

Asset Quality Concern and its Effect on Performance of Public and Private Sector Banks in India: An Empirical Assessment

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ABSTRACT

In fast growing economies such as India, banks are seen as financial wagons that support financial progress and also have the additional responsibility to achieve the socio-economic goals of the government. The issue of the recent corrosion in the asset quality of commercial bank is a major distress for the entire banking industry as there has been significant rise in the level of non-performing assets (NPAs) which are considered as a key parameter for assessing performance of banks. In this paper, the asset quality refers to the NPAs in Indian banking sector. This study seeks to examine the influence of NPAs on the performance of banks in India. The study is based on the secondary data of 48 scheduled commercial banks which includes 27 public sector banks and 21 private sector banks for the period 2007-08 to 2017-18, which was gathered and compiled from the published reports of Reserve Bank of India. In this study, NPAs to Gross Advances, Gross NPAs to total assets, Net NPAs to Net Advances and Net NPAs to Total Assets are used as proxy variables for non-performing assets whereas Return on Asset and Return on Equity are used as proxy variables for the performance of banks. The study found that NPAs adversely impacted the performance of banks irrespective of the category of banks. However, the Public Sector Banks were affected more by the augmented level of deteriorating assets quality than their private counterparts.

Keywords: Non-Performing Assets; Bank Performance; Return on Asset, Return on Equity, India.

INTRODUCTION

The primary function of financial institutions, like commercial banks is to infuse liquidity to the economy and promote a higher level of economic activity than would otherwise be possible. Banks accomplish this by offering credit, managing markets and pooling risk among consumers (Baily & Elliott 2013). Economic progress in any economy depends primarily on the strength and pliability of its banking industry. Now, we are entering a new epoch of economic transformation by embracing sustainable development goals. Economic transformation requires a long-term investment to assist the expansion of production capacities, as well as the expansion of infrastructures that sustenance industrial goings-on and reduce bottlenecks (UNCTAD 2016). The banking system of an economy mainly meets the financial need to achieve development goals. To achieve these goals, banks must maintain high quality assets. However, in emerging economies such as India, the main concerns of the banking system are that of mounting non-performing assets (NPA) which have hindered the performance and progress of banks as well as minting in respect of future bank loans, especially for long-term purposes. NPAs in Indian banks are on the rise and this is the result when the borrower cannot pay the loan or pay it intentionally. *Non-performing asset (NPA) is defined as the credit/loans and advances facility in respect of which the interest and/or installment of the principal has remained past due for*

a specified period of time. With a view to moving towards international best practices and to ensure greater transparency, it has been decided on 31 March 2004 to adopt the '90 days' overdue norm for identification of NPA (Reserve Bank of India 2006).

Concern for rising NPAs has been discussed more in recent decades because the immediate consequence of the elevated level of delinquent loans in the banking system is bankruptcy (Demirguc-Kunt & Huizinga 1998). The NPA problem has become synonymous with the financial effectiveness of entire banking system and one of the important causes of the economic slowdown. Previously, the gross non-performing assets (GNPAs) in India, as a percentage of gross advances, had diminished from 15 % in 1998 to 3.3 % in 2009; from that point forward, GNPAs have consistently expanded to 11.6 percent at end of March 2018 (Annual Report RBI 2018) in banking sector. Adopting a broader definition, stressed assets (taking into account restructured standard assets and written off accounts) increased from 9.8 % in 2012 to 14.5 % in 2015; Stressed assets skyrocketed from 11.0 % to 17.7 % in public sector banks. *Since 2013, credit growth deceleration in India is explained by asset quality stress in the banking system, slowdown in economic activity and moderation in bank deposits. The accommodative stance of monetary policy, however, has helped cushion the slowdown in Indian financial system (RBI 2020).* Although Gross NPAs of Indian banks are lower than the world average figure, it is on the rise and

higher than emerging nations such as China (1.5%), Mexico (2.5%) and Brazil (3.3%) respectively (Bawa & Basu 2019). The problem of ballooning deteriorating assets quality is the prime impediment that obstructs Indian banks process and operations resulting in meager profitability. The recent fraud by the Punjab National Bank (PNB) demonstrates the magnitude of operational failures and risk management in banks. The PNB affected by the Nirav Modi scam reported a mammoth increase in the gross NPAs from Rs 29.1 billion rupees to 86.620 crore in the fourth quarter of March 2018. To boot further, the ICICI Bank case of Chanda Kochhar and the Bank of Maharashtra incident, it was alleged that bank officials colluded with DSK developers to sanction and disburse the loan raised questions about the integrity of the board and promoters, which led the banks resulting in financial losses.

The capital adequacy ratio and the operating profits of the banks are also adversely pretentious by the increased NPAs level (Louiz et al. 2012). It reduces the value of the security, at times even lower than the book value and affects the risk-taking capacity of the banks (Makar & Singh 2013). The aggregation of vulnerabilities in the banking sector is an essential cause of anguish, as these have serious implications not only for banks to meet capital adequacy standards, but also limit the scope of loans for future investments and hamper the general environment of account investment. To address this, the ministry of finance is providing recapitalization to public sector banks. Since 2018, Rs. 2.66 billion have been pumped to help these banks clean up toxic assets and maintain the regulatory capital threshold (Business Standard, 17 December 2019, P.1).

Merely a few scholarships of cited relevance have addressed the complications of the NPAs, mainly in the setting of emerging markets such as Indian banks, mainly due to the dearth of sufficient literature and scattered information on the micro-management of the NPAs. In light of this, it is essential to understand and compare the effect of asset quality on banks' performance across different bank groups.

The paper is further organized in six segments. A brief review of relevant literature relating to this topic is presented in second segment. The third segment deals with research hypotheses and study objectives. The fourth segment outlines the analytical framework of the research, study methodology, data source and analytical tools used in the study. The fifth segment is devoted for results, discussion and practical implications. The concluding remarks and the implications for future research are presented in sixth segment.

REVIEW OF LITERATURE

The recent as well as past literature on the quality of banking activities presents different perspectives. There is accord in the writing that the quality of bank loans is a basic factor that decides banks' financial performance and

healthy functioning. Since the early 2010s, asset quality of banks in India has worsened gradually, impacting their profitability. Asset quality of scheduled commercial banks (SCBs), measured as a ratio of gross non-performing assets (GNPAs) to gross advances, deteriorated from 2.5 per cent in Q4:2010-11 to 9.1 % by Q4:2018-19 before marginally improving to 8.2 % in Q4:2019-20. Profitability, measured by the return on assets (RoA), declined from 1.1 % in Q4:2010-11 to (-) 0.09 % in Q4:2018-19. Similar trends were observed for return on equity (RoE). The year-on-year growth in loans and advances declined from 22.9 % in Q4:2010-11 to 11.0 % in Q4:2018-19. The capital to risk weighted asset ratio (CRAR) declined from 14.2 % in Q4:2010-11 to 13.8 % in Q4:2017-18 but increased to 14.3 % in Q4:2018-19 (Raj et al. 2020). NPAs influence effectiveness, which in turn influences the financial performance, liquidity and the ability of banks to meet obligations (Michael et al. 2006). A definitive penalty of the poor loans would entail a lessening in interest income, an increased provision, a pressure on effective operations and a ponderous reduction in the capability to cope with a constant increase in costs. This leads to greater burden on the net interest margin (NIM), the decrease of capital resources and greater trouble in rising capital funds, therefore the competitiveness of the market collapses (Batra 2003). This creates an endless loop that obstructs growth and it could lead to bankruptcies if not managed appropriately (Chijoriga 2000 & Dash et al. 2010).

In the Indian context, although banks in public sector made progress in terms of profitability, operational efficiency in the 1990s, they continued to present higher interest rate differentials. However, these banks had higher interest rates, reflecting increased operating costs and lower returns. However, private sector banks appear to have lower margins and operating expenses. A team of researchers produced a mixed response by establishing the relationship between quality of resources and performance. Few of them have found that the highest NPA levels influence negatively the efficiency parameters (Das (1999); Kiran and Jones (2016) and Balasubramaniam (2012). Similarly, Rajput et al. (2012) also claimed the high level of NPAs represent a burden on banks affecting the profitability. It also argued that the NPAs should be within the permissible level so that it can be managed effectively to reduce the burden on banks' profitability. Some research revealed that banks in public domain have more stressed assets than their private counterparts (Baiju & Thattil 2000; Laveena & Kumar 2016). However, there is another stream of researchers who have found no effect of bad loans on banks' profitability. For example, Swamy (2012) analyzed the determining factor of the quality of banking activities and the profitability of the banks in which ROA and ROE considered the regressors to see the macroeconomic and endogenous (sector specific) effect. The researchers determined that it is not the size of the stressed assets that influence the profitability; adequacy of capital and investment levels significantly affects banks' operating efficiency.

NPAs unvaryingly affects liquidity, profitability and solvency position of banks (Goel 2018). It was further observed that NPAs of public sector banks are more in comparison to private sector banks (Parmar 2014; Helge & Eknath 2016; Tayal et al. 2019). The public sector banks generally have higher Gross NPA to total assets ratio, Net NPA to total assets ratio and gross NPA to gross advance ratio and net NPA to the net advance ratio when compared with private counterparts (Nanda and Mahajan, 2007). It was observed that NPAs are acting as a performance barrier for public sector banks (Chary & Fasi 2019). In another study, the researcher examined the relation between Gross NPA and Net Profit of selected four and the outcome of the study shows that all the banks had a negative correlation between Gross NPA and Net Profit. The researcher also concluded that high NPA damage the performance of financial institution both financially and psychologically (Singh 2018). In addition to these studies, there is another stream of researchers who have explored and identified other specific macroeconomic and banking indicators of unprofitable activity in the Indian context (Ranjan & Dhal 2003; Misra & Dhal 2010). Besides, few studies observed that the problem of NPAs is related to several internal and external factors, which affected the performance of the banks (Das & Ghosh 2006; Indira & Vasishtha 2001; Nandy 2010; Rajput & Gupta 2011; Vallabh et al. 2007).

The review of the previous literature revealed that very few studies, especially in recent years, have been conducted to scrutinize the effect of NPAs on performance of banks, as well as to assess which sector, whether public or private banks or both. They are most affected by the poor quality of the assets. Built upon a review of the available literatures, we are looking for solutions to the sets of questions mentioned here: (a) Is there an effect of non-performing assets on banks' performance in India?

Also, (b) Is there any difference in the influence of the NPAs on the performance banks of public and private sector in India?

OBJECTIVES OF RESEARCH AND HYPOTHESES

The objectives of this research effort are:

1. To study correlation between non-performing assets and banks' performance.
1. To examine and compare the effect of the NPAs on the performance of public and private sector banks.

As per the report on Trend and Progress of Banking in India, 2017-18, ROAs of banks in Emerging Market Economies (EMEs) including India shown mixed movements through 2017 and 2018 so far, tracking outcomes on non-performing loans. While banks in Russia, India and China suffered declines, those in Brazil, Mexico and Indonesia posted robust ROAs in 2017 as well as in 2018. Notably, profitability of banks in Russia was adversely affected by additional loss provisions required by a number of large banks undergoing financial resolution. Banks in India, on the other hand, suffered from weak asset quality and recorded their lowest ROAs since 2008, in 2017 and 2018 so far. Against this backdrop, following hypotheses have been formulated and tested in this investigation:

H₁: NPAs have no significant effect on the performance of public and private sector banks.

H₂: There is no significant difference in the effect of the NPAs on the financial performance of public and private banks.

RESEARCH DESIGN

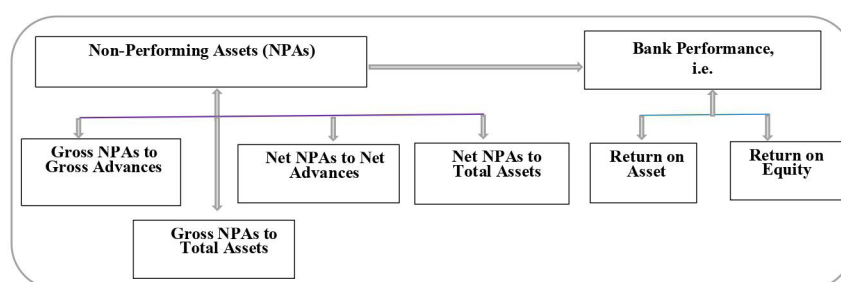


FIGURE 1. Research framework

For measuring the level of poor loans provided by the banks gross and net NPAs to gross and net advances and gross and net NPAs to total assets have taken while performance is measure by return on assets and return on equity.

SAMPLING TECHNIQUE AND STUDY DESIGN

There are a total of 93 scheduled commercial banks on the RBI website which includes all categories of banks as on December 2018 (source: www.rbi.org.in). Of these, 27 public banks and 21 private banks are considered for

the study. Therefore, 48 scheduled commercial banks were considered for this study. The sample includes all public sector banks and does not include other scheduled commercial banks like Cooperative Banks, RRBs, small private banks and foreign banks as these banks either specialize in offering certain type of banking services or do not come in direct competition with selected banks for the study.

DATA SOURCE & REFERENCE PERIOD

Secondary data was collected from RBI publications, such as the Annual Report on Banking Trends and Advances in India, the RBI Annual Report and several other RBI publications. The study period runs from 2007-08 to 2017-18. The collected data from this source were gathered and used with due care based on the study's requirements. The select of data from secondary source is reliable as it is error-free and precise.

VARIABLES USED IN THE STUDY

Financial ratios such as gross NPAs to gross advances (GNGA), gross NPAs to total assets (GNTA), net NPAs to net advances (NNNA) and net NPAs to total assets (NNTA) were used as proxy variables for non-performing assets and return on assets (ROA) and return on equity (ROE) were used as representation variables for the performance of banks. The ratios employed in the analysis were calculated as:

1. GNGA Ratio = (sub-standard assets +doubtful assets + loss assets)/gross advance;
Where, Gross Advances = All loans and advances made by Banks;
2. GNTA Ratio = (sub-standard assets +doubtful assets + loss assets)/total assets;
3. NNPA Ratio = (gross NPAs – provision for NPAs)/gross advances;

4. NNTA Ratio = (gross NPAs – provision for NPAs)/total assets;
Where, Net Advances = gross advances – provisions for NPAs,
5. ROA = net I income/total asset and
6. ROE = net income/total equity

In this study, ROA and ROE are considered as proxy for financial performance of banks. As ROA gives an idea of how effective the bank is in converting the amount it invests into net income and ROE helps in comparing within and against its peers and competitors.

STATISTICAL TOOLS USED FOR ANALYSIS

To study the inter-relationship between dataset of explanatory and dependent variables, correlation analysis is performed and to analyse the influence of explanatory variables on banks' performance, the panel regression models have been employed. The following regression in this study;

$$Y_{1(ROA)} = \alpha + \beta_1 X_{1(GNGA)} + \beta_2 X_{2(GNTA)} + \beta_3 X_{3(NNNA)} + \beta_4 X_{4(NNTA)} + \dots (1)$$

$$Y_{2(ROE)} = \alpha + \beta_1 X_{1(GNGA)} + \beta_2 X_{2(GNTA)} + \beta_3 X_{3(NNNA)} + \beta_4 X_{4(NNTA)} + \dots (2)$$

Where, Y_1 and Y_2 (i.e. Y_1 for return on assets and Y_2 for return on equity) are the non-independent variables for the regression model, while X_1 (GNGA), X_2 (GNTA), X_3 (NNNA), and X_4 (NNTA) are independent variables for all the regression models.

RESULT AND DISCUSSION

The result and discussion explained in two parts. The first portion examines the relationship between non-performing loans and performance of banks in public and private domain in India. The second part discusses the results of regression to assess the effect of NPA on the performance of banks.

TABLE 1A. Correlation results of different measures of NPA and performance in public sector banks

	GNGA	GNTA	NNNA	NNTA	ROA	ROE
GNGA	1					
GNTA	0.798*	1				
NNNA	0.716	0.807*	1			
NNTA	0.698*	0.785*	0.778	1		
ROA	-0.790*	-0.789*	-0.733*	-0.695*	1	
ROE	-0.691*	-0.690*	-0.639*	-0.606*	0.698*	1

*Significant @ 5% level of significance

Source: Authors' Analysis

Table 1 (A) depicts the correlation among different variables of NPA and Performance in Public Sector Banks. The correlation matrix revealed significant

positive correlation between GNGA and GNTA (0.798), NNNA (0.716) and NNTA (0.698), whereas the correlation between GNGA and Return on Asset (-0.79) and Return

on Equity (-0.691) revealed negative but significant. Further, the correlation between GNTA and NNNA (0.807), NNTA (0.785) revealed positive and significant, whereas the correlation between GNTA and ROA (-0.789) and ROE (-0.690) found to be negative but significant. Similarly, the correlation between NNNA to NNTA

(0.778) is positive but significant; whereas the correlation with ROA (-0.733) and ROE (-0.639) is negative but significant. It indicates that all NPA related variables negatively correlated with performance of public sector banks represented by ROA and ROE.

TABLE 1B. Correlation between different variables of NPA and performance in private banks

	GNGA	GNTA	NNNA	NNTA	ROA	ROE
GNGA	1					
GNTA	0.426**	1				
NNNA	0.009**	0.795*	1			
NNTA	0.009	0.795*	0.742*	1		
ROA	0.591*	-0.182*	-0.596*	-0.596*	1	
ROE	0.420*	-0.429*	-0.657*	-0.657*	0.778*	1

*Significant @ 5% level of significance, ** significant at 1% level of significance

Source: Authors' Analysis

The results of correlation analysis between different proxies of NPA and performance in private sector banks presents in Table- 1 (B). The correlation matrix revealed a significant positive correlation between GNGA and GNTA (0.426), NNNA (0.009) and NNTA (0.009). In contrast, the correlation between GNGA and Return on Asset (-0.591) and Return on Equity (-0.420) revealed negative but significant. Further, the correlation between GNTA and NNNA (0.795), NNTA (0.795) revealed positive and

significant whereas the correlation between GNTA and ROA (-0.182) and ROE (-0.429) is negative significantly. However, NNNA and NNTA correlated (0.742) positively and significant; whereas the correlation with ROA (-0.596) and ROE (-0.657) found to be negative but significant. Overall, it can be said the in private sector banks all the variables for measuring except GNGA had an adverse correlation with ROA and ROE which were used as proxies for measuring bank performance.

TABLE 2A. Effect of NPA on performance of public and private sector banks (Pooled Regression Result) (Dependable Variable = Return on Asset)

Public sector Banks	Coefficients		't' value	Significance
	B	Std. Error		
(Constant)	14 15668	28.340	20.78	.687
Gross NPA to Gross Advance	-0.249583	1.882	- 2.529*	.445
Gross NPA to Total Assets	0.1519867	.021	0.55	.488
Net NPA to Net Advance	-0.379670	.591	- 3.32*	.039
Net NPA to Total Assets	0.23244877	.562	2.65	.056
R Squared = 0.804, Adj. R Squared =0.647, F Value = 19.58 at p value = 0.041, D-W test =1.824				
Private sector Banks	Coefficients		't' value	Significance
	B	Std. Error		
(Constant)	1.589654	4.224	4.26	.225
Gross NPA to Gross Advance	0.090368	.088	-2.688*	.037
Gross NPA to Total Assets	0.239384	.035	0.45	.245
Net NPA to Net Advance	-0.674953	.025	-1.74*	.258
Net NPA to Total Assets	0.2024487	.772	2.12	.116
R Squared = 0.721, Adj. R Squared =0.415, F Value = 7.28 at p value = 0.039, D-W test =1.446				

* Significant at 5 per cent level

Source: Authors' Analysis

Table 2A exhibits the regression results analyzing the effect of level of NPA on performance where the response variable is the return on assets (ROA) and the independent variables are GNGA, GNTA, NNNA and NNTA. The result of the analysis indicating the variation caused by explanatory variables in the ROA value is statistically significant and cannot be left to chance. It is also worth mentioning that there is no serial correlation issue in the time series data used for the analysis, as shown by the Durbin-Watson test. The value of "F" in public sector banks is 19.58, which is significant at five percent level reflecting a relevant model appeared from the regression model. The value of the adjusted R-Squared is 0.647, which point to that the total deviation in ROA is explicated by four explanatory variables taken together. The remaining 35.3 percent deviation in the response variable is on account of other factors. The negative value of the regression coefficient confirms negative relationship between ROA and GNGA; ROA and NNNA ratio. Here, it can be proven that NPAs affect the performance of Indian public sector banks.

A similar analysis for private sector banks revealed a significant association between ROA and ROE, and the set of independent variables. The value of "F" is 7.28, which is statistically significant at five percentage level, thereby justifying the validity of the model. The adjusted R squared is 0.415, indicating that 41.5 % of the total deviation in ROA is expounded by the set of independent variables and the remaining 58.5 % deviation is due to other factors. The negative value of beta coefficient confirms that ROA and NNNA have opposite association. Therefore, it can be finished that NPAs have an influence on the performance of Indian private sector banks.

Further, the analysis concerning the influence of asset quality on performance showing that the public domain banks were affected more in comparison their private counterparts. Thus, the null hypothesis which states no significant difference in the impact of on the performance of public and private sector banks is hereby rejected. The results are in conformity with other previous studies (Laveena & Kumar 2016; Baiju & Thatil 2000) discussed earlier.

TABLE 2B. Effect of NAP on performance of public and private sector banks (Pooled Regression Result) (Dependable Variable = Return on Equity)

Public sector Banks	Coefficients		't' value	Significance
		Std. Error		
(Constant)	23.58 112	28.340	21.68	.687
Gross NPA to Gross Advance	-3.39472	.665	-2.20*	.045
Gross NPA to Total Assets	1 .12964	.542	0.24	.488
Net NPA to Net Advance	-3.46982	.292	-2.77*	.008
Net NPA to Total Assets	5.59443	.552	1.86	.056
R Squared = 0.783, Adj. R Squared =0.609, F Value = 19.634 at p value = 0.011, D-W test =1.946				
Private sector Banks	Coefficients		't' value	Significance
		Std. Error		
(Constant)	18.68584	4.224	6 49	.225
Gross NPA to Gross Advance	0.73779	.152	2.82*	.037
Gross NPA to Total Assets	-3. 46982	.885	0.80	.245
Net NPA to Net Advance	-2.43373	.054	-2.64*	.028
Net NPA to Total Assets	1.50114	.443	1.66	.078
R Squared = 0.651, Adj. R Squared =0.309, F Value = 4.86 at p value = 0.028, D-W test =1.609				
* Significant at 5 per cent level				

Source: Authors' Analysis

Table 2B deals with the results of the regression model presenting that how the different measures of NPAs are influencing the banks' returns on equity used as a response variable for different predictor variables such as GNGA, GNTA, NNNA and NNTA. The result of the analysis indicates that the variation caused by explanatory variable in the ROE value is statistically significant as shown in the results. It is also worth mentioning that there is no serial correlation or auto correlation issue in the dataset used for the study, as evidenced by the Durbin-

Watson test where the value is near to 1.6. If it is more than 2, the issue of negative auto correlation may arise which is not the case here. Value of "F" for public sector banks is 19.634 which are significant with a significance level of per cent. Therefore, a significant relationship between response variable and a set of four independent variables is established. As a result, a significant model of regression analysis has emerged. The adjusted R-squared value is 0.609, which indicates that the percentage of independent variables grouped together represents 60.9

per cent of change in ROE as response variable. Hence, level of NPAs absolutely affects the performance of banks. The negative sign of coefficient of the regression model reveals opposite association between the return on equity and the GNGA and NNNA ratio.

The regression results for private banks revealed that the “F” value as 4.86, which is significant at five percent and thereby justifying the significance of regression model. The adjusted R-squared is 0.309 denoting that percentage of independent variables grouped together represents 30.9 % of deviation in the value of the return on the assets as a response variable for the other explanatory variables and the remaining 69.1 percent is due to other factors. As beta coefficient is negative, it specifies non positive connotation between return on equity and GNGA and NNNA. Therefore, the NPAs were also found to have adversely affected the performance of banks. The result is limited to other previous studies (Laveena & Kumar 2016; Baiju & Thatil 2000).

Therefore, it can be said that an upsurge in the magnitude of poor banks loans adversely affects banks’ performance. Furthermore, the effect of poor asset quality on performance revealed that public banks were more pretentious than their private counterparts, which provides almost the same evidence conducted by Bhaskaran et al. (2016). Thus, the inferences can be drawn that the consequence of the level of NPA on the performance of banks in public domain is more severe than private sector banks which is an alarming bell for the economy and can have serious consequences in the future.

CONCLUSION

The deterioration of asset quality is a subject of distress for the entire banking segment in India. Non-performing loans accumulated by Indian lenders are higher than those of banks in emerging economies, such as Brazil, China, Russia, Mexico, Turkey, Malaysia, and the Philippines and South Africa. The study aims to provide an idea of the concept of unprofitable assets, a standard principle for measuring the credit risk of commercial banks worldwide and comparing the effects of non-performing loans on the performance of the banks of both public and private sector. The study reveals a high mark of adverse association between the NPA’s relationships with asset performance and equity performance. Subsequently, an inverse relationship between performance and non-productive assets show that the banks have an increasing trend of performance only because of the ongoing decreasing level of the NPA. However, a comprehensive investigation on the effect of asset quality on performance revealed that public domain banks affected more compared to their private counterpart.

IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS

This study suggests that the increase in NPA will adversely affect banks’ performance. This study may expand current

knowledge and is not similar to previous studies in a way in which most research efforts have compared the cyclical behavior of non-productive activities or the bank’s macroeconomic and specific factors that allow two main banking groups (public and private) on the performance in India. The results suggest that the banks should follow cautious approach while sanctioning loans. In this study, the analysis was performed using bank group data that could be protracted to specific bank or bank-level data. This would lead to more data and observations providing exact and detailed outcomes for future research. The kind of the investigation could be castoff to an elongated investigation period covering different phases of the economic cycle in order to comprehend the behavior of various variables during different economic cycle in India. Researchers may also compare the results of the Indian banking system study with other developing countries such as Brazil, China, Russia, Mexico, Turkey and South Africa.

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