

The Festering Twin Balance Sheet Problem

04 CHAPTER

“The most costly outlay is time.”

*– Antiphon the Sophist
Athens, 5th Century BCE*

For some time, India has been trying to solve its Twin Balance Sheet problem—over-leveraged companies and bad-loan-encumbered banks -- using a decentralised approach, under which banks have been put in charge of the restructuring decisions. But decisive resolutions of the loans, concentrated in the large companies, have eluded successive attempts at reform. The problem has consequently continued to fester: NPAs keep growing, while credit and investment keep falling. Perhaps it is time to consider a different approach – a centralised Public Sector Asset Rehabilitation Agency that could take charge of the largest, most difficult cases, and make politically tough decisions to reduce debt.

I. INTRODUCTION

4.1 In February 2016, financial markets in India were rocked by bad news from the banking system. One by one, public sector banks revealed their financial results for the December quarter. And the numbers were stunning. Banks reported that non-performing assets had soared, to such an extent that provisioning had overwhelmed operating earnings. As a result, net income had plunged deeply into the red.

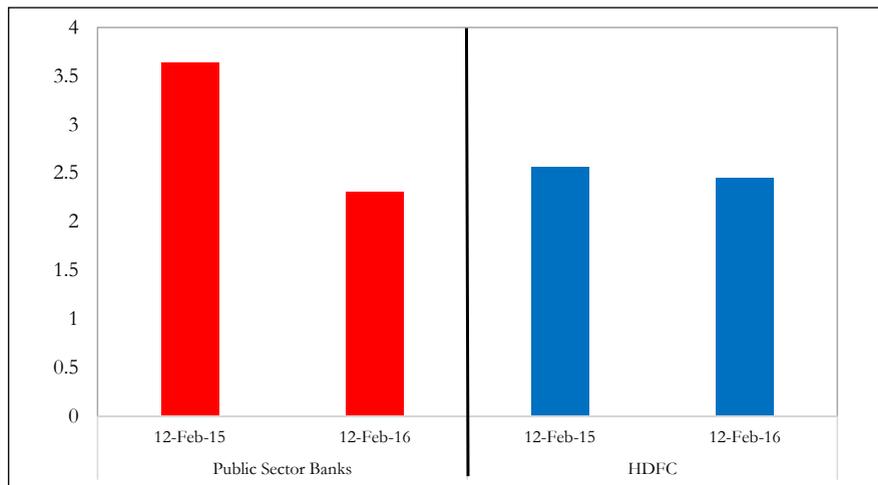
4.2 The news set off alarm bells amongst investors, who responded by fleeing public sector bank shares, bringing their prices to such low levels that at one point the medium-sized private sector bank HDFC was valued as much as 24 public sector banks put together (Figure 1).

4.3 What had happened? Normally, non-

performing assets (NPAs) soar when there is an economic crisis, triggering widespread bankruptcies. This is precisely what happened in East Asia during 1997-98 and the US and UK in 2008-09. But there was no economic crisis in India; to the contrary, GDP was growing at a world-beating pace. Nor had there been any major calamity in the corporate sector; no large firm had gone bankrupt.

4.4 At one level, the explanation was straightforward. The RBI had conducted an Asset Quality Review (AQR), following which banks cleaned up their books, sweeping away the debris that had accumulated over many years. But this only begged a deeper question of how so much debris had accumulated in the first place. Moreover, as 2016 proceeded it became clear that the AQR was not the only factor at work. The mandated adjustments

Figure 1. Market Capitalisation - Public Sector Banks & HDFC (Rs. trillion)



Source: Bloomberg.

were completed in March. But NPAs nonetheless continued to climb, reaching 9 percent of total advances by September -- double their year-ago level. Equally striking was the concentration of these bad loans. More than four-fifths of the non-performing assets were in the public sector banks, where the NPA ratio had reached almost 12 percent (Figure 2a).

4.5 Meanwhile, on the corporate side,

Credit Suisse reported that around 40 percent of the corporate debt it monitored was owed by companies which had an interest coverage ratio less than 1, meaning they did not earn enough to pay the interest obligations on their loans (Figure 3).¹

4.6 As this data filtered into the public consciousness, it became clear that India was suffering from a “twin balance sheet problem”, where both the banking and

Figure 2. Gross NPA Ratio (Per cent of Gross Advances)

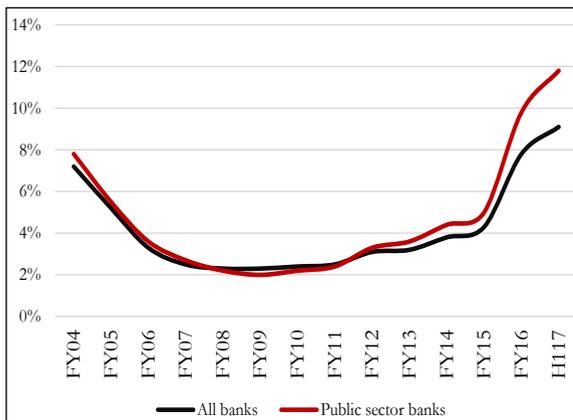
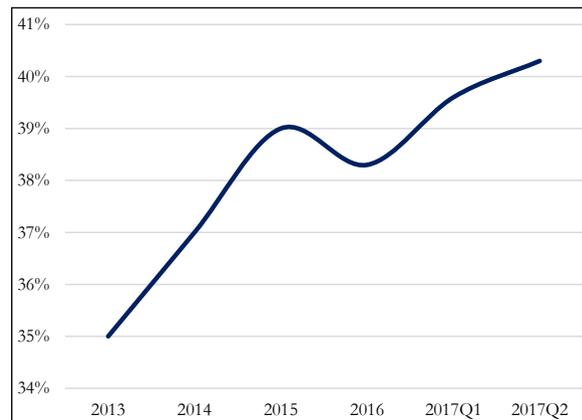


Figure 3. Share of Debt Owed by Stressed Companies*

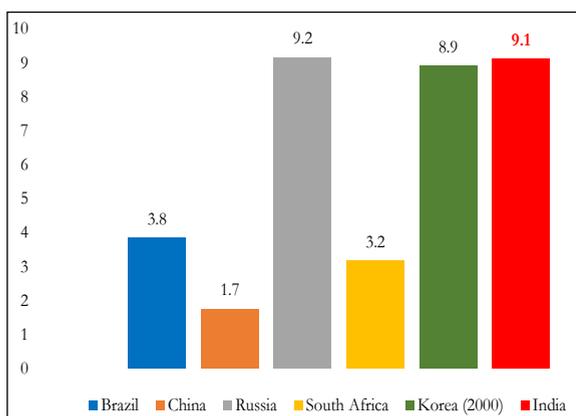


Source: Reserve Bank of India for NPAs; Credit Suisse for debt share.*: Percent of debt owed by companies that have interest coverage ratio less than one, where cash flow is measured by EBIT, earnings before interest and taxes. Based on sample of 3,700 listed nonfinancial companies. Debt share numbers are for end-March for 2013-2016. H117 refers to the first half of FY17.

¹ The analysis in this chapter has utilized the Credit Suisse database, particularly its information on 3700 listed firms.

corporate sectors were under stress. Not just a small amount of stress, but one of the highest degrees of stress in the world. At its current level, India's NPA ratio is higher than any other major emerging market (with the exception of Russia), higher even than the peak levels seen in Korea during the East Asian crisis (Figure 4).

**Figure 4. NPA Ratios: Selected Countries
(Per cent of Gross Loans)**



Source: RBI for India. World Development Indicators, World Bank for others.

4.7 How can this possibly be explained? Typically, countries with a twin balance sheet (TBS) problem follow a standard path. Their corporations over-expand during a boom, leaving them with obligations that they can't repay. So, they default on their debts, leaving bank balance sheets impaired, as well. This combination then proves devastating for growth, since the hobbled corporations are reluctant to invest, while those that remain sound can't invest much either, since fragile banks are not really in a position to lend to them.

4.8 This model, however, doesn't seem to fit India's case. True, India had boomed during the mid-2000s along with the global economy. But it sailed through the GFC largely unscathed, with only a brief interruption in growth before it resumed at a rapid rate. According to conventional

wisdom, this happened because Indian companies and banks had avoided the boom-period mistakes made by their counterparts abroad. More precisely, in this view, they were prevented from accumulating too much leverage, because prudential restrictions kept bank credit from expanding excessively during the boom, while capital controls prevented an undue recourse to foreign loans.

4.9 If this narrative is correct, then it is puzzling that India nonetheless wound up with a twin balance sheet problem. Conversely, if the narrative is wrong and India followed the classic path to the TBS problem, then it is unclear why the consequences have seemed so minor.

4.10 One reason for the modest consequences comes readily to hand. In other TBS cases, growth was derailed because high NPA levels had triggered banking crises. But this has not happened in India. In fact, there has not even been a hint of pressure on the banking system. There have been no bank runs, no stress in the interbank market, and no need for any liquidity support, at any point since the TBS problem first emerged in 2010. And all for a very good reason: because the bulk of the problem has been concentrated in the public sector banks, which not only hold their own capital but are ultimately backed by the government, whose resources are more than sufficient to deal with the NPA problem. As a result, creditors have retained complete confidence in the banking system.

4.11 That said, India's TBS experience remains deeply puzzling. This chapter attempts to answer four sets of questions:

- What went wrong – and when did it go wrong?
- How has India managed to achieve rapid growth, despite its TBS problem?

- Is this model sustainable?
- What now needs to be done?

4.12 The answers to these questions are complex. But the policy implications can be summarised easily enough. For some years, it seemed possible to regard TBS as a minor problem, which would largely be resolved as economy recovery took hold. But more recently it has become clear that this strategy will not work. Growth will not solve the problems of the stressed firms; to the contrary, the problems of the stressed firms might actually imperil growth.

4.13 To avoid this outcome, a formal agency may be needed to resolve the large bad debt cases – the same solution the East Asian countries employed after they were hit by

severe TBS problems in the 1990s. In short, the time may have arrived to create a ‘Public Sector Asset Rehabilitation Agency’ (PARA, Box 1).

A. What went wrong?

4.14 The origins of the NPA problem lie not in the events of the past few years, but much further back in time, in decisions taken during the mid-2000s. During that period, economies all over the world were booming, almost no country more than India, where GDP growth had surged to 9-10 percent per annum. For the first time in the country’s history, everything was going right: corporate profitability was amongst the highest in the world, encouraging firms to hire labour aggressively, which in turn sent wages soaring. It seemed that India had

Box 1. Why is a Public Sector Asset Rehabilitation Agency (PARA) Needed?

The argument for PARA is developed at length in the third section. But it is worth outlining in advance the seven steps that lead to this conclusion.

1. **It’s not just about banks, it’s a lot about companies.** So far, public discussion of the bad loan problem has focused on bank capital, as if the main obstacle to resolving TBS was finding the funds needed by the public sector banks. But securing funding is actually the easiest part, as the cost is small relative to the resources the government commands. Far more problematic is finding a way to resolve the bad debts in the first place.
2. **It is an economic problem, not a morality play.** Without doubt, there are cases where debt repayment problems have been caused by diversion of funds. But the vast bulk of the problem has been caused by unexpected changes in the economic environment: timetables, exchange rates, and growth rate assumptions going wrong.
3. **The stressed debt is heavily concentrated in large companies.** Concentration creates an opportunity, because TBS could be overcome by solving a relatively small number of cases. But it presents an even bigger challenge, because large cases are inherently difficult to resolve.
4. **Many of these companies are unviable at current levels of debt requiring debt write-downs in many cases.** Cash flows in the large stressed companies have been deteriorating over the past few years, to the point where debt reductions of more than 50 percent will often be needed to restore viability. The only alternative would be to convert debt to equity, take over the companies, and then sell them at a loss.
5. **Banks are finding it difficult to resolve these cases, despite a proliferation of schemes to help them.** Among other issues, they face severe coordination problems, since large debtors have many creditors, with different interests. If PSU banks grant large debt reductions, this could attract the attention of the investigative agencies. But taking over large companies will be politically difficult, as well.
6. **Delay is costly.** Since banks can’t resolve the big cases, they have simply refinanced the debtors, effectively “kicking the problems down the road”. But this is costly for the government, because it means the bad debts keep rising, increasing the ultimate recapitalization bill for the government and the associated political difficulties. Delay is also costly for the economy, because impaired banks are scaling back their credit, while stressed companies are cutting their investments.
7. **Progress may require a PARA.** Private Asset Reconstruction Companies (ARCs) haven’t proved any more successful than banks in resolving bad debts. But international experience shows that a professionally run central agency with government backing – while not without its own difficulties -- can overcome the difficulties that have impeded progress.

finally “arrived”, earning the long-awaited reward for the efforts made since 1991 to establish a modern, competitive economy. And the next step seemed clear: the country was going to join the path blazed by China, in which double-digit growth would persist for several decades.

4.15 Firms made plans accordingly. They launched new projects worth lakhs of crores, particularly in infrastructure-related areas such as power generation, steel, and telecoms, setting off the biggest investment boom in the country’s history. Within the span of four short years, the investment-GDP ratio had soared by 11 percentage points, reaching over 38 percent by 2007-08 (Figure 5).

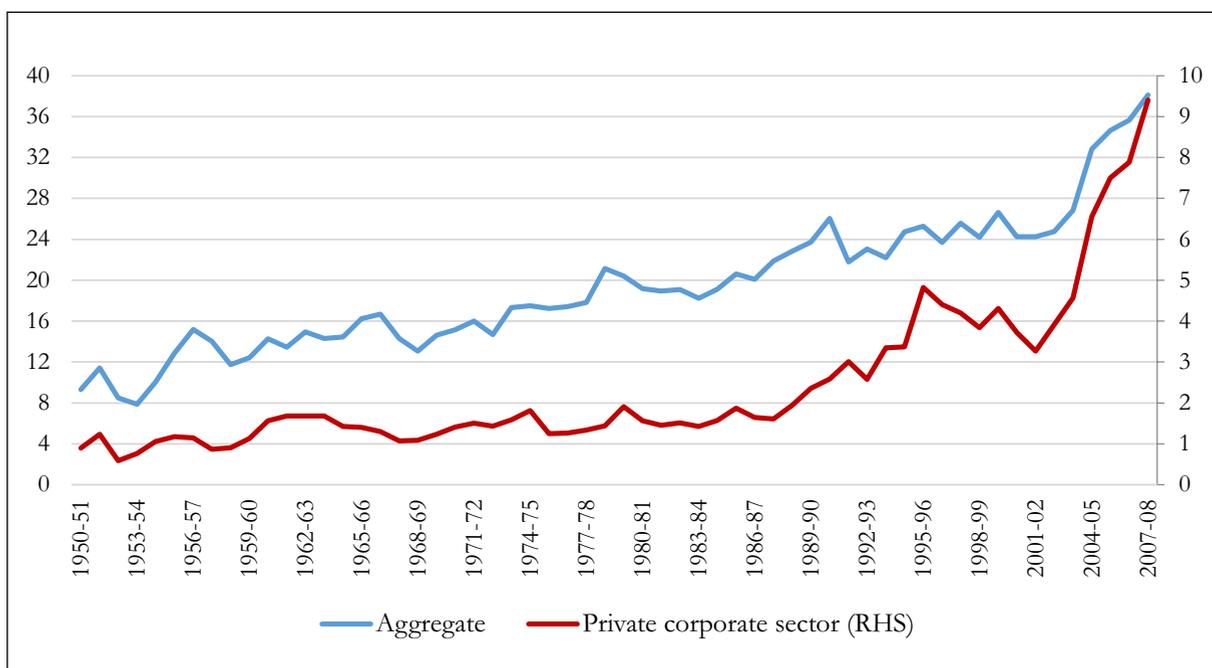
4.16 This investment was financed by an astonishing credit boom, also the largest in the nation’s history, one that was sizeable even compared to other large credit booms internationally. In the span of just three years, running from 2004-05 to 2008-09, the amount of non-food bank credit doubled.

And this was just the credit from banks: there were also large inflows of funding from overseas, with capital inflows in 2007-08 reaching 9 percent of GDP. All of this added up to an extraordinary increase in the debt of non-financial corporations. Put another way, as double digit growth beckoned, firms abandoned their conservative debt/equity ratios and leveraged themselves up to take advantage of the perceived opportunities.

4.17 But just as companies were taking on more risk, things started to go wrong. Costs soared far above budgeted levels, as securing land and environmental clearances proved much more difficult and time consuming than expected. At the same time, forecast revenues collapsed after the GFC; projects that had been built around the assumption that growth would continue at double-digit levels were suddenly confronted with growth rates half that level.

4.18 As if these problems were not enough, financing costs increased sharply. Firms that

Figure 5. Gross Capital Formation: Aggregate and Private Corporate (Per cent of GDP)



Source: Central Statistics Office.

borrowed domestically suffered when the RBI increased interest rates to quell double-digit inflation. And firms that had borrowed abroad when the rupee was trading around Rs 40/dollar were hit hard when the rupee depreciated, forcing them to repay their debts at exchange rates closer to Rs 60-70/dollar.

4.19 Higher costs, lower revenues, greater financing costs — all squeezed corporate cash flow, quickly leading to debt servicing problems. By 2013, nearly one-third of corporate debt was owed by companies with an interest coverage ratio less than 1 (“IC1 companies”), many of them in the infrastructure (especially power generation) and metals sectors. By 2015, the share of IC1 companies reached nearly 40 percent, as slowing growth in China caused international steel prices to collapse, causing nearly every Indian steel company to record large losses. The government responded promptly by imposing a minimum import price, while international prices themselves recovered somewhat, thereby affording the steel industry some relief. Even so, the IC1 share remained above 40 percent in late 2016.

B. What Explains the Twin Balance Sheet Syndrome with Indian Characteristics?

4.20 In other words, contrary to conventional wisdom, India did indeed follow the standard path to the TBS problem: a surge of borrowing, leading to overleverage and debt servicing problems. What distinguished India from other countries was the *consequence* of TBS. Even as Indian balance sheets have suffered structural damage on the order of what has occurred in crisis cases, the impact on growth has been quite modest. TBS did not lead to economic stagnation, as occurred in the U.S. and Europe after the Global Financial Crisis and Japan after its

bubble burst in the 1990s. To the contrary, it co-existed with strong levels of aggregate domestic demand, as reflected in high levels of growth despite very weak exports and moderate, at times high, levels of inflation. In other words, India developed its own unique version of TBS: what recent *Economic Surveys* called a ‘Balance Sheet Syndrome with Indian Characteristics’.

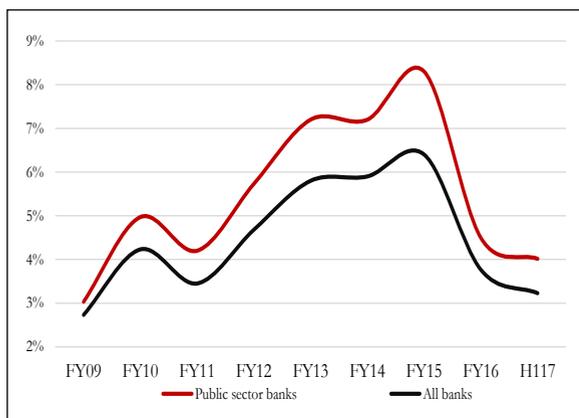
4.21 What could possibly explain India’s exceptional experience? In part, and as mentioned in the first section, the unusual structure of its banking system, which ensured there would be no financial crisis. But other factors also played a role, including the unusual structure of the economy. India has long suffered from exceptionally severe supply constraints, as the lack of infrastructure has hindered expansion of manufacturing and even some service activities, such as trade and transport. These constraints were loosened considerably during the boom, as new power plants were installed, and new roads, airports, and ports built. As a result, there was ample room for the economy to grow after the GFC, even as the infrastructure investments themselves did not prove financially viable. So, the legacy of the historic mid-2000s investment boom was a curious combination of both TBS and growth. In comparison, the US boom was based on housing construction, which proved far less useful after the crisis. And in any case, the US never suffered from severe supply constraints.

4.22 Perhaps the most important difference between India and other countries, however, was the way in which the financial system responded to the intense stress on corporations. In other countries, creditors would have triggered bankruptcies, forcing a sharp adjustment that would have brought down growth in the short run (even as the reconfiguration of the economy improved

long run prospects). But in India this did not occur. Instead, the strategy was, as the saying goes, to “give time to time”, meaning to allow time for the corporate wounds to heal. That is, companies sought financial accommodation from their creditors, asking for principal payments to be postponed, on the grounds that if the projects were given sufficient time they would eventually prove viable.

4.23 Initially, this request seemed reasonable. For a start, the “giving time to time” strategy had worked well in the previous business cycle, during the early 2000s. At that time, nonperforming loans had also reached high levels, but they then subsided a few years later when demand picked up and commodity prices recovered. It seemed sensible to assume the same might happen this time too, because India would eventually need the infrastructure capacity that was being installed. Accordingly, banks decided to give stressed enterprises more time by postponing loan repayments, restructuring by 2014-15 no less than 6.4 percent of their loans outstanding (Figure 6a). They also extended fresh funding to the stressed firms to tide them over until demand recovered.

Figure 6a. Restructured Loan Ratio (Per cent of Gross Loans)

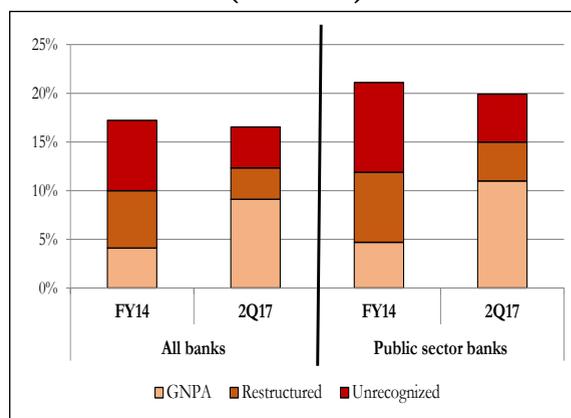


Source: RBI, except unrecognized stressed assets estimated by Credit Suisse.

4.24 As a result, total stressed assets have far exceeded the headline figure of NPAs. To that amount one needs to add the restructured loans, as well as the loans owed by IC1 companies that have not even been recognised as problem debts – the ones that have been “evergreened”, where banks lend firms the money needed to pay their interest obligations. Market analysts estimate that the unrecognised debts are around 4 percent of gross loans, and perhaps 5 percent at public sector banks. In that case, total stressed assets would amount to about 16.6 per cent of banking system loans – and nearly 20 percent of loans at the state banks (Figure 6b).²

4.25 In many ways, then, India’s path has resembled that of China, albeit on a much smaller scale, since India’s estimated bad loans are just one-seventh the amount assessed for China (Table 1). Both countries provided generous amounts of bank financing to allow highly levered corporations to survive. And in both countries this strategy has proved successful so far in allowing rapid growth to continue. But there remains a question of whether the model is truly sustainable.

Figure 6b. Total Stress (Per cent)



² The reduction in restructured assets after 2014-15 occurred largely because many companies fell out of compliance with the restructuring agreements, leading banks to classify many of the loans as non-performing.

Table 1. Estimated Non-Performing Loans

	India	China	India	China
	1998-99	2002	2016@	2015
Total (\$ billion)	14.0	209.1	191.1	1300
Percent of total loans	14.7	23.4	16.6^	15.5
Percent of GDP	3.0	14.4	8.4	12.0
Memo Item				
Bank Credit to GDP (%)	20.5	108#	53.4*	137.5**

Source: IMF, RBI, Credit Suisse estimates.

@: As per latest data available till September 2016. ^: Total stressed loans, which includes NPAs, restructured loans and unrecognised stressed loans; *Using outstanding credit to industry data from RBI as on March 2016; #: People's Bank of China as reported in "Money & Credit: China Social Financing", Yardeni Research, Inc., November 2016. **PRC 2016 Article IV consultation, IMF.

II. IS THE STRATEGY SUSTAINABLE?

4.26 In principle, a financing strategy can indeed be sustainable. But for this to occur one of two scenarios would need to materialise. Under the “phoenix” scenario, accelerating growth would gradually raise the cash flows of stressed companies, eventually allowing them to service their debts. In other words, the inherent dynamism of the Indian economy would carry the impaired companies and banks along until the rising tide finally lifted all boats or covered the rocky shoals.

4.27 Alternatively, even if the individual projects themselves do not come right, the Indian economy could still grow out of its balance sheet problems. Under the “containment” scenario, the NPAs would merely need to be limited in nominal terms. Once this is done, they would swiftly shrink as a share of the economy and a proportion of bank balance sheets, since GDP is growing at a nominal rate of more than 10 percent. In that way, the twin balance sheet problem, while never being explicitly solved, could simply fade away in importance.

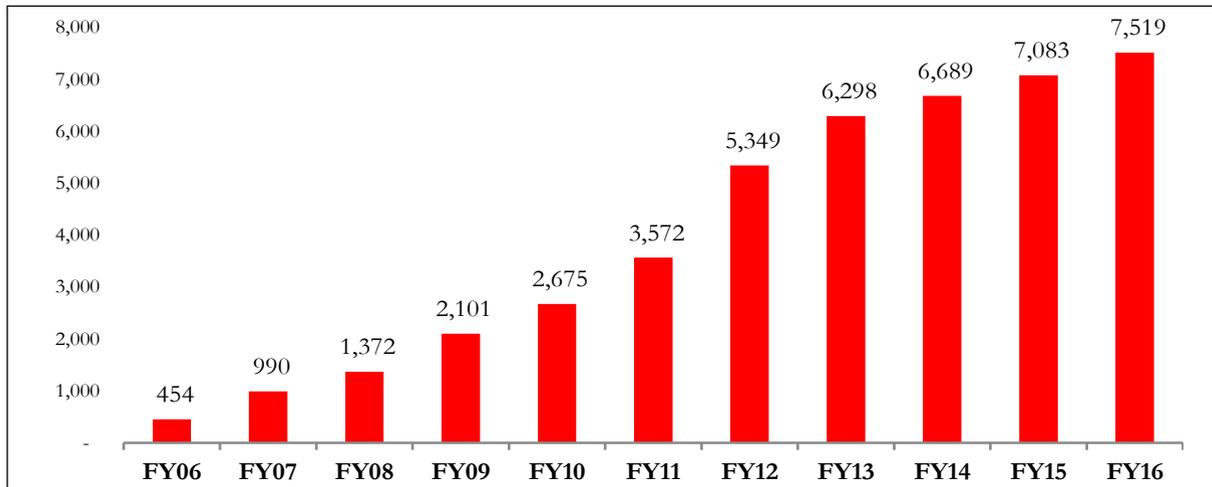
4.28 For some time, these scenarios actually seemed feasible. From 2012 all the way

through mid-2015, the EBIT of the IC1 companies held steady around Rs 25,000 crore per quarter,³ giving rise to hopes that at least the containment scenario would eventually materialise. But more recently the picture has changed dramatically. By the end of 2015 earnings had diminished to Rs 20,000 crore per quarter. By September 2016 they had fallen to just Rs 15,000 crore per quarter, as a modest recovery in the metals sector was overwhelmed by a further deterioration in the infrastructure companies. In other words, aggregate cash flow in the stressed companies – which even in 2014 wasn't sufficient to service their debts – has fallen by roughly 40 percent in less than two years.

4.29 These companies have consequently had to borrow considerable amounts in order to continue their operations. Debts of the top 10 stressed corporate groups, in particular, have increased at an extraordinarily rapid rate, essentially tripling in the last six years (Figure 7). As this has occurred, their interest obligations have climbed rapidly.

4.30 Stressed companies are consequently facing an increasingly difficult situation. Their cash flows are deteriorating even as

³ These figures, and those in the following five paragraphs, are based on the Credit Suisse database.

Figure 7. Debt of Top Ten Stressed Corporate Groups (Rs billion)*

Source: Credit Suisse database. *Includes bank debt, bonds, External Commercial Borrowings, and other debt.

their interest obligations are mounting – and if they borrow more, this will only cause the gap to widen further. In some cases, companies have tried to “square the circle” by selling off some of their assets. But this has sufficed mainly to buy them time, since selling off assets provides immediate revenues but leaves firms with less income to service their debts in the future. And even in the short-term this measure has proved a palliative for only a few companies. The aggregate financial position of the stressed companies consequently continues to haemorrhage, with losses (roughly, the excess of interest payments, depreciation and taxes over EBIT and asset sales) now running around Rs 15,000 crores per quarter, compared with a small net profit two years ago.

4.31 The situation in the power sector illustrates the more general problem. The setbacks discussed in the second section have led to cost overruns at the new private power plants of more than 50 percent in

nearly every case, and much more than that in many. To cover these costs, these companies need to sell all the power they are capable of producing at high tariff rates. But the opposite is happening:

- Plant load factors (PLF, actual electricity production as a share of capacity) are exceptionally low – and they are falling, tumbling to just 59.6 percent during April-December 2016 from 62 percent during the same period last year.
- Meanwhile, merchant tariffs for electricity purchased in the spot market have slid to around Rs 2.5/kwh, far below the breakeven rate of Rs 4/kwh needed for most plants, let alone the Rs 8/kwh needed in some cases.⁴

4.32 As a result, cash flow for most private power generation companies falls far short of what is needed to service their interest obligations; put another way, more than 60 percent of the debt owed by the private power producers is with IC1 companies.

⁴ Of course, much electricity is being sold at higher long-term rates under Power Purchase Agreements (PPAs), but in some of these cases even these rates remain below costs. And the share of electricity purchased under PPAs is falling, as State Electricity Boards increasingly rely on the cheap and abundant power available in the spot market. Note that if there had not been cost overruns, a tariff of Rs 3/kwh would have been sufficient to ensure profitability for most new plants.

Also there is scant sign on the horizon that PLFs and tariffs might improve.

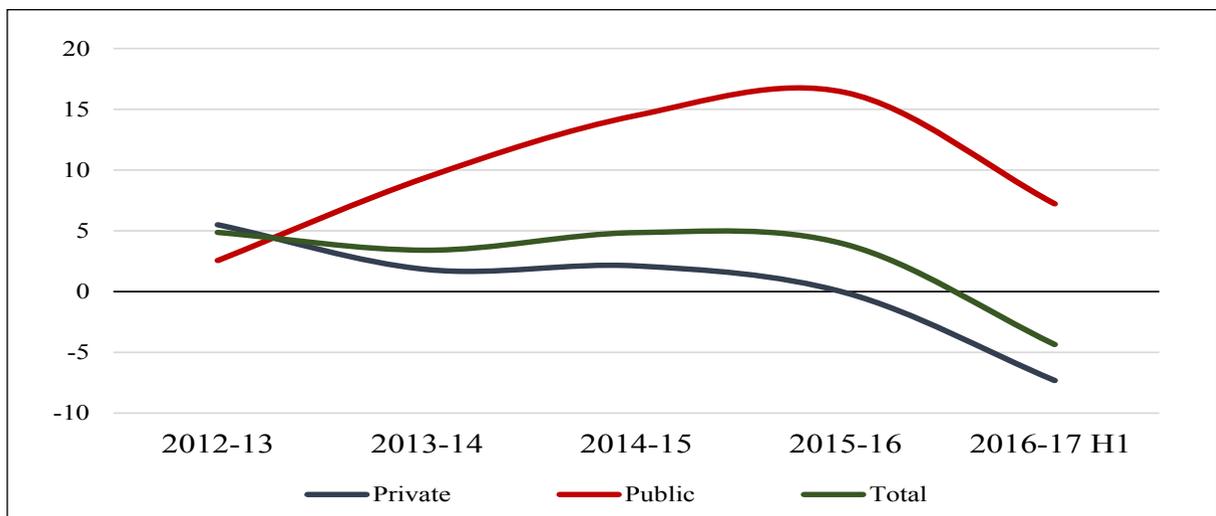
4.33 At the same time, corporate stress seems to be spreading. For much of the period since the Global Financial Crisis, the problems were concentrated in the large companies which had taken on excessive leverage during the mid-2000s boom, while the more cautious smaller and midsize companies had by and large continued to service their debts. Starting in the second half of 2016, however, a significant proportion of the increases in NPAs – four-fifths of the slippages during the second quarter – came from mid-size and MSMEs, as smaller companies that had been suffering from poor sales and profitability for a number of years struggled to remain current on their debts. This trend is likely to continue into 2017.

4.34 Stress has also expanded to the telecom sector, where interest coverage ratios have deteriorated as new entry has increased competition, prompting a major

round of price-cutting. In short, stress on the corporate sector is not only deepening; it is also widening.

4.35 There is yet another reason why the economy may not be able to grow out of its debts: the problem itself is beginning to take a toll on growth. As noted in the first section, countries with TBS problems tend to have low investment, as stressed companies reduce their new investments to conserve cash flow, while stressed banks are unable to assume new lending risks (Dell’Ariccia et. al. [2012]).⁵ And this seems to be happening in India, as well. Private investment, which had been soaring at the height of the boom, slowed sharply to a 5 percent growth rate by 2010-11. By 2015-16, it had actually started to shrink, and in 2016-17 so far it seems to have contracted by more than 7 percent (Figure 8).⁶ To cushion the impact on the overall economy, public investment has been stepped up considerably, but this has still not been sufficient to arrest a fall in overall investment.

Figure 8. Growth in Real Gross Fixed Capital Formation (per cent)



Source: Ministry of Finance calculations.

⁵ Dell’Ariccia et al find that three out of five credit booms were characterized by below-trend growth during the six-year period following their end. During these below-trend periods, annual economic growth was on average 2.2 percentage points lower than in “normal” times (excluding crises).

⁶ Based on State and Union Government Budgets.

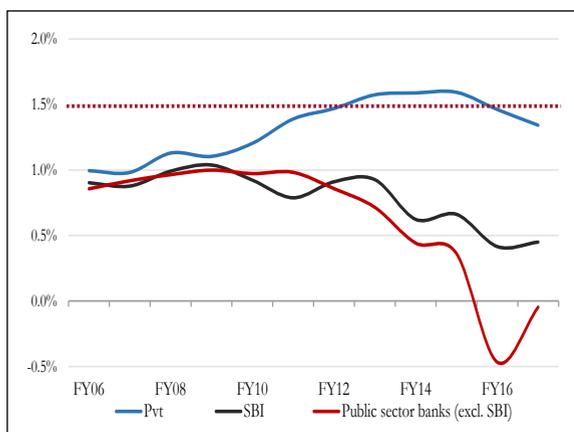
4.36 In the short run, the economy can continue to expand briskly on the back of consumption, with firms fulfilling demand by using the capacity that was built up during the boom years. But over the medium term the downward trend in investment will need to be reversed.

4.37 Meanwhile, TBS is taking a heavy toll on the health of the public sector banks. At least 13 of these banks accounting for approximately 40 per cent of total loans are severely stressed, with over 20 per cent of their outstanding loans classified as restructured or NPAs. With such a large fraction of their portfolios impaired, it has become extremely difficult for them to earn enough income on their assets to cover their running and deposit costs. Banks around the world typically strive for a return of assets (ROA) of 1.5 per cent or above, shown in the red line in figure 9a. But Indian public sector banks are much below this international norm. In fact, their ROA has turned negative over the past two years. And as a result, investors are no longer willing to pay “full price” for public sector bank shares: share prices have fallen to just two-thirds of their book value (Figure 9b).

4.38 Public sector banks have responded to their difficult financial situation in the standard way. They have tried to protect their capital positions by minimizing the new risks they are taking, that is by scaling back their new lending. Some of the lending slack has been taken up by private banks, but there are limits to the extent that they can provide a substitute, because the public sector banks (in aggregate) are much larger. As a result, total credit to the corporate sector has been decelerating steadily. In real terms, such credit growth is now negative, the lowest it has been in 23 years (Figure 10).

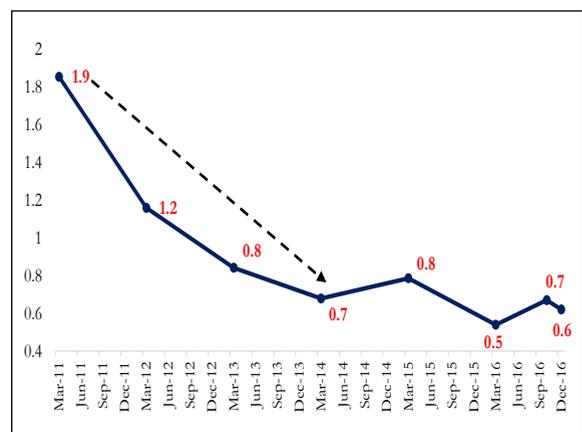
4.39 This gradual tightening of the credit constraint has been felt rather unevenly across the economy. Household credit, where default has been minimal and where private sector banks have a comparative lending advantage, has been expanding exceptionally rapidly, fuelling the growth of consumption. Agricultural loans have also continued at a good pace, as they have been protected by the priority sector lending requirements. But corporates and MSMEs have been hit severely. Real loan growth to MSMEs slowed significantly in 2014-15, and actually turned negative during the past two fiscal years

Figure 9a. Public Sector Banks: Return on Assets (ROA) Ratio (per cent)



Source: MoF.

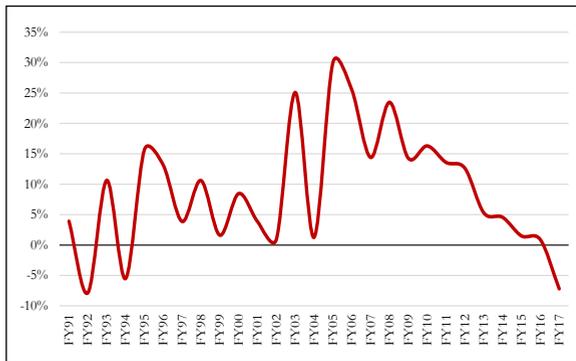
Figure 9b. Public Sector Banks: Market Capitalisation to Book Value Ratio



Source: MoF.

⁷ Leaving aside non-recognised or “evergreened” loans.

Figure 10. Real Loan Growth to Industry* (Deflated by average of CPI-IW & WPI)



*: Data up to end-November 2016 for FY17.

(Figure 11a). Meanwhile, loans to corporates in the stressed sectors remained buoyant for some time, in line with the strategy of keeping them afloat, but even for this group loan growth turned sharply negative in real terms during 2016-17 (Figure 11b).

4.40 Public sector banks have also responded to their stress in another standard way. They have tried to compensate for the lack of earnings from the non-performing part of their portfolio by widening their interest margins (Figure 12). For example, by

Figure 11a. Real Loan Growth* (MSME & Corporate)

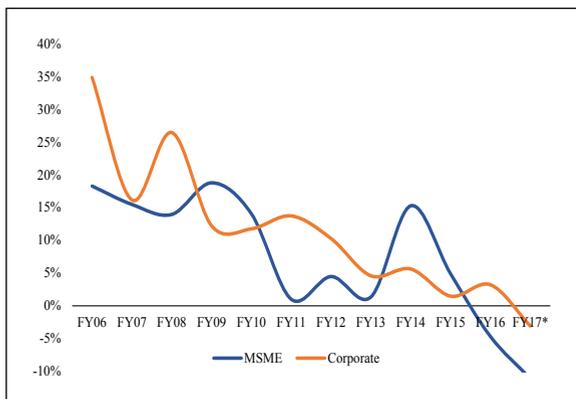
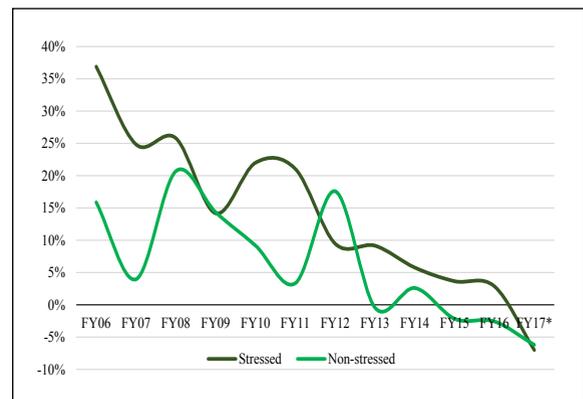
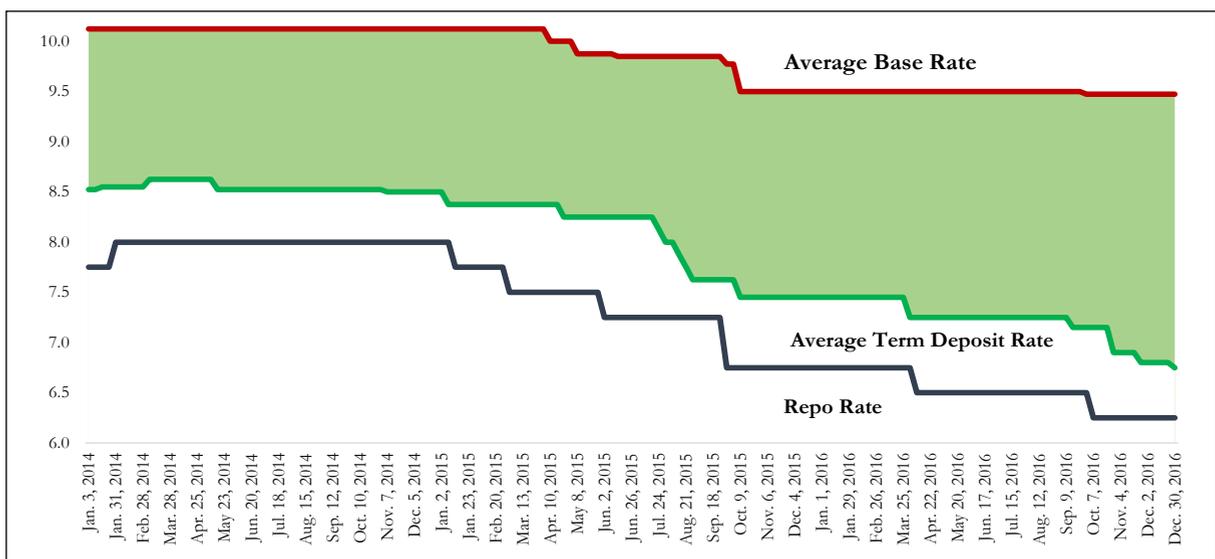


Figure 11b. Real Loan Growth* (Stressed and Non-stressed)



Source: RBI. *: Deflated by average of CPI and WPI. FY17 data as of November 2016. Corporate sector includes industry and services. Stressed sectors include mining, textiles, basic metals, gems and jewellery, construction and infrastructure.

Figure 12. Repo, Base Lending Rate and Term Deposit Rate (Per cent)

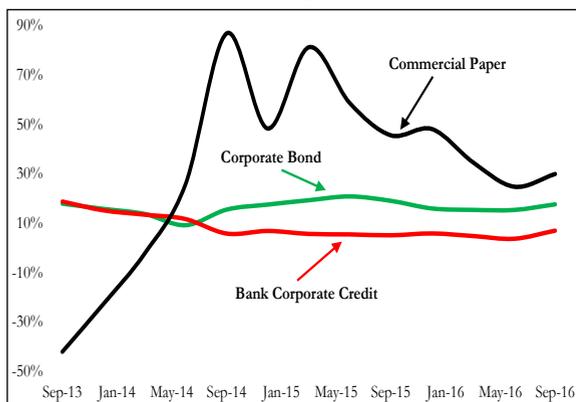


Source: RBI. The base rate is the average of all banks. Average term deposit rate is for deposits of more than one year.

December 2016 the gap between the average term deposit rate and the average base rate had grown to 2.7 percentage points, from 1.6 percentage points in January 2015. It was only following the extraordinary influx of deposits consequent on demonetisation that public sector banks finally cut their lending rates by significant amounts.

4.41 The widening of spreads, in turn, has encouraged disintermediation from the banking system. The increase in margins means that performing borrowers and depositors are effectively being taxed in order to subsidise the non-performing borrowers. Inevitably, the good borrowers are seeking funding elsewhere: from the commercial paper market for their short term needs and the bond market for longer-term financing (Figure 13). This could, in a way, be considered desirable, as it is helping develop the country’s capital markets. But if this trend of disintermediation continues, it will leave much of the “tax” burden on the MSMEs, who cannot decamp for the bond markets, since they require the knowledge-intensive type of lending that is provided only by banks. This trend may also pose risks for the banks themselves, who risk being left with just the riskier ones, with the better ones migrating.

Figure 13. Growth in Nominal Corporate Bank Credit, Corporate Bonds, and Commercial Paper (Per cent)



Source: Credit Suisse.

4.42 Summing up, for some years the financing strategy has worked, in the sense that it has allowed India to grow rapidly, despite a significant twin balance sheet problem. But this strategy may now be reaching its limits. After eight years of buying time, there is still no sign that the affected companies are regaining their health, or even that the bad debt problem is being contained. To the contrary, the stress on corporates and banks is continuing to intensify, and this in turn is taking a measurable toll on investment and credit. Moreover, efforts to offset these trends by providing macroeconomic stimulus are not proving sufficient: the increase in public investment has been more than offset by the fall in private investment, while until demonetisation monetary easing had not been transmitted to bank borrowers because banks had been widening their margins instead. In these circumstances, it has become increasingly clear that the underlying debt problem will finally need to be addressed, lest it derails India’s growth trajectory.

III. WHAT NEEDS TO BE DONE?

4.43 The RBI has over the past few years introduced a number of mechanisms to deal with the stressed asset problem (see Appendix). Initially, the schemes focused on rescheduling amortisations to give firms more time to repay. But as it became apparent that the financial position of the stressed firms was deteriorating, the RBI deployed mechanisms to deal with solvency issues, as well.

4.44 Three of these mechanisms are particularly notable. For some time, the RBI has been encouraging the establishment of private Asset Reconstruction Companies (ARCs), in the hope that they would buy up the bad loans of the commercial banks. In that way, there could be an efficient division of labour, as banks could resume focusing on their traditional deposit-and-loan operations,

while the ARCs could deploy the specialist skills needed to restructure corporate debts.

4.45 This strategy, however, has had only limited success. Many ARCs have been created, but they have solved only a small portion of the problem, buying up only about 5 percent of total NPAs at book value over 2014-15 and 2015-16. The problem is that ARCs have found it difficult to recover much from the debtors. Thus they have only been able to offer low prices to banks, prices which banks have found it difficult to accept.

4.46 So the RBI has focussed more recently on two other, bank-based workout mechanisms. In June 2015, the Strategic Debt Restructuring (SDR) scheme was introduced, under which creditors could take over firms that were unable to pay and sell them to new owners. The following year, the Sustainable Structuring of Stressed Assets (S4A) was announced, under which creditors could provide firms with debt reductions up to 50 percent in order to restore their financial viability.

4.47 In principle, these schemes taken together might have provided a comprehensive framework for dealing with solvency problems. Their success, however, has been limited; while two dozen firms have entered into negotiations under SDR, only two cases have actually been concluded as of end-December 2016. And only one small case has been resolved so far under S4A.

4.48 There are several reasons why progress has been so limited. In part, the problem is simply that the schemes are new, and financial restructuring negotiations inevitably take some time. But the bigger problem is that the key elements needed for resolution are still not firmly in place:

- **Loss recognition.** The AQR was meant to force banks to recognise the true state of their balance sheets. But

banks nonetheless continue to evergreen loans, as the substantial estimates of unrecognised stressed assets make clear.

- **Coordination.** The RBI has encouraged creditors to come together in Joint Lenders Forums, where decisions can be taken by 75 percent of creditors by value and 60 percent by number. But reaching agreement in these Forums has proved difficult, because different banks have different degrees of credit exposure, capital cushions, and incentives. For example, banks with relatively large exposures may be much more reluctant to accept losses. In some cases the firm's losses aren't even known, for they depend on the extent of government compensation for its own implementation shortfalls, such as delays in acquiring land or adjusting electricity tariffs. And deciding compensation is a difficult and time-consuming task; many cases are now with the judiciary.
- **Proper incentives.** The S4A scheme recognises that large debt reductions will be needed to restore viability in many cases. But public sector bankers are reluctant to grant write-downs, because there are no rewards for doing so. To the contrary, there is an inherent threat of punishment, since major write-downs can attract the attention of investigative agencies. Accordingly, bankers have every incentive to simply reschedule loans, in order to defer the problems until a later date. To address this problem, the Bank Board Bureau (BBB) has created an Oversight Committee which can vet and certify write-down proposals. But it remains open whether it can change bankers' incentives.
- **Capital.** The government has promised under the Indradhanush scheme to infuse Rs 70,000 crores of capital into

the public sector banks by 2018-19. But this is far from sufficient, and inherently so, because there is a principal-agent problem, arising from the separation of the institution with financial responsibility (the government) from its decision-making agent (the state banks). If the government promises unduly large funds in advance, the banks may grant excessive debt reductions. But banks do not receive sufficient assurance of funding, they will not be able to grant companies enough debt relief.

4.49 In short, the road to resolution remains littered with obstacles, even for the most ordinary of bad debt cases. The bulk of the problem, however, is not located in ordinary cases. To the contrary, stressed assets are concentrated in a remarkably few borrowers, with a mere 50 companies accounting for 71 percent of the debt owed by IC1 debtors. On average, these 50 companies owe Rs 20,000 crores in debt, with 10 companies owing more than Rs 40,000 crores apiece. And the large, over-indebted borrowers are particularly difficult to resolve, for several deep-seated reasons:

- **Severe viability issues.** At this point, large write-offs will be required to restore viability to the large IC1 companies. The amounts vary widely from case to case, and require a thorough analysis of the accounts to ascertain. But a broad idea can be obtained by calculating the debt reduction that would be needed to reduce interest obligations to the current level of cash flows. Based on the data for the year ending September 2016,

about 33 of the top 100 stressed debtors would need debt reductions of less than 50 percent, 10 would need reductions of 51-75 percent, and no less than 57 would need reductions of 75 percent or more.⁸

- **Acute coordination failures.** Large debtors have many creditors, who need to agree on a strategy. This is often difficult when major sums are involved.
- **Serious incentive problems.** Public sector bankers are even more cautious in granting debt reductions in major cases, as this may attract the attention of not only the investigative agencies, but also the wider public. At the same time, state banks are often not in a position to take the alternative route of converting their claims to equity, taking over large firms, and then reselling them, even when this is clearly the value-maximising solution – and even though it is encouraged under SDR.
- **Insufficient capital.** Debt write-downs in the case of the large debtors could quickly deplete banks' capital cushions.

4.50 In other words, for the big firms the road is not littered with obstacles. It seems to be positively blocked.

4.51 Could the new Bankruptcy Law provide a viable alternative way forward? In some ways, going down the path of bankruptcy would make sense for cases where the write-down needs are particularly large, which makes them ill-suited for S4A and SDR in the first place. The problem is that the new bankruptcy system is not yet fully in place, and even when it is, the new procedures (and

⁸ Based on many simplifying assumptions. Cash flow is measured by earnings before interest, taxes, depreciation, and amortisation (EBITDA); the 46 companies with negative cash flow are included in the group that requires more than 75 percent debt reduction. It is also assumed that the reduction in interest obligations is proportional to the reduction in debt. Perhaps most important, the calculation is based on the premise that cash flows will remain unchanged in the future. In some cases, it may well improve, for example as demand for steel recovers from its cyclical trough. But in other cases, the assumption may well be optimistic, as cash flows of stressed companies as a group have been deteriorating in the past two years, as explained in the fourth section.

participants) will need to be tested first on smaller cases. Some considerable time will consequently elapse before the system will be ready to handle the large, complex cases.

4.52 In other words, the state of play is this: it has now been eight years since the twin balance sheet problem first materialised, and still no resolution is in sight. And because the financial position of the stressed debtors is deteriorating, the ultimate cost to the government and society is rising – not just financially, but also in terms of foregone economic growth and the risks to future growth.

4.53 These difficulties raise a fundamental issue. Most economic problems are best resolved through market-based mechanisms, in which commercially-motivated actors operate within government-designed frameworks. But in this case, this mechanism doesn't seem to be working, because of the constraints and distorted incentives, which have proved difficult to eradicate.

4.54 All of this suggests that it might not be possible to solve the stressed asset problem using the current mechanism, or indeed any other decentralised approach that might materialise in the near future. Instead a centralised approach might be needed.

4.55 One possible strategy would be to create a 'Public Sector Asset Rehabilitation Agency' (PARA), charged with working out the largest and most complex cases. Such an approach could eliminate most of the obstacles currently plaguing loan resolution. It could solve the coordination problem, since debts would be centralised in one agency; it could be set up with proper incentives by giving it an explicit mandate to maximize recoveries within a defined time period; and it would separate the loan resolution process from concerns about bank capital. For all these reasons, asset rehabilitation agencies have been adopted by many of the countries

facing TBS problems, notably the East Asian crisis cases.

4.56 How would a PARA actually work? There are many possible variants, but the broad outlines are clear. It would purchase specified loans (for example, those belonging to large, over-indebted infrastructure and steel firms) from banks and then work them out, either by converting debt to equity and selling the stakes in auctions or by granting debt reduction, depending on professional assessments of the value-maximizing strategy.

4.57 Once the loans are off the books of the public sector banks, the government would recapitalise them, thereby restoring them to financial health and allowing them to shift their resources – financial and human – back toward the critical task of making new loans. Similarly, once the financial viability of the over-indebted enterprises is restored, they will be able to focus on their operations, rather than their finances. And they will finally be able to consider new investments.

4.58 Of course, all of this will come at a price, namely accepting and paying for the losses. But this cost is inevitable. Loans have already been made, losses have already occurred, and because public sector banks are the major creditors, the bulk of the burden will necessarily fall on the government (though the shareholders in the stressed enterprises may need to lose their equity as well). In other words, the issue for any resolution strategy – PARA or decentralised -- is not whether the government should assume any new liability. Rather, it is how to minimize the existing liability by resolving the bad loan problem as quickly and effectively as possible. And that is precisely what creation of the PARA would aim to do.

4.59 That said, the capital requirements would nonetheless be large. From where would this funding come? Part would need to

come from government issues of securities. This would increase the debt stock, but could actually strengthen the government's financial position if establishing PARA hastens the resolution of the stressed asset problem, since doing so would reduce the amount that would ultimately be needed to compensate banks for the losses on the bad loans.

4.60 A second source of funding could be the capital markets, if the PARA were to be structured in a way that would encourage the private sector to take up an equity share. In addition, capital markets could help replenish the capital of the public sector banks, if the government were willing to sell down its holdings.

4.61 A third source of capital could be the RBI. The mechanism for doing this is straightforward (Box 2). The RBI would (in effect) transfer some of the government securities it is currently holding to public sector banks and PARA. As a result, the RBI's capital would decrease, while that of the banks and PARA would increase. There would be no implications for monetary policy, since no new money would be created.

4.62 Of course, establishing a PARA is not a panacea. In fact, experience with government-run asset rehabilitation agencies has not been uniformly positive. Three major issues have bedevilled other agencies, and would need to be resolved to ensure a PARA would actually work as intended.

4.63 First, there needs to be a readiness to confront the losses that have already occurred in the banking system, and accept the political consequences of dealing with the problem. If loans are written off, there could be accusations of favouritism; if defaulting companies are taken over and sold, this could be seen as excessively strong government. The only defence against such charges would be to ensure the PARA is thoroughly professional, with plans that maximize – and

are seen to maximize – recovery value.

4.64 Second, the PARA needs to follow commercial rather than political principles. To achieve this, it would need to be an independent agency, staffed by banking professionals. It would also need a clear mandate of maximizing recoveries within a specified, reasonably short time period. The best, perhaps the only way to achieve this is to set up a structure like the one done for the GST Network, which is broadly within the aegis of the public sector but with government owning 49 per cent.

4.65 The third issue is pricing. If loans are transferred at inflated prices, banks would be transferring losses to the Rehabilitation Agency. As a result, private sector banks could not be allowed to participate – and then co-ordination issues would remain – while private capital would not want to invest in the Agency, since PARA would make losses. To get around this problem, market prices could be used, but establishing the market price of distressed loans is difficult and would prove time consuming.

4.66 All three problems are formidable ones, which is precisely why other schemes have been tried first. But these other schemes have not worked, years have flown by, and meanwhile the costs are continuing to mount. To paraphrase the learned economist Mr. Holmes, "Once you have eliminated the impossible, whatever remains, no matter how difficult, must be the solution."

IV. CONCLUSION

4.67 The *Economic Survey* 2015-16 emphasized that addressing the stressed assets problem would require 4 R's: *Reform, Recognition, Recapitalization, and Resolution*. One year on, how much progress has been made?

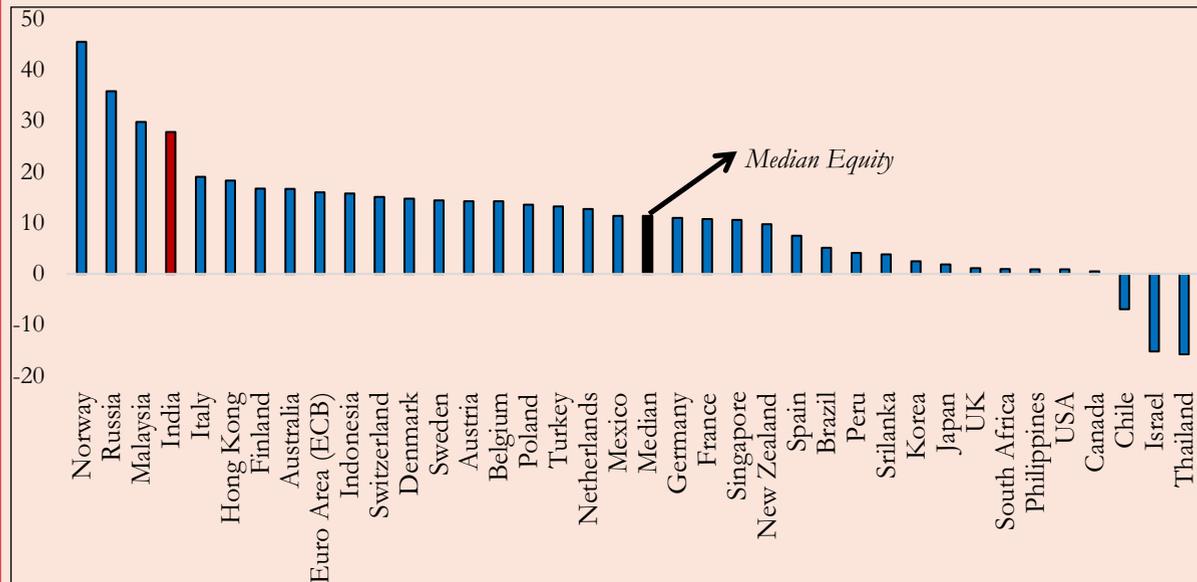
4.68 Start with the area where the least amount of progress has occurred: the first R, Reform. The past few years have

Box 2. Excess Capital of the RBI

Last year's *Economic Survey* had raised the issue of the government's excess capital in the RBI. That issue could become even more salient this year because of demonetization.

The figure below plots the extent of capital there is in the RBI, updating the calculation in last year's *Survey*. If there is a demonetisation windfall - not included here - the RBI will stand out even more as an outlier in terms of government capital in the central bank.

Figure. Equity as Per cent of Central Bank Balance Sheet



Source: Latest data from central banks of respective countries. The estimate for India assumes, conservatively, no windfall from demonetisation.

There is no particular reason why this extra capital should be kept with the RBI. Even at current levels, the RBI is already exceptionally highly capitalized. In fact, it is one of the most highly capitalized central banks in the world. So, it would seem to be more productive to redeploy some of this capital in other ways.

Assuming that the RBI returns Rs. 4 lakh crore of capital to the government, what are the uses to which this capital can be put? It could be used in several good ways:

First, for recapitalizing the banks and/or recapitalizing a Public Sector Asset Rehabilitation Agency (PARA);

Second, for extinguishing debt to demonstrate that the government is serious about a strong public sector fiscal position.

The key principle that should be observed in this process is that the excess capital in the RBI, including that created by demonetisation, is a balance sheet or wealth gain and not an income gain. Hence, the uses to which this is put should be of a balance sheet nature.

It cannot be emphasized enough that any strategy to use the excess capital must be done carefully that in no way undermines or circumvents the relevant laws. It must also be done with the full cooperation of the RBI to ensure that the RBI's independence and credibility are in no way undermined.

What are the possible economic objections to such a strategy?

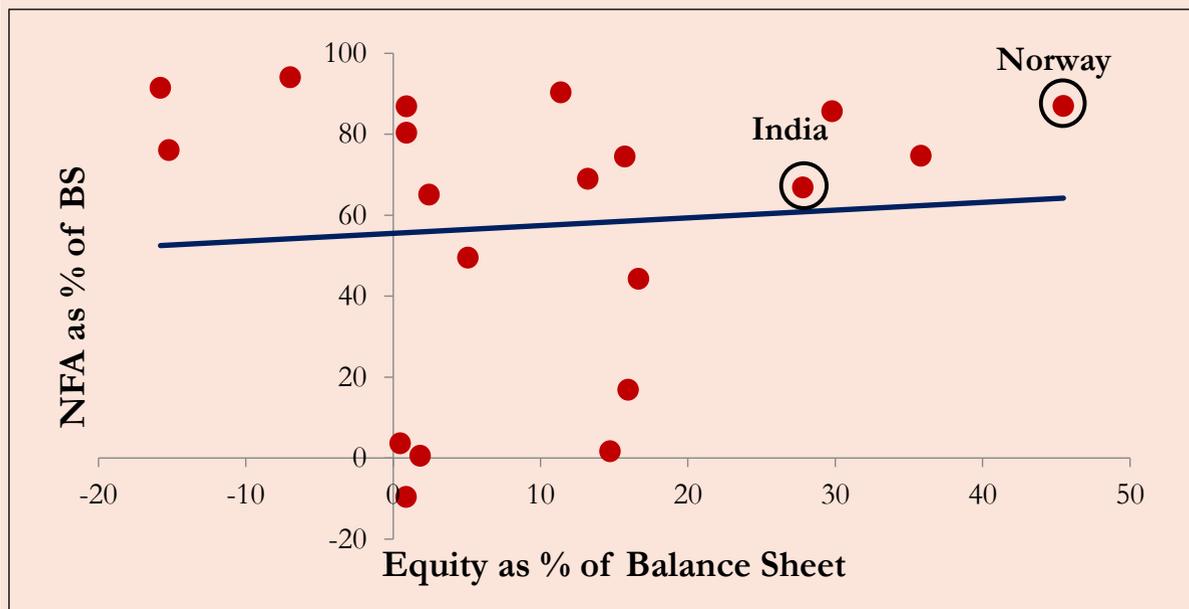
A. Adequacy of buffers

First, would there be adequate buffers after such a reduction in the RBI's capital? Since a large chunk of RBI's assets (nearly 70 per cent) are in the form of net foreign assets (NFA), some argue that it must maintain a high equity to assets ratio. One argument is that the larger the NFA to total assets ratio of a central bank, the more vulnerable it is

to exchange rate volatility risks. Norges Bank of Norway, for example, has a NFA to total assets ratio of 86 per cent and maintains an equity to assets ratio of about 45 per cent, even higher than the RBI.

Is there really a high positive correlation between NFA and equity holdings of a central bank? To test this claim, a cross-country comparison plotting the ratio of NFA to total assets of central banks against the ratio of equity to assets is undertaken. The correlation between the two ratios turns out to be just .09. So just as a cross-sectional empirical regularity, it is not true that higher foreign assets necessitate or lead to the holding of more capital.

Figure. Assets and Equity



Source: Central banks of respective countries.

B. Likelihood of capital losses

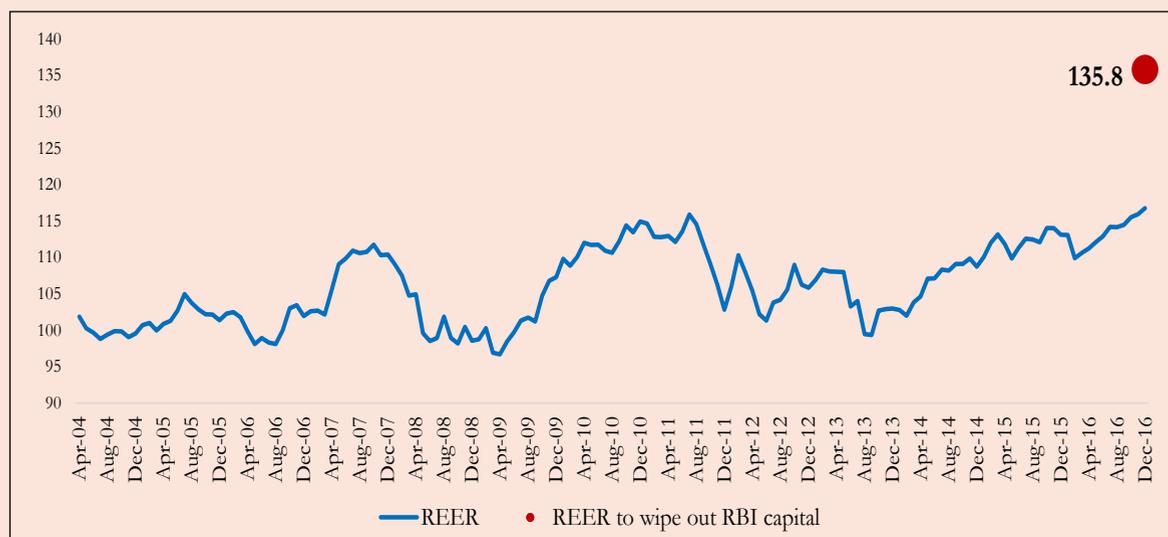
But the really critical question is the following: what kind and magnitude of exchange rate change could undermine the capital position of the RBI?

Note first that valuation losses will arise when the rupee appreciates. So, the appreciation of the rupee required to result in a valuation loss of Rs. 4 lakh crore that would in turn wipe out the remaining capital of the RBI (assuming that Rs 4 lakh crore is redeployed) is calculated. Estimates show that the exchange rate would need to appreciate by 16.3 percent. In terms of the broad based real effective exchange rate (REER) calculated by the RBI, the index would need to rise to 135.8.

The logic is simple: Rs 4 lakh crores is 16.3 percent of foreign reserves (based on data on foreign exchange reserves as on January 13, 2017). So the rupee would have to appreciate by about 16.3 percent relative to today's level to wipe out the RBI's capital. That appreciation would translate into a REER level as shown in the figure below. Such appreciation of the rupee would lead to adverse competitive levels never witnessed in the Indian economy for the last 12 years. Manufacturing would essentially be wiped out. It is therefore clear that such capital losses could never be allowed to be inflicted on the RBI.

C. Feasibility of averting losses

But can the RBI, even if did not want such appreciation, be able to prevent it? The answer is yes. There is a fundamental asymmetry in the operation of central banks. Their supply of foreign currency is limited but their supply of domestic currency is unlimited. So, if the currency starts appreciating, the RBI can intervene to prevent it by buying dollars and supplying rupees. This cannot be always possible with currency depreciation because at some point of time the RBI will run out of dollars. In other words, the RBI has both the ability and incentive to prevent

Figure. Competitiveness Measured by REER*

Source: RBI.*: The 36-currency Real Effective Exchange Rate is the weighted average of Nominal Effective Exchange Rate adjusted by the ratio of domestic price to foreign prices.

large valuation losses that would jeopardize its capital.⁹

A final concern: supposing that the excess capital were redeployed toward recapitalizing the banks, would redeployment of RBI's reserves amount to the regulator holding a stake in its regulatees- the commercial banks? In fact, what the operation would involve is the *government* altering the composition of its balance sheet, transferring its equity holdings from the RBI to the commercial banks. The RBI would have no equity in the commercial banks. Nor would there be any implications for monetary policy.

The easiest way to think about this is to see these operations in two stages. In stage 1, the RBI's balance sheet shrinks as it uses its holdings of government securities (on the asset side) to pay a dividend to the government, thereby reducing its capital (on the liability side). In stage 2, the government would issue new debt to recapitalize the banks. So in the end, government bonds would simply pass from the RBI to the government to public sector banks. In the process capital would also shift. But otherwise nothing would change; in particular, the money supply and overall government equity holdings would be unaffected.

D. International precedents

Finally, there are prominent international precedents for governments using its capital in the central bank for its own purposes; and for benefiting from the extinguishing of bank notes and using the excess capital in the central bank:

- The US Federal Reserve gave \$19 billion from its surplus capital to finance transportation projects in 2015.¹⁰
- In 2004, the Bundesbank, extinguished its old deutsche mark currency and counted it as income in the profit and loss account because it was deemed highly unlikely that these would ever be exchanged for euros.
- The Bank of Israel recorded a gain of ILS 220 million in its 2010 financial statements (about \$62 million at the time) for the face value of notes that had passed the legal date for exchange and were no longer valid for use.

⁹ The RBI also faces risks to its balance sheet from interest rate changes. If interest rates increase, the value of its government bond holdings will decline, inflicting valuation losses. However, risks from interest rate increases are quantitatively less important for the RBI given the composition of its assets. Moreover, these risks will, in general, be negatively correlated with exchange rate risks.

¹⁰ See <https://www.bloomberg.com/news/articles/2015-12-01/fed-surplus-tapped-in-highway-bill-as-banks-get-dividend-break>.

demonstrated the singular virtue of a public sector dominated banking system, in preserving confidence in the banks when problems arise. But they have also shown its greater disadvantages, in actually dealing with the problems and indeed in allowing them to materialise in the first place. This situation might not matter much if double-digit NPAs at public sector banks were a rare event. But this is the second time in a decade that such a large share of their portfolios has turned non-performing - unless there are fundamental reforms, the problem will recur again and again.

4.69 Indeed, once the Twin Balance Sheet problem is resolved, there could be significant moral hazard problems. Newly cleaned up balance sheets may simply encourage bank managers to lend freely, ignoring the lessons of the past. Structural reform aimed at preventing this can take many forms but serious consideration must also be given to the issue of government majority ownership in the public sector banks.

4.70 Now consider the area where there has been the most progress: the second R, Recognition. After years of following a financing strategy, hoping that providing “time to time” would allow the stressed loans to come right, banks have realised that the financial position of the debtors has deteriorated to such an extent that many will not be able to recover. Accordingly, following the RBI’s Asset Quality Review, banks have recognised a growing number of loans as non-performing.

4.71 With higher NPAs has come higher provisioning, which has eaten into banks’ capital base. As a result, banks will need to be recapitalised – the third R -- much of which will need to be funded by the government, at least for the public sector banks. This much is automatic. But recapitalisation, for all its importance and attention received in the

public discourse, is not the need of the hour. Not the main need, at any rate.

4.72 Rather, the key issue is the fourth R: Resolution. For even if the public sector banks are recapitalised, they are unlikely to increase their lending until they truly know the losses they will suffer on their bad loans. Nor will the large stressed borrowers be able to increase their investment until their financial positions have been rectified. Until this happens, economic growth will remain under threat.

4.73 The question, then, is how to speed up resolution. In India little progress has been made even eight years after the Global Financial Crisis. Yet after the 1990s crisis, East Asian countries were able to resolve most of the large cases within two years. One reason, of course, was that the East Asian countries were under much more pressure: they were in crisis, whereas India has continued to grow rapidly.

4.74 But a second reason why East Asia was able to clean up its problem debts so quickly was that it had more efficient mechanisms. India has been pursuing a decentralised approach, under which individual banks have been taking restructuring decisions, subject to considerable constraint and distorted incentives. Accordingly, they have repeatedly made the choice to delay resolutions. In contrast East Asia adopted a centralised strategy, which allowed debt problems to be worked out quickly using the vehicle of public asset rehabilitation companies. Perhaps it is time for India to consider the same approach.

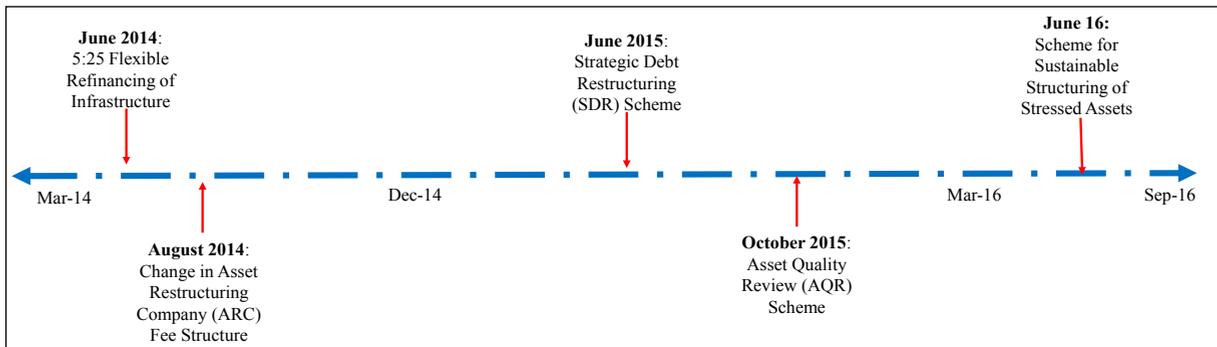
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APPENDIX

Over the past three years the RBI has implemented a number of schemes to facilitate resolution of the stressed asset problem. The figure below depicts these schemes. In what follows a brief overview of these schemes is provided.

Figure. Chronology of RBI policy actions



The 5/25 Refinancing of Infrastructure Scheme: This scheme offered a larger window for revival of stressed assets in the infrastructure sectors and eight core industry sectors. Under this scheme lenders were allowed to extend amortisation periods to 25 years with interest rates adjusted every 5 years, so as to match the funding period with the long gestation and productive life of these projects. The scheme thus aimed to improve the credit profile and liquidity position of borrowers, while allowing banks to treat these loans as standard in their balance sheets, reducing provisioning costs. However, with amortisation spread out over a longer period, this arrangement also meant that the companies faced a higher interest burden, which they found difficult to repay, forcing banks to extend additional loans (*‘evergreening’*). This in turn has aggravated the initial problem.

Private Asset Reconstruction Companies (ARCs): ARCs were introduced to India under the SARFAESI Act (2002), with the notion that as specialists in the task of resolving problem loans, they could relieve banks of this burden. However, ARCs have found it difficult to resolve the assets they have purchased, so they are only willing to purchase loans at low prices. As a result, banks have been unwilling to sell them loans on a large scale. Then, in 2014 the fee structure of the ARCs was modified, requiring ARCs to pay a greater proportion of the purchase price up-front in cash. Since then, sales have slowed to a trickle: only about 5 percent of total NPAs at book value were sold over 2014-15 and 2015-16.

Strategic Debt Restructuring (SDR): The RBI came up with the SDR scheme in June 2015 to provide an opportunity to banks to convert debt of companies (whose stressed assets were restructured but which could not finally fulfil the conditions attached to such restructuring) to 51 percent equity and sell them to the highest bidders, subject to authorization by existing shareholders. An 18-month period was envisaged for these transactions, during which the loans could be classified as performing. But as of end-December 2016, only two sales had materialized, in part because many firms remained financially unviable, since only a small portion of their debt had been converted to equity.

Asset Quality Review (AQR): Resolution of the problem of bad assets requires sound recognition of such assets. Therefore, the RBI emphasized AQR, to verify that banks were

assessing loans in line with RBI loan classification rules. Any deviations from such rules were to be rectified by March 2016.

Sustainable Structuring of Stressed Assets (S4A): Under this arrangement, introduced in June 2016, an independent agency hired by the banks will decide on how much of the stressed debt of a company is 'sustainable'. The rest ('unsustainable') will be converted into equity and preference shares. Unlike the SDR arrangement, this involves no change in the ownership of the company.