**Fundamentals of Engineering Economics**

**ECON 401**

**Topic: Non-Performing Assets (NPA) Management and Profitability of Indian Banking Sector**

**Project**: **Term Paper – Final Report**

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Section – S6

Semester – V

Program – B.Tech Batch 2015-19

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**Abstract**

Non-Performing Assets, also abbreviated as NPA, of Indian Banking sector has been among the most critical topics. The Indian government has been trying hard to understand NPA and management strategies were planned accordingly. NPA is one of the key indicators of performance of the bank, where higher the NPA, higher the inefficiency of the bank of management of funds and lower the NPA, better the management and performance. This paper, in this regards, is an attempt to study NPA and NPA management, in the domain of Indian Banking Sector. NPA affects profitability, liquidity and other factors of the Banking system. We will dive deep into the data, analysis, causes or prevailing factors and will light upon the reforms or policies implemented in order to deal with these bad loans. Although there have been policies implemented to tackle this NPA problem, yet it seems that there is no accord in the following up of those to come up with the resolution of this crisis. This paper will also include a few technical terms commonly used in Banking Sector, such as Net NPA, Gross NPA, and Profit etc. Data analysis has been performed on secondary data. It has been tried to understand the influence of the NPA on the banking sector, profit per employee, business per employee and on the profits of the banks and has been concluded. The main sectors of Indian Banking considered for this research are Private Sector and Public Sector, although Insights have been provided of further bifurcation of sectors into Nationalised Banks and SBI and Associates. Foreign Banks have appeared in graphs.

**Introduction**

Non-Performing Assets, also abbreviated as NPA is the term which refers to the assets who does not perform. In simpler words, it refers to those loans which aren’t repaid. A more technical definition describes ‘those assets which ceases to generate income from the bank’. As per the latest RBI guidelines, advances, for which interest or instalment or both, remains overdue for a period of more than 90 days for term loan, account remaining out of order for a period of more than 90 days and the bill which remains outstanding for more than the duration of 90 days are classified as NPA. Therefore, in short, overdue of principle and interest payment of any loan or advance for more than 90 days period shall be referred to as NPA.

Bank’s asset classification is based on the status of the customer’s repayment, as Standard, Sub-standard, doubtful and Loss Assets, where except Standard, rest of the categories are further classification of NPA.

Standard Assets: Normal assets, which carries regular risks. They aren’t considered as NPA.

Sub-standard assets: Standard assets classified as NPA which remains inactive for a duration of twelve months or lesser.

Doubtful Assets: A Sub-standard category assets for a duration of twelve months.

Loss Assets: Assets which contributes towards the loss of banks and are recognised by banks or RBI.

Net NPA, is basically a Gross NPA without Provisions, where provision describes the estimated amount of the loan or an asset which they may lose.

We don’t exactly know the causes of NPA, yet there are some laid down factors, which are believed to be the causes of loan or advance becoming an NPA.

1. Defect in Lending of Money: The banks sometimes lend money to those, whose financial status clearly indicates that they won’t be able to pay money.
2. Poor Credit Analysis: An improper credit analysis is a plays a role as a cause of NPA
3. Irregular Information update of the customer by the bank: If the banker can figure out from time to time about the payment status of the loan and accordingly plan policies to get the outstanding, it may help to decrease the figures of NPA.

**Review of Literature**

**Ahamed, Panwar (2016)**: This paper basically compares the NPA management of private sector and public sector banks. Data trend of NPA of both the sectors was studied and measures were accordingly suggested. Three Private Sector Indian banks vis. Axis Bank, ICICI bank and Kotak Mahindra and Three Public Sector Indian banks vis. IDBI Bank, Canara bank and Central Bank were considered for this purpose. Analytical Study and Descriptive Research were the methods adopted. The study of the data is based on five financial year from the period of 2012-2016. Other references include Internet, official websites of RBI and the listed banks in the paper.Study indicated that NPA of Public sector banks are higher than private sector banks. Year 2016 for the public sector banks witnessed the NPA more than double the percent compared to the rest of the previous years.It was suggested that public sector banks must check their procedures, must identify the prompt Loan payers and appreciate them, must plan to hold recovery camps in defaulters area and data analysis by banker on regular intervals for the prediction of defaulters.

**K T, 2013**: This paper studies NPA, identifies NPA in commercial banks, the reasons for the assets becoming NPA and suggests the ways to conquer this problem. The study performed lies in the bounds of commercial banks and data collect in the period from 1996-97 to 2011-12. Data was collected from secondary sources (RBI bulletin, research papers etc.) and was tabulated. Results were inferred from the table. Finding revealed that the Gross NPA of the nationalized banks were Rs. 73038 crore, as on June 2012, constituting 2.94% of the Gross advances. It was concluded that bank holds the sole responsibility for NPA management. They should improve on their policies, monitor borrow if they utilize the loan properly, maintain the records of formal and informal reports about the goodwill of the customer and must educate borrower about the after effects/consequences of defaulting.

**Yadav**: This paper describes impacts of NPA on profitability of Public Sector banks at aggregate and sectoral level and evaluation & inspection on profitability, efficiency and productivity.The study is based on secondary data provided by RBI for the period of 1994-95 to 2005-06 on various indices like NPA, spread burden, fixed deposit ratio, provisions, operating expenses etc. of twenty seven public sector banks. Simple Liner regression function is adopted for the analysis of the impacts of NPA on profitability of the public sector banks. Finding from the table suggested that NPA in public sector banks affects 50% profitability of the banks, NPA has negative relationship with business per employee and increase in NPA level leads to fall in the profit-per-employee of these banks at very large extent. As NPA is of no good to public sector banks and employees, policies revision over banking were suggested.

**Laveena (2016):** This paper attempts to study the performance of private sector banks vs public sector banks and figures out the level of NPA, although mostly public sector banks are talked about.Scope of the study is limited to SBI associated banks and few other Indian public sector banks.The mathematical relationship between Gross NPA and Net NPA has been used as basis for the analysis. Finding suggested that in year 2014-15, Net profit declined to 13.3% since 2012-13.Returns on assets has been weak for two years. Overall, Public sector banks have higher NPA and in banking system, still higher then international standards. It was concluded that NPA is higher in public sector banking due to the bank itself. They must brush up their policies, adapt various measures for recovery, know their borrower properly, train bankers for proper documentation before provision of loans to the customer etc.

**Sharma, Rathore (2016)**: The main aim of this paper is to study and measure the impact of NPA on the profitability of scheduled commercial banks of India along with the analysis of trend of 10 years data.The study is limited to all scheduled commercial banks irrespective of private and public division. Also, only two ratios are taken into account, although other factors affects profitability as well. Secondary data from RBI annual publications were analysed from 2004-05 to 2014-15. Regression analysis, Profitability based on Return on equity, Return on assets, and Net interest margin were carried out.Graphs suggested that ratio of gross NPA to gross Advances decreased to 5.2% to 2.3% from 2004 to 2008-09. Also the ratio of net NPA to net Advances decreased from 2% to 1% during the same period. During the same period, net interest margin decreased from 3.08 to 2.64. It was therefore indicated that NPA negatively influences profitability of Indian Scheduled commercial banks. It was also found that NPA has increased after global recession period.

**Rajbahadur (2016):** This paper describes the status of NPA of Indian Scheduled commercial Banks, studies their impacts, identifies methods of recovery of the NPA (assets) and suggests various measures to avoid NPA accordingly.The study has been confined to Scheduled Commercial banks up to the year 2014 and basis of identification of NPA relies upon RBI publications.Simple trend analysis of tabular data (from RBI publications, Secondary sources etc.) has been used for the research purpose for the duration of fourteen years, i.e. from 2000 to 2014. Internet and books on banking were part of the references as well.Results indicated that the amount of advances increased from Rs. 6810 to 68757 billion in the period of 2001 to 2014, gross NPA increased from Rs. 708.61 to 2642 billion in the same year. NPA percentage showed the rising trend. From the graphs, it was clear that Gross and Net % of NPA decreased firstly from 2001 to 2008 and increased afterwards.It was then concluded from the figures that NPA is one of the major issues faced by banking sector which has adverse effects on banking sector. Public sector banks contribute to the major share of NPA, despite regulations check by government and banking policies. Various methods via policies were suggested to counter this problem by the researcher.

**H.S. (2013):** This research paper addresses NPA, especially the Non –performing Indian farmers in detail. It focusses on their condition, difficulties which they face in paying back the loan amount and various other issues based on set of 20 different variables.The study is limited to Indian farmers of five regions and NPA of State Bank of Mysore. Survey methods, Data collection and telephonic interview methods were adapted to interact with farmers. A ‘Chi square analysis’ test was also used for the variable’s influence on non-payment of interest. Data analysis showed that farmer’s performance is dependent on age, education, marital status, family size, wealth, caste, presence of guarantor. Due to their dependency in monsoon, which is unreliable, if the crop failure occurs, they contribute to NPA. They are reluctant to accept changes, will follow traditional methods and this cycle goes on. It was therefore found that crop failure among farmers and their traditional mind-sets are the major cause for them becoming NPA to banks. The banks were therefore advised to identify their non-creditworthy borrowers and avoid sanctioning loans to them. Certain measures were suggested, basically change of banking policies to check NPA.

**Kumar, Laveena (2016) :** In their work, the paper highlights the management of NPA in different public, private and cooperative banks, to evaluate it and identify the root causes of NPA in banks. Deductions based on secondary data was implemented as method for analysis of management of NPA among different sectors of the bank.Paper stated internal and external factors which strengthens NPA, e.g. inflation, budget changes/policies, political disturbances, bad lending practices and etc. to count a few. Negative relationship of NPA with profitability of banks was acknowledged, higher in public sector. Preventive measures were suggested for banks to reduce NPA figures.

**Rao, Patel (2015)**: This paper briefs about the concept, types and causes of NPA in banking sector. Different banking sector’s NPA related ratios were analysed for the duration of 2009-13.Descriptive research design methodology was adapted for this purpose on secondary data from various sources. Apart, various data analysis tools such as Ratio analysis and least square Method were implemented.Study indicated that ratio of Gross NPA to Gross Advance decreased in case of private sector, increased for public sector while phenomenal decrease in ratio was observed for Foreign Banks. Private Banks performed better for the ratio of sub-standard advances to Gross advances where as Foreign Banks showed up better for the ratio of Doubtful Advances to Gross advances. Similarly, other results were found. From the analysis tools adopted, it was concluded that the public sector has miserable condition in terms of NPA, which may continue to rise (up to 2014), if policies revision does not take place.

**Narula, Singla (2014):** This paper aims to address the impacts of NPA in Punjab National Bank (PNB) and assess their performance based on Total Advances, Gross NPA, Net Profit and Net NPA. The study is concentrated on Punjab National banks for the data of six years (i.e. for the period of 2006-2012) from secondary sources. Author has performed systematic theoretical analysis on the data from annual reports of PNB, tabulated and coefficients of correlation form the basis of interpretation of data. Tabular data indicates that although the bank performed (Net profit and total advances increased since 2006), Gross and Net NPA figures were high. Positive relation among the variables were reported, and it was asserted that it is as a consequence of bank’s mismanagement, wrong choices of the client. Liquidity of the banks were adversely affected, banks are unable to give loans to new customers due to lack of funds, a result of NPA. Author also concludes that NPA does not exclusively harm the current profit, but also adversely affects the future stream of profits which may leads to the loss of long term beneficial opportunities by banks.

**Objectives**

The main objectives of this paper are:

1. To know and understand NPA of Indian Banking Sector.
2. To study the trends of NPA prevailed in Indian Banking Sector
3. To compare the statistical figures of NPA across the Private, Public and Foreign Sectors of Indian Banks
4. To study the influence of NPA and its relationship with other various factors.

**Research Methodology**

The methodology adopted for this research is the statistical data analysis of the data collected from secondary sources like official web sites of Indian Banks Association, Reserve Bank of India. Various graphs have been prepared on NPA figures sector wise for different years for critical analysis of status of the Indian Banks.

**Data Analysis**

For the year 2016, Bank wise graphical analysis was prepared from the secondary data, as given below:

Figure 1: SBI and Group’s Gross NPA

From Figure 1, we observe that in the year 2016, among SBI group, State Bank of India had maximum Gross NPA.

Figure 2: Nationalised Bank’s Gross NPA

From the Figure 2, we observe that Punjab National Bank, also abbreviated as PNB, had maximum Gross NPA in the corresponding year.

Figure 3: Private Sector Bank’s Gross NPA

Among Private Sector Banks, ICICI bank had the maximum figures of Gross NPA in 2016.

Also, Comparison of Gross NPA with the previous year of each sector was performed, as presented in graphical format:

Figure 4: Comparison of SBI and Group’s Gross NPA for 2015-16

We see that SBI and Group had gone through the severe loss in 2016 as compared to the previous year. That too with a significant rise in Gross NPA in State Bank of India.

Figure 5: Comparison of Nationalised Bank’s Gross NPA for 2015-16

From the Figure 5, we see that Nationalised Banks, or the Public Sector banks are inefficient in the management of NPA. Compared to the values in 2015, 2016 witnessed a tremendous rise in the figures of NPA in all the banks, except for Bharatiya Mahila Bank Ltd.

Figure 6: Comparison of Private Sector Bank’s Gross NPA for 2015-16

Figure 6 represents the comparison of Private Sector Banks for the duration of 2015-16. The graph does not have gap between the two lines representing years, except for ICICI bank. This clearly indicates that Private Sector banks have been quite efficient in NPA management as the graph does not vary much for the given two years.

Let us now examine more closely on the trends of NPA in the Public sector banks.

Figure 7: NPA Composition of Public Sector Bank (Year 2005-2016)

The last twelve years RBI data, indicates that Public sector banks have constantly witnessed rise in NPA levels with the passage of time. And so does the above graph says.

I then found the values of last seven years, 2010-2016, and plotted them against Net NPA.

Figure 8: Sector Wise Graphical Comparison of Net NPA for 2010-16

Public Sector banks, have suffered as they lie above all as shown in Figure 8, while Private Sectors and Foreign Banks somehow managed to effectively implement policies and therefore they don’t incur significant figures to Net NPA.

The next graph is the critical analysis of the Gross NPA statistics for the duration of four years, 2013-2016.

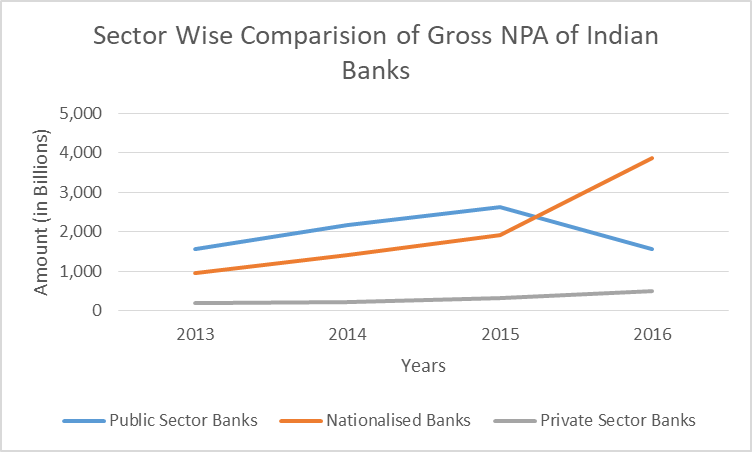


Figure 9: Sector Wise Graphical Comparison of Net NPA for 2010-16

1. Data of Private sector banks was taken and correlation was found among Net NPA vs Business per employee, Net NPA vs Profit per employee, and Net NPA vs Net Profit, of the banks with complete available data, for the duration of 2015-2017.

The correlation between Net NPA vs Business per employee were found to be -0.09, 0.0, and -0.04 respectively for 2015-2017 period.

The correlation between Net NPA vs Profit per employee were found to be 0.33, 0.29 and 0.20 respectively for 2015-2017 period.

The correlation between Net NPA vs Net Profit were found to be 0.74, 0.59, and 0.52 respectively for 2015-2017 period.

1. Data of Public sector banks was taken and correlation was found among Net NPA vs Business per employee, Net NPA vs Profit per employee, and Net NPA vs Net Profit, of the banks with complete available data, for the duration of 2015-2017.

The correlation between Net NPA vs Business per employee were found to be 0.35, 0.30, and 0.51 respectively for 2015-2017 period.

The correlation between Net NPA vs Profit per employee were found to be -0.07,-0.45, and 0.25 respectively for 2015-2017 period.

The correlation between Net NPA vs Net Profit were found to be 0.96, -0.72, and -0.47 respectively for 2015-2017 period.

**Limitations**

This research is confined to the secondary data collected by the Indian banks association and Reserve bank of India. It does not take into account the external factors such as political issues which might have influenced the NPA trends. Also, this research has been performed in the duration of three months as a part of Term paper of a B.Tech IIIrd year course of NIIT University, ECON 401 titled “Fundamentals of Engineering Economics“. Therefore, due to insufficient time spent on the corresponding research, unintended errors might have prevailed during the process.

**Conclusions**

The data reveals that Public sector banks have been contributing a major segment of NPA. State Bank of India possessed maximum of Gross NPA among SBI and Associates, Punjab National Bank among Nationalised Banks, and ICICI Bank in Private Sector.

Although Private sector bank have NPA, it is lesser then Public sector, except for ICICI bank where NPA is quite visible. Public sector banks witnessed significant and continuous rise in NPA for the last twelve years, 2005-2016.

If you compare the four sectors, namely SBI and Associates, Nationalised, Private and Foreign, you will see that Private and Foreign Sectors have a well-managed system to handle NPA. Contrary to this, NPA is drastically high in Public sector (SBI and Associates and Nationalised Banks). It is therefore, not wrong to draw conclusion that Private Sector banks are efficient in terms of NPA Management.

Also, from the data analysis, we find out that NPA does not significantly correlates to the Business per employee and Profit per employee in case of Private sector banks. However, it affects Net Profit of the banks.

For the Public Sector banks, Net NPA seems to have a little impact on Business per employee. Whereas for Profit per Employee and Net Profit of the bank, the correlation shows irregular patterns.

NPA, being a bad loan or assets, which does not perform, is not desirable in economy and hence, should be removed.

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