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INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

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STATEMENT OF THE PROBLEM

OBJECTIVES

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RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

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SECTORAL INTERDEPENDENCE AND TWIN BALANCE SHEET CRISIS: AN EVIDENCE FROM INDIA

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ABSTRACT

The paper states about the twin balance sheet problem in India. The problem of twin balance sheets is a problem that occurs when there is a stress in one sector's balance sheet due to the other business, such as growing NPAs in banks due to the inability of infrastructure companies to repay loans. Banking sector and industrial sector of any economy plays a crucial role in its development. It is necessary to broadly study these two sectors. It is important to look after the proper functioning of these sectors by looking at their balance sheets in order to minimize non-performing assets and bad loans. It was also mentioned in the report of economic survey, in 2015-16, that "twin balance sheet problem is the biggest issue in Indian economy". According to the RBI's financial stability report, 2018, gross non-performing assets ratio has been increasing continuously, it hasn't reduced. Measures have been taken by the government to solve the twin balance sheet crisis. India has been trying to solve this problem of twin balance sheet by putting bank in charge for restructuring decisions. Public Sector Asset Rehabilitation Agency (PARA) has been setup in order to take politically tough decisions and to address the tough decisions.

KEYWORDS
twin balance sheet (TBS), loans, investment, non-performing assets (NPAs), public sector asset rehabilitation agency (PARA)

JEL CODES
G30, G32, G33.

1. INTRODUCTION

win balance sheet problem refers to "the stress on balance sheets of banks due to non-performing assets (NPAs) or bad loans on the one hand, and heavily indebted corporates on the other." It deals with overleveraged companies and bad loan encumbered banks. When a company have too much debt as in comparison to its cash flows and equity, it is called as overleveraged company. When a loan becomes irrecoverable to the creditors and becomes worthless, it is called as bad loans. Twin balance sheet problem arises when the companies have too much debt in their balance sheet and does not have sufficient funds to repay them. When an economy grows continuously, companies plan a lot of investment and they tend to overestimate the profits because of such rapid growth. And when the growth slows down companies struggle to make those estimated profits and thus they struggle in repayment of the loans. The bank's main source of profits is the interest income which they receive on the loans given by them. When the company fails to pay the interest, bank loses their profits and the money it gave out as loans.

FIGURE 1: GROSS NPAS (% OF TOTAL LOANS)	FIGURE 2: RETURN ON ASSETS (%)
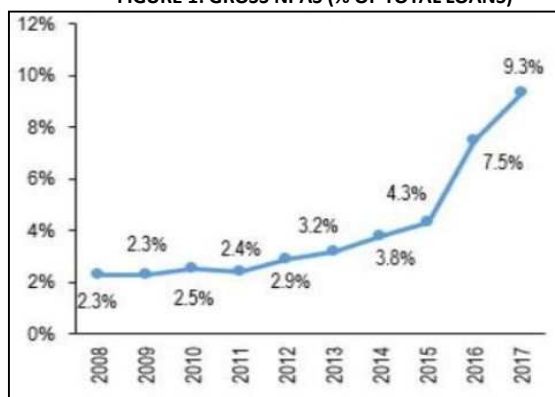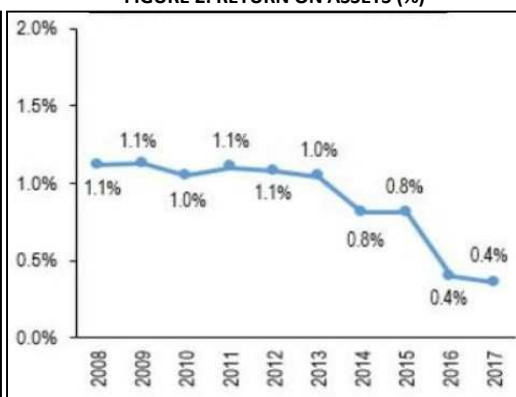
From the figure1 it can be seen that Gross NPAs are increasing on a continuous basis from 2008 – 2017. In figure2 it can be seen that the return on assets of banks is declining for the same period which is a matter of concern for the banks. During the period of 2000's Indian corporate profitability was amongst the highest in the world which encouraged firm to hire more and more labors as a result of which there was an unexpected rise in the level of wages. Corporates started launching new projects worth of lakhs of crores. The main industries were infrastructure related areas such as telecom, steel and power. As a result, the investment GDP ratio also soared by 11% within a period of just four years and reached over 38% by 2007-08. This time, the debt of non-financial companies grew. Public sector banks continued to lend and robust growth was experienced by the easily accessible credit corporate sector, especially by infra-companies. An extraordinarily surprising credit boom, the biggest in the nation's history, funded this investment.

From 2004-05 to 2007-08, the amount of bank credit doubled. There were capital inflows as well apart from the bank credit. All of this resulted in an extraordinary increase in debt of the corporates. Companies started taking more and more risk and as a result costs started rising above the budgeted level. Getting permission such as land and environmental clearances took longer than expected, growth rate of the projects became half of what was planned. Adding to this financing cost also increased and the firms which had borrowed from abroad were hit very hard as the rupee depreciated. Due to the increased costs, decreased revenues and greater financing costs, cash flows of the corporates stared decreasing leading to the debt servicing problem thus making it difficult for the borrowers to repay the loan.

INDIA'S TWIN BALANCE SHEET PROBLEM?

India also had increased borrowing leading to overleveraged and debt servicing problem like other countries. What was different in India's twin balance sheet problem was its outcome. Twin balance sheet problem did not lead to stagnation. On the other hand, it existed along with strong aggregate domestic demand, as reflected in high levels of growth despite very weak exports and moderate, at times high, levels of inflation. This problem was called as "Balance Sheet Syndrome with Indian Characteristics". The problem of rising debt and losses were also faced by many other advanced countries. But in India this problem has some unique features which is why it is called as "Balance Sheet Syndrome with Indian Characteristics".

There are three reasons which distinguish this problem with the problem in other countries:

- Indian was not suffering from any recession.
- There was no weak macro - economic demand.
- Indian balance sheet problem was partly because of private investment in infrastructure because public sector banks were reluctant to intervene in infrastructure projects.

There are five reasons of "Balance Sheet Syndrome with Indian Characteristics":

- Weak profitability and high debt of private sector.
- Inadequate bankruptcy procedures and stalled investments.
- Failed Public Private Partnership models which has contributed to private sector losses.
- Public Sector Banks have financed many infrastructure projects and the projects which are not making progress or had stopped has resulted in stressed assets in banks.
- Now Public Sector Banks are not ready to lend money to the corporates due to rising NPAs further stalling the projects by the corporate.

2.   BACKGROUND OF THE STUDY

The banking sector of any country plays a crucial role in that economy's economic growth and is the dominant part of the financial sector. It helps to keep the money flowing in the economy by linking those with excess funds to those who need funds. But one of the problems facing the banking industry today is the rising NPAs, and these rising NPAs contribute to the issue of twin balance sheets. Banking industry in India is afflicted with relatively high rate of non-performing assets. Corporate borrowers play a significant role in this high rate of non-performing assets. However, these non-performing assets are unavoidable in the loan portfolio and it is not an event. The excessive delay in the recovery of loans results in increasing NPAs, leading to a rise in the cost of financial intermediation, as banks have to turn to comparatively higher costs for additional borrowings.

Major contributors of NPAs of banks are the corporate borrowers. NPAs in banks have several bad effects on the banks and the economy as a whole. Deposits by the general public are used by the banks for lending loans. Now these loans sometimes do not generate interest income for the banks and the principal amount is not repaid as per the loan repayment schedule. As a result of this, there is decline in the bank's interest income, profits. It also locks up the funds with the borrower and affects the bank's ability to recycle credit. Increasing NPAs require higher provisioning as well.

According to the economic survey, the issue of weakening of balance sheet was seen first time in 2015-16. Some major corporate also faced this problem during the same period. This was seen as the economy's most important short-term issues and a hindrance to economic growth as it was also a hindrance to private investment. The concern about the issue of twin balance sheets was that private sector gross fixed capital formation declined to 27 percent by 2016-17, which was an indication of stalled investment in the economy. Major amount of NPAs was recorded in public sector banks. During the year 2016, public sector banks reported soared NPAs to the extent that provisioning had buried down the operating earnings. As a result of which net income turned into losses. Generally, NPAs soar when there is an economic crisis which results in widespread bankruptcies. But there was no economic crisis in India. On the other hand, GDP was growing at a good rate. The NPAs, however, continued to increase and, meanwhile, Credit Suisse reported that 40 percent of the companies monitored by it were owed to companies with an interest coverage ratio of less than 1. As it started to become evident, it became clear that India was suffering from the problem of twin balance sheets, where there was stress on the balance sheets of both the banking and corporate sectors.

3.   REVIEW OF LITERATURE

James R.Barth, ChenLin, PingLin, Frank M.Song (2009) studies the effects of borrowers and lender competition and the information shared via credit bureaus/registries on the corruption in bank lending. The analysis shows that greater competition in banking helps curtail corruption in bank lending. Also information sharing helps in reducing corruption in bank lending, directly and indirectly. It is also seen that better law enforcements and objective courts tend to reduce corruption in lending. Samaresh Bardhan, Vivekananda Mukherjee (2013). This paper deals with the effects of wilful defaults in a developing country's banking system. The paper specifically deals with implications of wilful default loan decision making process of the banks and profitability. The study shows that if limited liability condition holds and if the condition of wilful default is satisfied, the bank will extend loans to its capacity which is exogenously fixed. Also as the loan capacity of the banks increases, wilful defaults also increases. It is found that the regulators face the trade- off between high wilful defaults and level of profits of the banks because regulators will choose lower level of loan capacity in order to control the level of NPAs due to defaults. Samaresh Bardhan, Vivekananda Mukherjee (2013). This paper deals with the effects of wilful defaults in a developing country's banking system. The paper specifically deals with implications of wilful default loan decision making process of the banks and profitability. The study shows that if limited liability condition holds and if the condition of wilful default is satisfied, the bank will extend loans to its capacity which is exogenously fixed. Also as the loan capacity of the banks increases, wilful defaults also increases. It is found that the regulators face the trade- off between high wilful defaults and level of profits of the banks because regulators will choose lower level of loan capacity in order to control the level of NPAs due to defaults. Inchara P. M Gowda, Dr. K. R. Manjunatha (2017) in this paper talk about the twin balance sheet problem. In the balance sheet of corporate debtors, the employment of borrowed capital by companies on properties or in ventures that do not produce sufficient returns results in NPAs. This failure also results in non-payment to the lending banks of the interest on the borrowed money. In order to address the issue of twin balance sheet, the Government of India and the Reserve Bank of India have formulated few schemes and Acts. About a dozen schemes designed and implemented by the authorities to resolve the problem of TBS did not succeed in producing the desired result due to the ineffective implementation. Mr. Manash Kumar Sahu, Mr. Narayana Maharana, Dr. Suman Kalyan Chaudhury (2017). NPAs are one of the major reasons of draining the capital of banks and weakening their financial strengths. In order to improve the efficiency as well as the profitability of the banks, the NPAs need to be controlled and reduced. This study emphasis on the growing concern of mounting NPA in Indian banking sector and impact of corporate governance practices on Non-Performing Assets (NPA) Management. This study also highlights the correlation between weighted corporate governance score and net NPA ratio of public and private sector banks in India. In order to reduce the level of NPAs, comprehensive preventive monitoring mechanism to explore and maintain sound and healthy loan portfolio has to be developed and adopted. The approach to NPA management by the banks has to be multipronged, necessitating varied strategies suited to different stages of the passage of credit, every commercial bank has to embark upon strategic plan to prevent or control the occurrence of the NPAs. As per the analysis it will not be correct to say that good corporate governance practices results are lower net NPAs. Prabhakar Pudari, (2017). The author states in this paper about the twin balance sheet problem and its impact. India has tried to solve this problem where banks have been put in charge of the restructuring decisions. Decisive resolutions of the loans, concentrated in the large companies, have avoided successive attempts at reform. Twin balance sheet problem is characterized by overleveraged companies and bad loans with banks. It is a situation where banking and corporate sectors are under stress. The problem has continued to increase. NPAs keep growing, while the credit and investments keep on declining. Over leveraged companies are unable to pay back the debts and invest more. The bad loan encumbered banks are unable to lend more and struggles to keep up their business. The reason for twin balance sheet problem in the year 2000 was high growth rate of the economy which caused to increase the debt of the companies. To resolve the problem stressed assets of banks and NPAs of banking, financial institutions and corporate borrower should address with all the seriousness and without political interference. Jaslene Kaur Bawa, Vinay Goyal, S.K. Mitra, Sankarshan Basu (2018). This paper examines the data of 46 India banks with specific financial ratios for a period of eight years. These ratios tell about the operating capability, liquidity, solvency, profitability,

capital adequacy and business development capacity aspects of Indian banks that affect NPAs. Through operational, liquidity and solvency indicators, functional level of banks was captured while the banks' business growth strategy (in terms of asset growth) at the corporate level was captured using business development capacity as a proxy. It is found that if banks follow aggressive growth strategy they would witness higher NPAs. It is also seen that a significant intermediation cost ratio helps bank agents spend more time and effort to monitor bank asset quality and lower default probability faced by the banks. S.K. Chaudhury, Devi Prasad Misra (2019). The study focuses on the Corporate Governance aspect as an appropriate tool to bring down the mounting NPAs in Indian banks. For this purpose, the statistical tools such as correlation and regression analysis are used to i) ascertain whether there exists the correlation between corporate governance measures and NPA ratio of public and private sector banks in India and ii) to determine the impact of corporate governance practices on NPAs in Indian public and private sector banks. The analysis revealed that corporate governance steps did not bring any significant result in controlling NPAs in Indian commercial banks. To reduce the level of NPAs in the loan portfolio, comprehensive preventive monitoring mechanism has to be explored. There should also be a mechanism to maintain sound and healthy loan portfolio. Jayadev M, Padma N (2020). The paper analyse the wilful defaulter's quarterly data disclosed by the Credit Information of Bureau of India Limited. A significant number of wilful defaulters include unlisted and private companies which are financed largely by government owned banks and are concentrated in specific regions. Borrowers of funds turn into wilful defaulters by exploiting the weal governance structure such as ineffective functioning of the economic, legal and political institutions of the country. The analysis shows that the amount of loans due from wilful defaulters is growing substantially. Majority of these defaulters are unlisted and private companies which clearly indicates inadequate governance and control systems prevailing in these companies.

4. RESEARCH METHODOLOGY

This study is intended to find the relationship between performance of borrower firms and lending banks and verify the long run impact of borrower firm's performance on bank NPA. It also attempts to determine the bank specific and borrower firm performance influence on bank NPA. Explanatory research also known as casual research is conducted to identify the extent and nature of cause and effect relationships. It is conducted to evaluate impact of specific changes on existing norms, various processes etc. Data collected for the purpose of this study is secondary data. Secondary data for private sector banks and public sector banks has been collected from official website of Reserve Bank of India. Data relating to companies has been collected from moneycontrol.com. Data has been collected for a period of ten years starting from 2007-08 till 2016-17. Since the data collected for the study is time series as well as cross section data, panel data analysis has been used in this study. Panel data series modeling centers around addressing the likely dependence across data observations within the same group. There are two types of test that are run to choose between the model. These tests are: Breusch-Pagan LM test, Hausman test. The above tests help to choose the model for regression analysis.

$$RNPAA_{it} = \alpha + \beta NPM_{it} + \beta NSGR_{it} + \varepsilon_{it} .... (1)$$
$$CDR_{it} = \alpha + \beta NPM_{it} + \beta NSGR_{it} + \varepsilon_{it} .... (2)$$
$$RNPAA_{it} = \alpha + \beta NPM_{it} + \beta NSGR_{it} + \varepsilon_{it} .... (3)$$
$$RNPAA_{it} = \alpha + \beta CAR_{it} + \beta CDR_{it} + \beta NIM_{it} + \beta NPM_{it} + \beta NSGR_{it} + \beta ROA_{it} + \beta ROE_{it} + \beta ROPT_{it} + \varepsilon_{it} .... (4)$$

4.1 Hypothesis

For analysing the effect of borrower firm's performance on Bank NPA

H_0: There is no impact of net profit margin and net sales growth rate on ratio of net NPA to net advances.

H_1: There is impact of net profit margin and net sales growth rate on ratio of net NPA to net advances.

For analysing the effect of borrower firm's performance and Bank Credit - Deposit Ratio

H_0: There is no impact of net profit margin and net sales growth rate on credit – deposit ratio.

H_1: There is impact of net profit margin and net sales growth rate on credit – deposit ratio.

For analysing the Long run effect of borrower firms performance on Bank NPA

H_0: There is no impact of net profit margin and net sales growth rate on ratio of net NPA to net advances in long run.

H_1: There is impact of net profit margin and net sales growth rate on ratio of net NPA to net advances in long run.

To determine the Bank specific and borrower firm performance influence on Bank NPA.

H_0: There is no impact of capital adequacy ratio, credit – deposit ratio, net interest margin, net profit margin, net sales growth rate, return on assets, return on equity, return of operating profits to total assets on ratio of net NPA to net advances.

H_1: There is impact of capital adequacy ratio, credit – deposit ratio, net interest margin, net profit margin, net sales growth rate, return on assets, return on equity, return of operating profits to total assets on ratio of net NPA to net advances.

5. EMPIRICAL RESULTS AND DISCUSSION

Panel data regression is used to analyze the impact of bank specific variables and company specific variables on non – performing assets of the selected banks.

TABLE 1: SHOWING THE EFFECT OF BORROWER FIRM'S PERFORMANCE ON BANK NPA

Dependent Variable: RNPAA
Method: Panel EGLS (Cross-section random effects)
Date: 01/07/21 Time: 20:22
Sample: 2008 2017
Periods included: 10
Cross-sections included: 20
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPM	-0.000175	6.42E-05	-2.733352	0.0068
NSGR	-2.221945	0.357985	-6.206817	0.0000
C	2.351374	0.251383	9.353764	0.0000

The probability value for cross section random effects test is less than 0.05 for both the independent variables. Therefore, it is concluded that both net profit margin and net sales growth rate of borrower firms have an impact on ratio of net NPA to net advances of the respective banks. This implies that a fall in the sales growth of the borrowers or fall in their operating profits will have a direct impact on their loan repayment capacity and there will be high chances of them defaulting on their loans.

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TABLE 2: SHOWING THE EFFECT OF BORROWER FIRMS PERFORMANCE AND BANK CREDIT - DEPOSIT RATIO

Dependent Variable: CDR
Method: Panel EGLS (Cross-section random effects)
Date: 01/07/21 Time: 20:36
Sample: 2008 2017
Periods included: 10
Cross-sections included: 20
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPM	-8.36E-05	0.000176	-0.474037	0.6360
NSGR	-0.758795	0.973269	-0.779636	0.4365
C	77.13780	1.802427	42.79663	0.0000

The probability value for cross section random effects test is more than 0.05 for both the independent variables. Therefore, it can be concluded that both net profit margin and net sales growth rate of borrower firms have no impact on credit deposit ratio of the respective banks. Therefore, the credit deposit ratio of the banks is not affected by the performance of its borrowers. Rather it is affected by the bank's own performance. Credit deposit ratio of the lender banks is independent of any increase or decrease in the sales growth rate or net profit margin of their corporate borrowers.

TABLE 3: SHOWING THE LONG RUN EFFECT OF BORROWER FIRMS PERFORMANCE ON BANK NPA

Dependent Variable: RNPAA
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 01/07/21 Time: 20:44
Sample (adjusted): 2009 2017
Periods included: 9
Cross-sections included: 20
Total panel (balanced) observations: 180
Panel method: Pooled estimation
Cointegrating equation deterministics: C
Coefficient covariance computed using default method
Long-run covariance estimates (Bartlett kernel, Newey-West fixed
 bandwidth)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NSGR	-3.645239	0.563385	-6.470247	0.0000
NPM	-0.000147	8.37E-05	-1.760706	0.0802

R-squared	0.367032	Mean dependent var	2.479389	
Adjusted R-squared	0.282903	S.D. dependent var	2.694886	
S.E. of regression	2.282072	Sum squared resid	822.8408	
Long-run variance	6.688767			

Since the probability value for cross section random effects test is less than 0.05 for net sales growth rate of the borrower firm. Therefore, it is concluded that that net sales growth rate of borrower firms has an impact on ratio of net NPA to net advances of the respective banks in the long run. This implies that the corporate borrowers having higher gestation period or those borrowers for whom the cash inflows will start in long run will impact the non – performing assets of their lender banks in case they default on their repayments. However, the probability value for cross section random effects test is more than 0.05 for net profit margin therefore net profit margin has no impact on net NPA to net advances of the respective banks in the long run.

TABLE 4: TO DETERMINE THE BANK SPECIFIC AND BORROWER FIRM PERFORMANCE INFLUENCE ON BANK NPA

Dependent Variable: RNPAA
Method: Panel EGLS (Cross-section random effects)
Date: 01/07/21 Time: 20:54
Sample: 2008 2017
Periods included: 10
Cross-sections included: 20
Total panel (balanced) observations: 200
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAR	-0.002880	0.060032	-0.047979	0.9618
CDR	-0.030402	0.010816	-2.810953	0.0055
NIM	-0.269338	0.187670	-1.435167	0.1529
NPM	-8.08E-05	2.88E-05	-2.810612	0.0055
NSGR	-0.312724	0.182713	-1.711562	0.0886
ROA	-1.452866	0.354101	-4.102974	0.0001
ROE	-0.172107	0.018336	-9.386407	0.0000
ROPT	1.274800	0.272558	4.677168	0.0000
C	5.917576	0.935023	6.328801	0.0000

Probability value for cross section random effects test is less than 0.05 for net profit margin of the borrower firm, credit deposit ratio, return on assets, return on equity and return of operating profits to total assets of the banks and therefore it is concluded that net profit margin of borrower firms credit deposit ratio, return on assets, return on equity and return of operating profits to total assets of the banks have an impact on their ratio of net NPA to net advances. However, for net sales growth rate of borrowers companies, capital adequacy ratio and net interest margin of banks probability value of for cross section random effects test is less than 0.05 and hence it is concluded that these variables have no impact on their ratio of net NPA to net advances.

Panel regression provides an idea of how the bank specific variables and company specific variables affect the Net Non-Performing Assets (NPAs) to net advances ratio.

5.1 Corporate Specific Variables

For capturing the performance of the corporate sector financial indicators such as net sales growth rate and net profit margin are considered in the study. Higher the net sales growth rate and net profit margin, higher the cash flows. This results in increase in capacity of loan repayment. From the analysis it is observed that net sales growth rate and net profit margin of corporate borrowers affect the ratio of net NPA to net advances. But when we see the long run, it is observed that only net sales growth rate has an impact on the ratio of net NPA to net advances while net profit margin does not affect the ratio of net NPA to net advances. For example, for infrastructure companies, gestation period is long. Their cash inflows start after certain number of years depending upon their projects. If their forecast of cash flows and for the costs goes wrong or does not match the standards they it will affect their sales and in turn their capacity to repay loan.

It is also seen that net sales growth rate and net profit margin of the borrowers affect the ratio of net NPA to net advances but these variables have no impact on the credit deposit ratio of the banks. Credit deposit ratio of banks is not affected by net profit margin and net sales growth rate of their borrowers.

5.2 Bank Specific Variables

These are the variables that are internal to the banks. These variables also affect the performance of the banks and also affect each other. From the analysis it is observed that variables such as credit – deposit ratio, return on assets, return on equity and return of operating profits to total assets has an impact on the non – performing assets. But net interest margin and capital adequacy ratio does not affect the NPAs of the banks.

6. CONCLUSIONS

It is seen in the past that banks have lent money to the companies based on their forecasted financial statements and viability of the projects. Later on these borrowers have defaulted on these loans as they were not able to generate the cash flows as forecasted thus resulting in default in payments on interest and repayment of principal amount. A decentralized approach was adopted in order to solve this problem of twin balance sheet but it didn't succeed. According the economic survey of 2015-16, stressed asset problem would need 4R's: Reform, Recognition, Recapitalization and Resolution. On the basis of various measures and schemes designed and implemented to solve this problem, NPAs and stressed assets of the financial institutions, banks and corporate borrowers should address this problem with seriousness. To give boost to the private investment and encourage lending it becomes of utmost importance that the balance sheet of the public sectors banks is cleaned up. India is now moving towards triple balance sheet and four balance sheet problem. NBFCs became big lenders when banks refrained from lending in the midst of their struggle to contain NPAs. Not only did this credit flow improve spending, but so did private consumption. But in September 2018, the fall of IL&FS sent shockwaves across the entire financial system. The shadow lender's inability to repay debt contributed to a ripple effect, further constraining banks' ability to push credit. After the IL&FS crisis, the markets began to take notice of the larger problems plaguing the shadow banking industry. Most of the lending from the NBFC was channeled to one specific field, real estate. And that sector was in a precarious position itself. NBFCs have been a significant player in funding the development of the real estate industry. Triple balance sheet issue that now involves stress in NBFC's balance sheets has further choked credit system. The four balance sheet problem includes banks, infrastructure companies, non - banking financial institutions and real estate companies. Under this situation usual remedies are no longer available.

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