

The Investment Climate: Stalled Projects, Debt Overhang and the Equity Puzzle

4.1 INTRODUCTION

India’s investment has been much below potential over the last few years. From a peak of 24 per cent in the last quarter of 2009-10 financial year, the rate of growth of gross fixed capital formation now languishes around zero (Figure 4.1). Stalling of “projects,” a term synonymous with large economic undertakings in infrastructure, manufacturing, mining, power, etc., is widely accepted to be a leading reason behind this decline. The stock of stalled projects at the end of December 2014 stood at ₹ 8.8 lakh crore or 7 per cent of GDP.

This analysis uses the CAPEX database in the Center for Monitoring Indian Economy (CMIE) platform to analyse stalled projects, offering some insights and policy lessons. The database contains a large sample of firm level public and private

investment data, balance sheet reports and survey of companies, and the timeline of projects. This mix of data allows us to generate a plausible picture of the investment climate in the country with the caveat being that it is a sample and hence not immune to selection biases.

This chapter provides five key take-home messages and two policy lessons. The key messages are follows.

- i. The stalling rate of projects has been increasing at an alarmingly high rate in the last five years, and the rate is much higher in the private sector.
- ii. The good news is that the rate of stalling seems to have plateaued in the last three quarters. Moreover, the stock of stalled projects has come down to about 7 per cent of the GDP at the end of the third

Figure 4.1: Gross Fixed Capital Formation (year-on-year, rate of growth)



Source : Central Statistics Office

quarter of 2014-15 from 8.3 per cent the previous year.

- iii. The data shows that manufacturing and infrastructure dominate in the private sector, and manufacturing dominates in total value of stalled projects even over infrastructure. The government's stalled projects are predominantly in infrastructure. Unfavourable market conditions (and not regulatory clearances) are stalling a large number of projects in the private sector, and in contrast regulatory reasons explain bulk of stalling in the public sector. Also, clearing the top 100 stalled projects will address 83 per cent of the problem of stalled projects by value.
- iv. Stalling of projects is severely affecting the balance sheets of the corporate sector and public sector banks, which in turn is constraining future private investment, completing a vicious circle, characterised by an investment slowdown leading to less financing back to weak investment.
- v. Despite high rates of stalling, and weak balance sheets, the equity market seems to be performing quite well. A plausible hypothesis being that equity valuations of affected companies are not being sufficiently priced in. Through an event study we show that the stalling of projects is indeed not having a significant impact on firm equity. This may potentially be due to the pure political economy reason that the market is internalising the expectations of bailouts.

And, the two policy lessons are as follows.

- i. Combining the situation of Indian public sector banks and corporate balance sheets suggests that the expectation that the private sector will drive investment needs to be moderated. In this light, public investment may need to step in to recreate an environment to crowd-in private sector investment in the short term.

- ii. Efforts must be made to revitalise the public-private partnership model of investment, albeit in a different manner (specific details are offered in Box 4.1). In addition, serious consideration must be given to setting up an Independent Renegotiation Committee. In the presence of weak mechanisms for bankruptcy and exit, we have to think creatively about distributing pain amongst the stakeholders from past deals gone sour.

4.2 RATE OF STALLING AND STOCK OF STALLED PROJECTS

4.2.1 Alarmingly high and dominated by the private sector

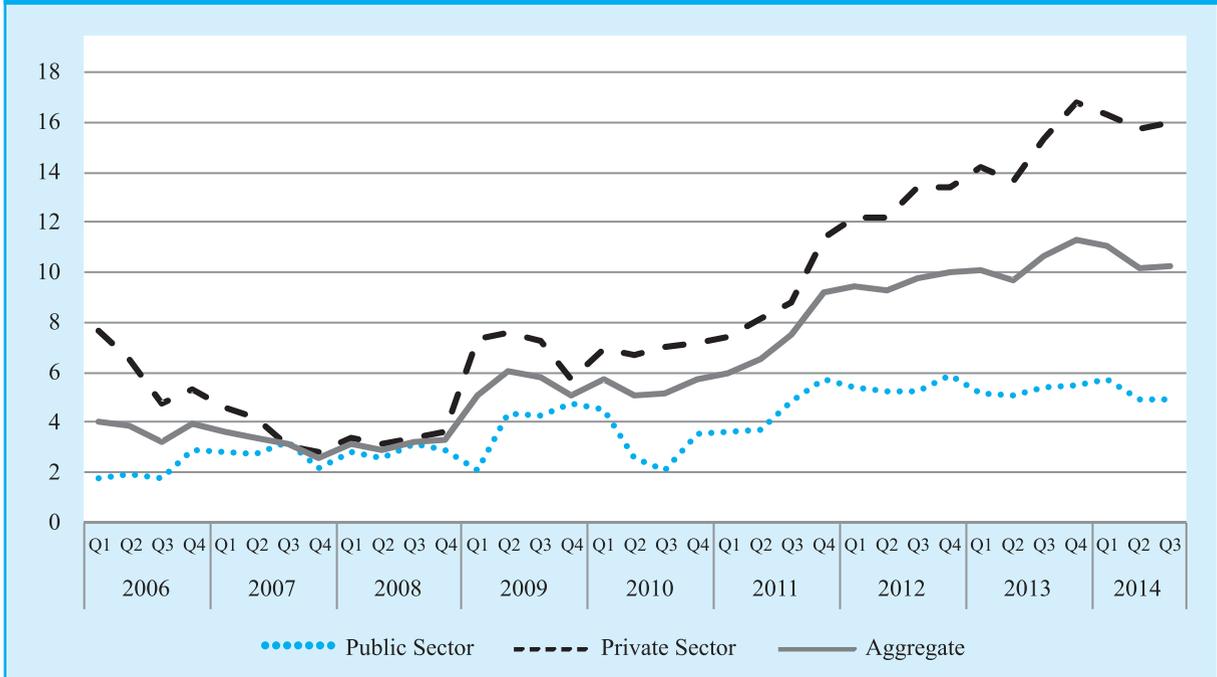
Figure 4.2 plots quarterly data on the stalling rate, defined as the stock of stalled projects as a percentage of those under implementation in terms of value of projects. It is evident that the stock of stalled projects has been rising at an alarming rate. Moreover, it is dominated by the private sector, especially in the last five years. At end of the third quarter of the current financial year, for every 100 rupees of projects under implementation, 10.3 rupees worth of projects were stalled, and the number for private sector stood at 16.

4.2.2 Tapering in the last three quarters

The stock of stalled projects is driven by two factors: rate of stalling and the rate of revival. Figure 4.3 depicts the gross value of projects stalled and revived during the last few quarters. As can be seen both were contributing to the problem, a large volume of projects were being stalled, and not enough were being revived. However, in the last few quarters there have been some improvements on both fronts.

Table 4.1 reports the stock of stalled projects as a fraction of GDP. Stalled investments at the rate of 8-9 percent of GDP over the last three fiscal years have been a leading reason behind the decline in gross fixed capital formation seen earlier in Figure 4.1. However, the number has come down to around 7 per cent of GDP at the end of

Figure 4.2: Stalling Rate by Value (Stock of Stalled Projects as Percentage of Projects under Implementation)



Source : CMIE.

the third quarter of 2014-15, showing a gradual improvement.

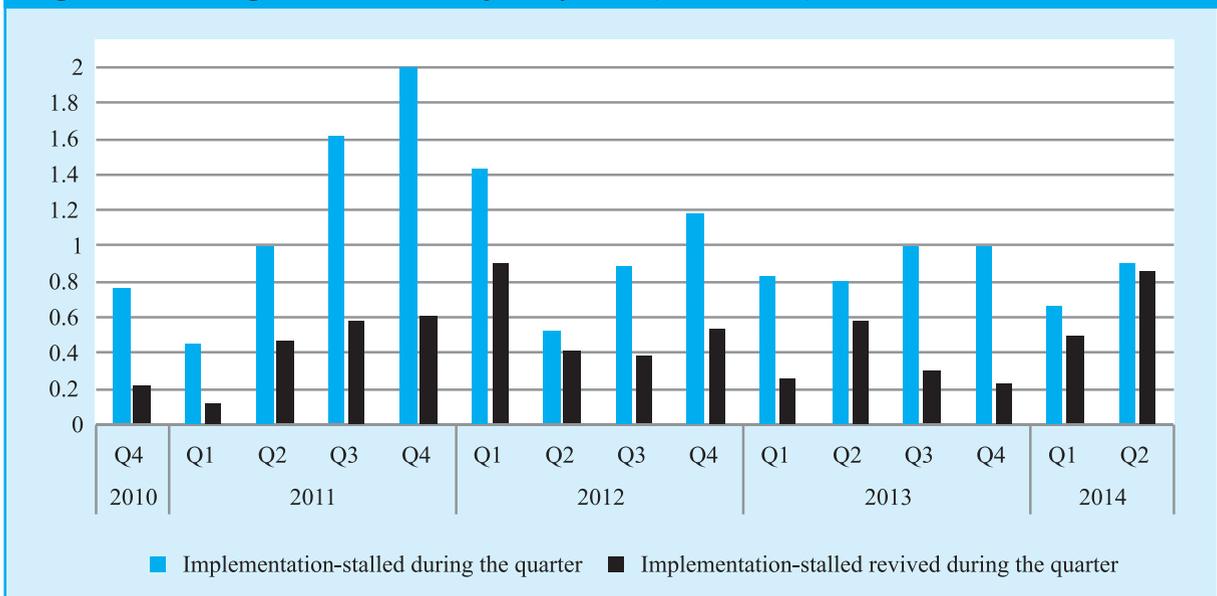
4.3 AN ANALYSIS OF STALLED PROJECTS

Using all the available information in the CAPEX database, we analyse the set of stalled projects along five dimensions: ownership, value, sector,

geography and reasons for stalling (disaggregated in further detail in Table 4.2).

Figures 4.4 and 4.5 show the sectoral decomposition of the ₹ 8.8 lakh crore worth of stalled projects for public and private sector firms, respectively. The first thing to note is that the public and private sector account for ₹ 1.8 and ₹ 7 lakh

Figure 4.3: Stalling and Revival of Projects by value (in lakh crore)



Source : CMIE

Table 4.1 : Stalled Projects (by value) as a fraction of GDP

Year	Government	Private	Total
2011-12	2.0%	5.7%	7.7%
2012-13	1.9%	6.1%	8.9%
2013-14	1.8%	6.5%	8.3%
2014-15 (till Q3)	1.4%	5.5%	6.9%

Source : CMIE and Central Statistics Office

crores, respectively, of the total worth of stalled projects. In terms of share in total, electricity and services dominate for both public and private sectors¹, while manufacturing forms the major component of stalled projects in the private sector.

One sector with large a number (and total worth) of stalled projects in both public and private sectors is electricity. At the end of third quarter of this financial year, 80 projects were stalled in the electricity sector out of which 75 are in generation and 5 in distribution, and 54 of these 80 are in fact private. It is important to note that almost all the projects in electricity under the “private” category

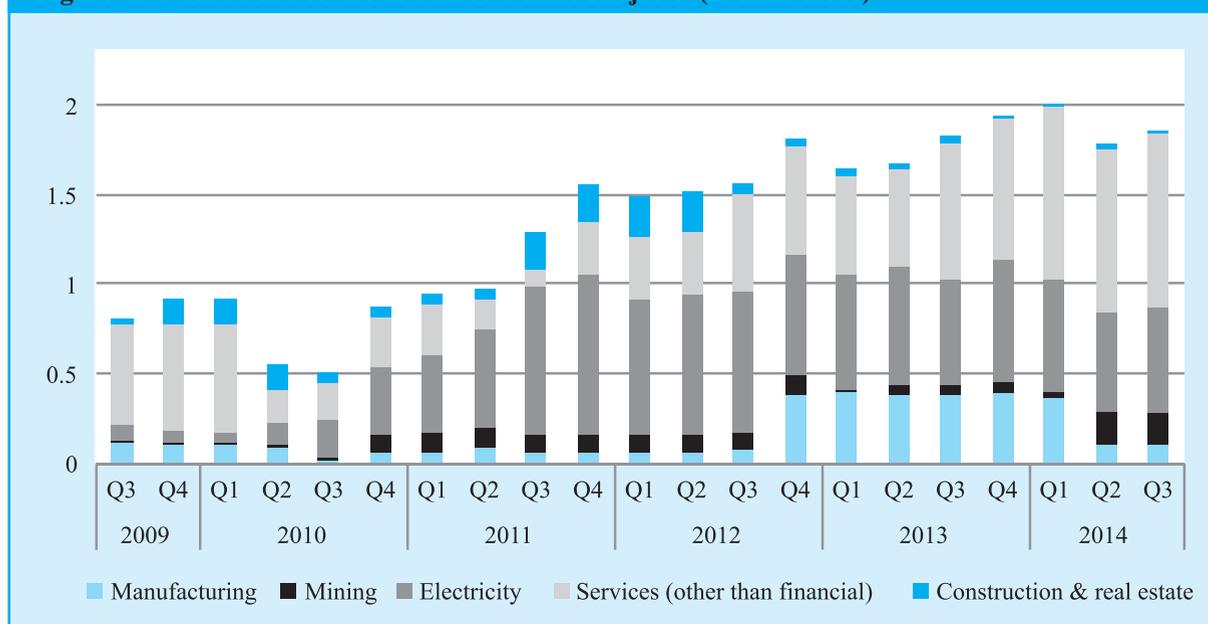
Table 4.2 : Characterising Stalled Projects

Dimension	Components
Ownership	Public, Private (Indian), Private (Foreign)
Sector	Infrastructure: Electricity, Highways, Airports, Construction Mining: Coal, Iron Manufacturing: Steel, Cement, Drugs, Garments, Processed Food
Geography	States
Value	In rupees
Reason for Stalling	Clearances: Environmental, LandFuel. Other raw materials Market: lack of demand, funds

Source : CMIE

are actually public-private partnerships, which affects the public sector directly.

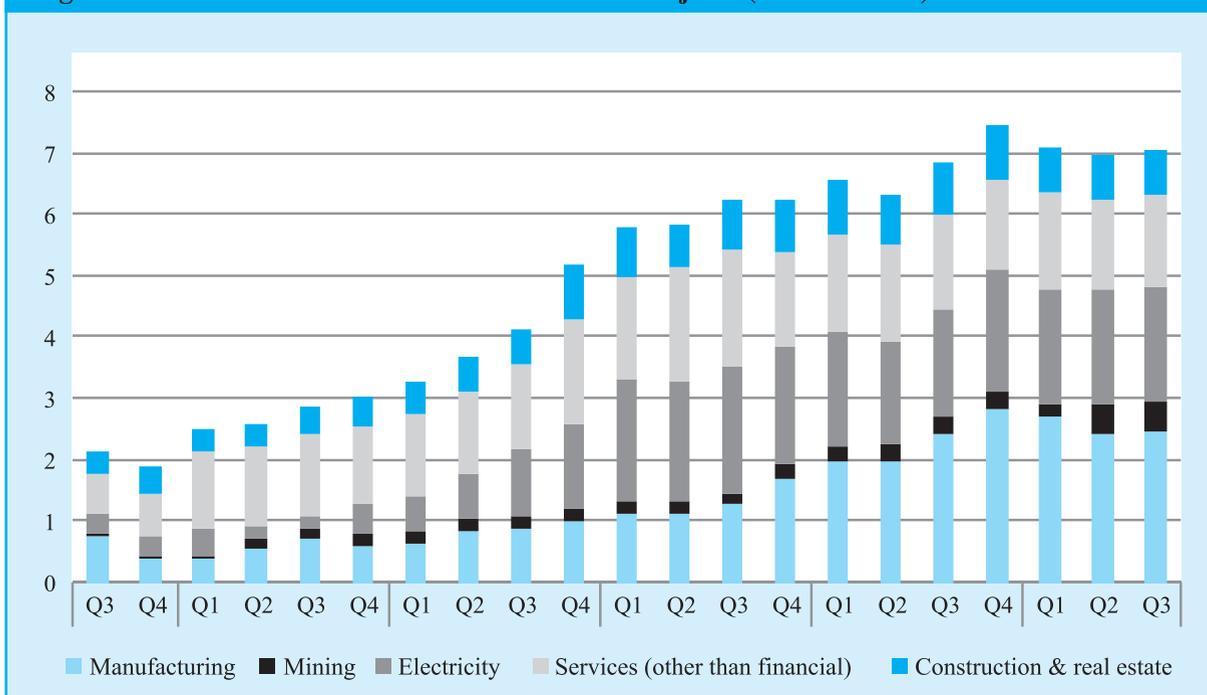
A more granular analysis shows that manufacturing, mining and electricity, in that order, have had the highest stalling rates in the last few quarters among all sectors. Air transport, roads and shipping are the other big contributors in infrastructure, and steel, cements, garments, and food processing are the

Figure 4.4: Share of Sectors in Stalled Public Projects (in lakh crore)

Source: CMIE

¹ Services includes Hotel and Tourism, Wholesale and retail trading, Transport services, Communication services, IT and other miscellaneous non-financial services.

Figure 4.5: Share of Sectors in Stalled Private Projects (in lakh crore)



Source : CMIE

largest contributors within the manufacturing sector.

Next, in Table 4.3, we analyse primary reasons for stalling in public and private sectors. It is clear that private projects are held up overwhelmingly due to market conditions and non-regulatory factors whereas the government projects are stalled due to lack of required clearances.

Perhaps contrary to popular belief, the evidence points towards over exuberance and a credit

bubble as primary reasons (rather than lack of regulatory clearances) for stalled projects in the private sector. On the flipside, government projects were the most severely affected by “policy paralysis” of regulatory clearances. There are of course interdependencies, but a private sector “project bubble” is not inconsistent with the data.

Table 4.4 shows the top reasons for stalling across sectors. Two lessons are crucial here. First manufacturing is being stifled by a general deterioration in the macroeconomic environment. Second, stalled projects in electricity are a victim of lack of coal (or coal linkages).

Table 4.5 presents all the states that have stalling rates in excess of 10 per cent. While it is true that some states have large amounts of projects under implementation to begin with (thus the large volume of stalled projects may potentially be driven by aggregate volume of projects in the state), our definition of stalling rate, as the value of stalled projects as a percentage of projects under implementation, scales the numbers appropriately. On this measure, it seems that with a few exceptions states with relatively weak institutional environments have more stalled projects.

Table 4.3 : Top Reasons for stalling across ownership

Owner	No. of Projects	Top Reasons for Stalling
Private (Indian)	585	Unfavourable market conditions Lack of promoter interest Lack of non-environmental clearances
Government	161	Land acquisition problem Lack of non-environmental Clearances Lack of funds

Source : CMIE

Table 4.4 : Top reasons for stalling across industries

Industry	No. of Projects	Top Reasons
Manufacturing	212	Unfavourable market conditions
Mining	40	Lack of non-environmental clearances
Electricity	80	Fuel/feedstock/raw material supply problem
Services	283	Lack of promoter interest
Construction and Real Estate	143	Lack of non-environmental clearances

Source : CMIE

Finally what is the distribution of the value of stalled projects? They are top heavy in the sense that a small fraction accounts for a bulk of the total value of stalled projects. Table 4.6 shows that clearing the top 100 projects by value will address 83 per cent of the problem of stalled projects. This makes the problem look relatively manageable.

4.4 BALANCE SHEET SYNDROME WITH INDIAN CHARACTERISTICS

As reported in the Mid-Year Economic Analysis (2014-15), corporate balance sheets in India continue to be over-extended. Here we provide a deeper empirical analysis of the same, and add banks' balance sheets to the picture.

Table 4.5 : States with stalling rate > 10%

State	2013 Q4	2014 Q3
West Bengal	34.4	28.9
Himachal Pradesh	20.2	22.7
Odisha	11.4	19.9
Jharkhand	32.0	17.3
Uttar Pradesh	26.2	16.6
Chhattisgarh	20.2	15.4
Andhra Pradesh	12.3	14.9
Maharashtra	7.5	12.4
Telangana	9.0	10.0

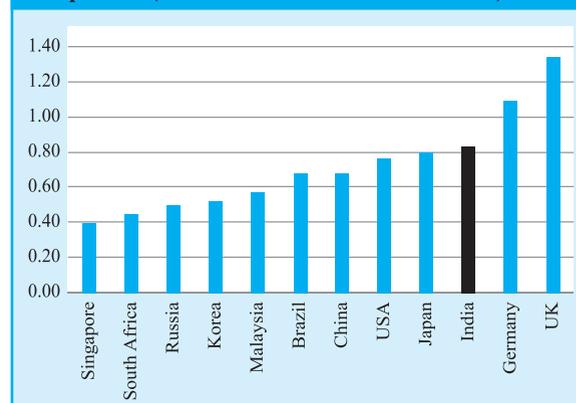
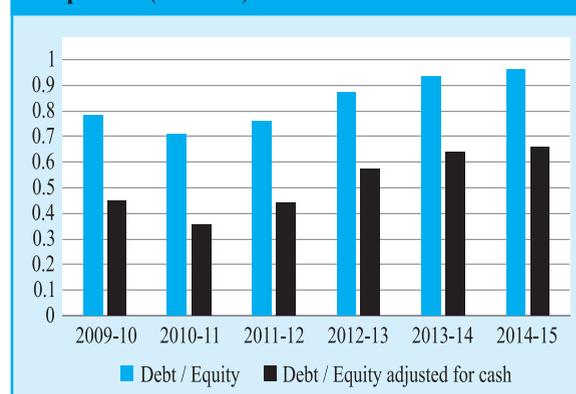
Source : CMIE

Table 4.6 : Share of top stalled projects in total value of stalled projects

Percentile	Percentage of Total
Top 10	28.67%
Top 20	43.91%
Top 50	65.73%
Top 100	82.55%

Source : CMIE

Figure 4.6 shows the debt to equity ratio of non-financial corporates in the BSE 500 across time and in comparison to other countries. Debt to equity is a measure of financial leverage that indicates the proportion of debt and equity used by the company to finance its assets. An unambiguous fact emerging from the data is that the debt to equity for Indian non-financial corporates has been rising at a fairly alarming rate

Figure 4.6A: Debt to Equity Ratio of Non-financial Corporates (MSCI index as of December 2014)**Figure 4.6B: Debt to Equity Ratio of Indian Corporates (BSE 500)**

Source: Bloomberg and J.P. Morgan

over time and is significantly higher when viewed against other comparator countries.

To some extent high levels of debt may be justified if a company has sufficient earnings to pay the interest component of outstanding debt. This ability of a company to pay the interest on its outstanding debt is measured using the Interest Coverage Ratio (ICR). ICR is technically defined as the ratio of a company's earnings before interest and taxes (EBIT) of one period to its interest expenses over the same period. An ICR below 1 therefore indicates a low EBIT relative to interest expenses and highlights serious weaknesses in the company's balance sheet.

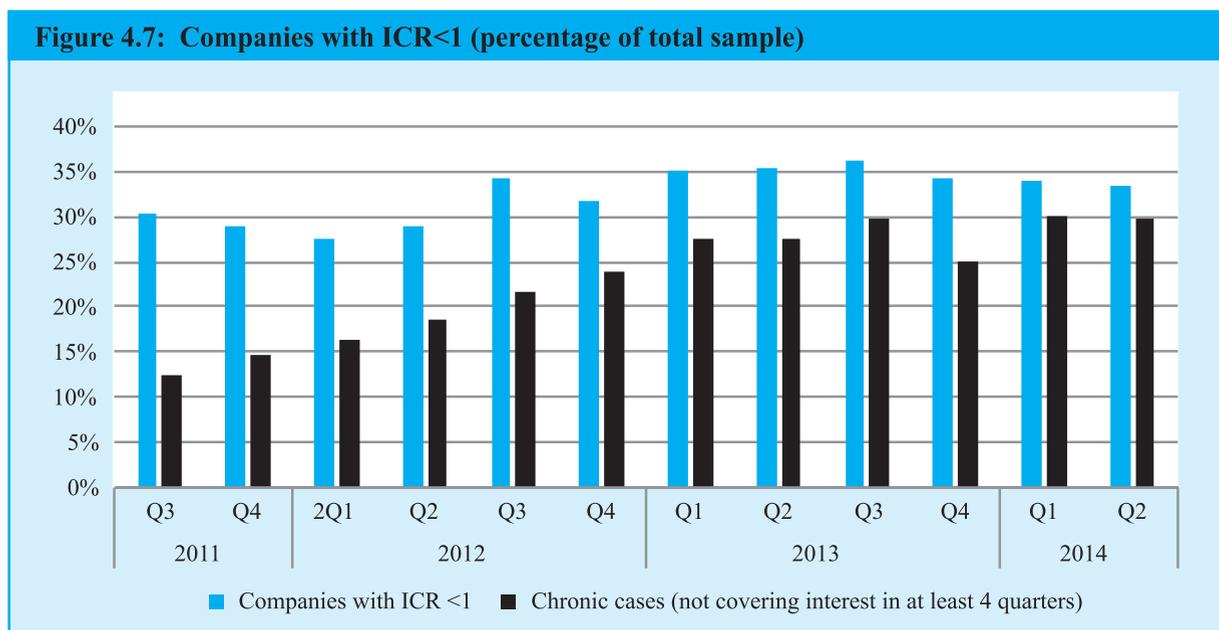
The figure 4.7 shows the percentage of companies in a large sample of 3,700 listed companies in India that have ICR < 1. Of these a fairly large fraction have not been able to cover interest in the last four quarters for which data was available. In fact, Credit Suisse reports that of the total debt of US\$ 450bn in the sample, US\$ 140bn (about 33 per cent) is currently with companies with ICR < 1. Four years ago only 17 per cent of the debt was with such companies.

Many countries before, including Japan in the aftermath of the real estate and equity boom of

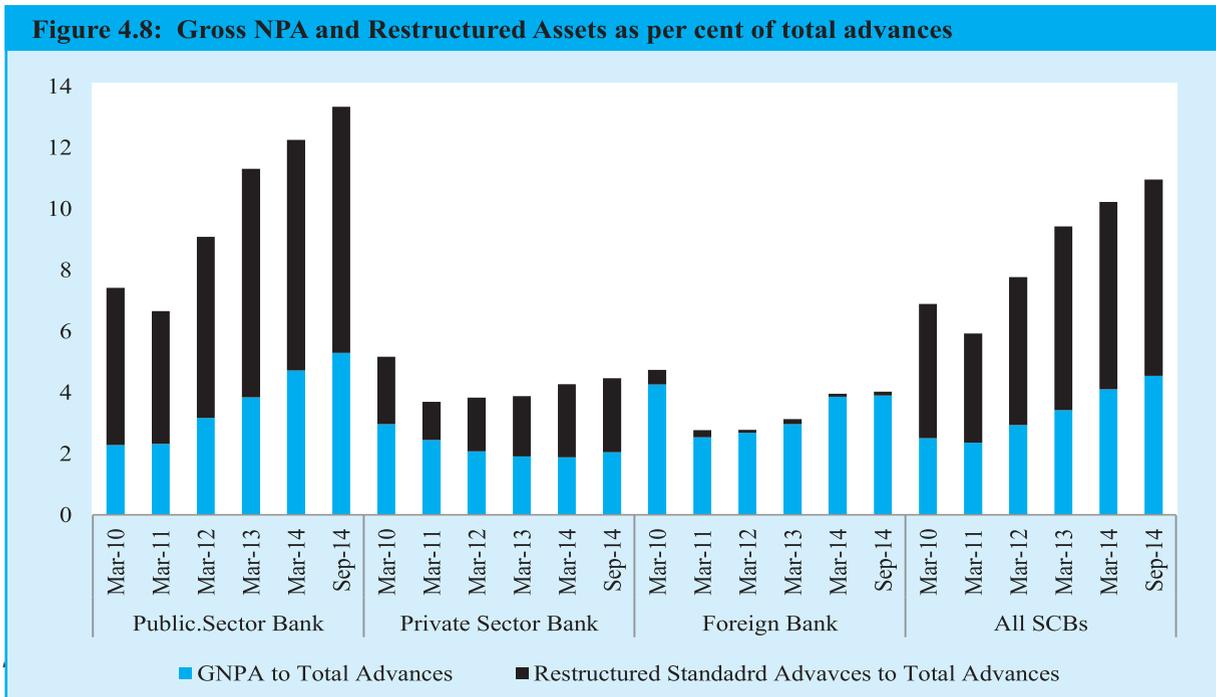
the late 1980s, have experienced over-extended corporate balance sheets. However, there is something fundamentally Indian about this phenomenon.

First, the debt overhang of the corporate sector is accompanied by a relatively high growth of around 6 to 7 per cent. Second, it has been accompanied by high inflation (instead of the price deflation in the Japanese example), see Figure 1.1A in Chapter 1. Third, the public sector is exposed to corporate risk in the form of public private partnerships, and lending by the public sector banks. Fourth, unlike many other countries with high debt to equity ratios currently, India's debt is almost exclusively financed by public sector banks. This has translated into high and rising non-performing assets for these banks, see Figure 4.8.

Tying things together- a steep decline in gross fixed capital formation, a large volume of projects in suspended animation, worryingly high number of stressed assets in banks' balance sheets and a highly leveraged corporate sector- suggests that Indian firms face a classic debt overhang problem in the aftermath of a debt fuelled investment bubble, translating into a balance sheet syndrome with Indian characteristics.



Source: Credit Suisse (sample of 3,700 listed companies)



Source: RBI

4.5 WHAT IS THE IMPACT OF BALANCE SHEET SYNDROME ON FIRM EQUITY?

Figure 4.9A shows the Nifty Index since January 2011. There is a clear surge in equity values of Indian firms in the last three years. The puzzle though is that this surge coexists with rising stalling rates of big projects (see Figure 4.2), weak balance sheets (see Figure 4.6 and 4.7), declining new investments in the private sector (see Figure 4.9B), and toxic assets on banks' balance sheets (see Figure 4.8).

Frozen credit and overleveraged balance sheets should theoretically have a direct impact on the stock value of firms. The evidence to the contrary can be driven by (i) expectations of a significant turnaround in the macroeconomic environment, and (ii) internalisation of political economy factors in that the markets perceive that promoters and financiers of stalled projects will be aided by the government in some way (too big to fail).

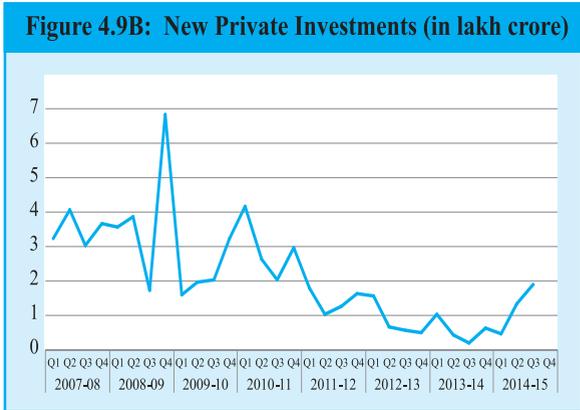
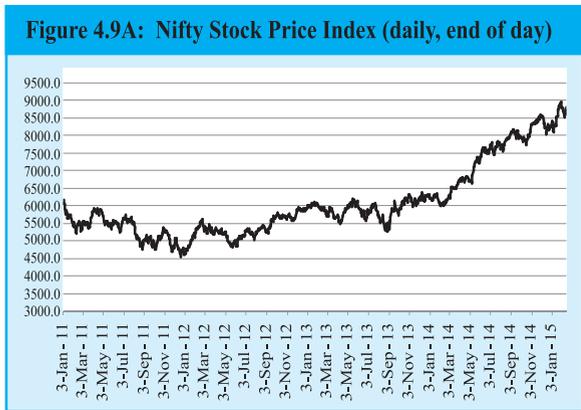
While some indicators in the macroeconomy (inflation and current account deficit) have definitely turned around, it is a very recent phenomenon. Moreover, investment has remained muted (see

Figure 4.1 and 4.9B). The market's reaction to a strong political mandate for the new government is definitely a reason, as can be seen in the rise in the slope of the equity surge post May 2014. But, can that be the exclusive explanation?

The rest of this section tests the hypothesis that stalling of projects has not had a significant impact on firm equity. To that end, we analyse the stock returns around the date of stalling of all firms with stalled projects and compare the same to the Nifty Index.

Figure 4.10A reports the rate of change of raw returns of all listed companies with stalled projects hundred days before and after the date of stalling, since 2008. The 100 day window is used to account for uncertainty regarding both the exact day of stalling and its perceived impact on the firm. The absolute numbers are accompanied by the 95 per cent confidence interval of the sample.² There is a clear decline in the value of firms with stalled projects around the date of stalling. The decline starts a bit before the projects is declared stalled because the market often internalises the status of the project as being stalled before the database declares so.

² The values are statistically significant if the confidence interval lies above or below the x-axis.



Source : Nifty and CMIE

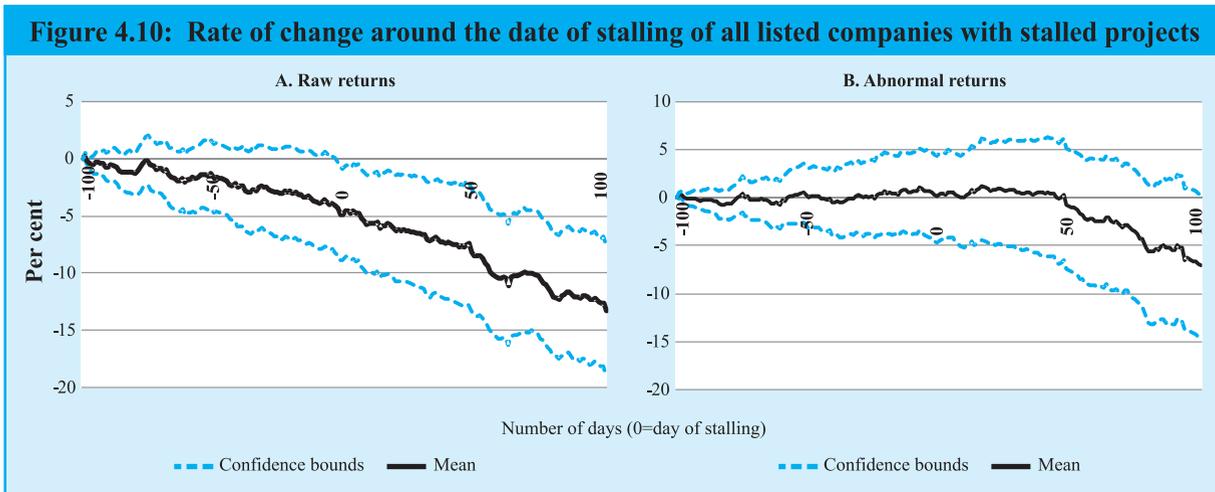
The question though is- Is the decline “enough”? In other words, how much impact does a stalled project have on a firm’s equity relative to the index?³ To answer this question, we plot the abnormal returns around date of stalling for all listed companies with stalled projects since 2008 (Figure 4.10B). Abnormal returns are defined as the returns generated by a given security or portfolio over a period of time that is different from the expected rate of return. We take the given portfolio to be the companies with stalled projects and the expected rate of return to be the Nifty index. Since this is an event study, the analysis of equity returns is conducted around the date of stalling.

We find that the abnormal returns are not statistically different than zero. The returns on the

firms with stalled projects are not statistically different than the Nifty index before stalling and at least 50 days after stalling of the project. Even from the 50th to the 100th day after stalling the returns decline by not more than 5 per cent. This provides suggestive evidence that the market is not penalising firms severely for the debt pile-up in the wake of investments turning sour.⁴ This may potentially be due to the pure political economy reason that the market is internalising the expectations of bailouts.

4.6 POLICY LESSONS

India needs to tread the path of investment-driven growth. Can the private sector be expected to rise to the occasion? Highly leveraged corporate



Source : CMIE, Prowess and Bloomberg

Source : CMIE, Prowess and Bloomberg

³ Technically speaking, the null hypothesis is whether the market penalises firms with stalled projects sufficiently relative to the overall Nifty index?

⁴ The result must be caveated in that it is based on a very reduced form exercise. Though it does provide much food for thought and an invitation for further exploration of the equity puzzle.

balance sheets, and a banking system under severe stress suggest that this will prove challenging. Against this backdrop, public investment may need to be augmented to recreate an environment to crowd-in private sector investment. The argument for desirability of public investment, and finding the fiscal space for its realisation are detailed in Chapters 2 and 6.

But, the call for public investment is not a counsel of despair for private investments going forward, especially the public-private partnership model. Concrete ideas on re-orienting the public-private partnership model of investment are provided in Box 4.1.

The biggest lesson from stalled projects and the associated credit aided infrastructure bubble is that perhaps more than a run up problem (over exuberant and misdirected private investment), we face a clean-up problem (bankruptcy laws, asset restructuring, etc.). Creative solutions are necessary for distributing pain equally amongst the stakeholders from past deals gone sour.

An idea to fix the clean-up problem is setting up of a high powered Independent Renegotiation Committee. In the presence of a market and regulatory failure, perhaps a creative step would be to involve external experts for a quick and independent resolution of the problems.

Box 4.1 : Restructuring the Framework for Public-Private Partnerships*

Many infrastructure projects are today financially stressed, accounting for almost a third of stressed assets in banks. New projects cannot attract sponsors, as in recent NHAI bids, and banks are unwilling to lend. Given its riskiness, pension and insurance funds have sensibly limited their exposure to these projects. This current state of the public private partnership (PPP) model is due to poorly designed frameworks, which need restructuring.

Flaws in existing design

First, existing contracts focus more on fiscal benefits than on efficient service provision. For example, in port and airport concessions, the bidder offering the highest share of gross revenue collected to the government is selected. Thus, if this share is 33% (higher in many actual contracts), the user pays 50% more than what is required, since the concessionaire is able to provide service even though it gets only ` 1 for every ` 1.50 charged.

Second, they neglect principles allocating risk to the entity best able to manage it. Instead, unmanageable risks, e.g., traffic risk in highways, even though largely unaffected by their actions, are transferred to concessionaires. This is also true for railways and in part, for ports (though inter-terminal competition is possible) and airports.

Third, the default revenue stream is directly collected user charges. Where this is deemed insufficient, bidders can ask for a viability grant, typically disbursed during construction. This structure leaves the government with no leverage in the case of non-performance, with few contractual remedies short of termination.

Fiscal reporting practices also affect this choice. Current accounting rules treat future committed expenditure as a contingent liability. However, foregone future revenue is not accounted for.

Fourth, there are no ex-ante structures for renegotiation. If a bureaucrat restructures a project, there are no rewards; instead it may lead to investigation for graft. Failed projects lead neither to penalties nor investigation. With such asymmetric incentives, bureaucrats naturally avoid renegotiation.

Finally, contracts are over-dependent on market wisdom, e.g., bidders in ultra-mega power projects (UMPP) could index tariff bids to both fuel prices and exchange rates, but almost all chose very limited indexation. When fuel prices rose and the rupee fell, these bids became unviable. To enforce market discipline and penalise reckless bidding, these projects should have been allowed to fail.

Needed Modifications

Despite such flaws, PPP generated significant investment. Can these flaws be rectified in a country, like India, which is reluctant to let concessionaires fail? What should future contracts look like?

First, it is better to continue combining construction and maintenance responsibilities to incentivise building quality. In many projects, especially highways, maintenance costs depend significantly on construction quality. If a single entity is responsible for both construction and maintenance, it takes lifecycle costs into account. Separating

Contd.

these responsibilities provide an incentive to increase profits by cutting corners during construction. Suggestions to let the public sector build assets and have the private sector maintain and operate them ignore this linkage.

Second, risk should only be transferred to those who can manage it. In a highway or a railway project, it is not sensible to transfer usage risk since it is outside the control of the operator. But, it can be done in telecom projects and for individual port terminals that compete with each other, where demand can respond to tariff and quality.

Third, financing structures should be able to attract pension and insurance funds, which are a natural funding source for long-term infrastructure projects.

What does this mean for key sectors? First, rather than prescribe model concession agreements, states should be allowed to experiment. For example, in ports, terminals can be bid on the basis of an annual fee, with full tariff flexibility, subject to competition oversight. For electricity generation, bids can be two-part, with a variable charge based on normative efficiency, or alternatively, determined by regulators and a capacity charge.

Another option, without that drawback, is the Least Present Value of Revenue (LPVR)^a contract, where the bid is the lowest present value (discounted at a pre-announced rate) of total gross revenue received by the concessionaire. The concession duration is variable and continues until the bid present value amount is received. A key advantage of this contract is that it converts usage risk to risk of contract duration, which is more manageable for financial institutions. Since the bid is on gross revenue, it also selects bidders who can execute at low cost and demand relatively lower margins and by limiting the scope for renegotiation to the remaining uncollected value of the LPVR bid, it discourages opportunistic bidding. Further, since the present value is protected, this structure is suitable for pension and insurance funds.

Restructuring of existing contracts

Revival of private interest and bank lending needs existing contracts to be restructured, with burden sharing among different stakeholders. Lenders may have extended credit without necessary due diligence, assuming that projects were implicitly guaranteed. Without burden sharing, this behaviour will be reinforced. Similarly, many bidders may have assumed that they could renegotiate in the event of negative shocks. Thus, there was potentially adverse selection of firms who felt they had the capacity to renegotiate; rather than firms better at executing and operating the project. In particular, this may have limited participation by foreign firms. In the absence of burden sharing, such adverse selection would be supported. Thus, the guiding principle should be to restructure contracts based on the project's revenues, differentiating between temporary illiquidity and insolvency.

For example, all stressed highway projects could be switched to electronic tolling. All revenues can go, as now, into an escrow account, but with a revised order of priority. Long-term bullet bonds, at the risk-free government rate, can be issued to the extent of the debt in the project. After operations and maintenance, interest payments on these bonds, which may also be guaranteed by the Union government, will be first in order of priority. Lenders can opt to switch existing debt to these bonds. Allocations for repayment of their principal will have second priority and existing debt that has not been switched, the next priority. Equity can be the residual claimant. If the project makes money over its lifetime, equity holders will earn a return, though some may exit now, at a discount.

The private sector remains key to rapid delivery of high quality infrastructure. Restructured PPP frameworks will revive their interest in infrastructure and bring in funding from pension and insurance funds.

* Inputs from Partha Mukhopadhyay (Center for Policy Research, New Delhi) are gratefully acknowledged.

^a Engel E, R Fischer and A Galetovic (1997), 'Highway Franchising: Pitfalls and Opportunities', *The American Economic Review*, 87(2), pp 68–72. Engel E, R Fischer and A Galetovic (2001), 'Least-Present-Value-of-Revenue Auctions and Highway Franchising', *Journal of Political Economy*, 109(5), pp 993–1020.