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The Origins of India's NPA Crisis

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1 Introduction

The Indian banking system emerged relatively unscathed from the Global Financial Crisis. Prior to the outbreak of the crisis, evidence suggests that the operational efficiency and financial soundness of the Indian banking sector compared favourably with its peer group countries in Asia as well as developed OECD countries.¹ However, the Report on Trend and Progress of Banking in India (RTP) in 2008-09 concluded that while the Indian banking system had largely withstood the pressures of the crisis, it remained vulnerable to the slowdown in global economic growth and the collapse of global trade in its aftermath.²

During the crisis and in its aftermath, the Reserve Bank of India therefore enacted a series of regulatory measures to provide “asset quality” forbearance to the banking system. The rationale primarily rested on the notion that Indian firms suffering from liquidity problems as a result of the crisis required temporary relief from their loan service obligations. Therefore, banks were allowed to provide forbearance with respect to asset quality classification norms for the loans on their books. Worth noting is that the forbearance policy was put in place solely for liquidity purposes and not for firms with solvency issues.

Fast forward to 2012-14 when India’s economic crisis begins with the emergence of twin balance sheet problems and both the banking sector and the corporate sector come under severe financial stress. Indian banks today hold the dubious distinction of having one of the world’s worst asset quality ratios especially for the public sector banks.³ The proportion of non-performing loans (NPAs) in gross loans (GAs) went from about 2% in 2008 to over 10% in 2018. For the worst performing banks, the ratio is in excess of 20%. Similarly, the proportion of Restructured Loans (RAs) in Gross Loans (GAs) rose from about 3% to over 13% in a span of ten years. The accompanying collapse in credit has unsurprisingly had a direct impact on economic growth—the country’s gross domestic product (GDP) growth slowed to 5% in the first quarter of 2019-20, compared with 5.8% in the previous quarter,

¹<https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=12976>

²<https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=12976>

³(https://www.business-standard.com/article/finance/psbs-are-among-least-capitalised-banks-in-the-world-say-experts-118121101484_1.html)

and 8.0% in the quarter that ended on June 30, 2018. Decelerating growth for five quarters in a row implies the Indian economy grew at its slowest pace of since March 2013 when GDP growth stood at 4.3%.

In aggregate, Indian banks are currently saddled with bad loans amounting to more than US\$100 billion. The growth in the NPAs of Indian banks is mainly concentrated on the books of state-owned/public sector banks (PSBs)-the market share of PSBs accounts for almost 70% of the banking system. Additionally, the financial system stresses which arose before the full implementation of Basel III norms, were compounded by additional pressures to fulfill the improved capital standard requirements.⁴ Thus, Indian banks currently face dual pressures on the domestic and international fronts-domestic stress with the daunting challenge of cleaning up their balance sheets and internationally of achieving compliance with Basel III norms.⁵

We turn next to the role played by restructured assets in Indian banking under the auspices of the forbearance policies. During the five years before March 2015, banks resorted to restructuring of loans in many cases to postpone recognition of non-performance, or what we now call 'extend and pretend', rather than using it as a tool to preserve the economic value of the units as intended. As a result, until 2016 the restructured assets constituted more than 50% of the stressed assets of all scheduled commercial banks masking the actual extent of deterioration of the loan portfolio. The system is now confronted with a multitude of stresses beginning with the high GNPA ratios, low capital provisioning, low profitability that has led to a collapse in new lending with its attendant consequences on economic growth. Policy clearly had a role to play, as the long period of regulatory forbearance allowed weakly capitalized banks to issue and evergreen zombie credit types of loans that ensured the receipt of interest payments but did not constitute credit of a productive nature.

The vicious circle was eventually broken with the implementation of the Asset Quality

⁴Under the Basel-III norms, the banks in India have to maintain a minimum tier-1 capital ratio of 7 per cent. The banks are also mandated to have a capital conservation buffer of 2.5 per cent of their risk-weighted assets. In totality, the banks are required to maintain a minimum capital adequacy ratio of 11.5 percent by the end of March 2019, including 2 percent in tier-II capital.

⁵Implementation was achieved in March 2019.

Review (AQR) in 2015. However, the implementation of the AQR also meant a post-AQR spike in NPAs as banks were no longer able to use the restructured assets classification to hide NPAs. While the regulatory changes may imply that once recognized the NPA ratios may moderate but the provisioning needs as the NPAs age will put pressure on bank profit and loss statements.⁶

The current state of the banking system therefore raises some important questions about the origins of the crisis. First, how did the Indian banking system devolve from being relatively healthy to having one of the world's worst asset quality ratios? Did measures implemented by Reserve Bank of India or the Government help or aggravate the crisis? Did banking-sector policies themselves mis-align the incentives of lenders to be prudent and borrowers to repay? Has the existence of state owned banks proven costly for India? And finally, what is the agenda for banking sector reforms going into the future?

We explore these questions in this chapter. First, we summarise the time-series trends of the evolution of stressed assets in the Indian banking system. Second, we document the timeline of crucial policy announcements with respect to the asset classification norms between 2008-2018 and discuss how these successive schemes created dueling incentives for banks and firms. To examine the impact of these dueling incentives, we conduct an event study using stock market data for public and private sector banks and study the stock price reactions surrounding important regulatory events. Third, we elaborate on the role of PSBs in the anatomy of the crisis. Using a sample of Indian firms from the Prowess CMIE database from 2005-2016, we examine the allocation of credit by public sector banks against the backdrop of the changed asset classification norms. Finally, we identify factors that underlie the NPA crisis and describe recent measures implemented by the government and the RBI in an effort to resolve the crisis.

⁶https://m.rbi.org.in/scripts/BS_SpeechesView.aspx?Id=1023

2 Recent Trends in Indian Banking

In this section we discuss the recent trends in Indian banking. In Panel (A) of Figure 1, beginning in 2013, we observe a persistent decline in credit, deposits and assets of the banks barring the year of 2016 when the demonetisation was announced. These negative trends in the banking aggregates are coincidental with the rising GNPA ratio measuring the proportion of Non-Performing Loans (NPAs) in Gross Loans (GLs). Panel(B) of Figure 1 shows the accompanying collapse in credit growth. The picture is striking especially for the PSBs which account for nearly 70% of banking credit in the system. Not surprisingly, PSBs posted losses for the first time ever in 2018-the profitability of private banks (PVBs), on the other hand, has remained steady.

The RBI required banks to classify loans on their balance sheets into standard and non-performing categories. Standard loans are the safest and have a very low probability of default whereas non-performing loans are in some state of default with respect to interest and/or principal repayment. NPAs are further classified into sub-standard, doubtful or loss loans depending on how long have they been recognised as non-performing. Restructured loans would normally involve modification of terms of the advances/securities. The asset classification matters because specific capital provisioning requirements are attached to each loan category indicating the extent of funds that a bank must keep aside to cover loan losses (see Table 1).

Table 1: Provisioning Requirements on various Categories of Loans

Asset Category	Npa Duration	Provisioning Rate
Standard		0.25%-1%
Sub-Standard	<1 year	15%
Doubtful	Up to one year	25%
	One to three years	40%
	More than three years	100%
Loss		100%

The structure of provisioning rates with the possibility of restructuring opens up a possible window of regulatory arbitrage. Asset quality forbearance allowed banks to classify loans that are not current due to liquidity issues, as restructured loans without increasing the accompanying provisioning rates. Banks were therefore easily tempted to classify loans that suffered from solvency problems as "restructured" assets as well effectively dodging the higher capital provisioning requirement. In other words, loans could be classified as restructured due to liquidity problems at the bank's discretion thus avoiding the higher provisioning brackets associated with downgrading the asset quality of loans.

From Figure 2 we see a step increase in the proportion of restructured loans in total loans (Panel C) between 2008 and 2013 while the proportion of NPAs in total loans is muted.⁷ Panels B and D show evidence suggestive of regulatory arbitrage by banks: the proportion of distressed loans consistently rises from 2008 especially for PSBs along with the proportion of restructured loans in distress loans. Panel D pins down the extent of the 'extend and pretend' phenomenon or the fact that marginal banks can continue to evergreen loans in the hope that firms recover in the future. A major reason for the elongated period of hiding of true asset quality was absence of a legal framework in form of a bankruptcy law or resolution norms that empowered creditors to recover the loans. In the next section, we discuss the evolution of the resolution framework in India.

⁷The dip in 2011 was due to enhancement of rates of provisioning for NPAs and restructured loans.

3 The Stressed Assets Resolution Framework in India

As of late 2016, Indian banks did not have access to an effective and comprehensive bankruptcy apparatus. In the absence of a legal framework for resolving stressed loans, not being serviced in accordance with the terms of the original contracts, especially in times of widespread economic distress, the central bank resorted to makeshift arrangements that mimicked formal bankruptcy laws with out-of-court resolutions. A cross-country study ranked India very low in terms of recovery prospects and time (see Figure 3). Debts Recovery Tribunals (DRTs) were set up under the Recovery of Debts Due to Banks and Financial Institutions (RDDBFI) Act, 1993 to help banks and financial institutions recover their dues speedily without being subject to the lengthy procedures of usual civil courts.⁸

The oldest measure in the 2000s was the SARFAESI Act which allowed banks and other financial institutions to auction off residential or commercial properties (of Defaulter) to recover loans. The first asset reconstruction company (ARC) of India, ARCIL, was set up under this act. Criticisms arose that the provisions of SARFAESI Act, 2002 were being misused by the Banks in many cases. Thus recovery was only a little over 13% of the amount at stake in 2013-14. Ultimately, the Supreme Court decided to uphold the constitutional validity of the Act. The balance of power lay with big promoters who could play off one banker against another by choosing to repay one but strategically defaulting on the other. In the scheme of things, the deck was stacked against banks who were not backed by the regulators in their efforts to recover outstanding loans given in particular to politically-connected promoters.

The ideal principle of restructuring suggests that if a loan is restructured, it should be taken as a signal of worsening asset quality and hence should be downgraded to a lower asset classification immediately. In August 2001, the Reserve Bank of India (RBI) introduced the Corporate Debt Restructuring (CDR) mechanism which allowed syndicates or consortium of lenders to restructure the debt of corporate firms. The policy specifically targeted multiple banking accounts/syndication/consortium accounts of corporate borrowers with outstanding

⁸<https://www.chicagobooth.edu/faculty/directory/r/raghuram-g-rajjan>

exposures of banks and institutions greater than Rs.10 crore. The rationale was that the CDR scheme would allow restructuring of loans to otherwise viable firms and would thus help minimize losses to the both borrowers and creditors through an orderly and coordinated restructuring program. Former Deputy Governor of RBI, Prof. Acharya noted that many assets parked by banks under the Corporate Debt Restructuring cell were severely stressed. These assets were deserving of advance capital provisioning against future recognition as NPAs. This serves as the starting point for under provisioning and excessive risk taking by banks. This misbehavior may have remained hidden if the economy was not hit by the exogenous GFC shock in 2008.

With the onset of the global financial crisis (GFC), in August 2008 the RBI put in place the ‘Special Regulatory Treatment’ for the restructuring of debt where following restructuring, lending institutions did not need to downgrade asset quality. This forbearance measure was intended to help viable firms tide over temporary idiosyncratic shocks arising due to the spillovers of the GFC. The rationale of the special regulatory treatment was to help with the GFC induced liquidity issues but not solvency issues. Despite the stated rationale, the ‘asset quality’ forbearance increasingly became a route to avoid appropriate recognition of NPAs sometimes referred to as ‘extend and pretend’. The evidence of wholesale misuse is visible in Figure 2 where immediately following 2008, we see a noticeable spike in the proportion of restructured Loans in the total stressed assets ($DA = RAs + NPAs$) whereas the NPA ratio stays low as late as 2013. The possibility of regulatory arbitrage by way of asset classification distorted the structure of incentives at the banks. There was excessive lending in a very short period of time from 2009 to 2012 to a concentrated set of large firms in a number of sectors such as infrastructure, power, telecom, metals (iron and steel, in particular), engineering-procurement-construction (EPC), and textiles. After many extensions in time and applied to wider categories of loans, on May 30, 2013 it was announced that all forbearance on asset classification will be removed in effect from April 1, 2015.

Between 2013 and 2017, the RBI together with the government started tightening the prudential norms for asset classification and income recognition. However, some windows of

restructuring were kept open. Dr. Rajan, then governor started an ‘Asset Quality Review’ (AQR) which led to recognition as NPA of several loans, which banks had then considered to be standard assets. This is the phase where we see a massive increase in proportion of NPAs in the gross Loans of banks. Noticeably, its only after 2015 (the AQR implementation year) that the proportion of RAs in gross Loans finally starts declining. The figures provide clear evidence of the use of these restructuring schemes to hide the bad loans under the cover of ”restructured” loans.

Other measures implemented include the creation of a data warehouse of large loans called as Central Repository of Information on Large Credits (CRILC) that covers all loans in India over Rs.5 crore. The database is accessible to all the banks and provides a transparent way for banks to know about possible defaults if the borrower has already defaulted with another bank. Certain schemes were announced to promote easy restructuring, for example, the 5/25 scheme was designed with the objective of allowing the borrowers to take benefit of more suitably aligning their repayment schedules to their cash flows to service the debt for long term projects. The Scheme for Sustainable Structuring of Stressed Assets (S4A) scheme envisaged the determination of the sustainable debt level for a stressed borrower, and bifurcation of the outstanding debt into sustainable debt and equity/quasi-equity instruments which are expected to provide upside to the lenders when the borrower turns around. This provided an incentive to capable, but over-leveraged promoters to perform and banks to continue to lend as the project is not deemed an NPA, if provided for adequately. The Strategic Debt Restructuring (SDR) scheme allowed for the conversion of debt into equity. Many of these restructuring schemes have failed to produce any noticeable results mainly because it appears that banks used them once again to restructure the bad loans and not for reviving viable projects.

The Deputy Governor of the RBI, N S Vishwanathan in a speech at the National Institute of Bank Management in Pune in 2018 said that ‘It has been our view that the restructuring schemes were required at a time when we did not have an effective bankruptcy law in place. The schemes essentially created a framework for resolution that should normally happen

under the aegis of an insolvency and bankruptcy law. The focal points of the schemes were deep restructuring of stressed assets, change of ownership/management of stressed borrowers, optimal structuring of credit facilities, and haircuts wherever the exposures were economically unviable.⁹ India, finally got its Insolvency and Bankruptcy Code in 2016 followed by Banking Regulation (Amendment) Bill in July. Under the aegis of the ordinance, the RBI identified 12 defaulters who account for about 25% of NPAs and resolution proceedings have been initiated for these 12 cases under IBC. Despite a proper legal framework now available, these restructuring schemes were allowed to operate for an additional two years until the February 12, 2018 circular that removed all forbearance and all restructuring schemes.⁹

The impact of the newly introduced bankruptcy laws are yet to be seen. In the meantime, the conclusion remains that bankers were able to game the regulator for a remarkably long period of time in the absence of a legal binding resolution framework. And now the chickens have come home to roost as evidenced by the collapse in credit and the slowdown in economic growth.

3.1 Bank Level Analysis: The Stock Market’s Reaction to Regulatory Forbearance Announcements

Using stock market data in this section we conduct an event study to investigate the market’s reaction to the announcement of forbearance measures and their subsequent withdrawal. As an initial diagnostic exercise, we look at the stock market reactions of the banks around the major policy announcement dates pertaining to the forbearance policy between 2008-2018 to examine whether our bank level measures can explain the variation in bank stock returns around regulatory forbearance policy announcements. We use a standard event-study methodology to examine investors’ reaction to the increasing or decreasing events of regulatory forbearance by the Reserve Bank of India (RBI).

The selection of relevant dates for event study began with a detailed survey of all master

⁹This historical circular was repealed again in 2019 and replaced with a new circular which came out in June 2019.

RBI circulars released between August 27, 2008 and February 12, 2018. First, we carefully went through the contents of the circulars to shortlist an extensive list of dates and corresponding circulars that were relevant to the forbearance policy evolution. Next, we trimmed the list to a subset of eight events which reflect the major policy changes by the RBI and then decipher the broad directions, i.e., whether the announcement increased or decreased the use of forbearance. Table 2 lists in chronological order the major policy announcements that we include in our event study analysis.

We examine the cumulative abnormal returns (CARs) for banks around major policy announcements that increase or decrease regulatory forbearance. We hypothesize that the direction of the change in abnormal announcement returns of a bank's stock in response to the introduction of regulatory forbearance and its withdrawal announcement will be a function of bank fundamentals. In the case of increasing forbearance, we expect positive abnormal returns for banks whose exposure to potentially non-performing loans is high and conversely, negative abnormal returns for the same banks in response to announcements withdrawing or reducing forbearance. Thus, stock returns may provide a barometer for the market's perception of the policy change for a bank's prospects (see Alfaro et al. (2014)).

To minimize the influence of confounding factors, as standard practice in the event study literature, we use a relatively short window of $(-1,3)$ days around the event date.¹⁰ We discern the direction of change from the description and content of the RBI's announcements-see a brief description in Table 2. We estimate cumulative abnormal returns, we use the main market indices from the Indian stock market: the BSE SENSEX and NSE NIFTY indices obtained from Bloomberg. The individual firm stock market return are again obtained from CMIE's Prowess database. The estimation window is a period of $(-273,-21)$ trading days before the event date which is roughly the number of days stock markets are open in a year. From Table 2, note that the phases are not monotonic. The RBI has been back and forth in relaxing and tightening the norms of restructuring. We cluster standard errors at the bank-level.

¹⁰As a robustness check, we also use different windows of $(-2,2)$ and $(-1,2)$ days around the event date and get similar results.

Figure 4 plots the average aggregate abnormal returns of banks grouped together into increasing and decreasing forbearance events. Panels A and B capture the rise and fall in the stock market’s reaction around increasing and decreasing forbearance announcements, respectively. Panel A shows that when the RBI made announcements that introduced forbearance or restructuring schemes, the stock market responds positively or interprets the forbearance measures as good news for banks as shown by the spike in aggregate average abnormal bank returns. In contrast, Panel B shows that following announcements that cut back on restructuring schemes or withdraw forbearance, the market interprets them as a negative news, apparent from the fall in average aggregate abnormal returns of banks.

With the cumulative abnormal returns in hand, we test whether bank level measures of distress are correlated with the variation in the excess bank returns. We conjecture that the banks with a higher proportion of distressed loans on their portfolios have potentially the most to gain when a policy allows them to classify some of their sub-standard or non-performing loans as standard loans given that standard loans attract lower capital provisioning requirements. To formally test this hypothesis, we estimate the following specifications using a panel of eight event dates for the public and private sector banks in our sample and the associated cumulative abnormal returns of banks. We relate them with our constructed measures of bank distress by estimating the following specification:

$$CAR_{b,\tau} = \beta_b + \beta_1 * Increasing\ RF_t + \beta_2 * Increasing\ RF_t * X_{b,t}^{Stress} + \epsilon_{b,t} \quad (1)$$

where $Increasing\ RF_t$ is an indicator that takes a value of one in the post-2008 period— for the dates that increased forbearance. We run four separate regressions where $X_{b,t}^{Stress}$ represents alternative bank-level measures of stress- the distressed-asset ratio ($\frac{DA_t}{GA_t}$), and the non-performing asset ratio ($\frac{NPA_t}{GA_t}$), all standardised to have mean 0 and variance 1. The bank ratios are at time t , i.e., the latest annual data available preceding the event window, τ .

For example, for an event date in February 2014, the latest bank ratio available is as

of March, 2013 but for an event date in April 2015, the latest bank ratio available is as of March, 2015. This is unfortunately a limitation of annual data given that higher frequency data are not available for banks. In all specifications, we cluster standard errors at the bank level. We also include bank-level fixed effects (β_b) to control for unobserved time-invariant heterogeneity between banks for robustness.

Table 3 summarizes the results. Specification (1) and (3) are baseline estimations whereas specifications (2) and (4) are controlling for time-invariant bank characteristics via bank fixed effects.

Columns (1) and (2) present the regression of CARs of banks on the standardised proportion of non-performing loans in total gross loans. We see positive and significant coefficient (0.996 and 0.883) on the interaction term between increasing forbearance and the standardised $\frac{NPA}{GA}$ ratio in the baseline specification (3) without bank-fixed effects and specification (4) with bank fixed effects.

Finally, Columns (3) and (4) present the regressions of CARs of banks on the lagged ratio of distress loans in the total gross loans where distressed loans are the sum of restructured (RA) and non-performing loans (NPAs). Again, this result shows the statistically significant gains for banks with greater shares of total distressed assets. Along the same lines, for a one standard deviation increase in the DA ratio during the post forbearance era, the average CAR goes up by 0.99 and 0.88 percentage points, respectively.

In Table 4, we estimate the margin effects of the CAR regressions. The estimated coefficients measure the average value of the dependent variable, i.e., cumulative abnormal returns at various points in the distribution of the explanatory variables. For example, we evaluate the margin effects at the first and third quartiles, and the mean values around increasing forbearance events to infer how banks with different levels in the stressed asset ratio distribution respond to the forbearance announcements. The results indicate that for banks with higher levels of stressed assets, the third quartile (p75) in the distribution of the NPA and distressed loan ratios, on average, experienced positive and statistically significant CARs of over 3% across all specifications. Banks with lower proportions of non-performing

and distress loans, at the first quartile (p25), experience a gain of 1-2%. The provision of regulatory forbearance leads to relatively higher stock market gains for stressed banks.

In summary, the event study analysis shows that the banks that had high proportions of stressed assets on their books experienced statistically significant cumulative abnormal returns in response to the increasing forbearance policy announcements. Additionally, Figure 5 plots the average abnormal returns of public vs private banks grouped together into increasing and decreasing forbearance events. Panels A and B capture the rise and fall in the stock market reaction around increasing and decreasing forbearance announcements for the PSBs, respectively. Panel A shows that when the RBI made announcements that introduced forbearance or restructuring schemes, the PSBs respond positively or interprets the forbearance measures as good news for these banks as shown by the spike in average abnormal bank returns. In contrast, Panel B shows that following announcements that cut back on restructuring schemes or withdraw forbearance, the market interprets them as a negative news for PSBs, apparent from the fall in average abnormal returns of banks. The response of PVBs to the announcements is muted, indicating that stressed assets and resolution policies affect the PSBs more. The event study estimations provide evidence that the PSBs may be a significant driver of the stressed assets crisis in Indian banking. The next section examines the role of public sector banks in greater detail.

4 The Role of Public Sector Banks

Notwithstanding the fact that state ownership of banks may be desirable in developing economies, evidence from around the world suggests that objectives other than profit maximization and/or social motives may drive the loan activity of public sector banks. From Figure 2, it is clear that the adverse effects of GFC on the borrower liquidity and solvency ought have equally affected both public and private banks, it is less clear therefore why public sector banks had significantly lower asset quality and poorer profitability relative to private banks in the aftermath of the crisis. Figure 6 shows the share of PSBs and PVBs in gross ad-

vances and in stressed assets. One obvious reason for a higher proportion of distressed loans coming from PSBs is that they account for almost 70% of banking sector assets. However, Figure 6 shows that even as the market share of PSBs goes down, their share in distressed loans stays in excess of their share in advances. In fact, there is an increasing trend. The private banks on the other hand seem to be gaining market share while keeping share in stressed assets lower than the market share with the share going further down. Thus, the main takeaway is that public sector banks appear to have shielded a disproportionately high share of stressed assets which meant that when the Asset Quality Review commenced, the GNPA ratios for PSBs skyrocketed.

Next, we look at the the composition of portfolio of PSBs. We use different measures to classify the kinds of firms linked to banks. A firm is tagged as $ICR < 1$ if the the firm had interest coverage ratio < 1 in a year t i.e. the firm is unable to repay interest expenses out its profits in that year. We observe in Figure 7 that in the time period after GFC, there is a steep increase in the number of $ICR < 1$ firms in PSB's portfolio. This signals a rise in low-quality lending by PSBs specifically referred to as 'zombie credit'. In countries with weakly capitalised banks, the existence of zombie firms means that PSBs might find it more profitable to re-issue credit (or evergreen loans) to zombie firms as they can delay classifying them as NPAs and reduce their capital provisioning requirements. Banks have an incentive to do this as window dressing to makes their balance sheet look healthier than in reality.

In our paper Chari et al. (2019), we show the misallocation of credit by the stressed banks between 2008-2016. The average borrowings of low-solvency and zombie-credit firms from the stressed banks go up significantly but at the same time there is no long-term improvement in the these firms' prospects. Their capital expenditures go down and there is a reallocation of capital towards wage expenses.

Former Deputy Governor of RBI, Dr. Acharya shows a similar phenomenon in Europe in Acharya et al. (2018) arguing that the 'bank balance-sheets are so weak, they cannot support healthy credit growth. Put simply, under-capitalized banks have capital only to survive, not to grow; those banks barely meeting the capital requirements will want to generate capital

quickly, focusing on high interest margins at the cost of high loan volumes. The resulting weak loan supply and the low efficiency of financial intermediation, have created significant headwinds for economic activity¹¹.’ Thus, the co-existence of weakly capitalized banks, low-quality legacy borrowers with poor prudential norms are a perfect recipe for a bad loan crisis.

RBI reports also show that PSBs slowed lending to the sectors where they were seeing large NPAs but not in sectors where NPAs were low. In Figure 8, we show the major industries with high GNPA ratio for PSBs. For some industries, the GNPA ratio is in excess of 50%.

In the past decade, PSBs lost market share as non-bank finance companies, the PVBs, and some of the newly licensed small and payment banks expanded. We believe this will increase the dynamism of the banking sector. As the economy moves towards higher growth levels, operations of PSBs should perhaps be restricted to niche areas where profit maximising private and foreign banks would not likely lend.

5 The Root Causes of the NPA Crisis

- **GFC led demand/trade shock** At the time the GFC hit the global economy, the Indian economy was able to escape the immediate impact of the crisis. But the economy faced headwinds in subsequent years as the financial sector, trade flows and the exchange rate bore out the impact. The Indian corporate sector’s dependence on external funding indirectly affected the health of Indian banks.

According to calculations done by Ideas for India, the total trade (excluding oil) experienced an average annual growth rate of 23.53% during 2005-2009 which fell to -4.34% between 2008-09 and 2009-10. The current account deficit widened due to lower export demand and a ballooning import bill due to rising commodity prices. The adverse impact on the real economy weakened the ability of firms to repay bank loans, as well

¹¹<https://www.brookings.edu/wp-content/uploads/2017/08/iibf-va.pdf>

as exerted pressure on domestic credit and distressed assets ratio.

- **The absence of bankruptcy law and weak resolution frameworks**

While there is a case to be made for providing forbearance and allowing viable firms to restructure their debt. Problems arise, however, when the incentives to restructure by banks and firms are mis-aligned with the intent of the forbearance regulation. In India's case, it was beneficial to both banks and firms- banks could make their balance sheets look more profitable than they actually were by freeing up capital that would have otherwise be used up for provisioning purposes for potential non-payment by non-performing loans. The potential for regulatory arbitrage was therefore in-built within the structure of provisioning as can be seen by the marginal increases in these rates for the lower asset classification categories in combination with the allowance of retaining a better asset classification. The extension of the forbearance policy of the RBI led to the development of a poor credit culture in Indian banking. The February 12, 2018 circular was one step in the right direction bring our norms closer to the international best practices.

- **The public ownership of banks**

In a June 2019 presentation at Stanford University, former Governor Dr. Urjit Patel noted that the growth of PSBs is stunted by internal factors like poor risk management techniques, the incidence of fraud, large-scale corruption running from branches to regional offices, a lower CRAR, a higher ratio of non-operating expenses compared to PVBs, high net NPAs and so on. Moreover, along almost all of these dimensions, the performance of PVBs has been much more satisfactory. Additionally, there is the black box of nexus between political parties, big corporations and PSBs. The time may be opportune to rethink the role of state-owned banks in the Indian banking system.

- **Irrational exuberance in pre-2008 period**

Although signs of worsening asset quality became discernible in the post-2008 period,

many economists opined that the bad loans may have their genesis in the pre-2008 era—a period of irrational exuberance for banks. The financial sector expansion outpaced the real growth. GDP growth was consistently close to 7-8% every year. During periods of high GDP growth, credit growth naturally increased rapidly. It stands to reason that asset quality can get compromised during bullish phases of high credit growth given the pro-cyclical nature of lending. Excess credit growth in turn can result in the creation of non-performing assets for banks in the subsequent years. However, while pro-cyclical credit bubbles may be in the anatomy of many crises, they cannot wholly account for the unprecedented accumulation of bad loans in India. Former Governor Dr. Rajan also noted that “Too many loans were made to well-connected promoters who have a history of defaulting on their loans.” While proportionate increases in NPA ratios with the credit growth may not necessarily be a pressing issue, it becomes a concern, however, when the insolvency of borrowers becomes a problem for their bankers. The massive shock of GFC in 2008, separated the stressed banks from the healthier ones and low-quality borrowers from the good-quality ones. Ultimately, poor project evaluation and risk monitoring in mid 2000s heightened the risk of projects turning into NPAs in the post 2008 period.

- **Weakly capitalized banks and zombie lending incentives** The growing impairment of public sector bank health meant that they were weakly capitalised. With the dual pressure of meeting additional BASEL-III capital norms as well as asset quality stress, we confirm in Chari et al. (2019) that zombie lending is indeed the likely explanation for the slowdown in credit flows to healthier firms in the zombie-dominated industries and zombie-credit heavy banks. Similar trends were seen in Japan and Europe.
- **Negative spillovers to good-quality firms** Examining the worsening interest coverage ratio of low quality borrowers in our sample which is coincident with worsening bank health and forbearance provision, we hypothesize that zombie lending may be

widely prevalent in India. In fact, we show a significant increase in prevalence of zombie credit firms in India in the post-GFC period. The negative effects of zombie credit transmits to healthier firms as well. In Chari et al. (2019), we find that as the proportion of zombie firms in an industry goes up by 0.1 percentage points the borrowings of non-zombie firms, in those industries is lower on an average by a statistically significant 8.80% relative to the reference group of zombie firms during the forbearance period in the most robust specification. This means that a major proportion of new gross advances may be the new loans to existing stressed borrowers which further impairs the ability of banks to improve their asset quality due to a sticky bad match between weakly capitalized banks and low-quality firms.

6 Recent Measures

In recent years, the balance sheets of banks have been cleaned up with appropriate loan loss recognition. The Government has taken a host of initiatives to ensure capital adequacy for banks by way of bank recapitalisation through infusions, announcing mega-mergers between banks and so on. A prudent approach at this moment in addition to tackling the stressed assets in the system may be to take actions that also improve the dynamism in the banking sector. In this section, we discuss some of the recent measures taken by the government.

- **The recapitalization of PSBs:** According to the FY19 union budget presented in Lok Sabha, over the last five financial years (FY15 to FY19), PSBs have been recapitalised to the extent of Rs 3.19 trillion, with an infusion of Rs 2.5 trillion by the government and the mobilisation of over Rs 66,000 crore by the PSBs themselves. In FY18 alone, a massive Rs2.11 trillion capital was infused into public sector banks (PSBs) which amounts to over 1% of GDP of India quantitatively. Figure 9 shows this single infusion is greater than the collective recapitalisation over the recent few years. This naturally implies that the government ownership in PSBs is unlikely to decline any time soon. In almost all of the major PSBs, in the last five years the collective share

of government and the LIC has increased. The government also announced capital infusions totalling over Rs.55,000 crore into public sector banks in August, 2019: PNB (Rs.16,000 crore), Union Bank of India (Rs.11,700 crore), Bank of Baroda (Rs.7000 crore), Indian Bank (Rs.2500 crore), Indian Overseas Bank (Rs.3800 crore), Central Bank (Rs.3300 crore), UCO Bank (Rs.2100 crore), United Bank (Rs.1,600 crore) and Punjab and Sind Bank (Rs.750 crore) along with news of bank consolidations. This scale of recapitalisation, although needed, raises concerns over possible favouritism. While economic logic would suggest handing out capital packages to the promising and relatively better performing banks, it turns out that the weaker banks received most of the capital infusions. Additionally, these infusions add to the government's debt burden.

- **Mergers of weak PSBs with healthier PSBs:** A growing trend is the ad-hoc mergers of PSBs. At the time of writing this chapter, the government announced the consolidation of 10 PSBs into four mega state-owned lenders. In place of 27 public sector banks in 2017, following the latest round of consolidation of PSBs, there will be 12 public sector banks. The hope is that combining the banks will increase the scale and also enhance capital adequacy, operational cost efficiency and thus, improve profitability bringing the banks ystill in Prompt Corrective Action (PCA) out of it. A caveat follows that a misdirected banking consolidation plan can have implications not only for banks but also their borrowers and financial stability. A reduction in number of state owned banks and increased concentration is unlikely to help solve the asset quality stress. The bigger issue that could remain is how risk profiling would improve a bank's bad loan ratio in the future. Ultimately, long term measures are needed to properly align the incentives of PSBs.
- **Pro-cyclical capital buffers:** Basel III capital regulations were implemented in India from April 1, 2013 in a phased manner, with full implementation achieved by March 31, 2019. Although Basel norms demand a minimum CRAR of 9%, RBI pre-

scribed a 11.5% CRAR for Indian banks. Banks are required to hold a 2.5% mandatory capital conservation buffer apart from the minimum capital requirements.¹²Banks are permitted to use this buffer for making specific provisions for NPAs during periods of system-wide downturns, with the prior approval of the RBI. These counter-cyclical macro-prudential measures help arrest unreasonable credit growth in good times as in mid 2000s prior to the GFC. Challenges include defining inflection points to preserve/spend the buffer and also whether global economic cycles are synchronized or not.

- **Prompt Corrective Action (PCA):** The Reserve Bank specified certain regulatory trigger points based on the capital-to-risk weighted assets ratio (CRAR), the net non-performing assets (NPA) and Return on Assets (RoA), to initiate certain structured and discretionary actions with respect to banks crossing these thresholds.¹³ A report by the RBI states that banks face restrictions on distributing dividends, remitting profits and even on accepting certain kinds of deposits. In addition, there are restrictions on the expansion of branch network, and lenders need to maintain higher provisions, along with caps on management compensation and director fees. In other words, the entire tenor of the current PCA framework is to prevent further capital erosion and more importantly, to strengthen them to the point of resilience so that they can, as soon as possible resume their normal operations.¹⁴ 11 banks were added to PCA in 2017 but as of September, 2019 only four¹⁵ are still under PCA restrictions which are also expected to be out this fiscal year which is surprising since the NPA ratios of these PSBs are still on the upper end.

- **Insolvency and Bankruptcy Code:** The legislative intervention in the form of the Insolvency and Bankruptcy Code (IBC) enacted in December 2016, significantly

¹²See <https://www.livemint.com/Industry/3qTu3MjDuTCrPIpqKnGcrO/The-whys-and-hows-of-public-sector-bank-recapitalisation.html>

¹³(https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/PCAFR060514_4.pdf)

¹⁴Source: <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=902>

¹⁵ Indian Overseas Bank (IOB), Central Bank of India, UCO Bank and United Bank of India. Government also announced infusion of regulatory capital in these banks

strengthened creditor rights through legislative means. The IBC was a solution to one problem, namely, the lack of a unified and effective insolvency regime. However, it did not solve some of the political and institutional factors that contributed to the NPA crisis. For example, banks and loan officers fearing personal consequences arising from the referral of distressed borrowers to the IBC still have incentives to continue ever-greening and delay the recognition of bad assets.

- **February 12 Regulation:** This revised framework advanced the timeline for lenders' recognition of borrower defaults, did away with various forbearance and restructuring schemes, and eliminated lender discretion in the initiation of bankruptcy proceedings against large borrowers. Immediately after default, the lender is required to classify stressed assets as 'Special Mention Accounts' (SPA) into due 1-30days; 31-60 days & 61-90 days. In addition, lenders shall report to CRILC, all borrower entities in default on a weekly basis. While largely welcomed by economists all over the country, the circular was eventually revoked in early 2019.

7 Concluding Remarks

In the years leading up to the Global Financial Crisis, India's GNPA ratio and distressed assets ratio had a declining trend. During 2005-2008, annual gross NPAs amounted to Rs. 500 billion, on average; which meant that the banking sector was in a good position to absorb the effects of the crisis. Ten years later the Indian economy is more integrated with the global financial system. The exposure to the foreign institutional investment flows has increased significantly which may make the economy more vulnerable to external shocks. Additionally, the country has one of the largest burdens of bad loans in the world.

It is easy to predict that the system lacks the resilience to withstand the burden of another crisis further impacting the corporate sector's ability to repay. International headwinds due to the US-China trade war and the current wave of protectionism, add another layer of instability for Indian trade flows and the banking system. In this uncertain global environment,

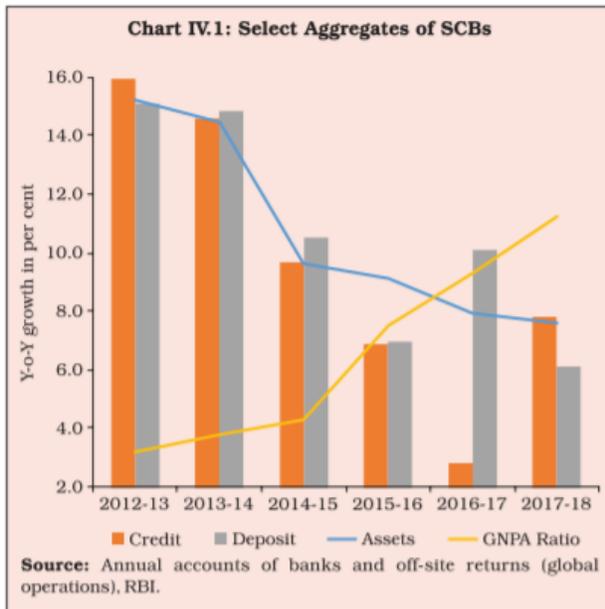
the policy response has been mixed. Setting aside the February 2018 regulation along with forbearance introduction for MSME sectors may mean that the NPA crisis may continue to haunt the banking sector, stymie the provision of credit and prove to be an ongoing drag on India's economic growth prospects.

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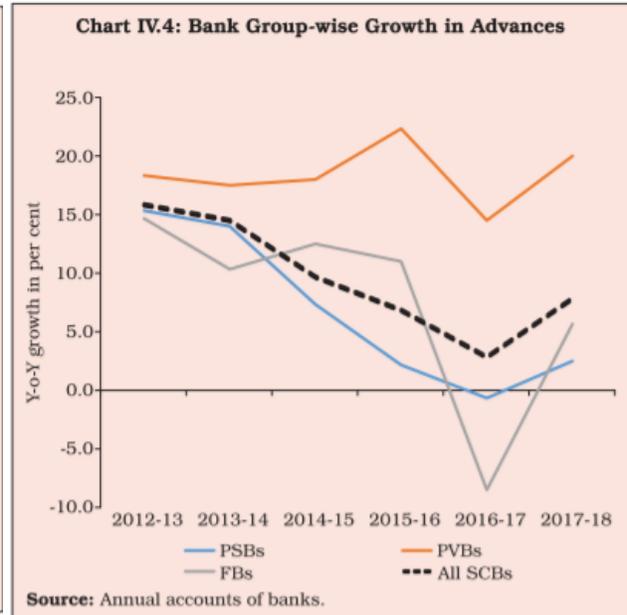
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8 Figures

Figure 1: Banking Sector Trends

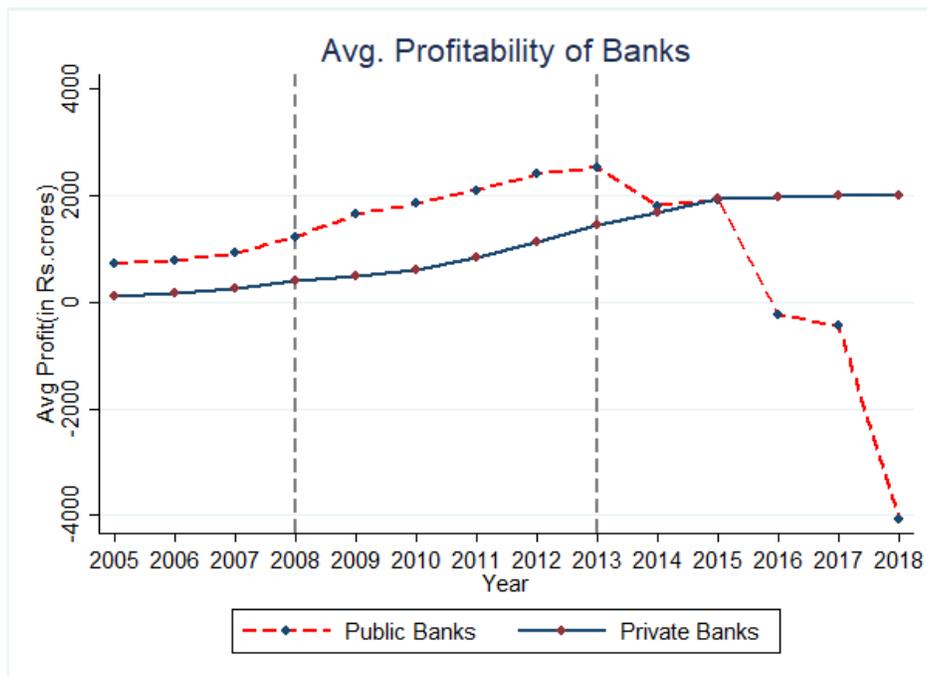


(a) Select Banking Aggregates



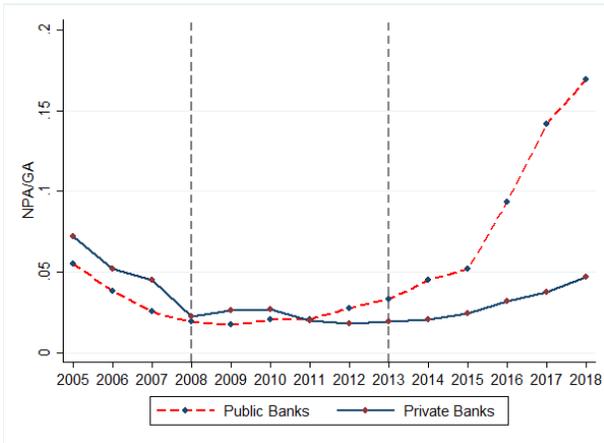
(b) Growth Rate of Loans

Source: Report on trend and progress of Banking in India 2017-18

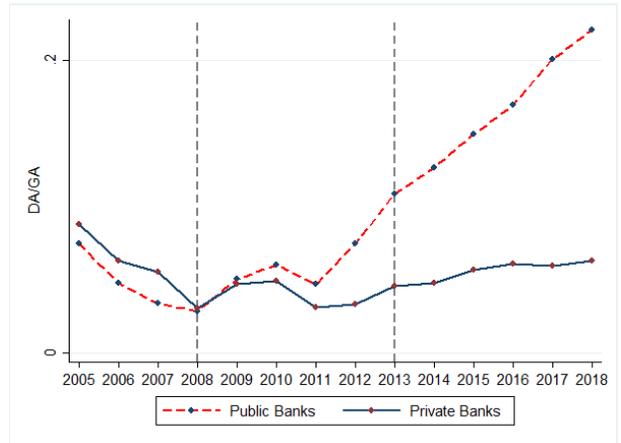


(c) Profits(Losses)

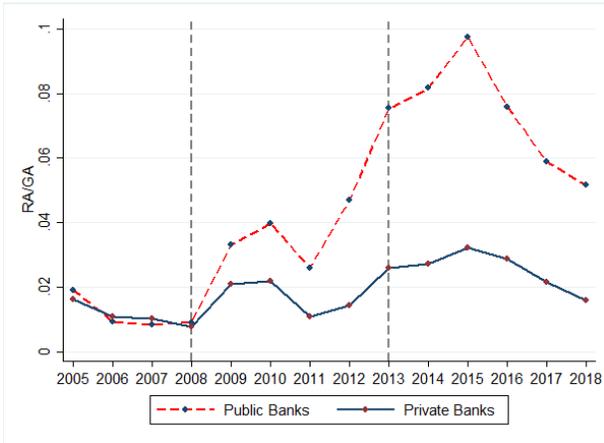
Figure 2: The Time Series Evolution Bank Distress Indicators



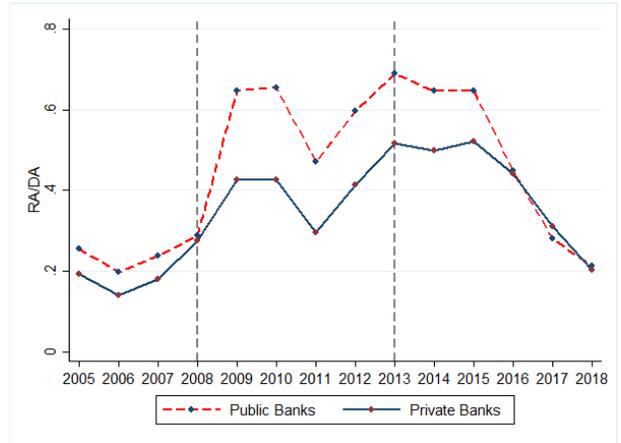
(a) Non-Performing Loans (NPA/GA)



(b) Distressed Loans (DA/GA)

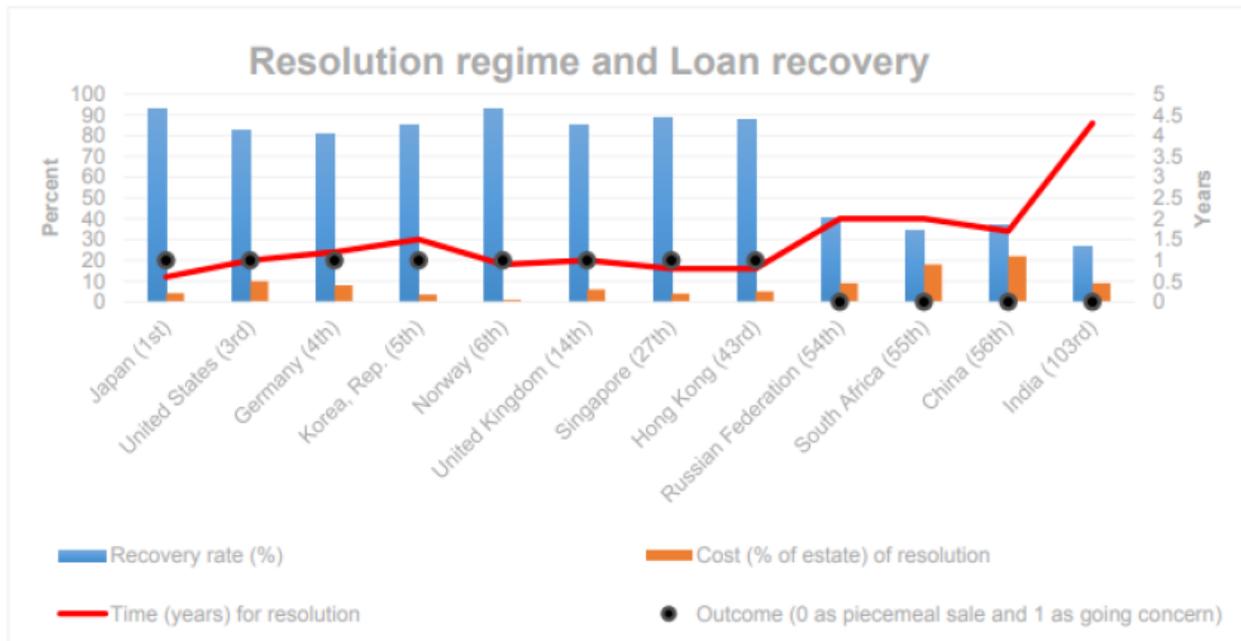


(c) Restructured Loans (RA/GA)



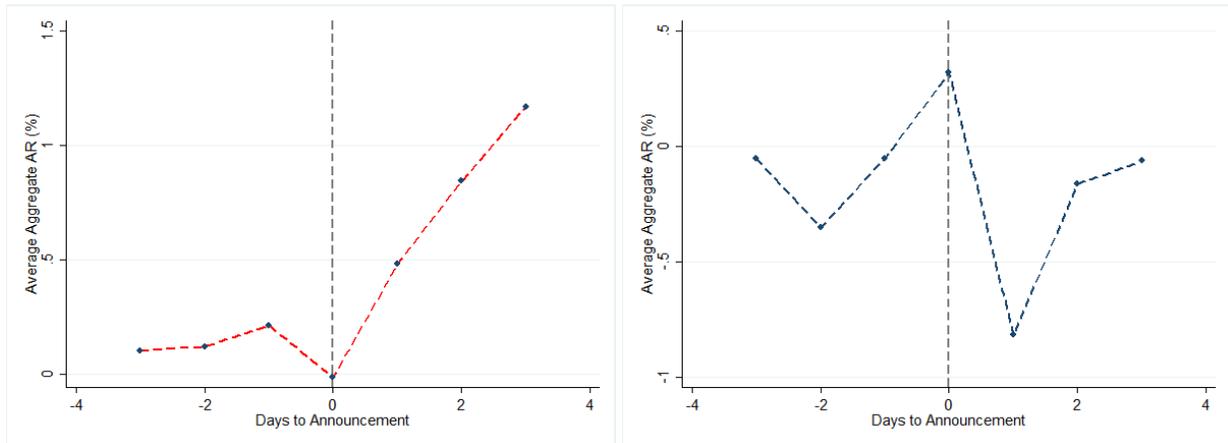
(d) Hidden Bad Loans (RA/DA)

Figure 3: The Ease of Distressed Asset Resolution: A Cross-Country Comparison



Source: <https://www.bis.org/review/r180420e.htm>

Figure 4: Average Aggregate Abnormal Bank Returns in Response to Major Policy Announcements Between 2008-2018

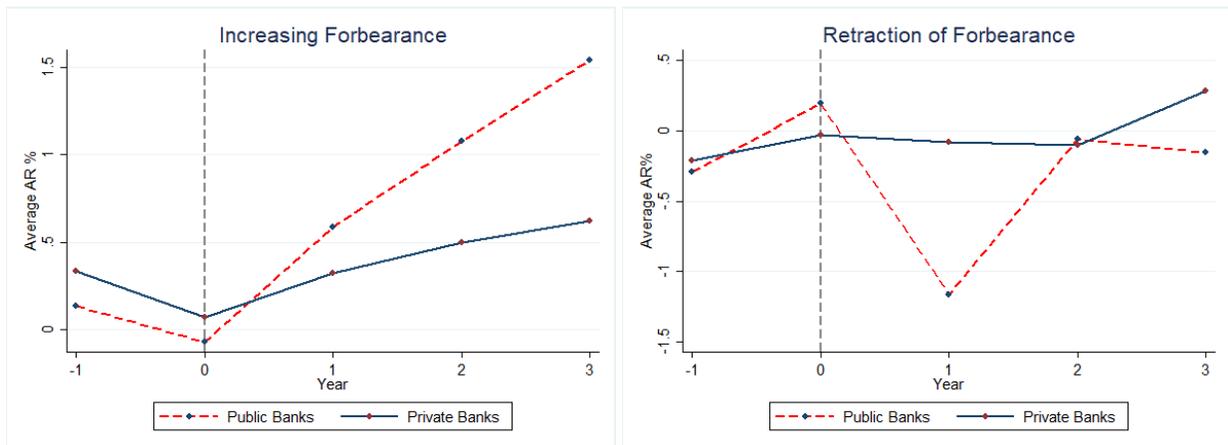


(a) Increasing Forbearance

(b) Decreasing Forbearance

Notes: Panel A of the figure shows the average aggregate abnormal returns of the banks around the policy events that increase forbearance. Panel B of the figure shows the average aggregate cumulative abnormal returns of the banks around the policy events that decrease forbearance.

Figure 5: Forbearance Announcements and Public & Private Bank Stock Market Responses



(a) Increasing Forbearance

(b) Decreasing Forbearance

Figure 6: Gross Advances Vs. Stressed Assets (Shares)

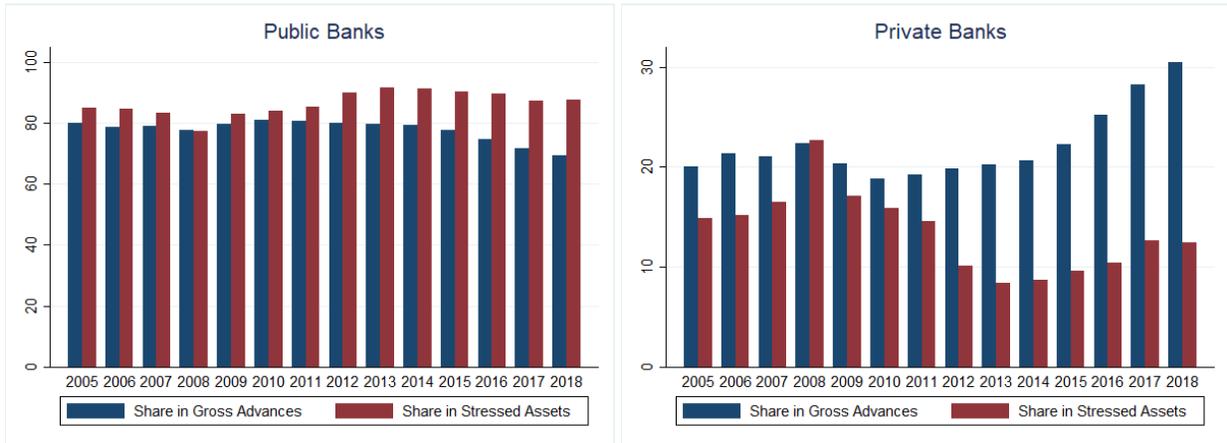
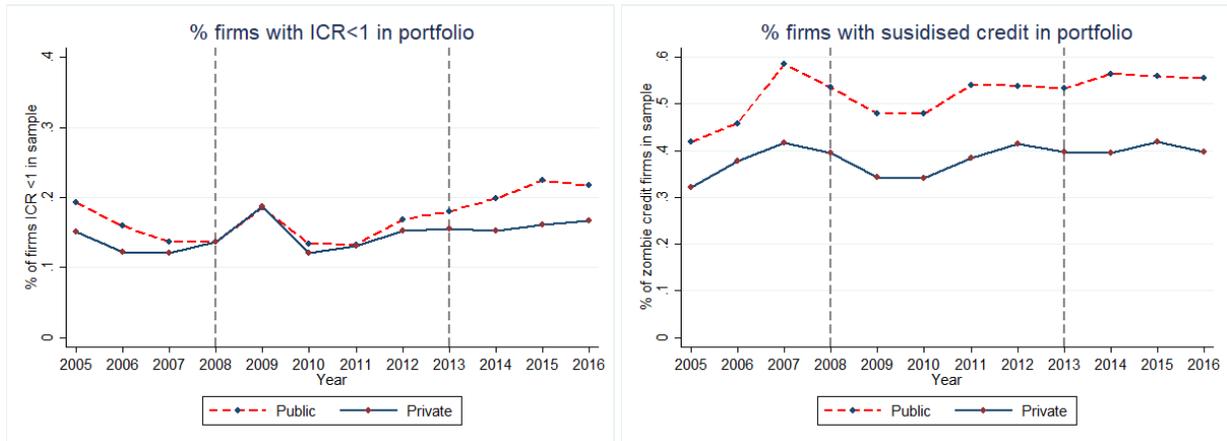


Figure 7: Loan Portfolio Characteristics: Public Sector Banks



(a) % ICR < 1 firms in portfolio

(b) % Zombie credit firms in portfolio

Figure 8: GNPA Ratios by Industry

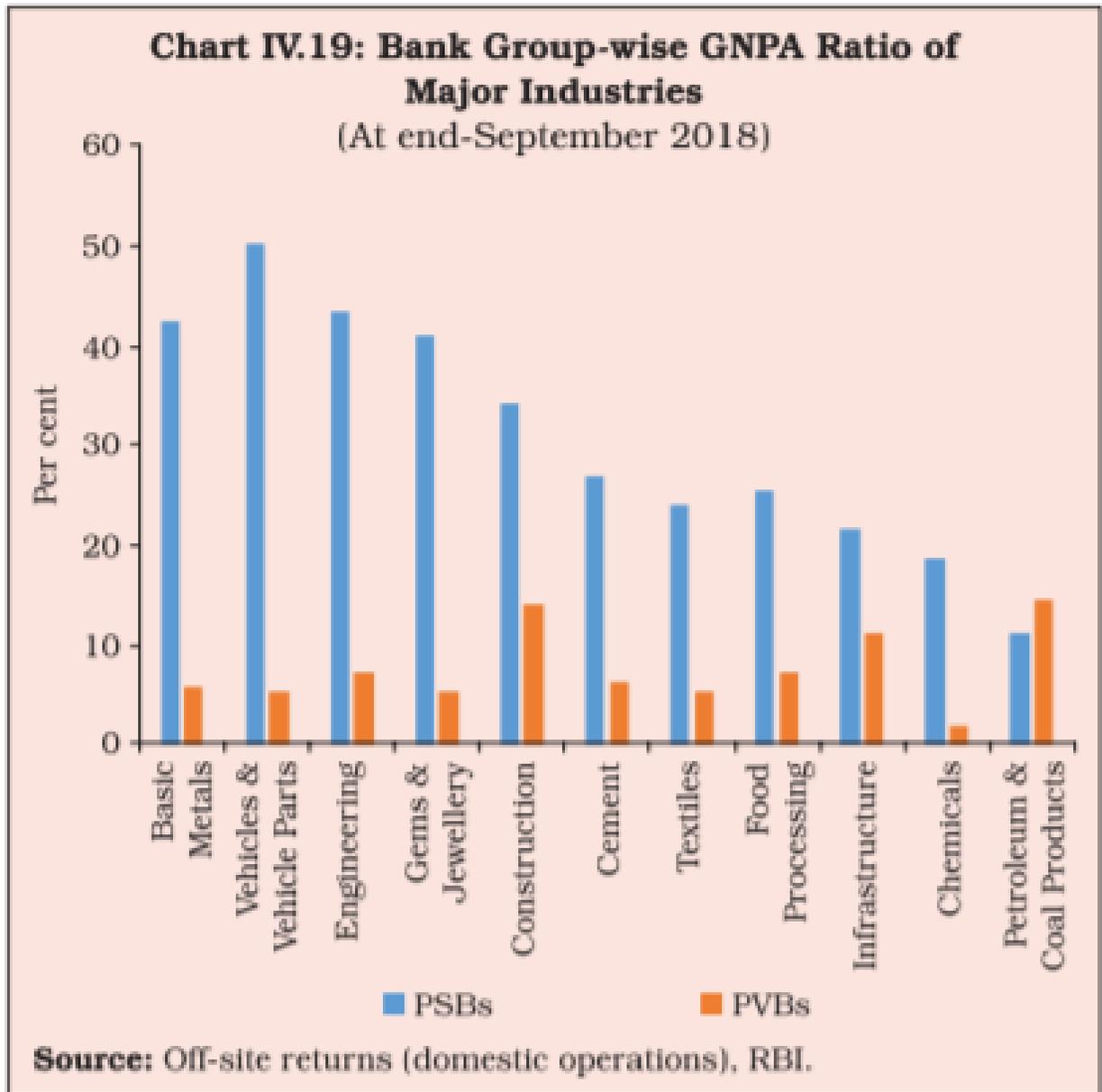


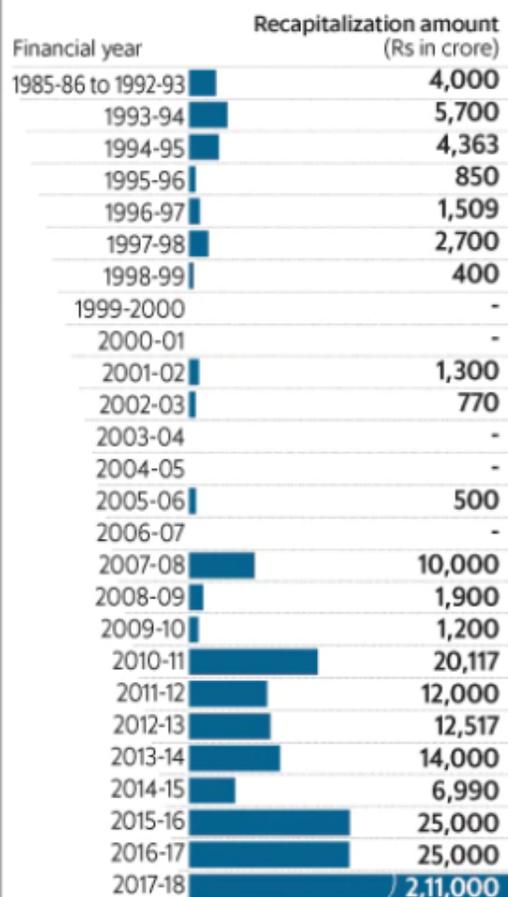
Figure 9: Recapitalisation of PSBs

GOVERNMENT OF INDIA AND LIC'S SHAREHOLDING IN PUBLIC SECTOR BANKS AS ON 31 MARCH

Name of PSBs	Figures in %			
	2010-11		2016-17	
	Govt	LIC	Govt	LIC
Allahabad Bank	58	7.61	65.92	14.17
Andhra Bank	58	8.47	61.26	11.58
Bank of Baroda	57.03	6.44	59.24	10.03
Bank of India	65.86	8.31	73.72	12.83
Bank of Maharashtra	79.24	6.57	81.61	12.72
Canara Bank	67.72	4.71	66.3	13.62
Central Bank of India	80.2	6.55	81.28	13.83
Corporation Bank	58.52	24.81	70.76	18.91
Dena Bank	58.01	6.34	68.55	12.23
Indian Overseas Bank	65.87	9.78	79.56	10.68
Indian Bank	80	1.87	82.1	3.14
Oriental Bank of Commerce	58	10.49	58.38	13.05
Punjab National Bank	58	6.37	65.01	12.52
Punjab and Sind Bank	82.07	-	79.62	0
Syndicate Bank	69.47	10.42	72.92	11.28
UCO Bank	68.13	7.33	76.67	14.5
Union Bank of India	57.07	4.14	63.44	10.24
United Bank of India	85.48	-	85.23	7.3
Vijaya Bank	57.69	6.35	70.33	12.93
State Bank of India	59.4	11.26	62.22	8.96
IDBI Bank	65.13	10.18	73.98	13.87

Source: BSE and NSE websites

RECAPITALIZATION OF PUBLIC SECTOR BANKS



Source: Union Budget documents, Reserve Bank of India and Comptroller and Auditor General of India

Table 2: Major Regulatory Announcements since 2008

Announcement Date	Content of Announcement	Direction of RF
27-Aug-08	Special Regulatory Treatment Announced allowing forbearance	Increase
30-May-13	Announcement of withdrawal of Forbearance beginning April 1, 2015	Decrease
26-Feb-14	Framework for Revitalising Distressed Assets in the Economy-Guidelines on Joint Lenders Forum (JLF) and Corrective Action Plan (CAP)	Increase
15-Jul-14	Flexible Structuring of Long Term Project Loans to Infrastructure and Core Industries	Increase
1-Apr-15	Asset Quality Review Started	Decrease
8-Jun-15	Strategic Debt Restructuring Scheme for conversion of debt to equity	Increase
13-Jun-16	Scheme for Sustainable Structuring of Stressed Assets	Increase
12-Feb-18	Resolution of stressed assets: Revised Framework	Decrease

Table 1: This table lists in a chronological order the major policy announcements by RBI pertaining to the increase or decrease in forbearance allowed on classification norms of stressed assets held by banks. We use these event dates in our multiple event study analysis. The dates were collected by a detailed survey of all master RBI circulars released between August 27, 2008 and February 12, 2018.

Table 3: Regression of CARs (-1,+3) on Standardized Bank Level Ratios

Dependent variable: CAR(%)	(1)	(2)	(3)	(4)
	NPA/GA	NPA/GA	DA/GA	DA/GA
Increasing RF*NPA/GA	2.286*** (3.42)	2.29*** (3.24)		
Increasing RF*DA/GA			0.996** (2.18)	0.883* (1.80)
No. of Obs.	311	311	310	310
R squared	0.138	0.231	0.100	0.188
Bank fixed Effects	N	Y	N	Y

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table summaries the results of the multiple event study analysis where the dependent variable is cumulative abnormal returns of a bank around a window of(-1, 3) days of the various policy announcement dates. *Increasing RF* takes a value 1 if the policy announcement pertained to increasing forbearance either directly or via restructuring schemes. *NPA/GA* is the standardized proportion of non-performing loans in total distress loans of the bank in the preceding March of the date of announcement with mean 0 and standard deviation 1. *DA/GA* is the standardized proportion of distressed loans in total loan pool of bank in the preceding March of the date of announcement with mean 0 and standard deviation 1. The specifications (2) & (4) are more restrictive and control for time invariant bank characteristics.

Table 4: CAR Margin Effects in Response to Announcements Increasing Forbearance

	(1)	(2)	(3)	(4)
	NPA/GA	NPA/GA	DA/GA	DA/GA
1. At p25, Increasing RF	1.641*** (5.45)	1.394*** (4.34)	2.118*** (6.38)	2.166*** (5.37)
2. At mean, Increasing RF	2.890*** (7.41)	2.932*** (14.45)	2.720*** (7.84)	2.713*** (16.62)
3. At p50, Increasing RF	2.321*** (7.46)	2.231*** (13.01)	2.674*** (7.93)	2.671*** (16.80)
4. At p75, Increasing RF	3.396*** (6.94)	3.555*** (10.82)	3.156*** (6.56)	3.110*** (8.42)
No. of Obs.	311	311	310	310
Bank fixed Effects	N	Y	N	Y

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table summaries the average CAR using margins. The reported coefficients are the average value of dependent variable i.e. CAR in percentage points at p25: the 25th percentile value, mean: the average value, p50: the median value and p75: the 75th percentile value of explanatory variables NPA/GA and DA/GA. Increasing RF implied the dummy indicating increase in forbearance is set at 1. All four specifications are run separately. Standard errors clustered at the bank-level.