

Corporate Defaults and Banks Sustainability: An Empirical perspective of an Emerging Economy

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ABSTRACT

In recent times, Indian corporate sector is experiencing financial distress for varied reasons. It is more so in case of the enterprises which are engaged in infrastructure sector particularly power, Telecommunication, Real Estate & Construction, Steel & Cement sectors, Engineering, Textiles and Pharmacy sectors. This stress is primarily contributed by the over exuberance in managerial decision making, policy paralysis, demand erosion, funds diversion and liberal credit allocation by the bankers defying the financial prudence of bank lending.

The present paper makes an effort to study the corporate defaults in the Indian corporate sector in recent times (April 2007 to March 2019). It makes an attempt to study corporate defaults with a view to generalize study findings in the three perspectives viz. Economy, Lending Institutions and the supervision of the lending. The study results reported in this paper pointed inexplicable gaps in the corporate lending practices that worsened the financial health of lending institution that has caused irreparable damage to the Indian economy. However it also notices remarkable improvement in the performance of debt recovery constituent to the new bankruptcy laws. Nevertheless the study findings indicate the dire necessity of risk assessment and strengthen the institutional mechanism in and its subsequent follow up in India. The research findings reported in this paper indicates recessionary tendencies in economic activities and the Indian business has well taken this into its stride and has thus sustained its impact. However, the post-study time window observations points that financial health of the creditor has further been impaired and the regulatory facilitation has augmented bankruptcies in the Indian Corporate sector.

Keywords: Corporate Defaults, Indian Economy, Lending Institution

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Introduction

Debt management is a vital issue of Indian economy. Taking loan is very necessary for a business because whole business can't be conducted by owned funds. Bank finance or borrowed funds are needed at any stage of business like to increase the operations of business, to strengthen the business, for the growth of business etc. The bank finance is needed because many times such corporate come which can't synchronize their cash inflow with their cash outflow and the time gap generate. And to bridge this gap they have to take loans from banks. They take loans for long run as well as for short run. They take long term loans for increasing their scale & short term loans for working capital and to meet seasonal requirements. Banks execute loans to the business on the basis of projected statements which shows a good vision of their company but these projections don't work in real sense and their revenue flow is decreasing and they don't serve their debt obligations or don't pay bank interest. It becomes NPA's for banks and banks credit stuck off and impairment to the economy. On the other hand the health of banks is going bad and bank's capital adequacy ratio showing default and industries don't perform their functions smoothly. So the Government has to intervene the industry and to make such type of regulatory system that some bank credit can be resolve and put it in a productive use.

Every economy's central point or heart is the financial system & every financial system's heart is the banking sector. Banking sector is that sector which channelizes the savings into investment into various sectors of the economy. This process of mobilization of funds called capital formation. Such type of financial intermediation process shows financial institution efficiency as well their theatrical role in economic development. The non-performing assets developed from the Narasimham committee (1991) recommendation. To check the health of the banking sector, NPA's represent the Best Indicator. Banks advancing loan function gives arise to the NPA's

problem because such types of burden are inescapable or unpreventable. Banks generate income by advancing loans on the base of debtor's assurance to payback both the interest as well as the lending amount. But when both are not paid then banks turn a loss of the interest as well as the lending amount. The process of advancing loans carries out the various types of risks but most important risks related with banks functioning are credit risk and interest risk. No doubt banks profitability is driven by advancing loans to corporate sector but in recessionary conditions it puts more risk.

Now a day's banks experience corporate defaults under exceptional circumstances. These days increasing corporate defaults is a serious problem faced by Indian banking sector which affected the financial health, capital base and the ultimate survival of Indian banks. The eminent level of corporate defaults and NPA's affects the profitableness, value eroding, net income of the banks and quality of assets and that will be contagious to growth and performance of the economy at large.

Categorization of NPA's:

- (i) **Standard Assets:** Such type of asset are performing asset because they generate income for the bank as and when required. They are not NPAs in the real sensation because they carry a normal risk.
- (ii) **Sub-standard Assets:** Such type of assets ceases to generate income for 12 months duration.
- (iii) **Doubtful Assets:** Such type of assets ceases to generate income apart from 12 months duration.
- (iv) **Loss Assets:** Such type of assets those cannot generate any income for the bank.

Objectives of the Study

- 1) To analyze scale of corporate defaults in relation to the total lending by the banks.
- 2) To study the incidence and the effects of corporate default on the sustainability of banks (in terms of profits).

Hypotheses

- H₀₁ That corporate default is not statistically significant in relation to the banks' lending.
- H₀₂ That the incidence of corporate defaults is not statistically significant on the sustainability of the banks (in terms of profits).

Literature Review

(**Farooq, Qamar & Haque, 2018**) made a study on “A Three Stage Dynamic Model of Financial Distress” taking the sample of 321 continuing, 54 temporarily prevent from continuing and 91 delisted non-monetary companies and divide the financial distress in three phases viz. Profit Reduction (PR), Mild Liquidity (ML) and Severe Liquidity (SL). The study concludes that the 1st stage of winding up seems Severe Liquidity (SL) because SL documented firms come to an end of their operations before the winding up by the court. The study also argues that Profit Reduction (PR) and Mild Liquidity (ML) situation mostly faced by sound firms during 1st phase. (**Payne, 2018**) in the research paper “The Role of Court in Debt Restructuring” examined the law’s intervention & theatrical role of court in three expected forms of misuse during debt restructuring. The study argued that the law & court have a significant role during the three forms of misuse viz. Infliction of a reorganization on dissentient lenders which may insert the issue of wealth transfer between lenders; misuse of abeyance during restructuring negotiation with the help of which managers can speculation the process to shore up the not feasible company, servicing the liberation finance. If the proposals of Insolvency service’s 2016 are enforced then English courts are able to answer these questions in a better way. (**Farooq & Jibran, 2018**) studied the “Scope, measurement, impact size and determinants of indirect cost of financial distress using the five step process of systematic literature review (SLR).” The study evidenced that most deliberate indirect costs are market loss, management loss opportunity loss, operating profit loss and risk

premium. The study suggested the use of ex-ante proxy of financial distress with nonlinear leverage. The study also concludes that indirect cost is more acute than direct cost of insolvency. **(Gibilario & Mattarocci, 2018)** made a study to analyze the banks risk exposure with respect to single banking relationship and multiple banking relationships by using the unique database which is provided by the Italian Public Credit register, the representative of full Italian market before the financial crisis. The study contends that where the past dues are short, the multiple lenders made abridge oversee and at the time of longer past dues or debt is organized increases the supervision process and cut down the number of risk at the time of default. The study also conclude that ex post lending risk were more affected by multiple lending as compare to ex ante lending risk. **(Quintiliani, 2017)** made a study on “Financial Distress Cost of Italian small and medium enterprises” to offer theoretical model intent to forecast the possibility of financial suffering of the enterprises and measure the restitution when financial difficulty is out of breathe by using the 25 SME’s for the period 1999-2006. The study evidenced that there is a positive relationship between financial distress likelihood (FDL) and expected financial distress cost (EXPFDC); a negative relationship between SME’s invisible intangible assets and (EXPFDC); a negative relationship between SME’s invisible intangible assets and EXPFDC is more evident for the SME’s that relate to local banks. **(Swain, Sahoo,& Mishra 2017)** made a study on “NPA of Scheduled Commercial Banks in India: Its Regulatory Framework.” They conclude that there is a high level of Non-Performing Assets in the Scheduled Commercial Banks. The government took a lot of actions to reduce the NPA but still a large amount of attempts have to be taken in this direction or to stop increasing NPA. They also conclude that SARFEASI Act play a significant role in NPA recovery in comparison to other measures. **(Mittal & Suneja, 2017)** made a study on “The Problem of Rising Non-Performing Assets in Banking Sector in India: Comparative Analysis of Public & Private Sector Banks.” They studied the bank’s NPA’s level and their reasons of increasing. The study concludes that NPA of Private Sector Banks are less in comparison to Public Sector Banks & Private Sector Banks meet out the NPA’s efficiently as compared to Public Sector Banks.**(Mishra & Pawaskar, 2017)** in their research paper “A study of Non-Performing Assets & Its Impact on Banking Sector” found that Public Sector Banks faces the acute issues of Non-Performing Assets & their recovery in comparison to Private Sector Banks. They conclude that there must be a legal procedure for debt & NPA’s recovery because they include litigation & court orders

to recover the loans for the prevention of NPA's. Banks should have better credit appraisal system also need to get support from the system. **(Goel, 2017)** studied on "The Insolvency and Bankruptcy Code: Problems & Challenges." The author has studied on the conceptual framework of the paper and discussed about the various problems and challenges in this bill. It concluded that though this bill is a significant move taken in correct way but this code is over ambitious on one hand because it is aiming at big alterations in all over 11 states and on the other side it is aiming at organizations like National Company Law Tribunal (NCLT). Main problem discussed by the author is improper distribution of constitutional powers between authorities. **(Sarkar & Sensarma, 2016)** made a study on "The Relationship between Competition and Risk –taking behavior of Indian Banks." The study contends that the conventional system of Franchise leads to high interest rates and as a result risk is increasing. Boyd and De Nicolo (2005) look on a contrarian point of view and suggested that lower interest rates are led by loan market's competition and as a result their risk diminished. To notice the concentration effects five kinds of risks are examined viz. Market Risk, Asset Risk, Liquidity Risk, Capital Risk and most prominent the Default Risk. The study discover the positive relation between concentration effects and Asset Risk, Default Risk and Market Risk which argue the risks deal by the banks are decline with the more competition. Capital and liquidity ratios also have positive relation with the concentration which implies with the more competition banks safety buffer worsened. **(Valta, 2016)** studied on "strategic default, debt restructure and stock returns" with a view to enquire debt structure at the time of default and the fundamental interaction between the debt holders and shareholders affects the stock yield by using the US publicly traded firms large sample for the duration 1985-2012. The study contends that the firms those are facing high debt reconstitution troubles' having high secured or convertible debt shows a higher stock returns. **(Singh, 2016)** did a study on "Non-Performing Assets of Commercial Banks and Its Recovery in India" by analyzing its conceptual framework and effects of NPAs on profitability and their various recovery channels. This study is examined by using simple statistical instruments like percentage and bar diagrams. The study concluded that though major steps for recovering NPAs has been taken but there is still more to stop increasing NPA's. **(Kaur, 2016)** studied on "Impact of Stressed Assets of Banks on Companies." A conceptual study has been done which explains the meaning of stressed assets, their cause and how do they impact companies borrowings. Now, Corporates with huge amount of debt will have no

option rather than to knock bond markets for at least half their new borrowings. With this various suggestive measures has been given to decrease the level of stressed assets of various banks. **(Kiran & Jones, 2016)** made a study on “Effect of Non-Performing Assets on the Profitability of Banks – A Selective Study.” In this paper the authors analyze the impact of NPA on the profitability of Public Sector Banks. The study concludes that GNPA and EBIT have negative relation of all banks except SBI and SBI earn continuous profits. **(Laveena & Kumar, 2016)** made a study on “Management of Non-Performing Assets on Profitability of Public & Private Sector Banks” discuss about the concept of NPA, provisioning norms, NPA’s management strategies, factors which cause rise in nonperforming assets, steps have to be taken immediately when assets made default in payment, reasons & preventive measures of NPA’s & conclude that banks have to strengthen their credit evaluation norms. **(Garg, 2016)** made a study on “A Study on Management of Non-Performing Assets in context of Indian Banking System” discuss on the NPA’s effects on the profitability of banks, preventive measures for NPA, procedures for NPA identification & compromise settlement scheme. **(Cumming and Fleming, 2015)** studied on “corporate defaults workouts and the rise of the distressed asset investment industry” with a view to analyze the stressed asset investing industry their organization, development and most important their scheme. The study contented that private sector attempt proper competence and efficiency due to the crucial role of these organizations in the insolvency and corporate reorganization. **(Rao & Patel, 2015)** made a study on “A study on NPA Management with reference to Public Sector Banks, Private Sector Banks & Foreign Banks in India” with the objective of comparison, analyses & interpretation of management of Non-Performing Assets for the duration 2009-2013. Their results shows that Public Sector Banks portion of GNPA to Gross Lending is growing, foreign banks ratio of loss advances to gross lending is greater than normal and private sector banks and foreign banks estimated GNPA are less than public sector banks approximately in 2014. Their findings conclude that Public Sector, Private Sector & Foreign Banks ratios of GNPA to Gross Lending do not have significant difference for the duration 2009 to 2013. **(Venkiteshwaran, 2014)** made a study on “Do Asset sales Affect firm Credit Risk? Evidence from Credit Rating Assignments” with the objective to find the effects of assets sale on firm credit quality. The Study has been analyzed by using the ordered Probit regression and argued that there are two type of effects of assets sale on firm credit quality. On the one side firm credit quality decreased by the sale of stressed

assets or increased the debt risk, while sale of other assets improves the firm liquidity and credit quality. **(Sevta, 2014)** the study emphasis on situation of Indian companies during 2008-2009 suffering from tightening of lenders, creditors and weaker consumer demand. The study shows that companies were unable to deal with the high level of debt they had accumulated over time and such cases were an inevitable result. The study conclude that the scheme proven to be a blessing in context of Indian market with the advent of the recession and the scheme saw an enormous response which contained. CDR gives a chance to the companies to mend their ways and save them from bankruptcy are here to stay. **(Petitjean, 2013)** made a study on “Bank failures and regulation: A critical Review” with the objective to specify the fundamental parts of an effective regulatory authorities. The study analysis showed that regulatory authorities play a crucial role conducive to the rigor crisis. How cautiously rules and regulation will be made but still they are not able to forbid bankruptcy. The study also argued that the most important factor of an effective regulatory authority must be Basel norm for banking supervision, robust to off balance sheet arbitrage, trivial endurance control and oversight by regulatory authority with robot like and prompt interference as well as settlement mechanism. No doubt these all are essential parts but no one is adequate and can be effective only with substantial international coordination. **(Gumus, 2013)** studied on “debt denomination and default risk in emerging markets” with a view to examine the debt denomination effects on default and interest rate risk. The study using a model evidenced that debt denomination effects on default and interest rate risk varies with the level of output. The study contends that lending with indexed bonds decline the default risk at low output level and lending with non-indexed bonds decline default risk at high output level. When a particular country borrows with indexed bonds, the economy’s default rate decreases due to most of the defaults happen at low output. **(Sikdar & Makkad, 2013)** made a study on “Role of nonperforming assets in the risk framework of commercial banks –A study of select Indian commercial banks.” The study concludes that with the proper mechanism of credit assessment & risk management, the issue of NPA can be resolved. For the proper credit worthiness, skill up gradation, improved managerial efficiency & organizational restructuring are necessary. **(Kasisomayajula, 2013)** made a study on “Emerging Study on Corporate Debt Restructuring (CDR) with reference to Vardhaman Poly- Tex Company in ‘Oswal’ Textile Group.” The study focus on to do business ethically and delivering value beyond expectations and require innovation in products and services.

Banking sector Assets can't be put upon in injudicious way because these are valuable and restricted. During economy upward and downward trends, CDR is specifically essential. For conserving the bank's assets economic value CDR structure is developed (**Chaklader and Dhamija, 2012**) made a case study on Wockhardt a drug maker firm start up business with a mission of 1 billion USD but unfortunately due to foreign exchange derivative losses and climbing debt and decreasing share prices, firm going to bankruptcy stage. The study concludes that entry to the CDR Structure is not so easy because it puts a lot of restrictions on the package. However dedication of the creditor and with the assistance of CDR Mechanism, Company availed a quick around. (**Bansal, 2012**) in the research paper "A study on recent trends in risk management of NPA by public sector banks in India" focus on management of NPA's basically of those banks which are facing difficulties to ensure the operational viability & financial soundness & making struggle to build a sound base. (**Ong, Yap, & Khong, 2011**) made a study on "Corporate Failure Prediction: A Study of Public Listed Companies in Malaysia" in order to build up a Model that can help in predicting the Malaysia's listed firms financial suffering with the use of Regression technique. The study concludes that there are five financial ratios on the basis of which Malaysia's companies failure prediction can be constitute. And the Model that is used have 91.5 accuracy which implies regression technique is an authentic technique in order to know the financial suffering prediction. (**Laitinen, 2011**) made a study on "Effect of Reorganization Actions on the Financial Performance of Small Entrepreneurial Distressed Firms" with the objective to examine the consequences of various restructuring activities on long term financial operations of restructuring small entrepreneurial firms. The study using the Structural Equation Model (SEM) on 98 restructuring small firms in order to check the impact on performance of financial restructuring, management control system change, management accounting change and organizational change. The study concludes that some variables have positive impact on performance like debt reorganization and management control system change while management accounting change has negative impact and organization change and asset liquidation have indirect impact and overall organization change has positive change. (**Kam, Citron, & Muradoglu, 2010**) made a study on "Financial Distress Resolution in China- Two Case Studies" with the objective to analyze the two counterpoint financially suffering corporates and their reorganization scheme by using the case study methodology. The study examines the accounting based performance of Chinese firms

in order to know the difficulties their nature and how their restructuring process are different as compare to other developed country's economy. The study concludes that the scheme followed by the firms are restructuring of assets involving M&A whether including payment or without payment, sale of assets and managerial & debt reorganization. The study also contends that in restructuring process the role of government is not welcomed and stakeholders want privatization. **(Zeni & Ameer, 2010)** studied on "Turnaround prediction of distress companies: Evidence from Malaysia" with the objective to look into the pertinence of 'In Country' developed turnaround prediction model as well as developed country prediction models using the sample of Malaysian financially distressed companies for the duration 2000-2007 using the multiple discriminant analysis (MDA) technique. The study found that the substantial forecaster variables of potential turnaround of distressed companies are liquidity size, financial distress severity and profitability. Their analysis showed that 'in country' developed turnaround model was not much better anticipating accuracies as compared to developed country turnaround model. **(Chen, Chen & Haung, 2010)** made a study on "An Appraisal of Financially Distressed Companies' Earnings Management- Evidence From Listed Companies in China" with the aim to analyze the financially disturbed corporates pattern of earnings management for 2002 to 2006 duration. The study concludes that there is no significant difference between the years preceding the year of Special Treatment designation, in the ST designation year and after the year of ST designation's earnings management pattern of private corporates and state owned companies. **(Schneider, Sogner and Veza, 2010)** made a study on "the economic role of jumps and recovery rates in the market for corporate default risk" to understand the implied loss given default (LGD) and rise in default risk. The study contends that due to the instantly unforeseen stupor the speculative grade debtor expressed a lower relative increase in their default as compare to investment grade debtors. **(Garcia, Lastra, & Nieto, 2009)** made a study on "Bankruptcy and Reorganization Procedures for Cross Border Banks in the EU" with the objective to explore the complexness of reestablishment and present institutional framework, their healing and bankruptcy practices. The study evidenced that there is variety among national oversight, healing and bankruptcy practices for banks. The study also evaluates economy perspective of institutional framework for answering the problems like restructuring and winding up. **(McIver, 2005)** made a study on "Asset Management Companies, State owned commercial banks, Debt transfers and contingent claims: issues in the valuation of china's non-

performing loans.” The study talk about the contingent claims that arises due to non-performing loans transfer to asset management companies (AMC) by the state owned commercial banks and equity for debt swaps. The study evidenced that due to the implied guarantee given by AMC and the nonperforming debt held by banks, state owned commercial banks (SOCB) were able to made gains to the credit standing as a result SOCB’s credit rating enhanced and equity position value held by AMC’s reduced. **(Hoque, 2003)** studied on “flawed public policies and industrial loan defaults: the case of Bangladesh.” The study deliberate the different flawed policies like industrial policy, exchange rate policy, and tariff policy with respect to industrial loan default that disabling the industries progress in Bangladesh during mid-80’s. The study argued that government of Bangladesh held a few policy initiatives like stifling the regulative steps, rendering new finance under bail out platform, debt prorogation, infliction of penal interest rates, not giving additional funds to the defaulter and took legal process against them. No doubt these all are necessary but still are not sufficient for recovering the debt. **(Lee, Kang, & Park, 2002)** made a study on “Issues and Remedies in Korean Business Restructuring” in order to know the reasons of insolvency of Korean firms and their Restructuring process. The study contends that the main reason of insolvency is the deficiency of profits and high debt obligation followed by the crisis of foreign currency. For the restructuring of bankrupt firms, Bankruptcy Law of Korea provides different methods of restructuring in order to assist with various reasons and Bankruptcy degree. The study concludes that Workout, Corporate reconstitution and composition are generally adopted reorganization types. But in reality mostly stakeholders maltreated the system in order to have their ascendancy on the firms rather than selecting the proper type of reorganization. And in that situation for selecting the proper type of reorganization the court decide the proper type as per the firm circumstances.

Data & Methodology

- **Research Methodology**

The study’s nature is analytical which attempts to prove the relationship between corporate defaults and sustainability of the banks with the help of ratios and regression analysis.

Data Periodicity: Studied 12 year data between 2007-08 to 2018-19 of corporate defaults of 15 public sector banks and 9 private sector banks.

- **Data Collection**

Data collected from secondary sources.

RBI website, banks annual reports and money control website.

Data Analysis

GNPA Ratio of Public and Private sector banks during phase I, II and III (in RS Crore) table 1

Bank Name	Phase I								Phase II						Phase III						
	07-08	08-09	09-10	10-11	11-12	Mean	SD	Rank	12-13	13-14	14-15	Mean	SD	Rank	15-16	16-17	17-18	18-19	Mean	SD	Rank
Allahabd bank	2.03	1.83	1.71	1.76	1.85	1.84	0.12	6	3.97	5.85	5.58	5.13	1.02	10	10.1	13.72	17.47	20.18	15.37	4.4	10
Andhra bank	1.09	0.83	0.87	1.39	2.16	1.27	0.55	2	3.78	5.44	5.46	4.89	0.96	9	8.75	12.91	18.87	18.24	14.69	4.78	9
Bank of Baroda	1.86	1.28	1.37	1.38	1.55	1.49	0.23	3	2.43	2.99	3.8	3.07	0.69	2	10.56	11.15	13.21	10.29	11.3	1.32	4
Bank of India	1.7	1.73	2.9	2.26	2.6	2.24	0.53	9	3.22	3.47	5.52	4.07	1.26	5	13.89	14.2	18.26	17.79	16.04	2.31	11
Bank of Maharashtra	2.62	2.33	3	2.5	2.31	2.55	0.28	11	1.51	3.22	6.49	3.74	2.53	3	9.66	18	21.48	18.54	16.92	5.08	12
Canara Bank	1.32	1.57	1.53	1.49	1.73	1.53	0.15	4	2.58	2.51	3.95	3.01	0.81	1	9.74	10	12.44	9.17	10.34	1.44	3
Central Bank of India	3.22	2.71	2.33	1.85	4.93	3.01	1.19	14	4.92	6.49	6.3	5.9	0.86	13	12.62	19.55	0	22.08	13.56	9.89	6
IDBI Bank	1.9	1.39	1.54	1.77	2.52	1.82	0.44	5	3.29	5.04	6.09	4.81	1.41	8	11.52	23.45	32.37	34.08	25.36	10.33	15

Indian Bank	1.22	0.89	0.82	0.98	2.05	1.19	0.5	1	3.38	3.73	4.51	3.87	0.58	4	6.84	7.73	7.66	7.37	7.4	0.4	1
Indian Overseas Bank	1.65	2.57	4.57	2.76	2.79	2.87	1.06	13	4.12	5.13	8.69	5.98	2.4	14	18.68	24.99	28.82	25.19	24.42	4.21	14
Oriental Bank of Commerce	2.35	1.54	1.76	2	3.2	2.17	0.65	7	3.24	4.04	5.28	4.19	1.03	7	9.87	14.49	19.16	13.63	14.29	3.82	8
Punjab National Bank	2.78	1.62	1.72	1.81	2.97	2.18	0.64	8	4.36	5.41	6.75	5.51	1.2	11	13.54	13.2	12.77	16.89	14.1	1.89	7
State Bank of India	3.71	3.39	3.72	4.02	5.56	4.08	0.86	15	6	6.6	5.65	6.08	0.48	15	8.33	11.32	11.55	7.9	9.78	1.93	2
Uco Bank	3	2.24	2.02	3.18	3.54	2.8	0.64	12	5.56	4.43	6.97	5.65	1.27	12	16.61	18.83	28.43	30.09	23.49	6.76	13
Union Bank of India	2.23	1.99	2.24	2.4	3.06	2.38	0.41	10	3.03	4.17	5.1	4.1	1.04	6	9.04	11.77	11.67	16.41	12.22	3.06	5
PSB's Mean	2.18	1.86	2.14	2.1	2.85	2.23	0.37	N.A.	3.69	4.57	5.74	4.67	1.03	N.A.	11.32	15.02	16.94	17.86	15.28	2.9	N.A.
PSB's SD	0.77	0.70	1.03	0.78	1.13	N.A.	N.A.	N.A.	1.19	1.26	1.24	N.A.	N.A.	N.A.	3.23	4.95	8.55	7.81	N.A.	N.A.	N.A.
Axis Bank Ltd.	0.81	1.1	1.26	1.12	1.06	1.07	0.16	2	1.22	1.37	1.46	1.35	0.12	4	1.8	5.7	7.79	6.02	5.33	2.52	8
Federal Bank Ltd.	2.48	2.63	3.05	3.59	3.45	3.04	0.49	7	3.52	2.5	2.06	2.69	0.75	7	2.87	2.35	1.88	2.96	2.52	0.5	5
HDFC Bank Ltd.	1.43	2.01	1.44	1.06	1.02	1.39	0.4	3	0.97	0.99	0.94	0.97	0.03	2	0.95	1.06	1.31	1.37	1.17	0.2	1
ICICI Bank Ltd.	2.99	4.42	5.23	4.64	3.73	4.2	0.86	9	3.31	3.1	3.9	3.44	0.41	9	6.02	9.08	8.23	7.89	7.81	1.29	9
IndusInd Bank Ltd.	3.06	1.62	1.24	1.02	0.99	1.59	0.86	5	1.03	1.13	0.82	0.99	0.16	3	0.88	0.93	1.18	2.12	1.28	0.58	2
Karnataka Bank Ltd.	3.5	3.75	3.81	4.05	3.3	3.68	0.29	8	2.53	2.95	2.98	2.82	0.25	8	3.48	4.27	3.35	4.48	3.9	0.56	7
Kotak Mahindra Bank	2.91	4.15	3.69	2.06	1.57	2.88	1.08	6	1.56	2	1.87	1.81	0.23	6	2.39	2.63	2.25	2.17	2.36	0.2	4
South Indian Bank Ltd.	1.8	2.2	1.33	1.12	0.98	1.49	0.51	4	1.36	1.19	1.72	1.42	0.27	5	3.8	2.48	3.63	5	3.73	1.03	6
YES Bank Ltd.	0.12	0.68	0.27	0.23	0.22	0.3	0.22	1	0.2	0.31	0.41	0.31	0.11	1	0.76	1.53	1.29	3.26	1.71	1.08	3
PVSB's Mean	2.12	2.51	2.37	2.1	1.81	2.18	0.27	N.A.	1.74	1.73	1.8	1.76	0.04	N.A.	2.55	3.34	3.43	3.92	3.31	0.57	N.A.
PVSB's SD	1.15	1.34	1.63	1.59	1.31	N.A.	N.A.	N.A.	1.13	0.96	1.10	N.A.	N.A.	N.A.	1.72	2.64	2.74	2.12	N.A.	N.A.	N.A.

The present table describes the GNPA Ratio (GNPA/Lending) of PSB's and PVSB's for the period 2007-08 to 2018-19 in three phases viz. phase I which is of FY 2007-08 to FY 2011-12 and phase II duration is FY 2012-13 to FY 2014-15 & phase III duration is FY 2015-16 to FY 2018-19. The present paper studying the time period after the global slowdown which affects the banks health all

over the world. And the logic behind dividing the time period in 3 phases is to check the health of banks during global slowdown i.e. phase I and after global slowdown i.e. phase II and phase III is due to change in government.

During phase I PSB’s GNPA ratio mean is 2.23 and sd. is 0.37 which gets double in phase II with 4.67 and approximately 4 times in phase III with 15.28 as compare to phase II and 8 times as compare to phase I which clearly shows the bad health of PSB’s or increasing trend of GNPA year after year. As banks main source of income is advances or lending and if this source cease to generate income for the banks and defaults increases day by day and if these defaults can’t maintain by the banks on time then it puts a question mark on banks sustainability. In phase I Indian bank have 1st rank with the lowest GNPA mean 1.19 which shows the effective management of GNPA but SBI have 15th rank with the highest GNPA mean 4.08. In phase II Canara bank stood at 1st rank with the lowest GNPA mean 3.01 and SBI stood at 15th rank with the highest GNPA mean 6.08 which show the consistency in highest GNPA mean. During phase III Indian bank stood at 1st rank with lowest GNPA mean 7.40 and 2nd rank score by SBI which shows the good efforts of SBI in minimizing GNPA. IDBI stood at 15th rank with the highest GNPA mean 25.36. In phase III the SBI’s GNPA ratio stood at 9.78 which show the good efforts in lowering the GNPA ratio as in phase I and II SBI’s have highest ratio. If the study looks upon PVSBS then their health is much better as compare to PSB’s in all the phases. Phase I mean is 2.18 and 1.76 in phase II and 3.31 in phase III which shows the effective management of GNPA by PVSBS. In phase I and II YES bank stood at 1st rank with the lowest GNPA mean 0.30 and 0.31 respectively and ICICI stood at 9th rank with the highest GNPA mean 4.2 and 3.44 respectively. In phase III HDFC bank stood at 1st rank with the lowest GNPA mean 1.17 and ICICI stood at 9th rank with highest GNPA mean 7.81 which shows the consistency in all the phases.

NNPA Ratio of Public and Private sector banks during the Phase 1, 2 and 3 (in Rs Crore) table 2

Bank Name	Phase I									Phase II						Phase III						
	07-08	08-09	09-	10-	11-	Mean	SD	Rank	12-	13-	14-	Mean	SD	Rank	15-	16-	17-	18-	Mean	SD	Rank	

			10	11	12				13	14	15				16	17	18	19			
Allahabad bank	0.8	0.72	0.66	0.79	0.98	0.79	0.12	5	3.19	4.15	3.99	3.78	0.51	14	6.75	8.91	8.04	5.22	7.23	1.61	9
Andhra bank	0.16	0.18	0.17	0.38	0.91	0.36	0.32	1	2.45	3.11	2.93	2.83	0.34	9	4.61	7.57	8.48	5.72	6.6	1.75	6
Bank of Baroda	0.46	0.31	0.34	0.35	0.54	0.4	0.1	2	1.28	1.52	1.89	1.56	0.31	1	5.06	4.72	5.49	3.33	4.65	0.93	2
Bank of India	0.52	0.44	1.31	0.91	1.54	0.94	0.48	7	2.08	2.07	3.36	2.5	0.74	7	7.79	6.9	8.26	5.61	7.14	1.17	8
Bank of Maharashtra	0.87	0.79	1.64	1.32	0.84	1.09	0.37	8	0.52	2.03	4.19	2.25	1.84	3	6.35	11.8	11.24	5.52	8.72	3.25	12
Canara Bank	0.84	1.09	1.06	1.1	1.46	1.11	0.22	9	2.18	1.98	2.65	2.27	0.34	4	6.42	6.33	7.48	5.37	6.4	0.86	5
Central Bank of India	1.45	1.24	0.69	0.65	3.12	1.43	1.01	13	2.9	3.75	3.61	3.42	0.46	13	7.36	10.2	0	7.73	6.32	4.4	4
IDBI Bank	1.32	0.92	1.02	1.07	1.61	1.19	0.28	11	1.58	2.48	2.88	2.31	0.67	5	6.78	13.2	16.69	10.11	11.7	4.24	14
Indian Bank	0.24	0.18	0.23	0.53	1.33	0.5	0.48	3	2.26	2.26	2.5	2.34	0.14	6	4.2	4.39	3.81	3.75	4.04	0.31	1
Indian Overseas Bank	0.6	1.33	2.53	1.19	1.36	1.4	0.7	12	2.51	3.22	5.71	3.81	1.68	15	11.94	14.1	15.4	10.84	13.06	2.06	15
Oriental Bank of Commerce	0.99	0.65	0.87	0.98	2.2	1.14	0.61	10	2.25	2.81	3.32	2.79	0.54	8	6.67	8.95	10.47	5.93	8.01	2.09	11
Punjab National Bank	0.63	0.17	0.53	0.84	1.52	0.74	0.5	4	2.34	2.84	4.05	3.08	0.88	11	8.59	7.8	7.54	6.47	7.6	0.88	10
State Bank of India	2.04	2	2.03	1.95	2.33	2.07	0.15	15	2.69	3.46	2.87	3.01	0.4	10	4.71	6.17	5.73	3.01	4.91	1.4	3
Uco Bank	1.98	1.18	1.17	1.84	1.96	1.63	0.42	14	3.17	2.38	4.3	3.28	0.97	12	9.09	8.94	13.1	9.72	10.21	1.95	13
Union Bank of India	0.17	0.34	0.81	1.19	1.7	0.84	0.62	6	1.61	2.33	2.71	2.22	0.56	2	5.25	6.57	8.42	6.85	6.77	1.3	7
PSB's Mean	0.87	0.77	1	1.01	1.56	1.04	0.31	N.A.	2.2	2.69	3.4	2.76	0.6	N.A.	6.77	8.43	8.68	6.35	7.56	1.17	N.A.
PSB's SD	0.60	0.53	0.66	0.46	0.66	N.A.	N.A	N.A.	0.72	0.73	0.94	N.A.	N.A.	N.A.	2.03	2.89	4.31	2.37	N.A.	N.A.	N.A.
Axis Bank Ltd.	0.42	0.4	0.4	0.29	0.28	0.36	0.07	2	0.36	0.45	0.47	0.43	0.06	4	0.74	2.31	3.77	2.28	2.28	1.24	6
Federal Bank Ltd.	0.23	0.3	0.48	0.6	0.53	0.43	0.16	4	0.98	0.74	0.73	0.82	0.14	5	1.64	1.28	1.02	1.48	1.36	0.27	5
HDFC Bank Ltd.	0.47	0.63	0.31	0.19	0.18	0.36	0.19	2	0.2	0.27	0.25	0.24	0.04	2	0.28	0.33	0.4	0.39	0.35	0.06	1

ICICI Bank Ltd.	1.38	2.09	2.12	1.11	0.73	1.49	0.61	9	0.77	0.97	1.61	1.12	0.44	8	2.98	5.43	4.92	2.31	3.91	1.5	9
IndusInd Bank Ltd.	2.27	1.14	0.5	0.28	0.27	0.89	0.85	6	0.31	0.33	0.31	0.32	0.01	3	0.36	0.39	0.51	1.21	0.62	0.4	2
Karnataka Bank Ltd.	0.98	0.98	1.31	1.62	2.1	1.4	0.47	7	1.5	1.9	1.97	1.79	0.25	9	2.35	2.63	2.06	2.95	2.5	0.38	7
Kotak Mahindra Bank	1.78	2.39	1.73	0.72	0.61	1.45	0.76	8	0.64	1.08	0.92	0.88	0.22	7	1.06	1.26	0.98	0.75	1.01	0.21	4
South Indian Bank Ltd.	0.32	1.13	0.39	0.29	0.28	0.48	0.36	5	0.78	0.78	0.95	0.84	0.1	6	2.88	1.45	2.59	3.45	2.59	0.84	8
YES Bank Ltd.	0.09	0.33	0.06	0.03	0.05	0.11	0.12	1	0.01	0.05	0.12	0.06	0.06	1	0.29	0.81	0.64	1.86	0.9	0.68	3
PVSB's Mean	0.88	1.04	0.81	0.57	0.56	0.77	0.21	N.A.	0.62	0.73	0.81	0.72	0.1	N.A.	1.4	1.77	1.88	1.85	1.72	0.22	N.A.
PVSB' SD	0.77	0.76	0.72	0.51	0.62	N.A.	N.A.	N.A.	0.46	0.55	0.63	N.A.	N.A.	N.A.	1.10	1.58	1.60	1.00	N.A.	N.A.	N.A.

The above table describes the NNPA ratio (NNPA/ lending) (which is the actual burden of banks) of PSB's and PVSB's for the period 2007-08 to 2018-19 in three phases. In phase I PSB's NNPA ratio mean is 1.04 which gets approximately 2.5 times in phase II and stood at 2.76 and phase III mean stood at 7.56. In phase I Andhra bank stood at 1st rank with the lowest NNPA mean 0.36 and SBI stood at 15th rank with the highest NNPA mean 2.07. During phase II Bank of Baroda stood at 1st rank with the lowest NNPA mean 1.56 and Indian overseas bank stood at 15th rank with the highest NNPA mean 3.81. During phase III Indian bank stood at 1st rank with lowest NNPA mean 4.04 and Indian overseas bank stood at 15th rank with the highest NNPA mean 13.06. In all phases there is no consistency in banks among highest & lowest NNPA mean as shows in GNPA mean. The reason may be such that as each and every bank profits are not same but the way to write off the NNPA of all the banks are same. PVSB's NNPA mean during phase I stood at 0.77 and 0.72 in phase II and 1.72 in phase III. In phase I and II Yes bank stood at 1st rank with lowest NNPA mean 0.11 and 0.06 respectively and ICICI bank stood at 9th rank with the highest NNPA mean 1.49 and 1.12 respectively. In phase III HDFC bank stood at 1st rank with lowest NNPA mean 0.35 and ICICI bank stood at 9th rank with highest NNPA mean 3.91.

Overall Status of GNPA, NNPA, Profits on the base of Lending in Percentage terms (Table 3)

		Phase I						Phase II				Phase III				
	Years	07-08	08-09	09-10	10-11	11-12	Mean	12-13	13-14	14-15	Mean	15-16	16-17	17-18	18-19	Mean
PSB's	GNPA/Adv.	2.56%	2.22%	2.49%	2.51%	3.42%	2.64%	4.21%	4.92%	5.57%	4.90%	10.59%	13.26%	14.12%	13.16%	12.78%
	NNPA/Adv.	1.15%	1.06%	1.22%	1.20%	1.72%	1.27%	2.28%	2.77%	3.15%	2.73%	6.21%	7.30%	7.12%	4.97%	6.40%
	Profits/Adv.	1.50%	1.43%	1.42%	1.33%	1.29%	1.39%	1.14%	0.76%	0.69%	0.86%	-0.36%	0.13%	1.47%	-0.86%	0.80%
PVSB's	GNPA/Adv.	2.38%	3.03%	2.87%	2.41%	2.02%	2.54%	1.88%	1.82%	2.00%	1.90%	2.71%	4.16%	4.24%	4.36%	3.87%
	NNPA/Adv.	1.05%	1.31%	1.03%	0.58%	0.45%	0.88%	0.50%	0.61%	0.78%	0.63%	1.28%	2.15%	2.22%	1.62%	1.82%
	Profits/Adv.	1.79%	1.94%	2.20%	2.31%	2.46%	2.14%	2.65%	2.68%	2.65%	2.66%	2.28%	2.03%	1.63%	1.59%	1.88%

The above table describes the GNPA, NNPA, and profits on the base of lending in percentage form. PSB's during Phase I Profits/Lending shows decreasing trend with mean of 1.39% and GNPA/Lending shows increasing trend except in FY 2008-09 with 2.22% and with mean of 2.64% and NNPA/Lending shows increasing, decreasing trend with an mean of 1.27% whereas PVSB's profits shows increasing trend with the mean of 2.14% and GNPA & NNPA both were showing decreasing trend except FY 2008-09 with 3.03% and 1.31% respectively with the mean of 2.54% and 0.88%. In phase I PVSB's shows efficiency w.r.t profits, GNPA and NNPA as compare to PSB's.

During phase II PSB's profits were showing decreasing trend with the mean of 0.86% and GNPA and NNPA were showing increasing trend with an mean of 4.90% and 2.73% respectively While PVSB's profits shows increasing trend with the mean of 2.66% and GNPA shows decreasing increasing trend with the mean of 1.90% and NNPA shows increasing trend with the mean of 0.63%. In phase IIPVSB's again shows efficiency w.r.t. profits, GNPA and NNPA.

In phase III PSB's profits showing decreasing trend with a loss in FY 2015-16 and 2018-19 with the mean of 0.80%. GNPA shows increasing trend continuously in each year and highest in 2017-18 stood at 14.12% except 2018-19 in which GNPA slightly decreased and stood at 13.16% with the mean of 12.78%. NNPA also shows increasing trend up to 2016-17 after 2016-17 it shows decreasing

trend in 2017-18 and 2018-19 with the mean of 6.40% which shows the poor health and inefficiency of PSB's. The main reason of this poor health was a big scam of Rs.14000 crore in PNB, (the second largest PSB's) by Nirav Modi, the diamond exporter, which affects whole of the economy and health of the banks. In phase II PVS B's profits increased but decreased in phase III and as a result GNPA decline in phase II but increased in phase III. NNPA shows continuous increment in each Phase. If talk about PVS B's in phase III PVS B's profits also showing decreasing trend with the mean of 1.88%. GNPA showing increasing trend continuously and highest in 2018-19 stood at 4.36% and with the mean of 3.87%. NNPA also showing increasing trend up to 2017-18 and slightly decreased in 2018-19 with the mean of 1.82%.

Overall Status of GNPA, NNPA on the base of Profits in Percentage terms (Table 4)

		Phase I						Phase II				Phase III				
	Years	07-08	08-09	09-10	10-11	11-12	Mean	12-13	13-14	14-15	Mean	15-16	16-17	17-18	18-19	Mean
PSB's	GNPA/Profits	170%	155%	175%	188%	265%	191%	368%	641%	798%	602%	-2896%	10095%	-956%	-1523%	1180%
	NNPA/Profits	76%	74%	86%	90%	133%	92%	199%	360%	451%	337%	-1700%	5561%	-482%	-575%	701%
PVS B's	GNPA/Profits	133%	156%	130%	104%	82%	121%	71%	67%	75%	71%	118%	204%	259%	274%	214%
	NNPA/Profits	58%	67%	46%	25%	18%	43%	19%	23%	29%	24%	56%	105%	135%	101%	99%

The above table shows the GNPA and NNPA relation with the Profits. During phase I the relation between GNPA and Profits shows increasing trend which depicts that GNPA were higher than profits with the mean of 191%. NNPA also showing increasing trend but they were low in relation to profits with the mean of 92%. If look on PVS B's both GNPA and NNPA shows decreasing trend except FY 2008-09 in which they were increasing. Even PVS B's shows' decreasing trend but it does not mean that GNPA were lower than profits but they were high than the profits with the mean of 121% and NNPA were lower than the profits with the mean of 43%.

In phase II, GNPA and NNPA both were showing increasing trend and got almost double each year in comparison to previous year with the mean of 602% and 337% respectively. In this phase PSB’s GNPA as well NNPA were higher than profits but PVSb’s GNPA shows declining trend with the average of 71% and 24% which shows that PVSb’s GNPA and NNPA both were lower than their profits due to their efficiency and management.

In phase II PSB’s have huge GNPA and NNPA and both were showing increasing trend with an mean of 1180% and 701% and due to which PSB’s making huge losses in each year except FY 2014-15 and 2016-17 while PVSb’s also showing increasing trend in GNPA and NNPA with the mean of 214% and 89% respectively and NNPA slightly decrease in the FY 2018-19. In all the three phases, phase III is the worst for banking sector. In this phase, GNPA and NNPA both were on peak. PVSb’s in phase II showing decreasing trend but unfortunately in phase III it shows increasing trend. In Phase III in FY 2017-18 mostly all banks making huge losses except the Indian Bank and Vijaya Bank which showing profits. In FY 2018-19 Bank of Baroda, Canara Bank, Indian Bank and Oriental Bank of Commerce (OBC) banks showing profits while all other PSB’s were showing huge losses. That’s why phase III is the worst phase for the health of banking sector.

Regression result

Table 5

Multiple R	0.91		Coefficient	Standard error	t- statistics
R Square	0.83	Intercept	5060.07	10259.18	0.4932
Adjusted R Square	0.82	Lending	0.0300	0.0028	10.59

The present table shows the relation between corporate default and banks’ lending is 0.83 which is the higher degree of relationship. Here H_{01} is rejected because the significance value at 5% level is 1.96 as table or critical value is $1.96 < 10.59$ calculated value. It concludes that there is a significant positive relation between corporate defaults and banks’ lending which implies that as the lending

increases corporate defaults also showing increasing trend. Corporate defaults are showing increasing trend due to lack of supervision, diversion of funds, inflated cost projection by promoters, over optimism, demand slowdown etc.

Table 6

Multiple R	0.33		Coefficient	Standard error	t- statistics
R Square	0.11	Intercept	8121.55	8705.91	0.93
Adjusted R Square	0.07	NNPA	0.12283	0.07396	1.66

The present table shows the relation between corporate defaults and banks sustainability (in terms of profit) is 0.11 which is the lower degree of relationship. Here H_{02} is accepted because the significance value at 5% level is 1.96 which is more than calculated value 1.66. It concludes that the incidence of corporate defaults is not statistically significant on the sustainability of banks which implies that as the corporate defaults increases there is a question mark on banks sustainability as bank’s main source of income is interest income which is generated by giving advances.

Conclusion

Corporate Defaults are statistically significant in relation to the banks’ lending which implies that as the bank’s lending increases as a result corporate defaults increases. In Phase I bank’s lending are less as compare to phase II and III & economy condition was also good. During phase I there was global slowdown in the economy which affects whole bank’s health all over the world and as a result in phase II banks health goes down due to increment in corporate defaults and major default of Kingfisher Airlines of Rs. 9091.40 Crore approximately of which the large part is owed from State Bank of India (SBI) which is the largest public sector bank due to which SBI has highest GNPA ratio in phase II and showing increasing impact in phase III. The phase III is worsened for banks because positions of banks are not so good due to default of KFA. Mostly all the banks are facing difficulties to tackle with the present

scenario, but in that situation the banks also experiencing a big fraud by Nirav Modi, The Diamond Exporter. As a result of these big 2 frauds all banks health get worst and the defaults are showing increasing trend and as a result their profits are goes down because a huge amount of profits is utilized in writing off these defaults. As such corporate defaults are not statistically significant with profitability of banks. In nutshell, phase 1 was good for the banks as well as for the economy. Phase II was quite better for Indian banks but don't be a prosperous because in phase II the health of banks showing downward trend due to KFA default and global slowdown but still it was a little bit good phase. But the phase III worse to the worst as there is increment in the number of defaults day by day and banks profitability reduced day by day. In FY2017-18 there are only 2 public sector banks which make profits of Rs. 1986.01 crore only while all other public sector banks showing jointly a net loss of Rs. 87357 crore which implies the bad health of public sector banks. During FY 2017-18 all these public sector banks jointly showing the Rs. 473.72 crore net profit only. The increasing trend of corporate defaults put a question mark on banks sustainability as banks generate their income from lending or giving advances and by charging interest on advances (which is the main source of banks income) and if banks will not able to get this interest income then this will affect banks in many ways 1st is interest income loss and 2nd is principal amount loss 3rd is decreasing in profitability as it is utilized in writing off these defaults. So banks have to manage their GNPA and NNPA ratio in an effective way.

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