

# A COMPARATIVE EXAMINATION OF NON-PERFORMING ASSET MANAGEMENT OF BANKS IN INDIA

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## ABSTRACT

The Indian economy is facing a financial crunch due to a surge in the number of credit defaulters. The debt crisis has been observed throughout the world. NPAs are found to be at the center of the economic problem of the banks. The drive of this learning is to explore the influence of Non-Performing Assets (NPA) on the financial performance of the banks and to analyze gross and net Non-Performing Assets in public, private and foreign banks and assess the soundness, assets quality, stability, and competence of banks. It was found that there is positive relation in all over banking industry between total income and gross Non-Performing Asset whereas negative relation in case of total profit and gross NPA. This means that with an increase in total income there is an increase in Non-Performing Asset on the contrary there will be a decrease in profit with an increase of Non-Performing Assets. But if we categorize them into private, public, and foreign they all have different natures.

**Keywords:** *Non-Performing Asset (NPAs); Banks; Regression; Capital Adequacy Ratios*

## INTRODUCTION

As per the newest tale of the Reserve Bank of India (January 2021), the Financial Stability Report exhibited that gross Non-Performing Assets (NPAs) of banks may increase to 13.5% by September 2021 under the baseline trauma scenario. The financial health of the economy is defoliating due to an upsurge in credit defaulters in the country. The banks have the supreme responsibility of building financial stability in the nation. The pace of credit defaulters has been rising due to a lack of proper monitoring and verification. The big corporate individuals make use of flaws in the law and flew away with the money of banks. In recent scenarios, many banks have reached the stage of bankruptcy due to irregular monitoring of their funds. The government of India has enacted numerous laws such as IBC, 2016, and given various remedial options such as internal restructuring of distressed assets. The Non-Performing Assets (NPAs) are those resources that failed to produce proceeds for the banks. These have been categorized into sub-standard assets, doubtful assets, and loss assets reliant on the time duration on which they remain unpaid. It affects the fiscal health of the banks resulting in low profitability of banks. It also disturbs the fluidness and solvency position of banks. The studies have shown that public banks are more vulnerable to the rise in the figure of NPAs in contrast to private sector banks (Miyani, 2017; Arasu et al. 2019; Bansal et al. 2021a). One of the studies by Singh (2016) stated that

the delinquent is more in the case of Indian banks in contrast to foreign banks. The problem of non-performing resources is one of the utmost crucial menaces in banking commerce. Despite the efforts of the RBI and recommendations of Basel committees, the problem of an upsurge in NPAs is continuing. The banks should follow proper procedures for the dispatch of loans. There is a need to take a time destined action to hinder the evolution of NPAs in India. Various studies have been conducted so far to detect the influence of NPAs on the act of banks (Agarwala & Agarwala, 2019; Hersugondo, Anjani & Pamungkas, 2021; Kaur & Singh 2011; Pundir 2021). The review study by Pundir (2021) stated that the NPAs are increasing at a high pace which is a cause of worry for the banking industry. A study by Raghavendra (2018) focused on controlling the NPA situation in the country by ensuring a proper credit risk management process. The study by Ali, Singh & Ali (2020) emphasized gross NPAs, Net NPAs, the influence of NPA on profitability and creditworthiness, and policy framework manage NPA catastrophe in India. It enhances the risk of credit default and even affects the image of banks in the nation. Lender's reputation is decreasing due to continuous increase in the defaulters, not paying back bank's money on time. The overall reputation of the banks is at stake due to increased NPAs and the upsurge in the numeral of depraved loans. The banks should practice efficient banking operations and should conduct proper due diligence at the time of loan approval. The flow of funds

is channeled through banks, so proper control and vigilance are mandatory for banking officials. Banks need to take precautions regarding the credit assessments and should take measures in pre- and post-sanction of the loans to avoid slippages and standard assets of NPA. There is a requirement of proper scrutiny and monitoring of operations of the bank by ensuring proper internal control system and review of loans documents. The procedures for loans and securities hypothecated need to be checked. NPA and their provisions, interest calculations, repayment schedule, and audit of bank borrowers need to be critically analyzed. There should be a system of periodic review of credit card holders' accounts.

### LITERATURE REVIEW

Agarwala & Agarwala (2019) analyzed that the private bank is doing inordinate with NPA in the fiscal crisis in contrast to public sector banks and there is a straight bearing on the bank's recital due to the peril of NPAs and NPAs have hostile outcome and stimulus on the act of both public and private banks. They clinched that throughout 2018-19 there has been a foremost upgradation in the asset distinction of listed merchantable banks as the gross NPA ratio has deteriorated from 11.5% to 9.3% as of March 2019. They instituted that the major aim behind the growing NPAs of the public sector banks is the dogmatic meddling in the working of PSBs.

Arasu et al. (2019) calculated NPA concerning the profitability of private and public banks to check the impact of NPA on profits of banks and found that NPA of many banks has rushed upward. Banks like SBI, BOI and PNB have higher NPA among average NPA in India. It was concluded that possession of banks matters a lot in NPA, as according to the research, the private banks have less NPA than public banks.

Adey et al. (2020) studied the importance of the banking sector in the economy and how NPAs have impacted the recital of private sector banks. The study categorized the factors into three categories namely internal, external, and other factors for examining the influence of NPAs on productivity, solvency, and fluidness position of banks.

Biswas (2017) found no difference between the NNPA, RONW and EPS of the select private commercial banks in India. But the net profit ratios of the different private commercial banks in India are different. There are significant multiple correlations and multiple regression between net non-performing assets, net profit, return on

net worth, and earnings per share of Federal Bank.

Bepari & Sarkar (2020) identified the internal factors disturbing the cost-effectiveness of the private and public segment lending institutions. The learning has been based on nine financial years starting from the year 2009-10 to 2017-18. The learning employed arithmetical tools like correlation and regression, and it was found that NPAs disturb the productivity of public banks more in contrast to public sector banks and a positive impact has been noticed in the case of private domain banks.

Bansal et al. (2021b) directed proportional learning between two large banks of India namely the State bank of India and Bank of Baroda to explore the association between NPAs and the effectiveness of the banks. The learning employed statistical measures such as ANOVA to study the strength of this relationship through the period of study i.e, 2009-10 to 2018-19. It was witnessed that there has been an adverse connotation between NPAs and the profitability of banks.

Bansal et al. (2021a) stated that the banking domain had played a commendable role in the improvement of the fiscal stability of the country. The learning was directed to investigate the impact of NPAs on the effectiveness and fiscal health of the nation. It is an important pillar of the economy, NPAs are considered a menace for the lending industry. It was gathered in the study that NPAs have badly impacted the public sector banks in contrast to the private sector banks.

Debbarma (2021) analyzed the reasons for increasing NPA in Tripura Gramin Bank (TGB) which led to an increase in credit, liquidity, and solvency risk. The investment sector is the backbone of the economy, and the healthy functioning of this sector will be fruitful for the rest of the economy. The high NPA showed a negative influence on the recital of the banks.

Hersugondo, Anjani & Pamungkas (2021) conducted a study in Indonesia on private sector commercial banks from the year 2015 to 2019 to analyze the impact of NPAs, capital adequacy, and insolvency risk on recital of risk. The data was extracted from the monetary statements of the private sector banks and gathered a total of 470 observations. The analysis showed that NPA has a hostile impression on the workings of the banks. The study employed control variables such as size and age of bank to measure the risk and for insolvency and credit risk Z-Score is employed.

Jain (2014) researched Oriental Bank of Commerce by

using technical indicators such as moving average, volume trade, rate of change, and RSI. As per the study, it is a 90% psychological impact on the stock performances and 10% logical based on the market situation. The study helped in the estimation of a reference point for buying and selling of shares of OBC bank.

Kaur & Singh (2011) discussed the NPAs and their influence on the funding sector. The author discussed the factors that contribute towards increment in the credit default by the people. The NPA showed the performance of industry and economy. It affects the value of assets of the banks and impacts their future performance. The paper also highlighted the procedures to regulate the threat of NPAs in the country.

Pundir (2021) prepared a systematic literature review on the papers dealing with the issue of NPAs in the lending segment. Lending is considered an important part of banking machinery. The NPAs are increasing at a high pace cause of worry for the banking industry. It enhances the risk of credit default and even affects the image of banks in the nation. Lender's reputation is decreasing due to continuous increase in the defaulters, not paying back bank's money on time.

Singh (2016) found that the NPA level of Indian banks is higher associated with overseas banks and the delinquent of repossession is not with small borrowers only, but with big debtors also.

Siddique et al. (2020) examined the act of non-performing advances and bank precise issues distressing the economic recital of commercial banks in emerging and advanced nations in the Asian continent due to the surge in NPAs globally. The study used panel data for 10 years from 2006 to 2015 for studying the performance of banks. The study employed financial performance parameters such as Capital Adequacy Ratio (CAR), Return on Equity (ROE), and Cost Efficiency Ratio (CER), etc. It was found an adverse association between the size of the bank and financial parameters.

Sushmitha & Nagaraja (2020) observed that the UCBs and StCBs have revealed a noteworthy development in the administration of non-performing resources in contrast to the DCCBs, PACs, SCARDBS, and PCARDBS.

Shah & Hasan (2021) stated that the Indian economy is facing a financial crunch due to a surge in the number of credit defaulters.

The present study has undertaken three banks of the Indian economy and has been analyzed for years 2015-2016 to 2019-20. The debt crisis has been observed throughout the world. NPAs are found to be at the center of the economic delinquent of the banks. Hard work has been made to advance the rate of recovery. Banks should avoid making new additions to NPAs and should follow the practice of making a proper evaluation of loan proposals. The banks should follow due diligence before sanctioning loans to business tycoons.

### **The Objective of the Study**

- To study the influence of NPA on the economic recital of the banks.
- To compare and analyze gross and net Non-Performing Assets in public, private, and foreign banks and to assess the dependability, asset eminence, stability, and proficiency of banks.

Considering the cumulative data of designated public, private and overseas banks and effort has been made to compare, evaluate, and construe the NPA management of different years.

### **RESEARCH METHODOLOGY**

The information gathered in this study has been taken from authentic sources of secondary data collection including past studies. In the study analytical research design has been adopted. The hypothesis has been formulated to examine the influence of gross NPA on total income and total profit. The sample size consists of two banks from each private, public, and foreign bank based on market capitalization viz. HDFC and ICICI Bank from the private sector, State Bank of India and Punjab National Bank from the public sector, CITI Bank and HSBC Bank from a foreign segment from the financial year starting April 2015 till March 2020. The secondary data are analyzed by using regression analysis, capital adequacy ratio, and ratio analysis.

### **The Hypothesis of the Study**

H1: There is no substantial impact of gross NPA on total income.

H2: There is no substantial impact of gross NPA on total profit.

### **Data Analysis and Interpretation**

The analysis of different banks with their net-performing asset and Gross Non-Performing Assets is done with data of five years starting from financial year April 2015 till March 2020.

**Table 1: Showing Last Five-Year Data of HDFC Bank (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	12649.97	11224.16	8606.97	5885.66	4392.83
<b>Net NPA</b>	3542.36	3214.52	2601.02	1843.99	1320.37
<b>Total Profit</b>	75480.61	61531.58	50155.67	38077.33	30924.00
<b>Total Income</b>	138073.46	116597.93	95461.65	81602.45	70973.16

Source: Collated by the researchers

Table 1 shows that there exists an encouraging association between total income and net NPA. It is absorbed that there

is an increase in total income with a simultaneous increase in net NPA from the year 2015-2016 to 2019-2020.

**Figure 1: Showing Gross and Net NPA of HDFC Bank**

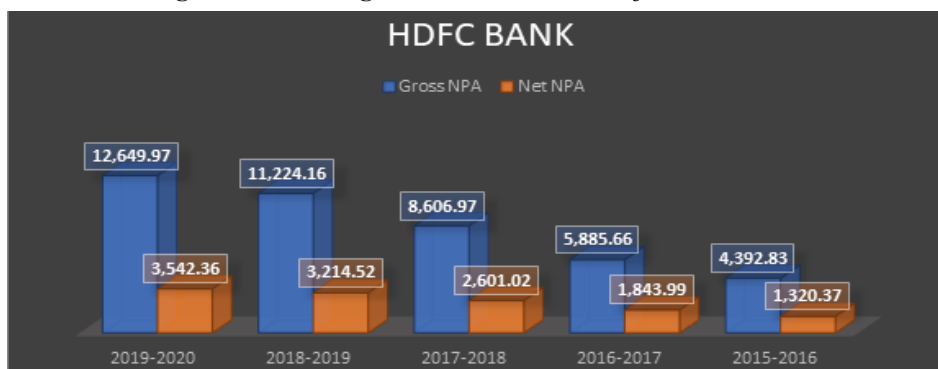


Figure 1 shows the variation between gross NPA and net NPA is very high in 2020 as compared to 2016. There

may be many reasons for this that can be more of a write-off or more of provisions for NPA.

**Table 2: Showing Last Five-Year Data of ICICI Bank (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	40829.09	45676.04	53240.18	42159.39	26221.25
<b>Net NPA</b>	9923.24	13449.72	27823.56	25216.81	12963.08
<b>Total Profit</b>	25810.38	21858.55	25522.36	26933.27	26987.70
<b>Total Income</b>	91246.93	77913.35	72385.52	73660.76	68062.48

Source: Collated by the researchers

From Table 2, it is absorbed that there is an increase in the total income of the year 2019-2020 when compared to the year 2018-2019, and

simultaneously net NPA decreases, this can be due to better NPA management in private sector banks.

**Figure 2: Showing Gross and Net NPA of ICICI Bank**

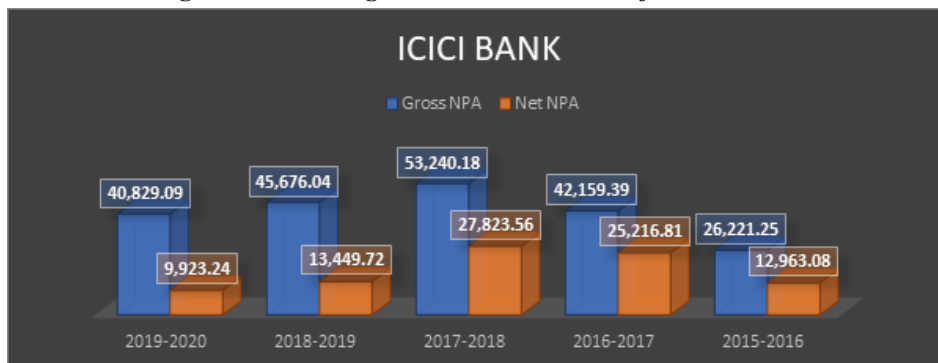


Figure 2 shows the NPA at a maximum stage in the year 2017-2018. There was a rising stage from 2015-2018, whereas there is a downfall in NPA from the year 2018-

2020. There may be the reason that people have paid their due which was classified as an NPA, or they were written off.

**Table 3: Showing Last Five-Year Data of SBI Bank (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	149,091.85	1,72,753.60	223,427.46	112,342.99	98,172.80
<b>Net NPA</b>	51,871.30	65,894.74	110,854.70	58,277.38	55,807.02
<b>Total Profit</b>	-737.94	-14216.33	-12954.82	10484.41	9950.97
<b>Total Income</b>	302545.07	279643.54	265100.00	210979.16	191843.66

Source: Collated by the researchers

According to the data given in table 3, it is absorbed that there is an increase in total income from the year 2017-2018 to the year 2019-2020 and a decrease in Gross NPA simultaneously.

**Figure 3: Showing Gross and Net NPA of SBI Bank**

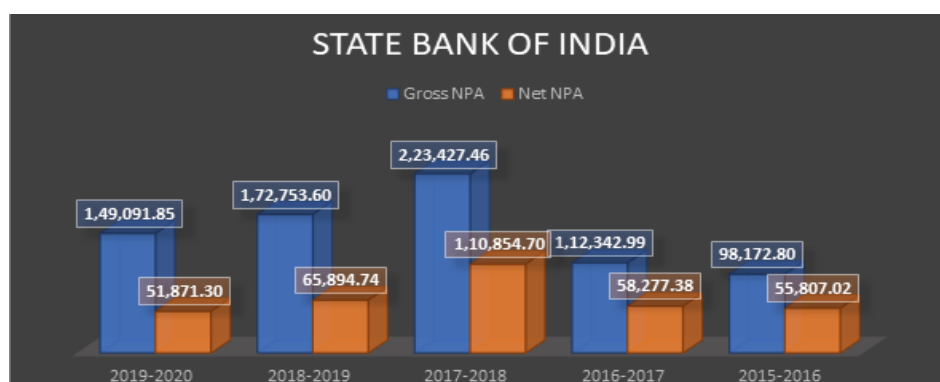


Figure 3 shows the NPA at maximum in the year 2017-2018. The differences in gross and net NPA are low in the year 2015-2016 whereas it is high in 2019-2020. It may be because of more provisions for NPA which is a precaution for the bank. In this graph, there is an increase from 2015 till 2018 whereas there is a downfall from the year 2018 to 2020.

**Table 4: Showing Last Five-Year Data of PNB (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	73473.76	78472.70	86620.05	55370.45	55818.33
<b>Net NPA</b>	27218.89	30037.66	48684.29	32702.11	35422.57
<b>Total Profit</b>	336.19	-9975.48	-12282.82	1324.80	-3974.39
<b>Total income</b>	63074.16	56876.63	56876.63	56227.36	53424.4

Source: Collated by the researchers

From Table 4, it is absorbed that there is an increase in total income from the year 2018-2019 to the year 2019-2020 and a simultaneous decrease in Gross NPA.

**Figure 4: Showing Gross and Net NPA of PNB**

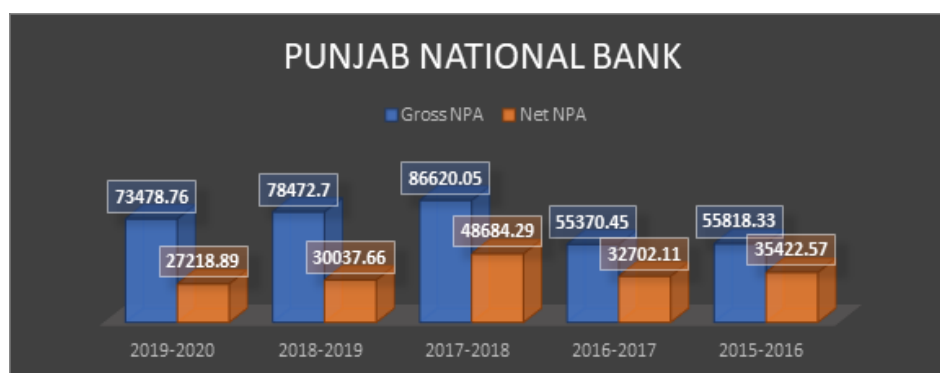




Figure 4 shows the NPA at maximum at the end of the year of 2017-2018. The ratio between gross and net NPA is high in the year 2015-2016, whereas it is low in 2019-2020. It may

be because of more provisions for NPA which is a precaution for the bank. In this graph, there is an increase from 2018, whereas there is a downfall from the year after 2018.

**Table 5: Showing Last Five-Year Data of CITI Bank (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	40,829.09	45,676.04	53,240.18	42,159.39	26,221.25
<b>Net Profit</b>	9,923.24	13,449.72	27,823.56	25,216.81	12,963.08
<b>Total Profit</b>	25810.38	21858.55	25522.36	26933.27	26987.70
<b>Total Income</b>	91246.93	77913.35	72385.52	73660.76	68062.48

Source: Collated by the researchers

From Table 5, it is absorbed that there is an increase in total income in the last five years and a simultaneous decrease in Gross NPA from the year 2017-2018 to

2019-2020 this can be due to proper asset management as well as sound internal and external controls.

**Figure 5: Showing Gross and Net NPA of CITI Bank**

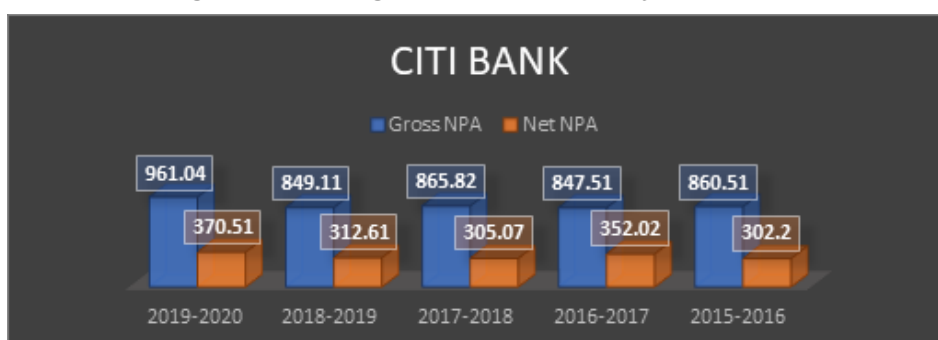


Figure 5 shows a huge difference as HSBC in decreasing stage between 2015-2017 and 2018-2020, but there was a sudden increase year 2017-2018,

whereas, in CITI bank, there is a steady increase in NPA with an equal proportion of between Net NPA and gross NPA.

**Table 6: Showing Last Five-Year Data of HSBC Bank (In Crores)**

	2019-2020	2018-2019	2017-2018	2016-2017	2015-2016
<b>Gross NPA</b>	669.33	597.70	924.26	896.97	835.78
<b>Net Profit</b>	126.19	129.11	144.01	203.97	211.31
<b>Total Profit</b>	4738.57	4904.47	4041.56	3697.26	3117.45
<b>Total Income</b>	13802.24	12038.49	10471.42	11064.77	10308.21

Source: Collated by the researchers

Table 6 shows an increase in total income from the year 2018-2019 to 2019-2020 and a simultaneous increase

in Gross NPA also.

**Figure 6: Showing Gross and Net NPA of HSBC Bank**

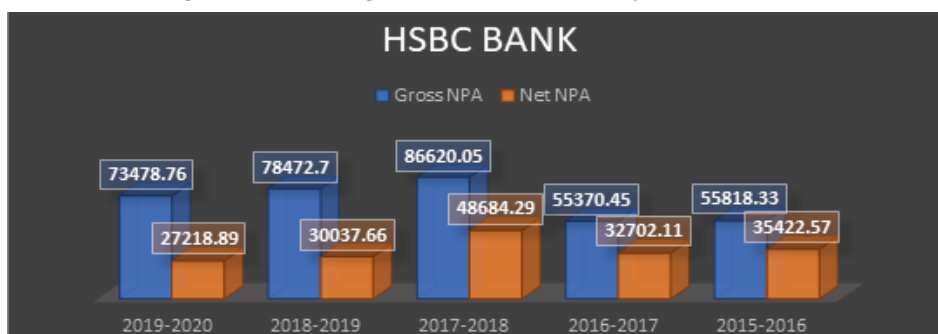


Figure 6 showing the maximum that NPA as compared to private banks, overseas banks have the lowest NPA. In all, there is a maximum increase in the year 2017-2018 but after that, they are in decreasing stage.

**RESULTS AND DISCUSSION**

**Regression Analysis**

Regression analysis was done to determine the influence or dependency of the dependent variable on the independent one. The examination was done to determine the influence of:

1. NPA on Total Income
2. NPA on Total Profit

**NPA on Total Income:**

**Table 7: Showing NPA on Total Income for HDFC BANK**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.983645862			
R Square	0.967559181			
Adjusted R Square	0.956745575			
Standard Error	5624.264631			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	35107.12137	7360.66204	4.76956	0.017508
Gross NPA <sup>1</sup>	7.651454169	0.808891907	9.45918	0.002504

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows the encouraging association between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 98%. R Square is 0.96 which means that 96% of the dependent variable is predicted by the independent variable. The value of adjusted R square is 0.95 which means the additional input has a major impact on total income. Here the standard error is high which shows huge dispersion between the total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is a substantial influence of Gross NPA on Total Income with the following equation:

$$Y=35107.12+7.65X_1+E$$

**Table 8: Showing NPA on Total Income for ICICI BANK**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.212933081			
R Square	0.045340497			
Adjusted R Square	-0.272879337			
Standard Error	10020.42513			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	68676.46645	21603.73821	3.17891588	0.050135759
Gross NPA <sup>1</sup>	0.19164697	0.507717862	0.377467457	0.730948092

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 21%. R Square, the coefficient of determination is 0.04 which means that only 4% of the dependent variable is predicted by the independent variable. Here adjusted R square is negative which means the additional input has no impact on total income. The standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is no substantial influence of Gross NPA on Total Income with the following equation:

$$Y=68676.47+0.19X_1+E$$

**Table 9: Showing NPA on Total Income for SBI**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.663723276			
R Square	0.440528587			
Adjusted R Square	0.254038116			
Standard Error	40447.3839			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	156089.833	63736.94624	2.448969	0.091764
Gross NPA <sup>1</sup>	0.621420068	0.404321233	1.536946	0.2219

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 66.33%. R Square, coefficient of determination is 0.44

which means that only 44% of the dependent variable is predicted by the independent variable. Here adjusted R square of only 25% which means the additional input has very less impact on total income. Here the standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is no substantial influence of Gross NPA on Total Income with the following equation:

$$Y=156089.83+0.62X_1+E$$

**Table 10: Showing NPA on Total Income for PNB**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.480641858			
R Square	0.231016596			
Adjusted R Square	-0.025311206			
Standard Error	3614.757333			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	49036.52926	9224.302377	5.316015	0.013001
Gross NPA	0.123248879	0.129825273	0.949344	0.412483

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 48%. The coefficient of determination is 0.83 which means that only 23% of the dependent variable is predicted by the independent variable. Here adjusted R square is negative which means the additional input harms total income. The standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is no substantial influence of Gross NPA on Total Income with the following equation:

$$Y=49036.53+0.12X_1+E$$

**Table 11: Showing NPA on Total Income for CITI Bank**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.890551963			
R Square	0.793082799			
Adjusted R Square	0.724110398			
Standard Error	851.1500181			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	-11538.85218	7829.485606	-1.47377	0.236975
Gross NPA	30.24415222	8.919075098	3.390952	0.042745

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows encouraging relation between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 89%. The coefficient of determination is 0.79 which means that only 79% of the dependent variable is predicted by the independent variable. Here adjusted R square of only 72% which means the additional input has very less impact on total income. Here the standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is a substantial influence of Gross NPA on Total Income with the following equation:

$$Y=-11538.85+30.24X_1+E$$

**Table 12: Showing NPA on Total Income for HSBC Bank**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.748865363			
R Square	0.560799332			
Adjusted R Square	0.414399109			
Standard Error	1099.079723			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	17397.93841	3034.62641	5.73314	0.010536
Gross NPA	-7.467957013	3.815653543	-1.95719	0.14525

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 74%. The coefficient of determination is 0.56 which means that only 56% of the dependent variable is predicted by the independent variable. The adjusted R square of only 41% which means the additional input has very less impact on total income. Here the standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It has been found that there is no substantial influence of Gross NPA on Total Income with the following equation:

$$Y=17397.94\pm 7.47X_1+E$$



**NPA on Total Profit**

**Table 13: Showing NPA on Total Profit for HDFC BANK**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.990133415			
R Square	0.98036418			
Adjusted R Square	0.973818907			
Standard Error	2895.254656			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	7652.067959	3789.115989	2.019486	0.136724
Gross NPA <sup>*</sup>	5.096139842	0.416400759	12.23855	0.001175

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total profit, therefore if total profit will increase, then GNPA will also increase at the rate of 99%. The value of R Square is 0.98 which means that 98% of the dependent variable is predicted by the independent variable. The value of adjusted R square is 0.97 which means the additional input has a huge impact on total profit. The standard error is high which shows huge dispersion between the Total profit of the last 5 years, and this shows GNPA is highly volatile. It is found that there is a substantial influence of Gross NPA on Total profit with the following equation:

$$Y=7652.07+5.0967X_1+E$$

**Table 14: Showing NPA on Total Profit for ICICI BANK**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.44560196			
R Square	0.198561107			
Adjusted R Square	-0.068585191			
Standard Error	2168.015079			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	29364.54926	4674.175952	6.282294	0.008144
Gross NPA <sup>*</sup>	-0.094704607	0.109849629	-0.86213	0.452021

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is correlation coefficient is positive which shows an encouraging association between gross NPA and total profit, therefore if total profit will increase, then GNPA will also increase at the rate of 44%. R Square, coefficient of determination is 0.19 which means that only 19% of

the dependent variable is predicted by the independent variable. Here adjusted R square is negative which means the additional input has no impact on total income. The standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It is found that there is no substantial influence of Gross NPA on Total Income with the following equation:

$$Y=29364.55\pm 0.09X_1+E$$

**Table 15: Showing NPA on Total Profit for SBI**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.912456011			
R Square	0.832575971			
Adjusted R Square	0.776767962			
Standard Error	5631.41766			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	31371.33812	8873.982198	3.535204	0.038496
Gross NPA <sup>*</sup>	-0.217429026	0.05629293	-3.86246	0.030682

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total profit, therefore if total profit will increase, then GNPA will also increase at the rate of 91.24%. Here, the coefficient of determination is 0.83 which means that only 83% of the dependent variable is predicted by the independent variable. The adjusted R square of only 77% which means the additional input has very less impact on total profit. Here the standard error is high which shows huge dispersion between the Total profit of the last 5 years, and this shows GNPA is highly volatile. It is found that there is a substantial influence of Gross NPA on Total profit with the following equation:

$$Y=31371.34\pm 0.22X_1+E$$

**Table 16: Showing NPA on Total Profit for PNB**

SUMMARY OUTPUT				
Regression Statistics				
Multiple R	0.744828588			
R Square	0.554769625			
Adjusted R Square	0.406359501			
Standard Error	4675.365395			
Observations	5			
	Coefficients	Standard Error	t Stat	P-value
Intercept	17795.8477	11930.81033	1.491588	0.232613
Gross NPA <sup>*</sup>	-0.324653604	0.167917382	-1.93341	0.148668

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging relation between gross NPA and total profit, therefore if total profit will increase, then GNPA will also increase at the rate of 74.48%. The coefficient of determination is 0.55 which means that only 55% of the dependent variable is predicted by the independent variable. Here the standard error is high which shows huge dispersion between the Total profit of the last 5 years, and this shows GNPA is highly volatile. It is found that is no substantial influence of Gross NPA on Total profit with the following equation:

$$Y=17795.85\pm 0.32X_1+E$$

**Table 17: Showing NPA on Total Profit for CITI Bank**

SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.390156928				
R Square	0.152222428				
Adjusted R Square	-0.130370096				
Standard Error	1692.139088				
Observations	5				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	
Intercept	-5483.301353	15565.50356	-0.35227	0.747928	
Gross NPA	13.01393862	17.73167512	0.733937	0.516145	

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows an encouraging association between gross NPA and total profit, therefore if total profit will increase, then GNPA will also increase at the rate of 39%. Here, the coefficient of determination is 0.15 which means that only 15% of the dependent variable is predicted by the independent variable. The adjusted R square is negative which means the additional input harms total profit. Here the standard error is high which shows huge dispersion between the Total profit of the last 5 years, and this shows GNPA is highly volatile. It is found that there is no substantial influence of Gross NPA on Total profit with the following equation:

$$Y=-5483.30+13.01X_1+E$$

**Table 18: Showing NPA on Total Profit for HSBC Bank**

SUMMARY OUTPUT					
<i>Regression Statistics</i>					
Multiple R	0.769399888				
R Square	0.591976188				
Adjusted R Square	0.45596825				
Standard Error	545.2598356				
Observations	5				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	
Intercept	7199.255087	1505.495792	4.781983	0.017385	
Gross NPA	-3.949237377	1.89296789	-2.08627	0.128233	

The gross Non-Performing Asset has been taken on the x-axis and total income on the y-axis; by performing regression analysis from the given data, the following can be comprehended. Multiple R is positive which shows the encouraging relation between gross NPA and total income, therefore if total income will increase, then GNPA will also increase at the rate of 76%. The coefficient of determination is 0.59 which means that only 59% of the dependent variable is predicted by the independent variable. The adjusted R square of only 45% which means the additional input has very less impact on total income. Here the standard error is high which shows huge dispersion between the Total income of the last 5 years, and this shows GNPA is highly volatile. It is found that there was no substantial influence of Gross NPA on Total profit with the following equation:

$$Y=7199.26\pm 3.95X_1+E$$

**Decision Summary of Hypothesis Results:**

**Table 19: Showing Decision Summary of Hypothesis Results**

Name of the Bank	H1: There is no substantial impact of gross NPA on total income	H2: There is no substantial impact of gross NPA on total profit
HDFC	Rejected	Rejected
ICICI	Accepted	Accepted
SBI	Accepted	Rejected
PNB	Accepted	Accepted
CITI	Rejected	Accepted
HSBC	Accepted	Accepted

In the case of HDFC bank, it has been depicted from the analysis that there is no influence of gross NPA on total income and total profit. There is a substantial influence of gross NPA on total income and total profit in the case of ICICI, PNB bank, and HSBC banks.

There is no substantial influence of gross NPA on total income in the case of SBI bank where it has been found that there is a substantial impact of gross NPA on total profit. In the case of CITI bank, there has been a substantial influence of gross NPA on total income whereas there has been no substantial influence of gross NPA on total profit.

**Table 20: Showing Capital Adequacy Ratio**

Banks	Capital Adequacy Ratio (2020-21)	To be maintained as per norms of RBI	Is the bank likely to fulfill its financial obligation? (yes/no)
HDFC Bank	18.8 %	9 %	Yes
ICICI Bank	19.12%	9 %	Yes
SBI	14.5%	12%	Yes
PNB	13.88%	12%	Yes
CITI Bank	15.09%	9%	Yes
HSBC Bank	15.09%	9%	Yes

Capital Adequacy Ratio (CAR) is the proportion of a bank's capital to its hazard. It is also recognized as the Capital to Risk (Weighted) Assets Ratio (CRAR). Furthermore, it is the ratio of a bank's capital to its risk-weighted assets and current liabilities. The CAR of all the above banks namely, HDFC, ICICI, SBI, PNB, CITI and HSBC, have been higher in comparison to the norms of the RBI. This means that all the banks are efficient and safe to meet their financial obligations. Higher the Capital Adequacy Ratio in comparison to RBI norms better it is for banks as the risk of becoming insolvent is reduced to a considerable level. All the banks selected for the study would be able to meet their financial obligations as their CAR will be utilized to enhance the efficacy and constancy of fiscal operations of banks.

**Table 21: Showing Comparative Ratio Analysis**

Financial Year	HDFC Bank		ICICI Bank		SBI		PNB		CITI Bank		HSBC Bank	
	ROCE (%)	Return on Assets (%)	ROCE (%)	Return on Assets (%)	ROCE (%)	Return on Assets (%)	ROCE (%)	Return on Assets (%)	ROCE (%)	Return on Assets (%)	ROCE (%)	Return on Assets (%)
2016-17	3.42	1.78	3.1	1.31	1.79	0.36	1.8	0.04	0.36	0.24	2.69	5.87
2017-18	3.33	1.71	2.67	0.72	0	0.02	1.7	-1.28	0.16	0.07	1.73	1.05
2018-19	3.34	1.69	2.52	0.34	1.81	-0.18	1.38	-1.6	-0.01	-0.26	2.47	0.29
2019-20	3.2	1.64	2.91	0.77	1.99	0.38	2.06	0.18	0.1	-1.03	-11.47	-10.9
2020-21	3.18	1.68	3.59	1.26	1.96	0.42	1.87	-0.59	0.62	-7.6	1.44	1.37

In the case of HDFC, PNB, ICICI and CITI banks ROCE is increasing every year which shows that this bank is efficiently generating profit from its capital. It shows the long-term profitability ratio of the banks and depicting that how efficiently resources of the bank can be utilized for long-term financing. A higher ratio is more favorable as it shows long term profitability of the banks. The ROCE of SBI bank has reduced in the year 2021 in comparison to other years and on the other hand, the ROCE has increased to 3.59% from 2.91% of ICICI bank. The ROCE in the case of HSBC bank has declined from 2.69% in 2016-17 to 1.44% in the year 2020-21 showing a decline in the profitability ratio of the bank. A positive ROA ratio usually indicates an upward profit trend. In the case of HDFC, SBI, and ICICI banks, the return on assets is constantly increasing which proves that these banks are efficient to convert their asset into profit. In the case of PNB bank, ROA is negative in the year 2017-18, 2018-19, and 2020-21 which shows a downward trend in the profits of the bank. In the case of CITI bank, ROA is continuously decreasing even become negative 2018-19 onwards, showing a sharp decline in the profits of

the banks. In the case of HSBC, Bank ROA has declined from 5.87% in the year 2016-17 to 1.37% in the year 2020-21. Banks should maximize their ROCE and ROA ratios as it contributes to the long-term survival of the banks in the economy.

**Findings of the Study**

It was found from the analysis that HDFC and CITI Bank have positive relation between Total Income and Gross NPA & Total Profit and Gross NPA. This means that with an increase in total income and profit, the NPA will also increase which is contradictory as NPA is negative for the banks. On the other hand, ICICI Bank, SBI and PNB have an encouraging association between Total Income and Gross NPA whereas adverse in Total Profit and Gross NPA. This means that an increase in total income will lead to an increase in NPA on contrary there will be a decrease in profit with the upsurge of NPA. It was also found that HSBC bank has negative relation between Total Income and Gross NPA & Total Profit and Gross NPA. This means that there will be a decrease in total profit and total income due to an increase in NPA. In the case of HDFC, PNB, ICICI and



CITI banks ROCE is increasing every year which shows that this bank is efficiently generating profit from its capital. The ROCE of SBI bank has reduced in the year 2021 in comparison to other years and on the other hand, the ROCE has increased to 3.59% from 2.91% of ICICI bank. The ROCE in the case of HSBC bank has declined from 2.69% in 2016-17 to 1.44% in the year 2020-21. An encouraging ROA ratio generally designates a skyward income drift. In the case of HDFC, SBI and ICICI banks, the return on assets is constantly increasing which proves that these banks are efficient to convert their asset into profit. In the case of PNB bank, ROA is negative in the year 2017-18, 2018-19, and 2020-21 which shows a downward trend in the proceeds of the bank. In the case of CITI bank, ROA is continuously decreasing even become negative 2018-19 onwards, showing a sharp decline in the earnings of the banks. In the case of HSBC, Bank ROA has deteriorated from 5.87% in the year 2016-17 to 1.37% in the year 2020-21. The banks should maximize their ROCE and ROA ratios as they will help the bank in long-term profitability and survival. The CAR of the banks namely, HDFC, ICICI, SBI, PNB, CITI and HSBC, have been higher in comparison to the rules of RBI. This means that all the banks are efficient and safe to meet their financial obligations. All the banks selected for the learning would be able to meet their financial obligations as their CAR will be utilized to enhance the efficacy and constancy of fiscal operations of banks.

All over the banking industry, there is a positive association between Total Income and Gross Non-Performing Asset whereas negative in Total Profit and Gross NPA. This means that with an increase in Total Income there is an increase in Non-Performing Asset on the contrary there will be a decrease in profit with an increase of Non-Performing Assets. But if we categorize them into private, public, and foreign they all have different natures. The banks should be focused on controlling the NPA situation in the country by ensuring a proper credit risk management process.

### **Suggestions**

It is suggested that SBI need to control its provisions towards NPA by taking some precautions for the recovery of the loans and banks need to take precautions regarding the credit assessments and should take measures in pre- and post-sanction of the loans to avoid slippages and standard assets of NPA. It is also suggested that banks should audit regularly so that it can ensure the fringe which does not slip to the NPA category, especially SBI must look after before issuing advance to customers or proposal must be judiciously examined and then the credit must be given.

### **CONCLUSION**

India is one of the developing countries that have a huge amount of Non-Performing Assets in numbers, as well as a maximum number of banks. The banks are categorized into three sectors that are - private, public, and foreign banks. In Regression Analysis, this study found different effects on and by the Non-Performing Asset. The banking industry has positive relation in Total Income and Non-Performing Assets which conclude that with an increase of total income there will be an increase in NPA of the banks which is usually contrary as NPA is a loss for banks. The previous industry has the adverse association between Total Profit and NPA which states that with a surge of NPA the profit will be decreased or may also lead to losses in the bank. In Graphs Analysis many banks are in decreasing stage of NPA. There was a huge increase in NPA in the fiscal year 2017-2018 after that there is a decrease in NPA. Even Banks are making more and more provision for NPA as there is an enormous difference in Gross NPA and net NPA in last year's, whereas there is less of difference in the year 2015-2016. Even the government is allowing the banks to make provision for NPA. Even in the budget they have talked about NPA and writing off NPA with the help of a committee that will be formed in the future. All the banks selected for the learning would be able to meet their financial obligations as their CAR will be utilized to enhance the efficacy and constancy of fiscal operations of banks. The banks should maximize their profitability ratios i.e., ROCE and ROA. Banks need to take precautions regarding the credit assessments and should take measures in pre-and post-sanction of the loans to avoid slippages and standard assets of NPA. The banking industry is the lending institution that helps millions of people to get sufficient funds for carrying on their operations. The government should take measures to overcome the menace created by these increasing NPAs in the banking industry. The proper monitoring and appraisal of loans will help to manage the credit risk in the banking industry.

### **Limitations of the Study**

The learning has been grounded on selected banks from public, private, and foreign banks for five years starting from April 2015 till March 2020. Furthermore, there is perchance that some other imperative phenomena or variables that prejudiced NPAs management have not been captured by present reviews of research papers. With the period new studies are emerging that will embrace the present study.

### **Conflict of Interests**

The authors declare that they have no conflict of interests.



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**REFERENCES**

- Adey, R., Goyal, D. Y., Siddiqui, M. N. & Dhruw, L. (2020). Comparative Analysis of Non-Performing Assets amongst Various Banking Sector of India. *IOSR Journal of Economics and Finance*, 11(3), 38-43.
- Agarwala, V. & Agarwala, N. (2019). A Critical Review of Non-Performing Assets in the Indian Banking Industry. *Rajagiri Management Journal*, 13(2), 12-23.
- Ali, A., Singh, D. & Ali, S. (2020). A Systematic Analysis of Commercial Banks in India – A Study of Non-Performing Assets (NPA). *International Journal of Management*, 11(9), 699-710.
- Arasu, B. S., Sridevi, P., Nageswari, P. & Ramya, R. (2019). A Study on Analysis of Non-Performing Assets and Its Impact on Profitability. *International Journal of Scientific Research in Multidisciplinary Studies*, 5(6), 1–10.
- Bansal, R., Kashyap, S. K., Marreddy, H. K. R. & Addae, J. A. (2021a). Non-Performing Assets and Profitability of Indian Banks: A Review. *European Journal of Molecular & Clinical Medicine*, 7(8), 4152-4157.
- Bansal, Y., Kumar, V. & Purohit, H. (2021b). Impact of Non-Performing Assets (NPA): A Comparative Analysis of State Bank of India vs. Bank of Baroda. *International Journal of Management (IJM)*, 12(1), 544-552.
- Bepari, R. & Sarkar, S. C. (2020). Impact of Non-Performing Assets on Profitability Performance of Selected Public Sector Banks and Private Sector Banks in India: A Comparative Study. *International Journal of Multidisciplinary Educational Research*, 9(5), 46-52.
- Biswas, B. (2017). Impact of NPA on Profitability and Earnings: A Study on Some Select Private Commercial Banks in India. *Sankalpa*, 7(2), 12-17.
- Debbarma, S. (2021). A Study on Analyzing the Non-Performing Asset (NPA) Level in Tripura Gramin Bank. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(11), 3126-3135.
- Hersugondo, H., Anjani, N. & Pamungkas, I. D. (2021). The Role of Non-Performing Asset, Capital, Adequacy, and Insolvency Risk on Bank Performance: A Case Study in Indonesia. *The Journal of Asian Finance, Economics, and Business*, 8(3), 319-329.
- Jain, E. (2014). Technical Analysis of Oriental Bank of Commerce. *SAARJ Journal on Banking & Insurance Research*, 3(2), 76-90.
- Kaur & Singh (2011). Non-Performing Assets of Public and Private Sector Banks (A Comparative Study). *South Asian Journal of Marketing & Management Research*, 1(3), 54-72.
- Miyan, M. (2017). A Comparative Statistical Approach towards NPA of PSU and Private Sector Banks in India. *International Journal of Advanced Research in Computer Science*, 8(1), 46-52.
- Pundir, A. (2021). A Systematic Review on Non-Performing Assets in Banks in India. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(2), 177-184.
- Raghavendra, S. (2018). Non-Performing Assets in Commercial Banks in India: An Analysis. *International Journal of Research in Humanities, Arts and Literature (IJRHAL)*, 6(4), 377-38.
- Shah, R., & Hasan, H. A. (2021). To study the non-performing assets of selected banks of India. *International Educational Applied Scientific Research Journal*, 6(3), 180-191.
- Siddique, A., Masood, O., Javaria, K. & Huy, D. T. N. (2020). A Comparative Study of the Performance of Commercial Banks in ASIAN Developing and Developed Countries. *Insights into Regional Development, Entrepreneurship and Sustainability Center*, 2(2), 580-591.
- Singh, V. R. (2016). A Study of Non-Performing Assets of Commercial Banks and Its Recovery in India. *Annual Research Journal of SCMS, Pune*, 4(March), 110-125.
- Sushmitha, G. & Nagaraja, N. (2020). Non-Performing Assets Management in the Co-Operative Banks in India: A Descriptive Analysis. *International Journal of Banking, Risk, and Insurance*, 8(1), 80-89.