net Profit Ratio of the Banks will also increase by a huge amount.

c. If we look at this from the financial perspective we see that if the capital adequacy ratio increases then the capital available to banks to use for different things increases. Thus if the banks have a greater capital it will try to expand to increase its profits. Thus, explaining the relationship.

DISCUSSIONS AND FINDINGS

The study was basically about the financial analysis of the banking sector in India with special emphasis on the non- performing assets of the banks.

For the financial analysis the profitability, non-performing assets and the risk taken by the banks were taken into consideration. The study intended to determine the impact of net NPA, current ratio and capital adequacy on the net profit of the banks. The results revealed that the independent factors i.e. net NPA, Current ratio and capital adequacy have a significant impact on the profitability of the public and private sector banks in India.

If the relationship of net profit ratio is analyzed with the independent factors individually, the following conclusions are drawn: -

Capital Adequacy

In the study it was revealed that the capital adequacy ratio has a significant relationship with the net profit ratio of the banks. The correlation between the two was also strong and positive in nature. In financial terms we can say that if the banks increase their tier I or tier II capital or both then it will lead to an increase in the profits for the firm. This study tells us that the safer the banks are more profitable they will be. The graphical analysis also supported the statistical study. In the graphical analysis it was found that the capital adequacy for most public sector banks was declining but was still above the 9% limit. Mostly the banks were in the range of 12%.

On the other hand, the capital adequacy figures of the private sector banks are looking very impressive. For all the years of study the capital adequacy ratio for all the private sector banks was increasing and ended in a 16-19% range.

Liquidity

The study revealed that the current ratio has a significant relationship with the net profits of the banks. The correlation between the two was also strong and negative in nature. This indicates that if the banks increase their liquidity then it would lead to a huge decline in the profitability of the banks. The graphical analysis also supported the study. It showed that the banks whose profitability was declining were showing increased liquidity over the years and the banks whose profitability was increasing showed declining liquidity.

The public sector banks almost in all the banks the liquidity was increasing. The liquidity remained in the 100-200% range meaning that the ratio of 2:1

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was being maintained. But it was not proving to be good for that bank as the profitably in the public sector banks was declining.

The trends in the private sector banks were totally the opposite. In all the private sector banks the current ratio was declining for all the years. Even the range of the current ratio was 50-100%, meaning that banks were not even maintaining the 2:1 ratio. But all this was proving to be good for the private sector banks as this was leading to an increase in the profitability of the banks.

Non-Performing Asset (NPA)

The statistical study revealed that the net NPA ratio has a significant relationship with the net profit of the banks. The two factors also share a very strong negative correlation. Thus, it can be concluded that the increasing NPA problem of the public sector banks is leading to the decline in profitability to an extent that the public sector banks have not been able to generate profits since a lot of time. The graphical analysis of the banks also supported the study. This means that the Net NPA increase would decline the net profits and the Net NPA declining would increase the net profits. The trends in the public sector banks regarding the net NPAs were more or less increasing only. The net NPAs remained in the 5-20% range. Here as the net NPAs were increasing the net profits were declining and almost all of the sample public sector banks were in losses at the end of the study period.

In case of the private sector banks mostly the net NPAs remained stable or were declining. The trends of net NPA remained in the 0-5% range which is very commendable and safe as compared to the public sector banks. There also were the net NPAs declining, the net profits went up and where the net NPAs were increasing the net profits went down.

Discussion and Implications

The study highlighted that the public sector banks are not in a good condition. The rising problem of NPAs and declining net profits is not only putting pressure on the banks but also putting a question on the government's ability to operate the most important part of the economy efficiently. It is also increasing the burden on the government in the form of financing the operations of the public sector banks due to them incurring losses since many years.

The public sector banks should focus on restructuring the bad loans in order to decrease the amount of non- performing assets it has. It should also focus on a restructuring of policies regarding credit and long-term loans. The rules, procedures and documentation should be made stricter in order to ensure that more bad loans don't creep up in future. Overall the banks should focus on improving their loan quality. The public sector banks need to improve their capital adequacy ratios as well in order to be able to be safe from the increasing n NPA problem and not let it liquidate the bank. The banks need to increase their tier 1 and tier 2 capitals urgently. This can be done either by raising more equity from the public or persuading the government to invest in the banks more. It was also observed that the liquidity of the banks was also very high as compared to the private sector banks.

CONCLUSION

The study concludes that there exists a negative relation of liquidity with profitability. Thus, the banks should take adequate measures to gradually decrease their liquidity in order to increase their profitability. The private sector banks are successfully working on 50-100% thus the public sector banks should also try and duplicate that. Apart from these three factors the public sector banks need to focus on other important factors as well. These can be effectively training employees of the banks. The employees can be trained in a lot of areas like

- Customer handling
- Customer experiences
- Credit approvals
- Loan clearances
- Marketing

There can be many other areas wherein the public sector employees can be trained in order to generate more sales for the banks which in turn will generate more profits or at least help the banks come out of the losses they are incurring.

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Our study found that the private sector banks overall look pretty well financially. But still there are certain improvement areas.

The financials of private sector banks look very impressive. In this scenario the banks should start expanding and increasing their business to penetrate the masses. The largest banks in India are still the public sector banks. The private sector banks can improve their reach. And with the kind of financials we see it will be easy for them to expand too as they are pretty safe financially.

Apart from that the private sector banks should keep a check on their loan book and quality as the disease ailing the public sector banks could catch private sector banks too. Thus, they should remain very vigilant in loan and credit approvals.

The banks can still decrease their liquidity as we have seen in the study that it would lead to a higher profitability. The capital adequacy should also be kept stable or on an increasing path in order to maintain a good and steadily increasing profitability level.

LIMITATIONS AND FUTURE RESEARCH

There are certain limitations of the study which are stated as follows:

- Time constraints- the time to finish the study was very less thus the study could not be very in-depth.
- Sample size- the sample size taken was only 10 banks out of more than 45 banks present in India
- Population- the study was only limited to India. The banking sector is present all over the world and thus the study could have been extended to other countries and regions of the world.
- Data used- the data used was only secondary in nature. The primary data could've also been collected to know the perspective of bank employees on the topic of the study as well.

Further research can be conducted considering the above limitations with more financial variables and larger sample size in the context of other emerging economies.

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