

Predicting NPA's in the Indian Banking Sector and a Bad Bank solution

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ABSTRACT

India's economic performance over the past few years has been slowing down. The annual GDP growth rate of India has gone down owing to the multiple bank failures and a global slump in demand. Today as the coronavirus has taken a significant hit on global consumption due to the nationwide lockdown imposed across various countries, we can see the businesses with a large amount of debt in distress. This has created new pressure on the banks to set aside additional capital to tackle the current rising NPA problem. The objective of this research paper is to predict India's Gross NPA percentage post-covid-19 in FY 2021 and finding a suitable Bad bank model that can be adapted to deal with the current NPA crisis.

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Introduction

Understanding NPA's- Scenario in 2020

NPA's – Non-performing Assets in the Banking sector are the assets that cease to generate income for a bank with the respect it means the assets/loans whose interest and the principal is due beyond a certain time duration. As per the RBI guidelines, a loan or advances are classified as NPA when its interest or installment of principal remain overdue for a period of more than 90 days.

Post the 2008 global financial crisis the overall economic growth has slowed down, add to that the major banking crisis like ILFS crisis, the operational risk associated with PNB, and recent ones including Yes bank fallout and PMC bank Scam. A series of fraudulent transactions at these major banks has led to a ripple effect on the entire economy. Credit growth has stagnated at an average rate under 10% annually from its high of 25% during the 2003-2009 economic boom.

RBI mandates the Schedule commercial banks to maintain a CRAR of 9% as a provision against bad loans. The current crisis of covid-19 which lingers around us might make this provision insufficient to deal with, as the uncertainty over the recovery of small businesses is high. NPAs as a percentage of gross advances has risen from 3.3% in 2005-06 to 11.3% in 2019-20. The recent recovery in NPAs since 2016 was due to the write-offs and the 2016 resolution mechanism i.e. Insolvency and Bankruptcy Code. NPAs are one of the major reasons why private investment is on the decline. The effect of this can be seen in the overall growth as banks are reluctant to lend to new customers. It has now clogged the monetary policy, even when the RBI has cut the repo rate to a mere 4%, banks are lending to safer avenues, and demand high collaterals as a security measure towards providing new loans.

Macroeconomic factors related closely with NPA's

CPI Inflation Rate- The inflation rate can be considered negatively correlated to Bad Loans. This can be explained by an example of a company selling auto components, if the inflation increases the price of the component, it will

eventually lead to an increase in operating revenues. That is if the inflation in revenues is higher than the inflation in expenditures. Hence the company will be financially sound to cover its expenditure including debt. Thereby avoided any possibility of a default. Inflating away debt is an age-old technique and it has been used in India and at the global level as well after the 2008 global financial crisis.

Fiscal Deficit- Fiscal deficit is the difference between the total income of the government and its total expenditure. As the GDP growth has slowed down, the total tax collection has grown at a slower rate. Govt on the other hand is spending more to recapitalize the PSB's. It also tries to increase the expenditure in infrastructure to give impetus to the overall growth in the economy. A lower tax collection rate indicates towards stagnating economy, which eventually leads to higher bad loans of corporates. Thus, we can say that the fiscal deficit and NPA's are positively correlated.

GDP Growth- Gross Domestic Product is the total market value of all the goods and services produced in a country in a specified time period. Corporates borrow loans for increasing their capacity, anticipating higher demand for their product. As the demand for the commodity falls, total output by the companies falls. This eventually led to a disastrous debt overload in the balance sheet for the company. Thus, a negative correlation exists between GDP Growth and Bad loans.

Exports- A decline in total exports shows a sign of a slowing economy, which also results in higher NPA's. We can say that the two are negatively correlated.

Credit Growth- As the NPA's rise, banks become reluctant to lend. Resulting in negative credit growth. We can safely say that a negative correlation exists between credit growth and NPA's.

Bad Bank Models Adopted to tackle NPA's

Understanding Bad Bank

A bad bank is an institution set up to pool in the bad loans and other illiquid assets of a financial institution, which otherwise would lead to higher provisioning in the financial institution's balance sheet. The financial institution transfers these illiquid assets to the bad bank by writing down the price. By transferring such assets, the financial institution

can focus on lending and worry less about collecting the repayments from the borrowers.

Multiple Bad Bank Models are adopted in global financial systems. These are models are range from simple Asset Restructuring Units to Special Purpose Entities who completely take over the stressed assets and resolve them independently. We will now look at four such models of Bad Bank.

1. **On-Balance-Sheet Guarantee-** In this solution, the bank is protected against the losses in its portfolio through a guarantee provided by an external agency like the government. Such models reduce the risk, but it does completely transfer it to another entity. Risky assets remain in the balance sheet which appears less attractive to the potential investors and stakeholders. This approach might be used to stabilize the bank during a stressful situation and can buy time to find a concrete solution.

2. **Internal Restructuring Units-** A bank whose toxic and bad assets constitute 20% or more of the balance sheet take this approach. Here the bank establishes a separate restructuring unit internally, where it transfers these assets. This ensures that the management has a clear vision and focus on the growth of the bank. Investors perceive such a solution positively if the reporting of the two entities is separate. The restructuring unit now controls and manages these assets independently.

3. **Special Purpose Entity-** In this approach, the bank transfers the bad assets in a special purpose vehicle, usually sponsored by the government. Such a solution is an off-balance sheet structured. An example of a bank that followed this approach is UBS Bank which transferred 24 billion Euros to a special purpose entity (SPE) funded by the Swiss National Bank.

4. **Bad Bank Spinoff-** A model that is more acceptable and popular, Bad Bank is a separate entity legal entity that facilitates complete risk takeover. This solves the problem of heterogeneity of loans which otherwise are difficult to restructure in a special purpose entity (SPE) or an Internal Restructuring Unit. The major difficulty with this approach is the absence of an accounting framework for such transfers, valuation of the assets, and legal aspects of the solution. A strong government will and backing are required upfront to make such a solution viable and sustainable. NPA's taken over by the bad banks are restructured and sold at a discount. Bad Bank needs to be funded to be able to accomplish such a task.

Bad Bank Model in Malaysia-

A popular bad bank model which was instituted in recent times was of Danaharta Bank in Malaysia in 1998. It was a government-owned agency whose main objective was to remove the non-performing assets from the banking system. NPA's were on a rise in Malaysia, as it rose from 3.5% in 1997 to 13.2% in 1998. Danaharta's role was to buy these NPA's from the financial institutions to ensure that the NPA ratio was reduced to a minimum sustainable level. It helped the companies improve their risk-weighted capital ratio. To accomplish these tasks Danaharta was given special legal powers by the government to facilitate the takeover from banks. The NPA's were then managed and Danaharta would then take appropriate measures to recover them. For secured

loans, Danaharta rehabilitated, implemented restructuring programs, and injected additional capital to ensure efficient operation. For unsecured and riskier loans Danaharta transferred the loans to an Asset Management Unit for recovery. In the case of corporate borrowers who were unable to meet the obligations, Danaharta was given special provisions to take over the management control of such companies.

Danaharta model required it to recapitalize the banks and financial institutions with RM 15 Billion, of which RM 1.5 Billion were provided by the government, and the remaining were funded using zero-coupon redeemable bonds backed by the government guarantee.

To complement Danaharta in recapitalizing the financial institutions, a special purpose agency named Danamodal Nasional Berhad was established. Along with recapitalizing the banks to meet their capital adequacy requirement, Danamodal role involved facilitating the consolidation and rationalization of financial institutions through mergers. Although the banks were relieved from the NPA's, they had to take a discount to sell these NPA's, for that reason recapitalization from Danamodal helped the banks to maintain the capital required.

Pre-emptive measures taken by the national bank to establish Danaharta and Danamodal to reduce the NPA percentage in the economy showed positive results. NPA's reduced to 8% in the banking sector within a year of establishment.

Data Analysis and Data Gathering

NPA prediction in the Schedule commercial bank is done by performing multiple regression analysis. Data is gathered from the Reserve Bank of India Statistical Data, World Bank Data. Factors taken for multiple regression were:

- Consumer Price Inflation (CPI) data of India
- Gross Fiscal Deficit to GDP Ratio
- Exports to GDP Ratio
- GDP Growth
- Current Account Balance to GDP Ratio
- Credit Growth

The table below shows the time series data for the factors above from the year FY 2005 to FY 2020

Table 1

Year	CPI Inflation Rate	Combine Gross fiscal deficit to GDP Ratio	Exports to GDP Ratio	GDP Growth	Current Account Balance to GDP Ratio	Credit Growth	NPA (SCBs) as % of Total Advances
2005-06	5.67%	4.05%	7.72%	7.92%	-1.25	30.92%	3.30%
2006-07	6.84%	3.43%	8.95%	8.06%	-0.99	31.36%	2.50%
2007-08	6.40%	2.89%	9.53%	7.66%	-0.66	28.62%	2.20%
2008-09	9.02%	6.59%	11.85%	3.09%	-2.58	24.13%	2.30%
2009-10	12.41%	7.90%	11.05%	7.86%	-1.95	17.82%	2.60%
2010-11	10.43%	6.43%	13.77%	8.50%	-3.25	17.47%	2.50%
2011-12	8.33%	7.84%	16.78%	5.24%	-3.43	21.84%	3.10%
2012-13	9.86%	7.43%	17.74%	5.46%	-5.00	17.85%	3.20%
2013-14	9.46%	7.65%	19.44%	6.39%	-2.65	15.03%	3.80%
2014-15	5.93%	7.95%	18.01%	7.41%	-1.34	13.70%	4.30%
2015-16	4.92%	8.38%	15.10%	8.00%	-1.07	9.49%	7.50%
2016-17	4.51%	8.65%	15.03%	8.25%	-0.53	9.37%	9.30%
2017-18	3.59%	7.57%	14.85%	7.04%	-1.44	5.25%	11.20%
2018-19	3.41%	8.40%	16.51%	6.12%	-2.42	10.72%	9.10%
2019-20	4.80%	8.57%	15.23%	4.18%	-1.04	12.90%	11.30%

After performing the relevant multiple regression analysis, taking NPA of Scheduled commercial banks as the dependent variable and all other factors are independent variables.

Results

Results of the analysis are shown below:

Table 2

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.957776							
R Square	0.9173348							
Adjusted R Square	0.8553359							
Standard Error	1.3020096							
Observations	15							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	6	150.4955022	25.08258	14.79599	0.000611003			
Residual	8	13.56183113	1.695229					
Total	14	164.0573333						
Coefficients		Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	21.053097	6.360494196	3.309978	0.010699	6.385771533	35.72042337	6.385771533	35.72042337
CPI Inflation Rate	-64.02501	19.95801516	-3.20798	0.012462	-110.0482783	-18.00174726	-110.0482783	-18.00174726
Combine Gross fiscal deficit to GDP Ratio	19.825926	49.68056146	0.399068	0.700284	-94.73765383	134.3895065	-94.73765383	134.3895065
Exports to GDP Ratio	-31.35022	19.07447922	-1.64357	0.138888	-75.33604596	12.63560996	-75.33604596	12.63560996
GDP Growth	-40.76568	28.23368083	-1.44387	0.186771	-105.8726677	24.34130175	-105.8726677	24.34130175
Current Account Balance to GDP Ratio	0.0537543	0.472978471	0.113651	0.912315	-1.036936047	1.144444574	-1.036936047	1.144444574
Credit Growth	-30.54894	11.84326265	-2.57944	0.032645	-57.85954851	-3.238323236	-57.85954851	-3.238323236

The regression analysis table confirms our earlier discussion on all the factors.

- CPI Inflation Rate has a negative correlation of -64.025.
- Combine Gross Fiscal Deficit has a positive coefficient of 19.8259
- Exports are negatively correlated to NPAs with a coefficient of -31.3502.
- GDP Growth Rate has a negative coefficient of -40.76568 concerning NPA's.
- The current account balance to GDP ratio is 0.05375.
- Credit Growth is also having a negative correlation of -30.54894.

To forecast the Gross NPA using the data above, we use the multiple regression formula

$$Y = \text{Intercept} + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 + \dots + b_n * x_n$$

Gross NPA Predicted = 21.053097 + (-64.02501 * CPI Inflation) + (19.8259 * Gross Fiscal Deficit) + (-31.35022 * Exports to GDP) + (-40.76568 * GDP Growth) + (0.0537543 * Current Account Balance to GDP) + (-30.54894 * Credit Growth)

Gross NPA's are predicted for three different scenarios post covid-19:

- Baseline Scenario- Economic Indicators follow the same trend as the previous year
- Medium Impact- Scenario where the economic indicators are impacted by covid-19 and the economy goes into a mild depression
- Severe Impact- Economy goes into severe recession as the economic indicators worsen.
- Very Severe Impact – Extreme impact of covid-19 on the above-mentioned indicators.

The indicator values for all the scenarios are taken from the Financial Stability Report published by the Reserve Bank of India (RBI) in July 2020.

Gross NPA's ratio as a percentage of total advances is then predicted for each of the scenarios. The result of the same is shown below.

Table 3

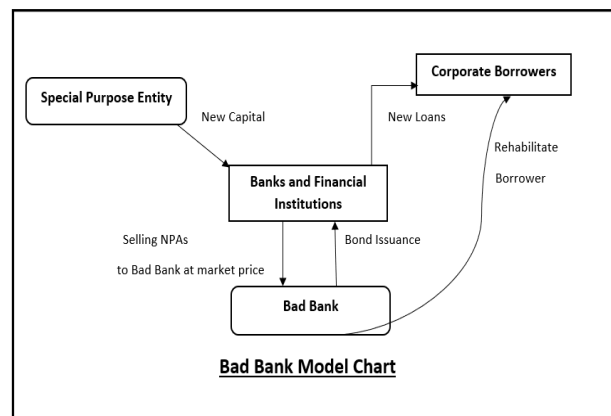
GNPA Stress	Baseline	Medium- Impact	Severe Impact	Very Severe Impact
CPI Inflation Rate	4.1	5.9	8.9	11.8
Combined Gross Fiscal Deficit to GDP Ratio	10.9	11.6	12.8	13.9
Exports to GDP Ratio	10.2	8.8	6.5	4.2
GDP Growth	-4.4	-5.5	-7.2	-8.9
Current Account Balance to GDP	-0.5	-1.3	-3.5	-4.9
Credit Growth	12.9	11.3	9.5	8
Projected GNPA's of SCB's	15.22	15.54	15.70	16.16

Projected Gross NPA's of Scheduled Commercial Banks is 16.16% at a worst-case scenario post-covid-19. Such high NPA could prove detrimental to the growth of the economy and hamper the financial stability of the institutions.

Bad Bank Model Solution to the NPA problem

We will now discuss the bad bank model which can be adopted by the government of India and Reserve Bank of India to tackle the existing problem.

The chart below shows a model that can be implemented.



Model Explanation:

The Bad Bank backed by the government is established, which buys the Non-performing assets from the Banks and financial institutions and issues government-backed bonds and cash. The banks will have to sell the stressed asset at a

discounted price. The new capital will be issued to the financial institutes via a special purpose entity. Bad Bank will also facilitate in rehabilitating the borrowers of the stressed assets and try to recover these NPA's. Any gains made by the Bad Bank would then be passed on to the issuing bank.

The bad bank needs to be a legal entity with acknowledgment of the industry stakeholders, has to be established for a shorter time duration whenever the need arises.

Conclusion

The NPA's today are rising owing to the covid-19 pandemic. As we projected the Gross NPA's in the Indian Banking Sector is expected to be 16.16% of the total advances. This large chunk of stressed toxic assets hampers the lending capabilities of the bank. Such stress can severely damage the growth that can be expected in the economy in future years. A bad bank model that is suggested can be implemented to deal with the NPA crisis. A disadvantage of a bad bank is that the bank might get complacent in their lending activities and carry on with aggressive lending without doing due diligence. Therefore, such a bad bank model can be a one-time solution or a solution that should be taken up only in times of crisis like the covid-19. It should not be a full-time solution for the NPA problems which might arise in the future. NPA's can be avoided in the banking sector if the lending process is done in a rational manner where due consideration is given towards credit ratings and credit scores of individuals and corporates. Loans need to be advanced after doing the required processes and any misselling must be stopped. A bad bank should therefore be a one-time solution as in the case of Malaysian bank Danaharta.

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