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STRIDES - A STUDENTS' JOURNAL OF SHRI RAM COLLEGE OF COMMERCE
ISSN 2581-4931 (Print)

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ABOUT THE JOURNAL

It is a double blind reviewed bi-annual Journal launched exclusively to encourage students to pursue research on the contemporary topics and issues in the area of commerce, economics, management, governance, polices etc. The journal provides an opportunity to the students and faculty of Shri Ram College of Commerce to publish their academic research work.

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Endnotes should be serially arranged at the end of the article well before the references and after conclusion.

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Principal's Message

To achieve and promote excellence in research and publish quality academic as well as educational resources as guided by the Mission Statement of the College, Shri Ram College of Commerce had launched a Journal, "Strides- A Students' Journal of Shri Ram College of Commerce" on the occasion of 91st Annual Day of the College held on 13th April, 2017. The Journal was released by then the Hon'ble Union Minister of Human Resource Development, Shri Prakash Javadekar. The Journal publishes the research papers and articles written by students of the College under the mentorship of Faculty Members which go through an intense review mechanism before getting published.

Through the Journal, students get an excellent platform to enhance their research calibre, display their academic perspective, and practically apply their classroom learnings to real-world situations. The present Issue includes several multi-disciplinary and contemporary topics such as "Quantum computing: A futuristic frontier in the financial sector", "Unfolding the Global Hunger Index 2020", "Role of Monetary and Fiscal policies during Covid-19: India and Comparative Analysis", "An analysis of macroeconomic and bank-specific causes for burgeoning NPAs in India", "The political leaning paradox", and "Re-engineering climate change solutions through carbon credit trading".

I wholeheartedly congratulate the Editor, Strides, Dr. Rajeev Kumar and students whose research papers got published in Volume 4 Issue 1 & 2 of the Journal. Simultaneously, I encourage more students to contribute their research papers for the successive Issues.

My best wishes for your future endeavours!

Prof. Simrit Kaur
Principal

Editor's Message

Shri Ram College of Commerce is well known for its academic excellence and dedicated approach towards dissemination of knowledge in the academic world. The College acknowledges and values the role of research in education and is firmly committed to develop and encourage an inclination towards research in both faculty and students. To reaffirm this ethos, the College has taken the initiative to launch a new Journal named 'Strides - A Students' Journal of Shri Ram College of Commerce' to encourage students to pursue research under the guidance of the faculty of Shri Ram College of Commerce.

It is a bi-annual Journal launched exclusively to publish academic research papers and articles by the students on contemporary topics and issues in the area of commerce, economics, management, governance, policies etc.

In order to maintain high standards of publication, COPE (Committee on Publication Ethics) has been constituted. The COPE is the apex authority which authorises over all the decisions related to publication of research papers and articles in Strides. The recommendations and decision of COPE is final and binding.

To maintain high academic standards, academic ethics and academic integrity, a rigorous process of double-blind review of research papers is followed along with screening of plagiarism of each manuscript received by the COPE for publication. The research work published in Strides is absolutely original and not published or presented in any form at any other public forum.

The foundation issue of the Journal "Strides - A Students' Journal of Shri Ram College of Commerce, Volume 1, Issue 1, 2016-17" was successfully released on 91st Annual Day of SRCC held on 13th April, 2017 by Shri Prakash Javadekar, Honb'le Union Minister of Human Resource Development, Government of India. The successive issues of 'Strides - A Students' Journal of Shri Ram College of Commerce' have been released bi-annually. However, due to the COVID19 pandemic and ensuing lockdowns the current issue has been delayed.

I congratulate all the students whose research papers are published in this issue of Strides and express my sincere thanks to their mentors and referees.

Dr. Rajeev Kumar
Editor

STRIDES - A STUDENTS' JOURNAL OF SHRI RAM COLLEGE OF COMMERCE

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RESEARCH PAPERS

An Analysis of Macroeconomic and Bank-Specific Causes for Burgeoning NPAs in India and Related Management Practices

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ABSTRACT

This paper seeks to identify and analyse various causes behind the prominence of Non-Performing Assets (NPAs) in Indian commercial banks by using time series data from 2001 to 2019. We undertake Multiple Linear Regression (MLR) analysis to determine the impact of certain macroeconomic factors on NPAs. We also study the impact of bank-specific factors like ownership and internal management. We then identify various recovery mechanisms introduced till date and explore their efficacy in addressing the issue. Finally, we discuss how technological upgradation, managerial reforms, asset reconstruction mechanisms and revamp of the debt-laden agriculture sector can serve as the way ahead.

Keywords: Bad Banks, Macroeconomic Causes, Multiple Linear Regression, Non-Performing Assets, Recovery Mechanisms

INTRODUCTION

Banks play a pivotal role in maintaining the financial health of any nation, especially in a developing country like India. They act as channels between savers and investors, thereby facilitating investment in the economy and subsequently, enabling economic growth. Robust banking systems portray the soundness of a financial system. According to Rajeev and Mahesh (2010), "a healthy financial system can help achieve efficient allocation of resources across time and space by reducing inefficiencies arising out of market frictions and other socio-economic factors." The sustainability of the banking sector determines the financial stability of any economy.

In this regard, one of the most important factors determining the health of the banking sector and to a large extent, the financial health of an economy, is the level of Non-Performing Assets. In India, the banks, particularly the Public Sector Banks have been at the helm of day-to-day macroeconomic management rather than primarily intermediating the saver's money into productive investments, the process being called "Banking-Sector Fiscalisation" (Patel, 2020). This Stackelberg leadership model[1] followed by India, where the sovereign has a major control over the financial intermediaries, itself poses an aggravated moral hazard and builds enormous pressure on the banks, particularly the public sector in India (Bhattacharya & Patel, 2005).

NPAs have major implications, not just on the performance of the financial sector, but on the functioning of the entire economy. Ballooning NPAs can lead to a loss of essential funds that could've been used, otherwise, to enhance economic outcomes. This might further lead to an increased unemployment across various sectors. It is also considered to be an important cause of the increase in current account deficit. Further, it might negatively impact serious and genuine borrowers, due to a general reduction in the confidence of banks. There are various other mechanisms through which NPAs affect the economy, and the impact is usually considered to be negative.

[1] The Stackelberg leadership model is a strategic game in economics in which the leader firm moves first and then the follower firms move sequentially. In this instance, credit creation in India has been majorly state-sponsored.

The quality of assets was not a major concern for Indian banks till 1991. The banking sector mostly cared about performance objectives and macroeconomic issues including expansion, priority sector lending, employment generation and financing development of rural areas (Singh, 2016). But, after the 1991 reforms in India, the economy paced up and with it came some of the associated problems. NPAs are natural for any economy but only to a certain extent. However, this is a grave problem in India, given that the NPAs have been increasing significantly.

The problem of NPAs severed due to impact of Global Financial Crisis (GFC) of 2008 on the global economy in general, as well as on the Indian economy. The bursting of the subprime loan bubble seems to have deeply impacted the financial sector of our country. Even as many argue that it didn't affect India to the extent it did to the other countries like the US and the European nations, the effects got deep rooted into the system in reality and it was one of the major reasons for the 'NPA Evergreening' in India (Paul, 2018). Although the then central government played an important role in managing the crisis, a perilous system started developing in the background. The public banks were asked to lend heavily for output growth for the very reason that Public Sector Banks (PSBs) generally act as government's intermediaries for GDP growth (Patel, 2020). Due to the boom in the economy in the mid-2000s, extensive lending was undertaken. However, investment in such highly leveraged projects is seen as more prone to turbulence (Vishwanathan, 2016) and the owner's equity started declining by considerable amounts. 'Irrational Exuberance' correctly defines the situation prevailing then. Credit growth averaged 20% YoY till 2011. A few years down the line, the situation reversed and the NPAs started piling up rapidly.

NPA: Definition and Categorisation

In accordance with the definition provided by the Reserve Bank of India (RBI), an asset for a bank becomes non-performing when it ceases to generate income in the form of interest and/ or instalment of principal for a period of more than 90 days. The RBI classifies NPAs in three categories depending on the period for which the asset has remained non-performing and the realisability of the dues. The classification is as depicted in the following table.

Table 1: Categorisation of NPAs

Asset Classification	Criteria
Sub-standard Assets	An asset that has remained NPA for a period less than or equal to 12 months.
Doubtful Assets	An asset that has remained in the substandard category for 12 months.
Loss Assets	An asset that is considered "uncollectible" or has such a small value that it's continuance as an asset is not suggested, although there may be some recovery value left.

Source: Reserve Bank of India

The provisioning norms for NPAs set by the RBI differ according to their categorisation. For substandard assets, banks have to create a general provision of 10 percent on total outstanding. For doubtful assets, the requirement is 20 percent to 100 percent of the secured portion depending upon the age of doubtful asset and 100 percent on the unsecured portion. Loss assets may be either written off or fully provided by the bank. The entire asset should be written off.

Moreover, according to Tandon and Tandon (2019), Gross NPA is an advance which is taken to be irrecoverable and for which the bank has made provisions, and which is still reflected in banks' books. Net NPA is calculated by deducting Gross NPA with certain items, as follows;

Net NPA = Gross NPA- (Balance in interest suspense account + claims received + part payment received + total provisions held)

DETERMINANTS OF BURGEONING NPAS IN INDIAN BANKS

Macroeconomic Factors

There exists some literature pertaining to identification of macroeconomic factors. According to Sudarsan and Kathari (2019) there are four major macroeconomic variables, namely economic growth, unemployment rate, interest rate and inflation. Nkusu (2011) suggests that there exists a negative relationship between economic growth and NPAs, as during booms, both consumers and firms face sufficient income streams and revenues to make payments on principal as well as interest on outstanding borrowings. However, as the economy booms, credit is extended, in a lending spree, to the debtors of lower creditworthiness as well, which in turn leads to an amplified default rate when a recession sets in later cycles.

Further, Louzis et al. (2012) suggests that an increase in unemployment rate affects NPAs positively. An increase in unemployment rate negatively impacts the income streams of households and therefore adds to their burden of debt. In context of firms, an increase in unemployment may signal reduced production as an outcome of fall in effective demand. This situation may lead to reduced revenues for the firms and thereby, negatively affect their repayment ability as well.

Another important macroeconomic variable to be considered is interest rates. Drawing insights from Bahruddin and Masih (2018), an increase in interest rates raises the amount to be repaid in the form of interest, thereby adding to the debt burden of the borrowers. Economically, interest rates seem to have a positive relation with NPAs.

Inflation rate also seems to have some kind of relationship with NPAs. Numerous studies have undertaken analysis to identify this relationship. Ghosh (2015) hypothesizes that this relation is ambiguous. Keeping the nominal interest rate constant, inflation should reduce the real value of debt, thereby making repayment easier and lowering NPAs. Another reason for such a negative relationship can be that inflation rate is associated with a lower unemployment with respect to the traditional Philip's Curve, and as mentioned previously, unemployment seems to be positively related to NPAs. However, when nominal wages are sticky, it can also reduce the real income of the borrowers, thereby adding on to their debt burden. Also, in case of variable interest rates, the creditors can vary the interest rates to maintain their real return, thereby shifting the entire burden on borrowers.

Along with these variables, many other macroeconomic variables also influence the quantum of NPAs, but the above mentioned variables are easily observable and seem to maximally impact NPAs theoretically. Hence, we analyse the statistical relationship between the four identified variables and gross and net NPAs.

Multiple Linear Regression (henceforth, MLR) analysis is undertaken to identify this relationship. Required secondary data is taken from various sources, including Reserve Bank of India website and World Bank website. Data from 2001 to 2019 is considered for the analysis.

Figure 1: Line Chart for Macroeconomic Variables and NPA Ratios

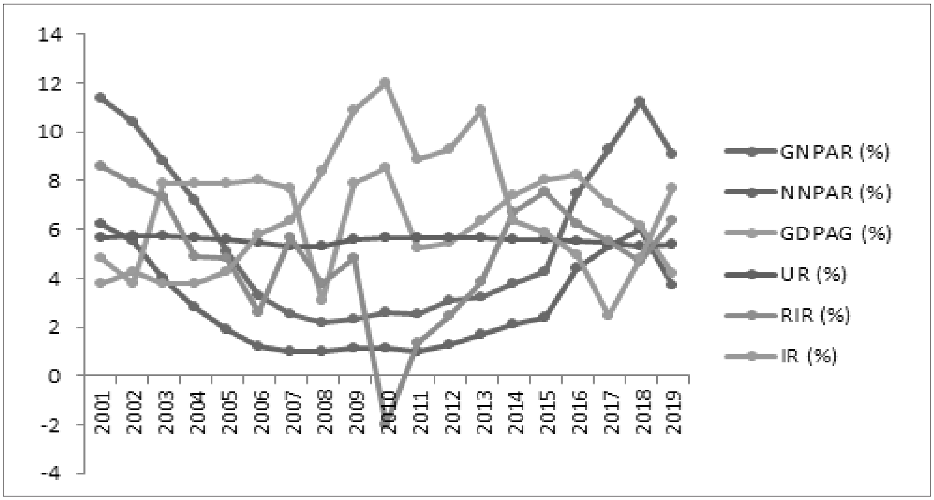


Table 2: Descriptive Statistics

Variable	Mean	SD	Kurtosis	Skewness	Range	Minimum	Maximum
GNPAR (%)	5.7789474	3.3576743	-1.4441103	0.4886819	9.2	2.2	11.4
NNPAR (%)	2.8263158	1.8725627	-1.0840861	0.6779225	5.2	1	6.2
GDPAG (%)	6.61	1.6947173	-0.6840195	-0.8033929	5.41	3.09	8.5
UR (%)	5.5473684	0.1441389	-0.9665504	-0.6493612	0.45	5.28	5.73
RIR (%)	4.9031579	2.5560235	1.6006987	-1.0403434	10.57	-1.98	8.59
IR (%)	6.5552632	2.7994828	-0.7951774	0.5655519	9.5	2.49	11.99

Considering the above-recognised macroeconomic variables, the regression equation can be written as follows-

Y = b0 + b1X1 + b2X2 + b3X3 + b4X4 + e

In the above model;

Y = Gross NPA to Gross Advances Ratio or Net NPA to Net Advances Ratio (GNPAR or NNPAR)

X1 = GDP Annual Growth Rate (GDPAG)
X2 = Unemployment Rate (UR)
X3 = Real Interest Rate (RIR)
X4 = Inflation Rate based on Consumer Prices (IR)
MLR analysis is undertaken for the concerned variables for the duration ranging from 2001 to 2019. The following tables summarise the outcomes of the analysis. Firstly, Gross NPA Ratio is taken to be the dependent variable.

Table 3: Model Summary (Dependent Variable- GNPAR)

Multiple R	*R Square*	*Adjusted R Square*	*Standard Error*	*Significance F*	Durbin-Watson
0.782061899	0.611620814	0.500655332	2.372677835	0.007039409	1.09689871

Table 4: Regression Coefficients

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*VIF*
Intercept	-0.779295637	21.6057233	-0.036068945	0.971736632	-47.11896335	45.56037208	
GDPAG (%)	-0.570687447	0.350289526	-1.629187871	0.125559311	-1.321983759	0.180608865	1.12679206
UR (%)	2.655953357	3.985298772	0.666437702	0.515964192	-5.891662397	11.20356911	1.055064851
RIR (%)	0.153919041	0.307282559	0.500903928	0.624221661	-0.505136501	0.812974582	1.972424847
IR (%)	-0.786811145	0.277879848	-2.831479691	0.013327822	-1.382804143	-0.190818147	1.934927415

As seen in Table 3, the p value of the model is 0.007, which is less than 0.05. This depicts that the model is significant and a good fit for the data. Also, the Durbin-Watson (DW)[2] statistic is calculated to be 1.095. The DW statistic is acceptable; hence the model is considerably free from the problem of autocorrelation. Additionally, the VIF[3] for each macroeconomic variable is acceptable; therefore, the model is considered to be free from the problem of multicollinearity as well.

Holding the level of significance of 5%, we find that GDP annual growth rate, unemployment rate and real interest rate are statistically insignificant, while inflation rate is statistically significant in determining gross NPA ratio.

The following regression equation is obtained by plugging in statistically determined coefficients-

[2] Durbin Watson (DW) statistic is a test for autocorrelation in the residuals from a statistical regression analysis. As a rule of thumb, values between 1 and 3 are acceptable.

[3] Variance Inflation Factor (VIF) measures the multicollinearity in a set of regression variables. As a rule of thumb, values less than 10 are considered to be free from multicollinearity.

Y = - 0.7792956 - 0.5706874 X1+ 2.65595336 X2 + 0.15391904 X3 - 0.7868111 X4 + e

The results from above, as well as the correlation matrix for NPA ratios and macroeconomic variables (see Appendix B) reveal that there exists a negative relation between gross NPA, and GDP growth and inflation, while there exists a positive relation between gross NPA, and unemployment and interest rate.

Similar analysis was undertaken keeping Net NPA Ratio as the dependent variable. Following tables provide the outcomes of the analysis

Table 5: Model Summary (Dependent variable- NNPAR)

Multiple R	*R Square*	*Adjusted R Square*	*Standard Error*	*Significance F*	*Durbin-Watson*
0.759761324	0.577237269	0.456447917	1.380565323	0.012166463	1.095466527

Table 6: Regression Coefficients

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*VIF*
Intercept	0.059979196	12.57149703	0.004771046	0.996260589	-26.90320028	27.02315867	
GDPAG (%)	-0.285578225	0.203819316	-1.401134258	0.182950081	-0.72272718	0.151570729	1.12679206
UR (%)	1.183370012	2.31888426	0.510318705	0.617779086	-3.790142079	6.156882104	1.055064851
RIR (%)	0.133872221	0.1787953	0.748745754	0.466404633	-0.249605557	0.51735	1.972424847
IR (%)	-0.391590292	0.161687051	-2.42190262	0.029599528	-0.738374526	-0.044806058	1.934927415

The outcomes of the analysis remain the same as before, and the regression equation is as follows-

Y = 0.059979 - 0.28558 X1 + 1.18337 X2 + 0.133872 X3 - 0.39159 X4 + e

The above equation as well as the correlation matrix, depicts similar relationships as previously derived in relation to gross NPAs. Hence, we see that macroeconomic variables (significantly or insignificantly) impact the quantum of NPAs in the country. Thus, similar to the findings of Nkusu (2011), a favourable macroeconomic environment with rising GDP, falling unemployment, smaller interest rates and rising prices control NPAs and vice versa.

Additionally, the exchange rate is another important macroeconomic variable that impacts the persistence of NPAs. Bardhan and Mukherjee (2016) find that the Nominal Effective Exchange Rate (NEER) has a significant positive impact on NPAs. Appreciation of domestic currency leads to an increase in the amount of NPAs. Appreciation of currency makes indigenously produced goods relatively costlier, thereby reducing the international competitiveness of indigenous producers. This tends to reduce their earnings, thereby reducing their ability to repay loans.

Bank-Specific Factors

The factors determining NPAs aren't solely exogenously determined macroeconomic variables, but also bank specific variables (Louzis et al, 2012). Policy choices of banks and their own characteristics also hugely impact the amount of NPAs. According to Bardhan and Mukherjee (2016) bank specific factors play a very significant role in the evolution of NPAs, since they also determine the financial health of a bank. The performance of banks, bank specific loan recovery mechanisms, policies with respect to lending, bank size, risk assessment and exposure etc, play a very important role in the concerned aspect. Berger and DeYoung (1997) examine the causality between NPAs, cost efficiency of banks and bank capital. They provide certain hypotheses, few of which are stated below-

a) *Bad management hypothesis*: Low cost efficiency is an indicator of poor management performance. Inefficient managers don't monitor and control their operating expenses. They may also fail to judge the creditworthiness of their borrowers and may choose inefficient investment projects. Consequently, a huge number of assets may turn out to be non performing.

b) *Skimpking hypothesis*: Banks may, in the short run, economise on their costs allocated for monitoring and underwriting loans. This may make them appear cost efficient, but in the long run, the quantum of NPAs would rise due to lower attention devoted to initial monitoring, thereby adding on to the amount of NPAs.

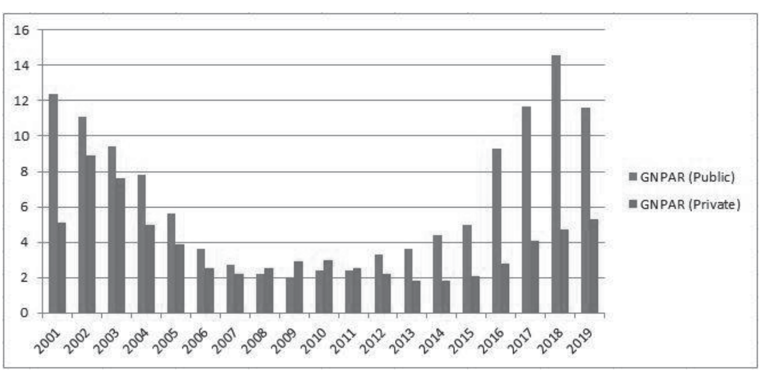
c) *Moral hazard hypothesis*: Thin capitalisation of certain banks provides their managers the moral hazard incentives to raise the riskiness of their loan portfolio.

Berger and DeYoung (1997) provide empirical evidence in support of the above hypotheses. Thus, the above mentioned reasons might lead the managers to lend to inefficient borrowers, thereby financing bad projects with little or no creditworthiness. Moreover, bank size is also important in this aspect. Salas and Saurina (2002) and Rajan and Dhal (2003) find a negative relation between bank size and NPAs, while Louzis et al. (2012) argues that larger sized banks tend to have higher NPAs, because larger banks engage in riskier activities rather than going for diversification. Additionally, a bank's past performance, measured in terms of its profitability also impacts the level of NPAs. There seems to be an inverse relationship between profitability and NPAs, whereby greater profitability in the past may increase the bank's capacity to absorb bad loans in the future. However, greater profitability in the past may lead the bank towards exuberant lending, thereby raising the probabilities of possible defaults. Hence, there seems to be an ambiguous relationship between profitability of the banks and their NPAs (Bardhan & Mukherjee, 2016).

Ownership-Based Determinants

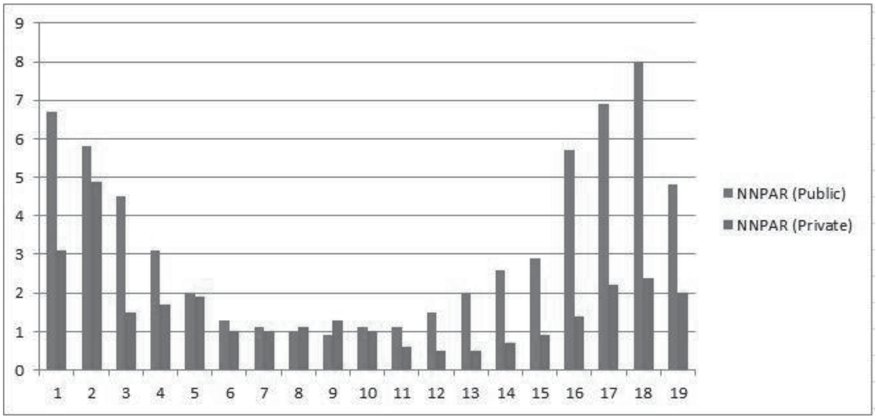
Ownership of banks (in our case, indigenous banks) plays an important role in determining the banks' ability to deal with the problem of NPAs. We have undertaken a statistical analysis in order to determine whether there exists a difference in the proportionate level of NPAs between public and private sector banks. The current study uses a 2 sample T-test (assuming unequal variances) to identify if such a difference exists. The data that we use pertains to the time period ranging from 2001 to 2019 and the concerned variables are GNPA ratio and NNPA ratio respectively[4].

Figure 2: Gross NPA Ratio in Public and Private Sector Banks



[4] Unlike numerous previous researches, we have taken NPA ratios instead of absolute values of NPAs, since we believe that proportionate NPAs with regards to advances provide a better picture than the latter.

Figure 3: Gross NPA Ratio in Public and Private Sector Banks



Undertaking the above mentioned test (see Appendix C), we find at a level of significance of 5%, we conclude that the mean of the GNPA ratio in public sector banks is larger than the mean of the GNPA ratio in private sector banks. Similar analysis for net NPA ratio provides the same outcome i.e. the mean of the NNPA ratio in public sector banks is larger than the mean of the NNPA ratio in private sector banks.

This evidence leads us to believe that the proportionate NPAs with respect to lending are higher in public sector banks than private sector banks. According to Brahmaiah (2019), proportionate NPAs in PSBs are higher than their private counterparts because PSBs usually adopt more liberal credit policies, and have their loans concentrated towards specific sectors. The study also suggests that PSBs are inefficient in managerial aspects. This may be due to the lack of ownership incentives for the managers. Moreover, PSBs are subject to milder regulatory environments in comparison to their private counterparts and the role of RBI is largely limited in this aspect.

In addition to the above mentioned factors, NPAs seem to be largely determined by the differential lending during varied phases of business cycles. During the initial expansionary stage (just after an economic downturn), firms' profits and repaying capacity tend to increase in comparison to the downturn. Thus, NPAs may reduce during this period. But, during the boom phase (when the economy is just to go into another downturn) banks may lend exuberantly, over estimating the performance of various investment projects. This may aggravate the NPA situation. Moreover, unanticipated shocks to the economy may also lead to an increase in the NPAs.

APPROACHES TO NPA MANAGEMENT IN INDIA: PAST AND PRESENT INITIATIVES

Lok Adalats

'Lok Adalats' in literal sense mean the court of the people. Set up under the Legal Services Authorities Act, 1987, it is a mechanism where disputes or cases pending in the court of law or at a pre-litigation stage are settled mutually. The decision given is binding on all parties and there is a very meagre scope of further repeal. If there is no decision, the parties can proceed with the normal court hearings. The Lok Adalats are given autonomy to decide on matters having a value of upto Rs 10 Lakhs. More than 8.25 crore cases have been settled by this system. In a study by Rajbahadur (2016) it was found that the efficiency of debt recovery and NPA management by Lok Adalats was poor during 2008-09 and it mostly declined further (see Figure 4).

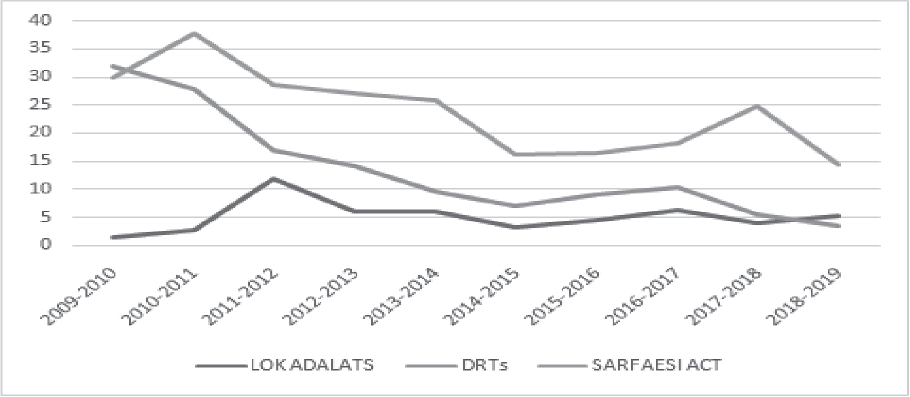
Debt Recovery Tribunals

DRTs were set up with the objective of expeditious adjudication of the matters related to recovery of debts by financial institutions. The DRT is also the appellate body on matters related to SARFAESI Act. Securitisation Appeals (SAs) can be filed with the DRTs by those aggrieved against action taken by secured creditors under the SARFAESI Act.The Act also had a fate similar fate as of most bills in India, of slow process and red-tapism (Dey, 2018). The Vivad Se Vishwas Bill, 2020 will now cover pending litigations in Debt Recovery Tribunals (DRTs) as well besides those in various courts and tribunals, as announced by the Union cabinet.

SARFAESI Act

The SARFAESI (Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest) Act is considered as one of the landmark reforms in providing the creditors the rights to liquidate the borrower's assets, mainly the collateral. Before the act, it was a very cumbersome and unrewarding process to go after the assets of the borrowers and realize them in the markets to ease the liquidity woes of the lender (Dey, 2018). In 2002, the Andhyarujina Committee prepared a report on the basis of which this act was passed. The provisions of the act enabled banks and financial institutions to go after the speedy recovery of their dues from defaulters, with help of private ARCs (Assets Reconstruction Companies) to reduce their NPAs (Bhadury & Pratap, 2018). This act allowed ARCs to take direct possession of the defaulters' assets or do a strategic management overhaul without the elongated litigation processes and it ensured the borrowers could no longer enjoy the undue safeguards from the BIFR/SICA (Rajeev & Mahesh; 2010).

Figure 4 : Comparative Analysis of Recovery Mechanisms



Source: Off-site returns, RBI and IBBI (2010-2019)
(Figures are in as-a-percentage recovery.)

Infrastructure Refinancing Scheme (2014)

The scheme tried to elongate the amortization period of assets of the borrower companies so as to reduce their provisioning cost and smoothen the cash flows, thereby improving their credit profile. The scheme broadly covered the eight core sectors which would comprise the majority of the stressed loans. Ultimately, the scheme couldn't serve the purpose well as it led to hefty interest burden for the borrower companies and led to evergreening of loans (Bhadury & Pratap, 2018).

Strategic Debt Restructuring (2015)

RBI launched the scheme in June 2015 to give an opportunity to creditor banks to convert the borrower company's debt (given that their loan was restructured[5], yet it could not finally meet the conditions of restructuring) to 51% equity and sell them to the highest bidder, subject to authorization by existing shareholders. Again, the expectations couldn't be met due to confusions over debt revaluation and long procedure (Mervin, 2018).

Indradhanush Scheme and PSB Recapitalization

The Indian Government announced the Indradhanush plan for revamping Public Sector Banks in August, 2015. The plan envisaged infusion of capital of about Rs. 70,000 crore in PSBs by the Government over a period of four financial years (PIB, n.d.).

In October 2017, the government announced massive recapitalization of PSBs for Rs 2.11 Trillion, of which the majority would be raised through sale of recapitalization bonds. It was ensured that the PSBs had sufficient liquidity and didn't curtail credit creation.

Insolvency and Bankruptcy Code (IBC)

IBC Act, 2016 was a landmark progress in the management of NPAs in India. The law aims to consolidate all the existing frameworks by creating a unified law for insolvency and bankruptcy. The law is well-phased, structured and involves multiple and stakeholder bodies. India then ranked 136 out of 189 countries in the World Bank's index of ease of resolving insolvencies. The law proved to be relatively efficient and many amendments have been made to it till date, thereby making NPA management more efficient.

Recommendations of the RBI's Internal Working Group of November 2020

The Internal Working Group suggested that the Banking Regulation Act, 1949

[5] Restructuring of loans means that when a moneylender alters the terms of credit in order to help the borrower when it's facing financial distress. This is generally done to avoid the loan being classified as a NPA and the borrower further being considered as a defaulter.

should be amended to prevent various malpractices, including the unethical unaccounted relationship between businessmen and banks, and to improve supervisory mechanisms, especially for the larger conglomerates. The RBI has been actively reforming monitoring and supervision of borrowers, especially due to certain cases of misgovernance of credit in the past (Arun, 2020).

THE WAY AHEAD: SUGGESTIONS FOR AN IMPROVED NPA SITUATION IN INDIA

Management Efficiency and Personnel Incentivisation

As mentioned earlier, the monetary authority, as well as the banks, is keen on enhancing management efficiency and providing banking personnel the incentives to undertake responsible banking. It is commonly understood, the banks, public or private, should be managed by a professional Board of Directors (BoD). Additionally, a proper succession plan should be laid beforehand, in order to avoid gaps in management sustainability. With regards to PSBs, there must be minimum political interference and these banks should be allowed to take independent decisions and be held accountable for them.

The bankers should critically scrutinise accounts and credibility of their borrowers. In this regard, third party credit information agencies like Credit Information Bureau (India) Limited or CIBIL. Bank personnel needs to be incentivised to undertake efforts to identify and lend to only genuine borrowers. A comprehensive performance based compensation mechanism can be one way to incentivise bankers against taking unwarranted risks, thereby enhancing banks' corporate governance. Deferred bonus payments, typically after three to five years of performance analysis and pensions and other retirement benefits promised to be paid solely on the basis of performance, can be helpful in this direction (Keppo & Xuchuan, 2017).

According to Koudijs, Salisbury and Sran (2018) bankers with less personal liability pose a greater likelihood of engaging in 'too risky' lending practices. Hence, it is extremely necessary that Bankers should be made more liable and answerable for their actions.

Efficient Utilisation of Technology and Scope for Innovation

Technology can be of tremendous importance in addressing the problems of rising NPAs. It can be effectively used to improve credit monitoring and fast track recovery mechanisms. According to a study conducted by Dinesh et al. (2020), majority of the bankers strongly believe that "adoption of obsolete technology" is the most important reason behind the defaults on loans. Technology indeed enhances the lenders' ability to access borrowers' credibility and has added to the overall transparency of the lending process. As stated by Nirmal and Derashri (2018), many banks still don't use technology optimally, and focus on paper work rather than digital processes. Hence, there is an urgent need to shift towards greater technology utilisation to deal with NPAs.

Robotic Process Automation (RPA) and advanced data analytics could be of immense importance in identifying legitimate and prospective borrowers and would facilitate banks to invest in more productive projects with longer term prospects (The Economic Times, 2017). In this direction, an important topic being discussed extensively now-a-days is the possibility of the inclusion of blockchain in banking. The 'shared infrastructure' of blockchain would ensure the validity of the information, thereby facilitating banks to access risks and detect frauds on a real-time basis. This technology is thought of as a "game changer" in credit monitoring (Vaidhyanathan, 2021).

Similar innovations towards a stronger database automation and enhancement of borrower evaluation and credit monitoring would lead to a reduction in the quantum of NPAs, thereby improving the overall financial health of the Indian banks.

Bad Banks and Good Banking

Bad banks are one of the most talked about mechanisms of NPA redressal even today. The need for the bad banks in India was recently brought up by the RBI chief Shaktikanta Das, after the Stress Test done[6] by the apex bank

[6] A bank stress test is an analysis conducted under hypothetical scenarios designed to determine whether a bank has enough capital to withstand a negative economic shock such as a deep recession or a financial market crash.

showed a worrisome data about a new probable wave of bad debts. This is not something new. Our country has witnessed similar situations in credit creation post economic recessions to boost growth and development. Many of the Economic Surveys in the past have indirectly talked about setting these up. For instance the Economic Survey 2016-17 argued for setting up a "Public Sector Asset Rehabilitation Agency".

Technically, bad banks are a type of Asset Reconstruction Companies (ARCs) which take over the bad loans of Lender Institutions for a discount and then try to realise those assets themselves. The initial corpus is provided by the government and in the due course the banks and other entities co-invest in it. The major objective and benefit of these kinds of institutions is that they clean up the Balance Sheet of the lender bodies and do not let the credit creation process take a hit which is so mandatory for a middle-income country like India (Verma, 2021). The Banks can sell their doubtful or bad assets to them and they are freed from the associated burden of maintaining excessive provisioning for the bad loans, which in turn increases the amount of their loanable funds and will prevent banks from accumulating losses (Shridharan, 2020). Moreover, the implicit benefits of specialisation in work & division of labour are expected to be in favor of this idea.

Historically as well, ARCs have been a success story in NPA management. The role of Korea Asset Management Company (KAMCO) in reviving S. Korea during the East Asian crisis of 1997 was exemplary (Bhadury & Pratap, 2018). One may inquire why they have not been implemented till now if they are theoretically sound. There are some major apprehensions regarding this idea. Many experts assert that this is just a way of transferring things from one pocket to another; the major question of inefficient lending and recovery or more formally put as structural deficiencies is being ignored by this setup. The questions also arise on the probable decline in incentives available to the banks to closely monitor their debt since they can get rid of this via the bad banks. Also, the transfer pricing will be a matter of concern, for which the Swiss Challenge Method of Price Discovery[7] is likely to be adopted (Roy, 2021). Hence, numerous complications need to be dealt with, before their establishment.

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[7] This means that even as an asset is transferred to the new asset reconstruction company (ARC) at a pre-agreed price, bids will be called later from others, and the highest bidder will get the asset.

Solving the Agrarian Crisis: Alternate Non Traditional Ways for the Future

The agricultural sector in India, despite being the largest sectoral employer, is extremely plagued in terms of investment and productivity (Gaur, 2008) and has alarming levels of NPA. Many factors can explain this condition - be it dependence on monsoons, high rates and prevalence of informal lending, proneness to natural and regional disasters, etc. (Kriti et. al., 2018). Anticipation of loan waivers may further disincentive repayments. The schemes are generally announced for the typical marginal farmers in India, but the benefits seldom reach to them. The banks get the repayments from the government after some time period, which forces them to keep provisions for long and thus the profitability declines.

A revamp of the agricultural sector is the need of the hour. Although a few steps have been taken, much more can be done seeing the pressing population dependence in India. The formalization of agricultural credit provision must be a priority for the governments. SHGs and mechanisms like ROSCAs[8] can also be promoted at the grassroots level. The success story of Rajasthan Grameen Aajeevika Vikas Parishad (RGAVP) in the rural Rajasthan is exemplary. The recent turmoil over the MSPs and Mandis could be overcome by linking the Futures Markets and the farmers, wherein the farmers would be able to come out of the never-ending Cobweb model[9] crisis; they will be able to supply and produce according to the expected trends of the future (Chatterjee et al., 2019).

CONCLUSION

This study discusses the direction and significance of the impact of various macroeconomic variables, including economic growth, unemployment rate, real interest rate and inflation rate. The analysis shows that both Gross and

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[8] A Rotating Savings and Credit Association (ROSCA) is a group of individuals who agree to meet for a defined period in order to save and borrow together, a form of combined peer-to-peer banking and peer-to-peer lending.

[9] This refers to a phenomenon where the prices of certain goods witness fluctuations that are cyclical in nature. It happens due to faulty producer expectations, generally due to adaptive expectations.

Net NPA ratios, as expected, are negatively related with GDP growth rate and inflation rate, whereas they are positively related with unemployment rate and real interest rate. However, all factors except inflation rate seem to have a statistically insignificant impact. Moreover, there seems to be a greater presence of proportionate NPAs in public sector banks than their private counterparts. Additionally, numerous bank specific factors, including managerial efficiency, profitability, bank size etc, also impact the quantum of NPAs to a great extent.

The Indian government has been dealing with the NPA problem by continuous improvisation of recovery mechanisms; the recent measures being the banks recapitalization (to not let further credit growth deteriorate, which is crucial for a developing country like India) and the IBC 2016 to make the recovery faster and efficient. However, numerous other measures can be undertaken, as elaborated previously, to improve the management of NPAs further. By use of AI and ML in the banking sector, creation of entities like Bad Banks and solving the stress in the priority lending sectors; particularly agriculture, where in alternative forms of lending and market integration can go a long way in solving the crisis facing the country

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Appendix

A. Data on Macroeconomic Variables and NPAs of SCBs

Year	GNPAR (%)	NNPAR (%)	GDPAG (%)	UR (%)	RIR (%)	IR (%)
2001	11.4	6.2	4.82	5.66	8.59	3.78
2002	10.4	5.5	3.80	5.72	7.91	4.30
2003	8.8	4	7.86	5.73	7.31	3.81
2004	7.2	2.8	7.92	5.67	4.91	3.77
2005	5.1	1.9	7.92	5.60	4.86	4.25
2006	3.3	1.2	8.06	5.45	2.57	5.80
2007	2.5	1	7.66	5.32	5.68	6.37
2008	2.2	1	3.09	5.28	3.77	8.35
2009	2.3	1.1	7.86	5.57	4.81	10.88
2010	2.6	1.1	8.50	5.64	-1.98	11.99
2011	2.5	1	5.24	5.64	1.32	8.86
2012	3.1	1.3	5.46	5.65	2.47	9.31
2013	3.2	1.7	6.39	5.67	3.87	10.91
2014	3.8	2.1	7.41	5.61	6.70	6.35
2015	4.3	2.4	8.00	5.57	7.56	5.87
2016	7.5	4.4	8.26	5.51	6.23	4.94
2017	9.3	5.3	7.04	5.42	5.52	2.49
2018	11.2	6	6.12	5.33	4.69	4.86
2019	9.1	3.7	4.18	5.36	6.37	7.66

Source: Reserve Bank of India and World Bank Open Data

The above data pertains to Gross NPA to Gross Advances Ratio (%), Net NPA to Net Advances Ratio (%) and macroeconomic variables namely, GDP Annual Growth Rate (%), Unemployment Rate (%), Real Interest Rate (%) and Inflation rate (consumers' prices) (%).

B. Correlation Matrix for NPAs in Scheduled Commercial Banks and Macroeconomic Factors

	GNPAR (%)	*NNPAR (%)*	*GDPAG (%)*	*UR (%)*	*RIR (%)*	*IR (%)*
GNPAR (%)	1					
NNPAR (%)	0.97266446	1				
GDPAG (%)	-0.2437478	-0.2326059	1			
UR (%)	0.03741581	0.02476467	0.17985217	1		
RIR (%)	0.60230114	0.61556783	-0.1504734	0.02924751	1	
IR (%)	-0.7112298	-0.6873232	-0.0631397	0.04301969	-0.6683646	1

C. Data on Public and Private NPAs

Year	GNPAR (Public)	GNPAR (Private)	NNPAR (Public)	NNPAR (Private)
2001	12.4	5.1	6.7	3.1
2002	11.1	8.9	5.8	4.9
2003	9.4	7.6	4.5	1.5
2004	7.8	5	3.1	1.7
2005	5.6	3.9	2	1.9
2006	3.6	2.5	1.3	1
2007	2.7	2.2	1.1	1
2008	2.2	2.5	1	1.1
2009	2	2.9	0.9	1.3
2010	2.4	3	1.1	1
2011	2.4	2.5	1.1	0.6
2012	3.3	2.2	1.5	0.5
2013	3.6	1.8	2	0.5
2014	4.4	1.8	2.6	0.7
2015	5	2.1	2.9	0.9
2016	9.3	2.8	5.7	1.4
2017	11.7	4.1	6.9	2.2
2018	14.6	4.7	8	2.4
2019	11.6	5.3	4.8	2

Source: Reserve Bank of India

D. Hypothesis Testing for GNPA and NNPA Ratios in Public and Private Banks

Following are the respective hypotheses for comparing GNPA ratio (Public) and GNPA ratio (Private):

H0: μ GNPAR(Public) = μ GNPAR (Private)
H1: μ GNPAR(Public) > μ GNPAR (Private)

Keeping the level of significance at 5%
P value (one-tailed) = 0.006 < 0.05 = α (LoS)
Hence, the null hypothesis is rejected in favour of the alternative.

Similarly for NNPAR,
P value (one-tailed) = 0.003 < 0.05 = α (LoS)
This leads to the similar conclusion as above.

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HISTORY OF THE JOURNAL

The idea to launch this Journal was discussed in December 2016 by the former Officiating Principal, **Dr. R. P. Rustagi** with **Dr. Santosh Kumari,** the Editor of the Journal. Since the idea appealed to **Dr. Santosh Kumari**, she took the initiative to contribute to SRCC by creating this new academic research Journal and took the responsibility for its Creation, Registration, License and ISSN (International Standard Serial Number) etc. along with *Editorship*. Therefore, **Dr. Santosh Kumari, Assistant Professor in the Department of Commerce, Shri Ram College of Commerce** was appointed as the Editor of the Journal vide. Office Order – SRCC/AD-158/2017 dated March 14, 2017. She meticulously worked hard in creating the concept and developing the structure of the Journal. She introduced the concept of COPE (Committee On Publication Ethics) to maintain the high academic standards of publication.

On behalf of SRCC, **Dr. Santosh Kumari** made every effort in seeking License from Deputy Commissioner of Police (Licensing), Delhi to register the Journal at "The Registrar of Newspapers for India, Ministry of Information and Broadcasting, Government of India". The paper work for seeking license started under the former Officiating Principal, **Dr. R.P. Rustagi** on March 27, 2017. The foundation Issue of the Journal "**Strides – A Students' Journal of Shri Ram College of Commerce, Volume 1, Issue 1, 2016-17**" was successfully released on the 91st Annual Day of SRCC held on April 13, 2017 by **Shri Prakash Javadekar, Honb'le Union Minister of Human Resource Development, Government of India**. The title of the Journal got verified and approved by the Registrar of Newspapers for India, Ministry of Information and Broadcasting, Government of India on April 21, 2017. On September 1, 2017, **Prof. Simrit Kaur** joined SRCC as Principal and signed each and every legal document required for further processing and supported **Dr. Santosh Kumari**.

On December 18, 2017, the College got the license "**License No. - DCP / LIC No. F. 2 (S / 37) Press / 2017"** to publish 'Strides – A Students' Journal of Shri Ram College of Commerce'. Due to change of Printing Press, the License got updated on March 09, 2018. On April 26, 2018, the SRCC Staff Council unanimously appointed **Dr. Santosh Kumari as the 'Editor of Strides**' for the next two academic years.

On April 27, 2018 (The Foundation Day of the College), **Dr. Santosh Kumari** submitted the application for the registration of the Journal. On May 04, 2018, the SRCC received the '**Certificate of Registration**' for ***"Strides – A Students' Journal of Shri Ram College of Commerce"*** and got the **Registration No. DELENG/2018/75093** dated May 04, 2018. ***On behalf of Shri Ram College of Commerce, it was a moment of pride for Dr. Santosh Kumari to receive the 'Certificate of Registration' on May 04, 2018 at the Office of Registrar of Newspapers for India, Ministry of Information and Broadcasting, Government of India (website - www.rni.nic.in).***

On May 07, 2018, **Dr. Santosh Kumari** submitted the application for seeking ISSN (International Standard Serial Number) at "ISSN National Centre – India, National Science Library, NISCAIR (National Institute of Science Communication and Information Resources). Weblink - http://nsl.niscair.res.in/ISSNPROCESS/issn.jsp". Finally, the College received the International Standard Serial Number "**ISSN 2581-4931 (Print)**" **on June 01, 2018.**

We are proud that this journal is an add-on to the enriched catalogue of SRCC's publications and academic literature.

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RELEASE OF FOUNDATION ISSUE OF STRIDES

The foundation issue of the Journal "Strides - A Students' Journal of Shri Ram College of Commerce, Volume 1, Issue 1, 2016-17" was successfully released on 91st Annual Day of SRCC held on 13th April, 2017 by Shri Prakash Javadekar, Honb'le Union Minister of Human Resource Development, Government of India.

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