

Bailouts and Bankruptcies: Corporate Distress, Troubled Debt Restructurings and Equity Stripping

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Abstract

We investigate the debt restructuring process and outcomes for a sample of 483 firms that undergo corporate debt restructuring (CDR) between 2002 and 2013. 58 firms exit successfully, 71 are unsuccessful or withdrew and the rest await resolution. Firms that exit successfully are more profitable and less levered entering the CDR process and spend longer times in restructurings. Little net equity enters CDR firms, while there is some evidence of equity stripping, particularly in firms with greater promoter control. The lack of coordination between creditors and interestingly, across different bankruptcy forums, impedes restructuring. The changes in the types of firms entering the CDR process in recent years appears to indicate lower Kaplan-Meier survival rates, although the insufficient passage of time makes the conclusion tentative.

Keywords: Corporate debt restructuring; ownership, equity stripping; hazard; India

JEL Classification: G3, G34

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1. Introduction

Debt restructuring is not a new phenomenon. In times of adversity, a firm that seeks to rework their original debt contracts essentially faces two choices. First, it might privately renegotiate the affected debt claims with the concerned creditors. Alternately, it can file a formal bankruptcy petition and resolve the financial distress through an in-court proceeding. Assets are reallocated or liquidated and proceeds redistributed to the creditors.

An important economic question concerns the advantages and drawbacks of these alternatives. A straight bankruptcy petition has the advantage that it protects the distressed debtor from the oppression of creditors and mitigates hold-out and information problems among different categories of claimholders (Jackson, 1982; Gertner and Scharfstein, 1991). On the other hand, in private workouts, firms are more likely to avoid much of the direct and indirect costs associated with a formal proceedings (Jensen, 1989; Wruck, 1990). As a result, the workout option is superior if it makes both parties relatively better off and a unanimous consent among all claimants is feasible. On the contrary, if the affected parties are unable to come to a consensus as to how to share the benefits associated with out-of-court settlement, then formal bankruptcy petition is better. Although the combined wealth of all parties is ultimately lower, the counterfactual is not perfect liquidation but a long-drawn out process that results in greater inefficiencies (Brown, 1989).

While the bankruptcy theories are well understood, the empirical evidence is more limited and what exists has been inconclusive. Much of the gap is due to the lack of suitable data. Our study addresses this gap. We study a new dataset from India under a mechanism made available since 2002 called “Corporate Debt Restructurings.” Our sample comprises a set of 483 filings made between 2002 and 2013 with comprehensive data on the cross-sectional characteristics of filers and their financials and creditors. The sample is large relative to other bankruptcy studies in the literature (Gilson, John and Lang, 1990; Weiss, 1990; Chatterjee, Dhillon and Ramirez, 1996; Yost, 2002).

The Indian setting is of interest from other viewpoints. India has just promulgated a single unified bankruptcy code for the affected parties to settle when distress is incipient. The absence of a focal process has led to bankruptcy reform's becoming a top priority of the Government in 2015 (Government of India, 2015). In contrast, in the US, a well-established process provided under Chapter 11 of the Bankruptcy Code is already prevalent which allows a debtor firm facing distress propose a reorganization plan much before it turns sick to keep business going and pay creditors over time. The Indian equivalent of Chapter 11 lets debtors seek protection in an agency called Bureau of Industrial and Financial Reconstruction (BIFR), which is essentially a debtor-friendly institution that has few well-defined time lines for resolution.

BIFR imposes accounting criteria for entry that essentially require firms to be in deep distress for entry. There are several delays in obtaining judgments because of repeated protracted appeals, especially by the debtor. As a consequence, when recovery actually takes place, the distressed enterprise is often stripped clean of value. According to the *Doing Business 2014* Report by the World Bank, the average recovery rate on restructured firms has been about 25.7 cents to the dollar. Thus, our study sheds light on restructuring in a very debtor friendly regime with low creditor rights.

The absence of creditor rights also implies that bank debt is effectively junior because bargaining power is skewed towards the borrowers who can command the finest legal brains. Faced with this asymmetry and the long-winded nature of judicial proceedings, a bank's debt effectively becomes junior in the pecking order. This point is also corroborated by the *Doing Business 2014* Report, which indicates that resolving insolvency takes around 4.3 years on average (World Bank, 2014). Our study is set in a regime where banks are dominant suppliers of formal credit yet their rights as creditors are limited.

The lack of comprehensive pre-bankruptcy resolution procedures also have implications for financial stability. The inability to forestall incipient credit problems can impair banks' balance sheets, which can undermine financial stability. For instance, the data in India suggest that the impaired assets ratio for the "priority" sector that comprises small firms and marginal farmers is about 9%, while for the non-priority sectors, it is close to 13%. These data suggest that the largest beneficiaries of lender largesse and impaired recovery processes are

actually the big firms. About 91% of total restructured loans was accounted by large and medium industries. 14% of large and medium industry loans have been recast compared with 5.8% of overall bank loans (Reserve Bank of India, 2014, 2015). The deterioration in asset quality is the highest for the industries segment, and within it large and medium enterprises, a segment which accounts for nearly half of the bank credit.

The Indian restructuring exercise are also of interest internationally. The sharp rise in bankruptcy cases in recent years provides us a new database of stressed assets. The sample size significantly exceeds that used in prominent studies of bankruptcy in the U.S., as explained below. Moreover, our study contributes country-level evidence to the growing literature on comparative bankruptcy legislation (Franks, Nyborg, and Torous, 1996; Davydenko and Franks, 2004).

Our analysis is based on a sample of 483 distressed debt restructurings in India during 2002-2013. Of the sampled firms, 13% successfully restructured their debt while the other set comprise firms for whom the restructuring was unsuccessful or presently ongoing. Univariate tests suggest that firms that were successful in restructuring are five-times larger in size, more profitable and less levered as compared to those for whom the restructuring process was unsuccessful. Firms that undergo successful restructuring are in the CDR mechanism on average for one year more as compared to firms with unsuccessful restructuring. The 13% success rate of firms that undergo CDR is low. The average duration of restructuring for the ongoing 252 cases in CDR is 3.5 years with minimum of 0.1 years and maximum of 11.1 years. This is also relatively long.

We also investigate whether promoters of firms bring in equity to the restructuring process. We find some injection of equity in successful cases although the amounts tend to be modest. The average additional equity brought in by successfully exited firms during the restructuring period is INR 2.5 billion compared to the amounts restructured that are closer to INR 4 billion on average across the whole period. The data suggest that promoters feel few pressures to bring in extra capital in restructurings or see no benefit from doing so. Lender sacrifice is more commonly observed, suggesting that current

restructurings provide relief to current management but little current or contingent threats of dilution or promoter exit.

An important caveat to our results, which applies to any studies of debt restructuring in India, is the structural shifts in the data. Firms that entered the CDR in later periods and especially after the 2008 crisis are significantly different from the earlier entrants, whose outcomes, by definition inform the success analyses. Having said that, the later cases tend to be more complex cases with greater size, more banks involved in the distressed assets, and firms that are of poorer quality entering into the CDR process than the pre-2008 cases. Thus, absent structural changes in the restructuring processes, the late cases do not give cause for optimism. At the minimum, more time is necessary before we draw firm conclusions about restructuring outcomes.

Our analysis unfolds as follows. Section 2 provides an overview of the relevant literature. Section 3 outlines the bankruptcy legislation in India. The data and sample selection are described in Section 4 along with the formulation of testable hypotheses. The section also discusses the results and robustness checks. Section 5 concludes.

2. Institutional Architecture

In principle, insolvent debtors usually prefer an out of court settlement with creditors over formal bankruptcy liquidations, which are lengthy and entail significant deadweight legal costs for full disposition. However, the choice is determined by two factors. One is the cost relative to bankruptcy. The second is agreement on how to share the realized surplus when ownership of credit is diffuse. Private workout attempt may fail even if the combined proceeds of all claimants in bankruptcy is ultimately lower. For instance, holdout problems creative incentives for small creditors to stall proceedings.

Recognizing these trade-offs, bankruptcy codes try to provide the right incentives for creditors to reach appropriate settlement. One form of resolution is to rework debt contracts. The exact process used to restructure debt varies across economies. For instance, the Chapter 11 and Chapter 7 codes in the United States deal with reorganization and bankruptcy, respectively. These codes provide an enabling mechanism to enable debtors and creditors to settle

their disputes or renegotiate their contracts. Much has been written about experience with the American bankruptcy process (e.g., White, 2014).

The Indian environment can largely be characterized as being pro-debtor. Therefore, reform efforts in India in recent years have attempted to redress this imbalance with varying degrees of success (Lilienfeld-Toal, Mookherjee and Visaria, 2012; Vig, 2013; Gopalan, Mookherjee and Singh, 2016). There are myriad difficulties with current Indian bankruptcy code. Unlike the United States, there is no single comprehensive law on corporate bankruptcy in India comparable with the Chapter 11 of bankruptcy code in the United States.

Personal insolvency is regulated by the Provincial Insolvency Act of 1920. Corporate insolvency is dealt with under three separate legislations – the 1956 Companies Act, the 1985 Sick Industrial Companies Act, and the 2002 Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI). These legislations provide procedural guidelines on the liquidation or reorganization of sick business units. Each of these laws spawns a different set of agencies. Consequently, different government agencies, the Company Law Board (CLB), the High Courts, the Board for Industrial and Financial Reconstruction (BIFR), and the Debt Recovery Tribunals (DRTs) have overlapping jurisdiction and mandates. This architecture is one contributor to making the process lengthy and inefficient.

We discuss the above points in greater detail but preface the discussion with some data on overall debt recovery in India.

2.1 Trends in Debt Recovery

Table 1 indicates that overall recoveries under DRTs and *Lok Adalats* have dwindled over time. For instance, column 1 shows that recoveries under DRTs constitute 28% of outstanding in 2005-06 but shrink substantially by 2013-14. Recoveries under SARFAESI are high during the initial years of the scheme, but these too peter out. In 2013-14, recoveries are 15% of total outstanding, roughly half of the ratio achieved in 2007-08 (Column 2). Notwithstanding this, recoveries continue to remain the highest under SARFAESI as compared to the other two schemes.

In terms of recovery percentages relative to overall bank non-performing loans (NPLs), recoveries are once again the highest under SARFAESI. On

average, recoveries are 7.2 percent under SARFAESI compared to 4.5 per cent for DRTs. The ratios as percent to GDP mirror a similar trend (**Table 2**).

2.2 BIFR and Recovery under Sick Industrial Companies Act

Perhaps the most useful point of departure in discussing bankruptcy in India is the Sick Industrial Companies Act (SICA), enacted in 1985. The act addresses financial distress faced by state owned and private sector entities.² A company is defined as 'sick' in section 3(o) of SICA, if at the end of any financial year the accumulated accounting losses equal to or exceed its entire net worth.³ A *potentially* sick company is one whose losses have eroded by 50% or more of its peak net worth during the immediately four financial years. Such firms may also seek rehabilitation under SICA. The Act serves firms in scheduled industries as annexed in the First Schedule of the Industrial Development Regulation Act, 1951 (IDRA). Provisions of SICA are applicable only to those companies that have completed five years since their registration and which have 50 or more workers on any day of the 12 months preceding the end of the financial year with reference to which sickness is claimed.⁴

SICA established the quasi-judicial bodies of Board for Industrial and Financial Reconstruction (BIFR) and the Appellate Authority for Industrial and Financial Reconstruction (AAIFR). The bodies have sweeping powers through Section 22 of SICA, which overrides and stops all other legal contracts and proceedings while an inquiry is pending with the BIFR or AAIFR. Contracts stop even if any scheme is under preparation, consideration, or under implementation under SICA. If so, no action can be taken by creditors for recovery without prior approval of BIFR or AAIFR. While the intent of the provision is to preserve assets during the proceedings in the BIFR, in practice, they can also be used by promoters to foreclose all actions taken by creditors.

² State-owned companies as defined by section 617 of *Companies Act* 1956 came under purview of SICA, due to amendments made in 1991.

³ Section 3(h) of SICA defines net worth as the sum total of the paid-up capital and free reserves.

⁴ Thus, new ventures effectively have a moratorium period of five years before being declared sick. The employee criteria mean that Ancillary and small scale industrial undertakings as defined in section 3 of IDRA do not come under the purview of this Act. This move was specifically done so that focus remains on rescuing companies of greater economic importance.

This provision as given in Section 22 is a main reason for the failure of SICA to resolve distress.

The SICA does represent the first interceptive way of restructuring based on renegotiation rather than outright liquidation. Once the company files for intervention, BIFR can approve a management- or creditor-sponsored reorganization plan for restructuring without concessional financing or management overhaul. It can also recommend liquidation due to unviability of the business or can order the firm to be rehabilitated in large public interest. Such a step can entail concessions and sacrifices from various parties involved, including subsidies from the government. Post-filing with BIFR, the company is insulated from creditors' claims for at least four years. Neither a suit can be filed for recovery nor can actions be initiated for liquidation without the consent of BIFR. Moreover, any order prescribed by the BIFR can be appealed at AAIFR, which often refer the case back to the BIFR for further review thus triggering long loops of delays.

The provisions under SICA suffer from two major limitations. Firstly, the restructuring proposals are not based on effective voluntarily renegotiation but more of a top-down command approach that does not provide for any space for financial prudence or opportunities for timely intervention. Secondly, the definition of sickness, which as per the law occurs when the company's net worth is completely eroded, appears less convincing. Such a stage can be construed more as the final stage of sickness where any chance for successful reorganization is virtually negligible.

Although it was under the preview of the BIFR to propose a wide range of reorganization plans, the definition of sickness and the resulting selection bias towards worse cases. This selection, combined with the lack of a time-bound resolution process, explains the high proportion of recommended liquidation and outright rejection made by the BIFR.

The nature of the SICA definition is evident in the data reported by BIFR. By August 2010, there were 5,687 total registered cases employing approximately 2.6 million workers. 218 firms were central government or state owned enterprises. The aggregate tangible equity of firms that register through the BIFR is Rs 768 billion and the accumulated loss almost twice the net worth at Rs 1521 billion. 41% cases were dismissed due to evidence of financial

manipulation and approximately 22% are recommended for liquidation (BIFR website, accessed November 1, 2015). About 16% of all referred companies have been revived. Informal conversations with industry experts suggests that the BIFR is an escape route or a safe haven for the promoters to obtain bank concessions rather than the original vision of an institution to facilitate speedy reorganization in lieu of liquidation. The aversion to liquidation appears to have swung the bankruptcy code to the other extreme of being excessively pro-debtor.

2.3 Recovery via Debt Recovery Tribunals

Given the existing loads on civil courts and the relatively quick recognition that SICA had undesirable effects, successive governments have tried to establish processes that permit distressed firms to work out their debt without excessively burdening courts. Following the Narasimham Committee recommendations in 1991, the Government established the Debt Recovery Tribunals (DRTs) and Debt Recovery Appellate Tribunals (DRATs). The DRTs fall under the purview of the *Recovery of Debts Due to Banks and Financial Institutions (RDDBFI) Act, 1993*.

Beginning April 1994, a total of 33 DRTs were set up “...to entertain and decide applications from the banks and financial institutions for recovery of debts due to such banks and financial institutions” (RDDBFI Act 1993, Section 17). Subsequently, beginning July 1994, the Government set up DRATs “... to exercise the jurisdiction, powers and authority conferred on such Tribunal by or under this Act” (RDDBFI Act 1993, Section 8). Presently, 5 such DRATs are in operation and serve as an appeals channel for decisions by DRTs.

Technically, approaching the DRTs can occur through one of the two routes. Under the *application route*, the recovery procedure is invoked by making an application to (and not filing a suit with) the DRT and paying the prescribed fees. Alternately, there is the *Securitisation and Reconstruction for Enforcement of Security Interest (SARFAESI)* route. Under SARFAESI, creditors can seize secured assets of defaulters without reference to courts. Specifically, after a loan has been classified as NPL by the secured creditor, a notice is sent to the relevant borrower. The notice must clearly state the amount outstanding to be repaid in full within a period of 60 days by the borrower, failing which the secured creditor is entitled to exercise the rights in accordance with Section 13 (4) of the

SARFAESI Act, 2002. The transition to DRTs occurs when the collateral is insufficient to fulfill obligations to creditors. In such instances where dues of the secured creditors are not fully met with the sale proceeds of the secured assets, the creditors may file an application to the DRT for recovery of the remaining portion of the dues.

While SARFAESI appeals require large deposits from those contesting SARFAESI actions, an amendment in 2004 allowed the borrower to appeal to the DRT by paying only the fees prescribed by the RDDBFI Act. However, appeals to DRATs remain expensive as the party that owes the debt must deposit 75% of the amount determined by the order of the DRT. This amount can be reduced or waived by the DRAT. For appeals to DRAT that originate in the SARFAESI Act actions, the deposit is 50% of the amount which is claimed by the secured creditor or the amount as determined in the order of DRT or the, whichever is less. However an important point is that unlike applications under RDDBFI, the deposits cannot be fully waived but only be reduced to 25% of the amount.

The actual outcome of the RDDBFI legislation was quite different from what was initially envisaged as quick disposition through DRTs. For example, even though cases before the DRT have to be disposed of within six months, in practice, less than one-fourth of the cases are actually disposed of during the year. Additionally, cases under DRTs can be referred to Debt Recovery Appellate Tribunals (DRATs), where the wait is even longer, since the number of such entities is a sixth of the number of DRTs. In addition to lack of suitable infrastructure (e.g., premises), popular evidence suggest that the DRTs are beset with serious personnel shortage including shortage of judgment writers and clerks. Not surprisingly, the total number of pending cases was over 67,000 at end-March 2013 and total recoveries were a meager INR 301 billion – roughly 13% of the outstanding amount.

In practice, SICA can also dilute the force of debt recovery tribunals. Section 34 of RDDBFI states that, the provisions of this Act are in addition and not in derogation of the SICA. Thus companies can approach BIFR even after an application has been filed by their creditors in the DRT, which effectively stalls recovery proceedings cleared by DRTs. The enactment of SARFAESI Act presented a partial remedy to this problem. Section 15 of SICA provides that a

reference made to BIFR shall abate if secured creditors representing not less than 60% in value of the amount outstanding take measures to enforce the security as per the provisions of SARFAESI Act. Thus, firms can be pulled out of BIFR, potentially irreversibly, through actions under SARFAESI as secured creditors. Once outside the BIFR section 22 of SICA is not applicable to the company. Any appeal made against this enforcement under SARFAESI is, at least in principle, the domain of DRTs.

2.4 Corporate Debt Restructuring

The Corporate Debt Restructuring (CDR) system was established in India in 2001 based on mechanisms prevalent in countries such as the United Kingdom, Thailand, Korea, Malaysia, among others (Grigorian and Raei, 2010). It was set up with an objective to ensure timely and transparent restructuring of corporate debts of viable entities facing troubles and which are not normally within the purview of BIFR, DRT and other legal proceedings. Equivalently, the goal was to create a channel for early intervention prior to the stage where BIFR norms apply or before liquidation remedies through the DRT process became necessary. Such a consensual arrangement was deemed fit for revival of distressed but viable firms, as well as, for minimizing the losses to the creditors and other stakeholders.

A flowchart of the different mechanisms for distressed debt resolution, with emphasis on the CDR process, is presented in Figure 1. For the sample we analyze, the figure also includes the number of cases at each node in the CDR processes.

3. CDR Mechanism in India

3.1 Development and Scope

The CDR mechanism became operational on August 23, 2001 after detailed official guidelines were issued by the Reserve Bank of India (RBI), the Indian central bank.⁵ Since the inception of the CDR mechanism, the guidelines have been continually adjusted. One adjustment is the firms and institutions that fall into the CDR ambit. A recent regulation in January 2014, by RBI allows non-

⁵ RBI guidelines dated 23rd August, 2001
Available at <<https://rbi.org.in/scripts/NotificationUser.aspx?Mode=0&Id=440>>

banking financial companies (NBFCs) to restructure their assets under the CDR cell and made their restructuring regulations at par with that of banks.⁶ The mechanism is currently available to firms who avail credit facilities from more than one lending institution and have an outstanding aggregate exposure of INR.100 million and above (\approx USD 1.5 million). It covers all categories of assets in the books of member-creditors classified in terms of RBI's prudential asset classification standards. The cases filed in Debt Recovery Tribunals (DRTs), Bureau of Industrial and Financial Reconstruction (BIFR) and other suit-filed cases are also eligible for restructuring under CDR. However, corporates indulging in willful default or misfeasance are not considered for restructuring under CDR.

It is helpful to begin with definitions. The CDR cell comprises three layers of authority. The CDR Standing Forum is the top tier, followed by the Empowered Group (EG) as the second tier and the CDR Cell as the lowest tier. The Standing Forum is a self-empowered body of the Chief Executives of all banks and financial institutions participating in the CDR system. The Forum lays down policies and guidelines for referred cases to ensure their smooth functioning and adherence to the prescribed time schedules. It excludes regional rural banks, co-operative banks and non-banking finance companies. A Core Group is carved out of the CDR Standing Forum to assist the Forum in convening the meetings and taking decisions relating to policy, on behalf of the Forum. The Core Group consists of Chief Executives of major Indian banks,⁷ including the Deputy Chairman of IBA representing foreign banks in India.

The second tier is the Empowered Group (EG), which decides on the individual cases of debt restructuring. The EG comprises of senior functionaries of leading public and private sector banks plus senior executives of entities with exposure to the borrower.⁸ The market practice is that the boards of directors of all institutions and banks authorize their Chief Executive Officers and/or Executive Directors to decide on the restructuring package in respect of cases referred to the CDR system, with the requisite requirements to meet the control

⁶ RBI Notification dated 23rd January 2014

Available at <https://rbidocs.rbi.org.in/rdocs/content/pdfs/NB193230114_EN.pdf>

⁷ This includes IDBI, ICICI, State Bank of India, Bank of Baroda, Bank of India, Punjab National Bank and Indian Banks Association (IBA).

⁸ Includes IDBI, ICICI and State Bank of India.

needs. The EG reviews the preliminary report of all requests of restructuring submitted to it by the CDR Cell and decides whether restructuring of the firm is *prima facie* feasible within the prescribed policies and guidelines. The decisions of the EG are final. If debt restructuring is found feasible and accepted by the EG, the firm is put on the restructuring mode.

The lowest rung of the CDR mechanism - the CDR Cell - is the receiving authority for applications under CDR. The applications received from the borrowers/lenders are scrutinized within a 30-day window to ascertain their relevance under the CDR package. The case is thereafter referred to the EC. If the EG finds the case feasible, the referring institution or bank takes up the work of preparing a detailed restructuring plan with the help of other lenders, in conjunction with CDR Cell and if necessary, experts from external agencies.

3.2 Application Process

The process of debt restructuring through the CDR cell can be initiated by a creditor of a firm holding at least 20% share in the working capital or term loans of the firm. It is done by referring the firm to the CDR Cell, expressing concerns of potential financial distress in the firm.

There are multiple steps in the life-cycle of a firm as a part of the mechanism. At each of these steps, decisions are taken through a vote between the members of the Empowered Group for the respective firm.

1. Flash Report:

When referred to CDR, a firm is required to submit a “Flash Report” that lays out a basic outline of the performance of the firm, reasons for distress/expected distress and a preliminary plan of restructuring the debt along with a viability report. The firm can get referred to the CDR cell either by an eligible creditor or by a concerned corporate with the support of an eligible creditor. At this juncture, a firm can be either admitted or rejected based on certain financial parameters. If admitted to the CDR process, the firm is required to submit a Final Report with a full restructuring plan within 90 days of admission into the mechanism.

2. *Final Report:*

If the flash report is approved, the referring bank has to draft the Final Report providing a detailed restructuring plan in consultation with the CDR Cell and other lenders on the basis of recommendations of the EG within 90 days, or at best within 180 days of reference to the EG. Upon completion of the final report, the EG examines the viability and rehabilitation potential of the firm and approves the restructuring package. The EG decides on the acceptable benchmark levels on the following parameters, which are applied on a case-to-case basis, depending on the merits of each case:⁹ This plan is put to vote by the EG of the respective firm, and if approved, a cut-off date is set and the restructuring plan is put into effect.

3. *Exit / Withdrawal*

At a certain point after the restructuring is put into effect, and firm can either exit the mechanism or withdraw from it. An exit from the mechanism implies successful implementation of restructuring wherein the firm was able to move out of financial distress. At a certain time after the restructuring is put into effect, the firm can either exit the mechanism successfully by repaying the lenders. Alternatively, it can withdraw from the CDR process owing to failure of the restructuring plan, default or closure of operations.

4. Related Research

4.1 Bankruptcy costs and firm value

Corporate financial distress impacts a firm's operations in cases where it is long-drawn and costly. Distress costs can be categorized as direct and indirect. The former comprise all expenses that accrue during financial restructurings; the latter comprise the forgone investment opportunities resulting from the fact that financially troubled firms are hampered from conducting their usual operations. If creditors are able to anticipate these costs and account for them in

⁹ These include variables such as Debt Service Coverage Ratio, Break-even Point (Operating & Cash), Return on Capital Employed, Internal Rate of Return, Cost of Capital, Loan Life Ratio and Extent of Sacrifice

the initial contract, these costs will essentially manifest in a loss of shareholder wealth (Jensen and Meckling, 1976; Haugen and Senbet, 1978).

Several studies have measured the direct costs of financial distress for firms. The broad findings is that these costs are non-negligible (Warner, 1977; Gilson, John, and Lang, 1990) and are different depending on whether these recoveries take place through Chapter 11 restructurings as compared to those liquidated under Chapter 7 (Bris, Welch and Zhu, 2006). Wruck (1990) argues that the costs under private workouts are roughly a tenth of that obtaining under court-directed restructurings, whereas Weiss (1990) reports that direct costs are about 3% of the firms' total asset. Davydenko and Franks (2006) document an average bank recovery rate in French proceedings of 47%, which is much lower than the recovery rates reported for UK banks. More recent research appears to suggest that credit recovery rates are significantly lower when an industry is in distress (Acharya, Bharath and Srinivasan, 2007). Their study reports a recovery rate of 81% for bank loans, 59% for senior secured bonds, 56% for senior unsecured bonds and 27% for subordinated bonds for the period 1982 to 1999.

The value of the going concern largely depends on how quickly the firm was able to respond to initial shortfalls in liquidity and profitability. According to Jensen (1989), highly-levered firms are likely to respond faster to a decline in performance than their less-levered counterparts because a small decline in firm value is sufficient to trigger default. Ofek (1993) suggests that this is indeed the case: high leverage significantly increases the speed with which a firm restructures its assets and liabilities in response to sharp declines in operating performance.

The Indian evidence is more limited. Two factors suggest that there is a significant wedge between formal proceedings and out-of-court restructurings. First, the debt finance of troubled firms comprises primarily of bank loans. As a result, workout with such private lenders is likely to produce significantly lower direct costs, *ceteris paribus*. Second, the costs of restructuring under alternate mechanisms is distressingly slow and inefficient. According to Allen et al (2012), during 1987-1992, it took well over two years for the BIFR on an average to decide on a case. Since then, delays have roughly doubled. As Gopalan, Nanda, and Seru (2007) remark, the current bankruptcy codes in India permit firm managers to be in control of the firm during the bankruptcy process. This makes

it easier for the managers to strip the firm clean of its assets. The restructuring process is exceedingly time-consuming and even those that eventually do, the long-winded legal procedure makes the firm practically worthless by the time it emerges from this process.

4.2 Information Asymmetry and Resolution

When information asymmetries are high, bankruptcy may be preferable to a private workout. Heinkel and Zechner (1993) contend that during periods of distress, the debtor has the incentive to disguise the firm's true condition. In doing so, the debtor may influence creditors' perception of the firm and thereby realize more favorable terms in the restructuring plan. In extreme cases, the debtor may seek to expropriate wealth from creditors by excessively increasing the risk of the firm's operations.

In a court-supervised process, additional disclosure rules such as detailed inventory and asset valuation could mitigate informational disadvantages. Moreover, the appointment of the administrator eliminates the debtor's discretion for over-investment on creditors' expense. In extreme situations, individual creditors have an incentive to "run on the debtor" to collect reimbursement or seize collateral. Such activity results in a common-pool problem that can be addressed by court-interference. However, court-supervised proceedings also has its share of challenges. In particular, Fisher and Martel (2004) show that such oversight system makes the system susceptible to type-II errors (reject a plan of a viable firm).

4.3 Creditor Conflicts

Conflicts between debtors and creditors are often mitigated by "stand-still" clause which ensures that both debtors and creditors are locked in for a minimum period during which neither party can invoke criminal proceedings against the other. This clause protects debtors' from harassment by individual creditors.

Even if creditors can verify a debtor's true economic condition, a private workout attempt may break down due to deficient coordination and conflicting interests among creditors (Gertner and Scharfstein, 1991). In a financially distressed firm, creditor conflicts predominantly arise for two non-mutually

exclusive reasons, namely (1) coordination problems among claimants of a given class of debt and (2) wealth transfers between different classes of debt.

The coordination problem results from the fact that if the restructuring of a certain debt class involves multiple lenders, individual claimants have the incentive to 'hold-out' or free-ride in the expectation that the concessions that ensure the success of the restructuring will be provided by others. Since all claimants have similar incentives and mutual monitoring can be excessively costly, the restructuring is likely to fail. The greater the number of creditors participating in the restructuring plan, the greater the degree of the coordination problem (Bolton and Scharfstein, 1996).

In addition to coordination problems, achieving an agreement among creditors can be hampered by the wealth transfers if a firm borrows different classes of debt. This is because allocations under any given restructuring plan can always be increased at the expense of a separate claimant class. If the pledged collateral of a creditor is worth notably less than the par value of the owed principal, then, bailing out the debtor is likely to enhance the value of the secured claim since it is the first to benefit from any future appreciations of the firm's assets.

If, on the other hand, the secured claim is likely to be paid in full under formal bankruptcy, rescuing the debtor will have little effect on the creditor's position. In this case, secured creditors are harmed the least by a piecemeal liquidation of the firm's assets and thus bear only little or none of the costs accruing under bankruptcy. In sum, we should expect a firm to be more likely to file for bankruptcy the more of its outstanding debt is secured, especially by tangible collateral.

The paper which comes close to the spirit of the present analysis is Demiroglu and James (2015). Using data on CDR restructurings in the US during 1999-2012, the authors show that past banking relationship between the borrower and lead arranger of a syndicated loan adversely impacts the restructuring outcome. We differ from the study in three significant ways. First, on the institutional front, our analysis pertains to an emerging market where well-defined bankruptcy laws do not exist and creditors are always challenged to recover their obligations. Second, from an operational standpoint, we are able to distinguish between cases of ongoing *versus* resolved (i.e., either successful or

unsuccessful) debt restructurings categorized by industry and mutually-exclusive outcome categories. Third, from a practical angle, there is evidence of significant equity stripping by Indian promoters, an aspect which we explicitly analyze in our framework. And finally, from a macroeconomic perspective, we match the firm to its main lender and explore whether lender ownership or balance sheet characteristics affect restructuring outcomes.

5. CDR Data

Our data comes from two sources. The primary data source is the minutes of Empowered Group (EG) meetings held for making decisions with respect to all CDR cases from its inception of the mechanism till 15th March 2013.¹⁰ We complement this data with information from the CMIE *ProWess* database, which provides information on financials of listed and unlisted firms. A substantial number but by no means all CDR firms match in *ProWess*.

We create a longitudinal dataset of CDR-affected firms by manually parsing through the minutes of EG meetings. This step yields a total of 483 unique firms. The first firm reference occurs in February 2002 and the final reference is in February 2013. The dataset is unbalanced with respect to the entry and exit of firms. We observe the names of firms, nature of its business, reasons for distress, names of the lending banks and institutions and in certain instances, the loan amount being restructured.

5.1 Overview of CDR-referred firms

As of March 2013, the aggregate debt of CDR firms was INR 2,442 billion (\approx USD 38 billion).¹¹ Perhaps the most important feature of the data is the structural change in the nature of the firms entering CDR over time.

Figure 2 shows the total number of firms subject to CDR during the period juxtaposed with the failure rate and total loans subject to the CDR process. The number of distressed firms appear to follow a U-shaped pattern, rising sharply after the financial crisis. The amount of loans subject to restructuring has

¹⁰ The dataset is confidential. However, press reports on restructuring actions are frequently reported in major financial dailies.

¹² Updated data on the debt restructured amounts taken from CDR website <www.cdrindia.org>

concomitantly risen after the crisis; as ratio to GDP, it has averaged 0.03% over the period.

Figure 3 depicts the average exposure per firm during the sample period. The average exposure appears to have increased, especially after 2008. For instance, the average exposure per firm during the entire period amounted to INR. 7 billion. The average debt restructured per firm during the first five years was INR. 3.9 billion, which is roughly one-half of the average debt restructured obtaining during the last five years of INR.7.9 billion. As many as 167 (or 34%) firms in the sample take recourse to the BIFR route. In a similar vein, the percentage of debt restructured to GDP has been significantly higher during the last five years of the sample period.

5.2 BIFR referred firms

Of the 483 CDR firms, 167 firms accounting for 23% of the restructured debt are referred to the BIFR as well. Of these 167 firms, 16 have successfully exited, 45 have been withdrawn and 24 have been rejected from CDR. 66 are undergoing CDR and 16 are awaiting approval from the EG. The (censored) success rate is about 10%. The average duration between reference to CDR and reference to BIFR for these firms is approximately 6 months and the maximum duration is 10 years. There is a two tailed distribution of firms referred to CDR. 25 (15%) of the cases are sick while close to 50% are from the right tail comprising firms for whom CDR is less necessary. 47 cases have been either dismissed from BIFR or are no longer declared sick and 31 have been abated.¹²

6. Results

Our analysis is centered around four questions. First, what types of firms enter the CDR process? Second, how long do firms spend in CDR? Third, what are the outcomes of the CDR process? And finally, how do firms exiting the CDR process perform? We provide univariate statistics first and then turn to multivariate models.

¹² Of the remaining, 11 have been sanctioned restructuring scheme, 36 are pending determination of sickness, 3 firm has been issued winding up notice, 2 have been declared infructuous, 5 are under AAIFR and 7 are yet to be heard by the board.

6.1 Firms referred to CDR

Table 2 shows that the firms referred to the CDR Cell can be broadly categorized under 11 industries.¹³ There is some concentration in the mining, oil, and metals, engineering, chemicals, and infrastructure industries. The CDR mechanism is more likely utilized by firms in the industrial rather than service sector. Over 60% of the firms are relatively old, i.e., 15 years or more. Over 80% have been in existence for at least 10 years.

6.2 Structural changes in the sample

Of the 483 cases referred to the CDR cell, 363 are matched with company fundamentals data in *ProWess*. Using this database, we download other relevant data fields and compute several secondary ratios. Appendix A provides the empirical definition of the variables and includes relevant summary statistics. The key variables include the date of incorporation, ownership category as also relevant financial variables such as sales, total assets, borrowings, profits, retained earnings and daily stock price of these firms. Statistics are for all observations where relevant fields are available.

6.3 Disposal of CDR cases: Descriptive statistics

Table 3 shows the disposal of CDR cases in the sample. There is little evidence that the CDR mechanism has been an overwhelming success, although we caution that a full assessment awaits proper counterfactual inferences. Firms are classified as having entered CDR, being rejected for CDR, being approved for restructuring, having successfully exited after approval, or not having exited successfully, or having exited unsuccessfully, in the sense that the firm does not meet the criteria set for a successful restructuring.

¹³ We consider 11 industry groups, which in alphabetical order, include Automobiles and related including auto ancillaries, Chemicals and Pharmaceuticals, Construction and Real Estate (comprising of Cement manufacturing, Commercial complexes and industrial construction), Electrical and electronics, Entertainment and Media, Food and food products, Information Technology, Infrastructure (comprising of power, telecom, shipbuilding, Mining and metals, including oil, Services (comprising of Business consultancy services, logistical services and healthcare services), Textile and textile products and Others (comprising of cable, ceramic products, forgings, glass manufacturing, paper and packaging, plastic, rubber and wood).

301 firms with matching data are approved for admission into the CDR mechanism. About 34% of the cases are unambiguously failures or successes; the remaining cases are undergoing restructuring and outcomes are not known currently. To wit, of the approved firms, 58 firms, accounting for 16% in terms of number and 5% of the total debt restructured, withdrew on account of failure of restructuring package. 49 firms, accounting for 13% of the number and 4% of the total debt restructured, made a successful exit. 28 cases in the sample await EG's approval for the final report and 2 firms re-entered the CDR mechanism after being rejected during the first reference. One firm has re-entered after having successfully exited during the first reference.

6.4 Withdrawal from CDR Process

Withdrawal is the outcome when the firm seeking debt restructuring defaults on the installments due as per the approved CDR package or fails to comply as per the agreed terms of the package, or ceases operations due to lack of revival of business or enters in to a one-time settlement (OTS) with the CDR lenders.¹⁴ The Monitoring Institution (MI) has to provide a 21 days' notice to the company after it seeking approval for withdrawal from the EG.

In **Table 4**, over 50% of withdrawn firms are those which failed to implement the mutually agreed CDR package; the total debt restructured of these firms accounted for over 5% of the total amount of all firms and 71% of the withdrawn firms in the sample. In terms of reasons for withdrawal by duration, OTS had the highest average duration of 3.8 years; the involved amount was roughly 6% of the total exposures across all withdrawn cases.

6.5 Analysis of successful exits

The CDR process provides for exit through several routes. First, a firm can repay the dues of the CDR lenders. Alternately, a firm can settle the dues by way of one-time settlement (OTS) at a rate approved by the empowered group and the lenders. If not, the firm can continue with their existing debt on CDR terms outside the CDR process. In such a case, the firm has to provide a signed indemnity to comply with existing CDR terms. Third, it is also possible for the

¹⁴ The terms of the CDR package typically include promoters contribution of additional funds, pledging promoters shares, identifying a strategic investor for the business, preparing a viable proposal for OTS, operationalisation of Trust and Retention Account (TRA), comply with special investigation audit, etc.

firm to refinance its existing limits at market rates by existing or new lenders and thereby, exiting the CDR mechanism. Fourth, the firm can also convert its outstanding dues into non-convertible debentures (NCD) or undertake a debt-to-asset swap.¹⁵ The CDR-referred firm can raise the necessary amount from private equity investors or other lending institutions for repayment of the outstanding debt.

Table 5 shows that 49 (or, 13%) firms successfully exit the CDR mechanism. Successful exiters are in the CDR process for 4.7 years on average before being declared a success. Of these 23 firms have available data on aggregate debt restructured under CDR of INR 93 billion (\approx USD 1.4 billion). 48 of these firms entered CDR during the early (i.e., 2002-06) years. Across industry groups, the majority of the successful exits are in mining and metals.

6.6 Nature of accommodation

In **Table 6**, we provide data on debt restructuring categorized by bank ownership and nature of accommodation. We distinguish between four ownership groups: public, private, foreign and others. The last category includes term lending, investment, infrastructure lending and re-financing institutions. We are able to account for 42% of the restructured amount, or INR 1,018 billion covering 219 out of the 483 referred firms. Of the total restructured amount, roughly 70% (INR 711 billion) pertains to public sector banks, while the rest is for private (11%), foreign (4%) and others (15%).

Of the total of INR 1,018 billion of CDR debt with identifiable banks, over INR 700 billion is re-scheduled for payment at a later date. Of the remaining INR 300 billion, lender's sacrifice is the most dominant amounting to approximately half or INR 153 billion. The share of the public sector banks in the lender's sacrifice is around 69% or INR 105 billion. Among others, the contribution of loan swap measures and to a lesser extent, sanctioning of new term loans are significant.

¹⁵ Under a debt-to-asset swap, the lender agrees to accept an asset with a fair value less than the carrying amount of the liabilities as final settlement of the debt. The types of asset that a firm may offer in debt restructuring include cash receivables, inventory, property, plant and equipment and intangible assets.

6.7 Predicting outcomes of CDR

In **Table 7**, we contrast selected performance and capital structure characteristics of the sample firms as to whether they have been successful in restructuring their debt. Panel A contains general firm characteristics, Panel B provides performance characteristics and Panel C highlights capital structure characteristics.

Looking first at the successful *versus* unsuccessful cases of debt restructuring, the evidence suggests that firms that have successfully underwent the restructuring were much larger in size (4-times as large in terms of average assets) and in existence for a much longer period (on average, 8 year older) as compared to unsuccessful ones. The differences in their asset and ages are statistically significant as well. The average and median number of bankers associated with exited firms is the highest.

We also find notable differences between these two sub-samples with respect to performance. Illustratively, firms that were successful in restructuring are significantly more profitable and the difference is statistically significant at the 1% level. This is consistent with the hypothesis that profitable firms find bankruptcy more costly. The firms also differ significantly in terms of our proxy for going-concern value, i.e., distress duration. On average, firms in the non-bankruptcy sub-sample remain for almost one year longer (4.35 versus 3.30 years), the difference being statistically significant at both, means and medians. Firms in the bankruptcy sub-sample also display higher market-adjusted returns, consistent with our previous assertion that better-performing firms are more likely to be restructured.

Both sub-samples also differ considerably with regard to their capital and debt structures. Firms that are successful at restructuring are less levered, have lower levels of bank debt as well as secured debt. The median firm in the unsuccessful sub-sample has a leverage of 74% and owes over 60% of its debt from banks. The corresponding figures for firms in the sub-sample of successful restructurings are 65% and 39%, respectively. These findings would suggest that lower levels of debt and in particular, bank debt make it easy for debt holders to amicably arrive at a consensus for debt restructuring. Secured debt, in contrast, does not appear to play any major role in the restructuring exercise. Finally, we find no substantial variation in the average number of creditors associated with the firms.

Looking at the cases of ongoing restructuring and comparing the same with successful and unsuccessful restructurings provide three important insights. First, among firm characteristics, firms for whom restructuring is ongoing are 35% smaller in size as compared to successfully restructured firm, but three-times as large as the unsuccessful sample. Among firm indicators, the biggest difference is in terms of profitability and market-adjusted returns. The profitability of these firms is much higher as compared to the unsuccessful cases: the mean and medium RoA of these firms are 2.4 and 3.1, which is much higher than the unsuccessful firms, for whom these values are 0.1 and 0.7, respectively. These differences are statistically significant. However, their market-adjusted returns is the lowest among the three categories, with mean BHAR being of the order of -0.2%. Third, in terms of capital structures, these firms are similar to those that have not been successful in restructuring their debt.

When we examine the restructured debt by industry groups for the pre- and post-financial crisis periods, we find that the top three distressed industries in the pre-crisis period (in terms of restructured debt) were construction, engineering and food; post crisis, the composition changed towards infrastructure, mining and textiles (**Table 8**).

7. Multivariate Analysis

7.1 Determinants of CDR restructuring

The firms referred to CDR can be classified on the basis of the outcomes as successful, unsuccessful or those for whom the restructuring process is ongoing. As our prior discussion suggests, the CDR outcome for affected firms in the post crisis period are yet to run its course; firms that were referred during the later period and have been under CDR for less than the average time taken for successful restructuring might bias the outcomes. As a result, we use data for the period 2002-2009 for our analysis of outcomes. We estimate the following regression model for firm i in industry j in the year of reference t according as:

$$y_{ijt} = \beta \mathbf{X}_{ijt} + \mu_j + \eta_t + \varepsilon_{ijt}, \quad (1)$$

where y , the dependent variable of interest, is one of three outcomes, viz., whether the CDR process has resulted in a successful exit, unsuccessful exit or whether the process is ongoing. To be more specific, the dependent variable equals zero if the restructuring process is unsuccessful, one if the restructuring process has resulted

in a successful exit and two, if the restructuring is still ongoing. In each case, we use unsuccessful restructuring as the base outcome.

The vector \mathbf{X}_{it} includes a vector of independent variables of the firm. These include firm characteristics such as firm size and age, performance indicators such as profitability and finally, capital structure variables including leverage, bank debt and asset tangibility. Following from the univariate discussions, profitable firms with lower levels of bank debt are more likely to experience an early resolution.

We also include the number of CDR creditors to test whether a greater number of creditors are more likely to face coordination challenges and thereby impede the resolution process. Besides, we also control for the firm's listing status and the ownership by including a dummy whether the firm is group-affiliated. Because they are part of an "internal capital market," business group firms may more likely to experience early resolution (Gopalan, Nanda and Seru, 2007). The dummy variable for BIFR controls for the fact that the firm might, at some point of time during the CDR process, could take recourse to BIFR, which could affect the resolution outcome. This variable effectively tests whether the lack of coordination *across* forums, or bankruptcy forum shopping, is a determinant of restructuring outcomes.

We also take into account the ownership of the creditors, including whether it belongs to the State Bank of India and its associates (SBI&A), domestic private bank, foreign bank or an investment bank. We employ nationalized banks as the control category. In the Indian case, Berger, Klapper, Soledad Peria and Zaidi (2008) emphasize the need to explicitly distinguish between SBI&A and nationalized banks owing to the differences in their governance and history and consequently, its impact on relationship behavior; μ_j and η_t are industry and year fixed effects.

7.1.1 *Baseline results*

Table 9 reports the regression results of the multinomial logit regression. In the baseline model (column 1), the coefficient on RoA is positive and statistically significant with a point estimate of 0.15. Therefore, a one standard deviation increase in profitability improves the likelihood of successful

restructuring by 2.3% points. With average profitability in the sample being 3%, this is a significant difference.¹⁶

In Column 2, we consider the case of ongoing versus unsuccessful debt restructuring for the sample firms. Profitability is significant as earlier, but the magnitudes are somewhat lower. A one standard deviation increase in profitability improves the likelihood of ongoing restructuring by 1.7% points. In addition, the findings suggest that both bank debt and the number of creditors affect the restructuring outcome. Greater the levels of bank debt, greater the likelihood that the restructuring process will be protracted. The table also shows that greater the number of creditors involved, the greater the likelihood of a long-drawn CDR restructuring.

Looking across bank ownership, the evidence in column (1) suggests that the CDR process in which SBI&A are involved are less likely to be successful in restructuring the debt. The result could reflect the greater willingness of the State Bank group to be accommodative to borrowers or its extreme caution, both of which appear to delay outcomes. The effect is quantitatively large, as indicated by the fact that an average bank of the SBI&A group is -1.3% less likely to be successful in CDR restructuring as compared to an average nationalized bank. In case of ongoing structuring, the estimates in column (2) indicate that consortiums with domestic private banks are less likely to arrive at a consensus. These results are robust when we increasingly augment the model through industry and year fixed effects (Columns 3-8).

7.1.2 Successful versus unsuccessful restructurings

In **Table 10**, we focus on successful *versus* unsuccessful restructurings. We exclude the ongoing restructurings in this specification, effectively taking the conservative view that these are not informative about final outcomes until resolved.

In column (1), the results suggest that more profitable firms are likely to be successful in restructuring: the odds-ratio of profitable firms having a successful restructuring are 1.22 times higher as compared to unprofitable firms. When the augment the model with industry and year effects (columns 2 to 4), in addition to profitability, leverage, bank debt and asset tangibility remain statistically

¹⁶ Across all regression tables, ***, ** and * denote statistical significance at the 1, 5 and 10%, respectively.

significant. Economically, firm with greater levels of bank debt are less likely to be successful at restructuring, perhaps reflecting the fact that greater dispersion of bank debt among creditors makes it difficult to arrive at a consensus. Higher asset tangibility lowers information asymmetry and increases the bargaining power of creditors, and impedes the likelihood of a successful restructuring. Banks apparently seem to find it harder to reach settlements when more tangible assets underlie debt. Firms which are part of BIFR process are less likely to be successful at restructuring, since as discussed earlier, by then, the firm might already have been stripped clean of equity, leaving creditors with limited choice over the size of the bargaining pie.

8. Equity Injections and Equity Stripping

8.1 Univariate results

Table 11 analyzes the equity brought in by promoters cross-classified by the category of restructuring. While we include a full suite of variables for completeness, the focus here is on equity held and brought in by promoters. On average the total equity brought in by firms across all categories equals INR 335 billion (USD 5.1 billion).¹⁷ This however, masks the wide divergence across categories. To illustrate, equity brought in by promoters under successful restructuring is on average, 10-times those brought in under unsuccessful restructuring. The amount brought in by promoters is the highest under ongoing restructuring at INR 190 (USD 3 billion). In all instances, the differences are statistically significant. Firms that are successful at restructuring have much lower levels of bank debt and lower promoter share as compared to their unsuccessful counterparts. Collectively, the results add promoter contributions to the earlier findings that to the earlier findings that bigger, profitable firms with low bank debt are most likely to be successful at restructuring. We make no causal claims here. Promoter contributions may endogenously arise as necessary conditions for successful emergence rather than exogenously cause success.

Table 12 shows the additional equity brought in by promoters, classified by industry, juxtaposed with promoter share. Across industries, the highest

¹⁷ Following Frank and Goyal (2003), equity injection (*Injection*) is calculated as follows: $Equity(t+1) = Equity(t) + Retained\ Earnings(t) + Injection(t)$, and hence,
 $- Injection(t) = [Equity(t) - Equity(t+1)] + Retained\ Earnings(t)$

amount of equity pitched in by promoters under successful restructuring is mining industry with additional equity worth INR 106 billion. A comparison of successful versus unsuccessful restructuring indicates that in most cases under the latter, the additional equity brought in is uniformly lower than that under successful ones; the promoter share in most cases under the former far exceeds that of the latter. What this suggests is greater the ‘skin in the game’ for promoters, greater the possibility of the restructuring process culminating in a success.

8.2 Regression results

Advancing the argument further, we regress the probability of additional equity brought in by the firm as a function of firm characteristics, including ownership. For firm i in industry j at time t , the specification takes the form:

$$Z_{ijt} = \beta X_{ijt} + \mu_j + \eta_t + \varepsilon_{ijt}$$

where Z equals one if a firm has brought in additional equity during the period 2002-09, else zero. The independent variables include controls for firm size, profitability, leverage, asset tangibility, duration of the CDR process and ownership dummies for the firm.

The results in **Table 13** show that firms with higher asset tangibility are less likely to bring in additional equity; the same variable also explains success. In column (4) of the table, the coefficient on Tangible equals -0.018, which indicates that 10% rise in asset tangibility lowers the likelihood of bringing in additional equity by 0.2% point. Economically, higher the asset tangibility, greater their “encashment value,” diminishing the likelihood of additional equity.

Higher promoter share in the firm lowers the likelihood of additional equity being brought in, consistent with prior research that higher promoter share is a key determinant of tunneling (Bertrand, Mehta and Mullainathan, 2002; Rajan, 2014). To exemplify, 100% increase in promoter share from 20% to 40% - equal to a move from the 25th to the 75th percentile of the distribution - would lower the likelihood of pitching in additional equity by nearly 4%. Across ownership, the coefficients on both Indian private and group-affiliated firms are negative, indicating that both these firm categories are less likely to bring in additional equity. These results are robust when we control for year and industry fixed effects (see columns 2 to 4).

8.3 Robustness: Percentiles of equity infusion

We undertake some additional tests of the baseline results. Accordingly, we classify firms based on the percentiles of equity infusion. Based on these percentiles, we define a dummy variable, which equals one if a promoter has stripped the firm of a minimum negative amount of equity and equals zero, if a promoter has brought in a minimum positive amount of equity.¹⁸ We regress this dummy variable on the set of firm-specific variables, including ownership dummies, as earlier and sequentially augment the model with industry and year fixed effects.

The results in column (1) of **Table 14** lend credence to previous findings: promoter share is a key determinant of equity stripping. Higher the levels of promoter share, greater the likelihood of equity stripping. Based on the point estimates, it can be inferred that a 10% increase in promoter share lowers the likelihood of additional equity infusion by the promoter by over 0.3% points. Among others, RoA bears a positive sign. In essence, profitable firms are more likely to bring additional equity, consistent with the fact that higher profitability makes it easier for promoters to plough back the investible surplus. Across ownership, both Indian private and business group-affiliated firms are less likely to bring in additional equity. In columns (2)-(4), we add industry and year effects. The coefficient on promoter retains its sign and significance. Summing up, the results point to the fact that promoter share in the firm plays a key (negative) role in determining the amount of equity brought in by the firm, and through it, chances of successful restructuring.

In the final set of regressions (**Table 15**), we regress the additional equity brought in as a function of firm and bank-specific variables, including ownership groups. Towards this end, we define the dependent variable as equal to one if the amount of equity brought in is greater than or equal to the median of the positive equity level for the entire period, else zero (columns 1 to 3). We also consider the case where we regress the logarithm of additional equity as a function of the same set of variables as mentioned earlier.

The first three columns of the table presents the logit regression, the remaining three columns are based on the fixed effects estimation. Three major

¹⁸At the 11th percentile, the minimum negative equity equals Rs. (-)48 (USD 0.9) and at the 36th percentile, the minimum positive equity equals Rs. 48. We use these numbers in the regression analysis.

findings are of note. First, promoter share does not influence the equity brought in by firms, in contrast to the equity stripping case where promoter share is a key determinant. Second, among the firm-level variables, size and to a lesser extent, asset tangibility and growth opportunities are the key drivers. This is consistent with our prior findings that not only are bigger firms more likely to bring in additional equity, the amount brought in is higher as well. For example, the coefficient on *Log Asset* in column (2) equals 1.06, whereas that on column (5) equals 1.94. In other words, the odds of larger firms bringing in additional equity is 2.9 times larger and that the additional equity brought in by the median firm equals INR 1.9 ($=1*1.94$) billion, among the firm with positive equity values in the sample. As earlier, duration displays a positive sign, signifying that a protracted process of CDR increases the likelihood for promoters to pitch in with additional equity and in greater quantity as well.

Across ownership, both group and private Indian firms are likely to bring additional equity. When we include bank-specific controls, the evidence suggests that having well-capitalized main banks results in promoters being less likely to bring additional equity. When we look at the quantum of equity, having profitable main banks associated with CDR firms results in less new equity. Across bank ownership, SBI&A are less likely to be associated with additional equity, consistent with our earlier findings that when SBI&A are among the firm creditors, the likelihood of a protracted restructuring are higher and one possible reason could be that fund infusions necessary for restructuring are less forthcoming in these cases.

8.4 Robustness: Minimum promoter equity

In August 2008, the Reserve Bank effected a policy change wherein in order to ensure quick implementation of the CDR package, certain incentives were provided to firms. Salient among these included promoters sacrifice and additional funds brought in by them should be a minimum of 15% of the banks' sacrifice.

To investigate this further, we introduce a dummy which equals one for the years beginning 2009, else zero. We estimate regressions similar to earlier, controlling for the usual firm and bank characteristics, including their ownership. The results are set out in **Table 16**.

We find that higher the promoter share, lower the additional equity pitched in. In terms of magnitudes, a 10% increase in promoter share lowers the equity

brought in by 0.2% points. With average additional equity being Rs. 891 million, this translates into a difference of nearly Rs. 2 million.

When we augment the model with firm and bank-specific variables, including their ownership, the results remain directionally unaltered, although the magnitudes are different (Cols. 2-4). In column 5, we examine whether higher promoter share in the post 2009 period resulted in additional equity being brought in. The coefficient on the interaction term is insignificant, suggesting that there is limited that that the policy change induced promoters to bring in additional equity.

9. Survival Analysis

In this section, we examine the issue of survival analysis. Survival models are useful in examining the determinants of firm exit from the CDR mechanism, when there are multiple exit routes. A growing body of literature has employed survival models to examine firm hazard rates. For instance, Srinivasan et al (2008) employed competing risk model to study the effect of product diversity on the survival of high-tech firms and find that the number of patents, competitive intensity and NASDAQ index impact their survival rate. Esteve-Perez et al (2010) employ a similar framework to study the exit of Spanish firms during 1990-2000. Their analysis suggests that firm size, age, R&D and advertising activities significantly influence firm exit. He et al., (2010) uses the competing risk model to study the capital structure variables on corporate survival for listed firms in Hong Kong. They find that larger firms are more vulnerable to bankruptcy and fast growing firms are more likely to be acquired.

In the present case, an exit from the CDR mechanism can be achieved through two mutually exclusive events: successful exit and withdrawal, which act as competing risks in the CDR process. These models take into account the factors that influence a firm exit decisions over time as the ability of a firm to survive or fail varies over time as the operating environment changes.

To examine this empirically, we construct a panel data during 2001-2014 to ascertain the impact of the firm-level factors using the concept of hazard rates. Hazard rates give the probability a firm exits the CDR mechanism at time t (or survives till time t) conditional on a vector of covariates \mathbf{X} , which may include both time varying covariates, such as profitability, leverage, bank debt, firm size and time constant covariates such as industry group and firm ownership.

The regression assumes the following relationship between the hazard and baseline hazard:

$$h_i(t) = h_i^0(t) \exp\{[\beta_i + \gamma_i g(t)]x_i\} \quad (2)$$

where h_i^0 is the baseline hazard function (baseline sub-hazard function in a competing risk framework) obtained for values of covariates equal to 0 ($x_i = 0$) for each firm i . We consider $[\beta_i + \gamma_i g(t)]$ as a time-varying coefficient on the covariate x_i for some specified function of time $g(t)$. β_i is the estimate of time-invariant component and γ_i is the estimate of the time-dependent deviation from β_i . If the time-dependent coefficient is significant, it violates the proportional-hazard assumption that the relative hazard rate is fixed over time.

Figure 4 shows the hazard rates, i.e. the probability that a firm exits the CDR mechanism (successful exit and withdrawal) in a particular period. The figure suggests that the risk of withdrawal and successful exit declines continuously after the 4th year and 7th year.

Figure 5 shows the failure distribution across the three most distressed industries during the period 2003-05 and 2008-10 using the Kaplan-Meier estimates without the explanatory variables. The industries with the highest aggregate debt under restructuring are considered as the most distressed. The figure suggests that the survival rates for these industries are low during the 2003-05 period, suggesting that these firms have a lower probability of continuing under the CDR process, thereby entailing a higher likelihood of exiting the CDR mechanism. As compared to that, firms belonging to the least distressed industries exhibited a relatively lower probability of survival, indicating the likelihood of exiting the CDR process earlier and consequently, greater likelihood of success. When we compare this with firms referred in the latter period, we find that the likelihood of prolonged restructuring is higher, since the Kaplan-Meier failure estimates are upward sloping. In essence, these industries are also the ones most affected by the economic downturn and as a result, their likelihood of exit from the CDR mechanism was significantly lower.

9.1 Competing Risk model

To examine this analytically, we specify a competing risk model wherein we examine the determinants of exit from CDR, depending on the type of exit. As mentioned above, we consider two categories of exit: successful exits and withdrawal. We exclude firms that were rejected (i.e., those which were referred to the CDR cell but were not granted the CDR package) and those that are ‘under progress’ (i.e., firms that were referred to the CDR Cell but are awaiting approval for induction into the CDR process). Besides, we do exclude 3 re-entered firms, since the framework does not allow for multiple failures per firm.

Table 17 provides the results of the regression regarding the factors affecting the duration for successful exit by considering the withdrawal of a firm as a competing event. We find that levered firms with high levels of bank debt have a lower probability of successful exit, consistent with our earlier analysis. In terms of magnitudes, levered firms have a 6.7% ($=\exp(-0.069)-1$) lower probability of successful exit; in case of bank debt, these magnitudes are a tad smaller.

In addition, we also find that firms with domestic private banks as CDR lenders are more likely to settle their debts successfully. These results are consistent with previous findings and indicate that private lenders are more likely to settle their debts, once their borrowers fall into the CDR process.

Model 2 analyses the factors affecting the duration for withdrawal of a firm given that success is a competing event. The coefficient on firm asset is quite large and suggests that bigger firms are nearly 75% less likely to withdraw from the CDR mechanism. In addition, we also find that state-owned firms are less likely to withdraw from the CDR process, presumably expecting some support from their parents. Their deep pockets also enable them to withstand the CDR process for a protracted period. The findings however, need to be treated with caution, since the number of state-owned firms is less than 3% of the total CDR-affected firms. The significant time-varying coefficient for the time-varying covariates suggests that the sub-hazard rates are not fixed over time.

9.2 Cox Proportional Hazard model

We also conduct a similar analysis, but instead use the Cox proportional hazard model (Cox, 1972). Unlike the competing risk framework, the Cox model can examine each specific category of hazard (risk) separately, unlike multiple hazards (risk) as under the former. The use of Cox models has been widely

employed in the literature in recent times (Clarke and Cull, 2002; Lee, 2014). In the Indian context, Dinc and Gupta (2011) employed this methodology to explore how the interplay of political patronage and political objectives affects the privatization decision of Indian state-owned non-financial firms. Their findings indicate that governments are reluctant to privatize firms located in regions where the ruling party faces political competition.

The results in **Table 18** are directionally similar with the competing risk model though the magnitudes of the coefficients differ. The findings suggest that the capital structure of the firm and in particular the levels of debt and tangibility are important factors affecting a firm's exit from the CDR mechanism.

Model 1 looks at all exits as a single risk. Model 2 and 3 looks at the risk of withdrawal and successful exit, separately. Firms with higher tangible assets have 2% higher probability of exiting the mechanism and 1% higher probability of successfully exiting the mechanism. Intuitively, firms with high asset tangibility are more likely to be able to liquidate these asset to settle their debts. However, the negative time-varying coefficient is significant suggesting that the probability of exit for firms with higher tangible asset declines over time. Looking at ownership, it is observed that firms with domestic private banks as CDR lenders are less likely to be subject to prolonged restructuring, whereas Others (comprising primarily investment and term lending institutions) are more likely to prolong resolution of debt, more so in view of their longer time horizon for assessing risks.

To encapsulate, the findings suggests that firms that were referred during the earlier years of the analysis period had a higher success rate in exiting the CDR mechanism. As well, firm debt exerts a significant influence on the restructuring outcome, irrespective of the model employed.

10. Concluding Remarks

Employing a uniquely assembled data on CDR firms during 2002-2013 matched with their balance sheet and main bank relationship details, the paper address the evolution of corporate debt restructuring and the factors affecting the process. Several salient findings emerge. First, the number of firms entering the CDR mechanism has witnessed a sharp jump after the 2008 crisis, after having ebbed somewhat during the period of the Great Moderation. Second, most firms referred to the CDR have been those that belong to industries severely impacted

by the economic downturn. These include, among others, infrastructure, textiles, engineering and chemicals. The total restructured debt of these industries was INR 2 trillion, equal to an annual average of 0.4% of GDP. The structural shifts in the nature of the firms entering the CDR process, and the continuing evolution of the distress resolution process in India suggest some caution before either pronouncing the CDR mechanism dead or pronouncing it successful, or extrapolating the evidence to policy.

That said, the data do offer some insights. In restructuring cases, lenders sacrifice has been the most contentious area. We find that it is widespread, accounting for roughly a third of the restructured debt, more than promoter contributions or sacrifices. Given this asymmetry, it is not surprising that more stringent restructuring processes such as strategic debt restructurings where banks take equity stakes in defaulters, are coming into prominence.

Our evidence suggests that the success rate of the CDR mechanism – defined as the percentage of CDR-referred firms that have exited after a successful restructuring - has been modest, averaging around 13%. The mean restructuring duration has been 4.4 years and the cases involve on average 9 lenders. A key reason has been that borrowers have not been inclined to bring in additional equity: the total equity brought in 7 out of 14 years at INR 170 billion has been far outweighed by the probable “equity stripping” during the remaining years, aggregating nearly INR 500 billion.

Cross-sectionally, success is explained by conditions at entry – the better the quality and condition of the firms at entry, the more likely it is that firms restructure and do so quickly. The data suggest that a key to success may be the early entry into CDR before the onset of deep distress. We have some evidence that the number and nature of creditors, specifically the presence of large nationalized banks, and the availability of tangible asset also matters. Firm inferences on these variables awaits definitive resolution of the cases under way.

References to and from the BIFR process are not helpful indicating that besides the coordination between creditors, the ability to forum shop in bankruptcy do not aid quick resolution. The results support ongoing efforts since at least the 1990s to reform bankruptcy processes into a unified process with sufficient teeth to render enforceable judgments.

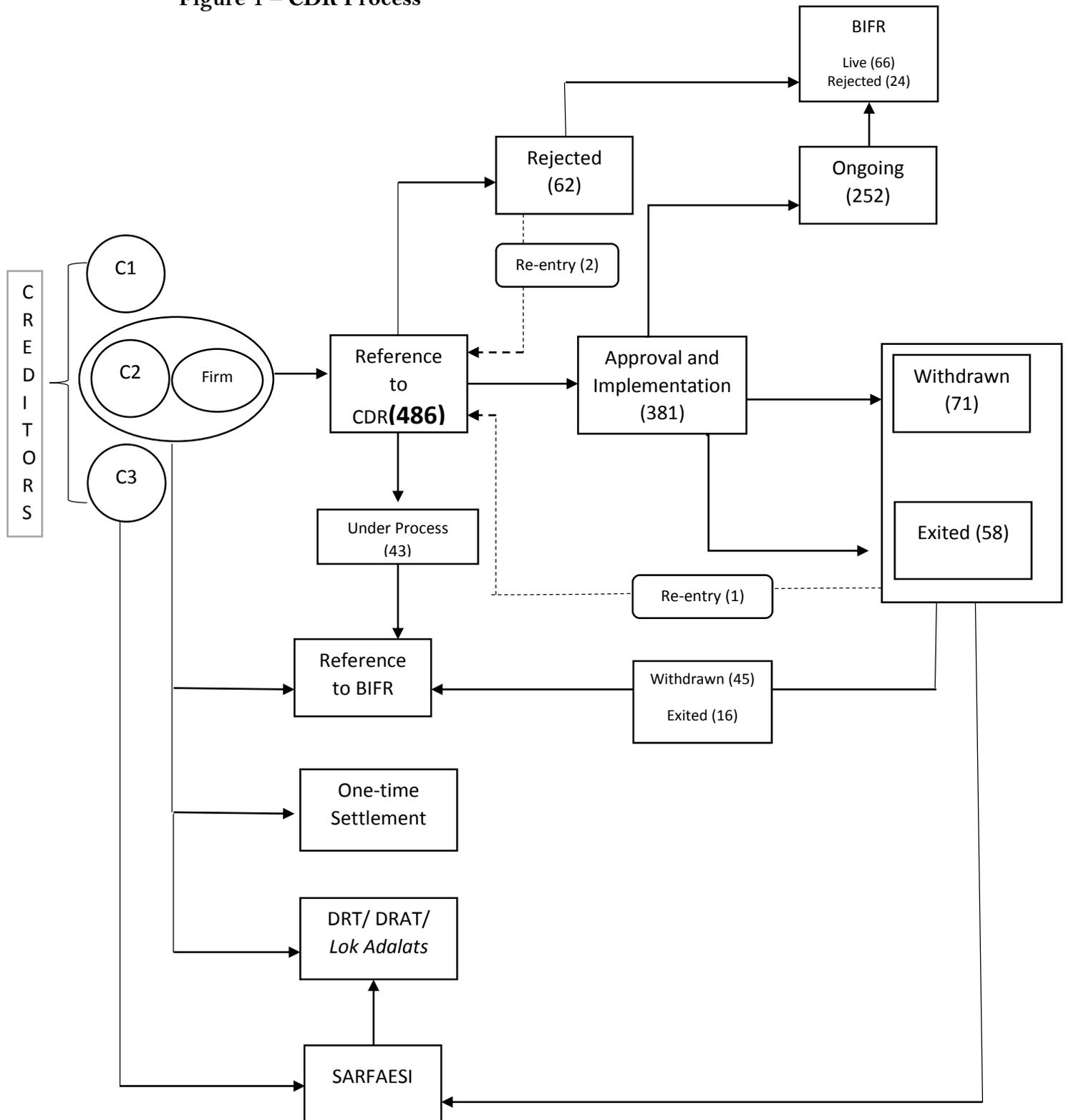
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Figure 1 – CDR Process



Figures in brackets indicate number of distressed firms in the relevant category

Figure 2: Average exposure of CDR firms, by year

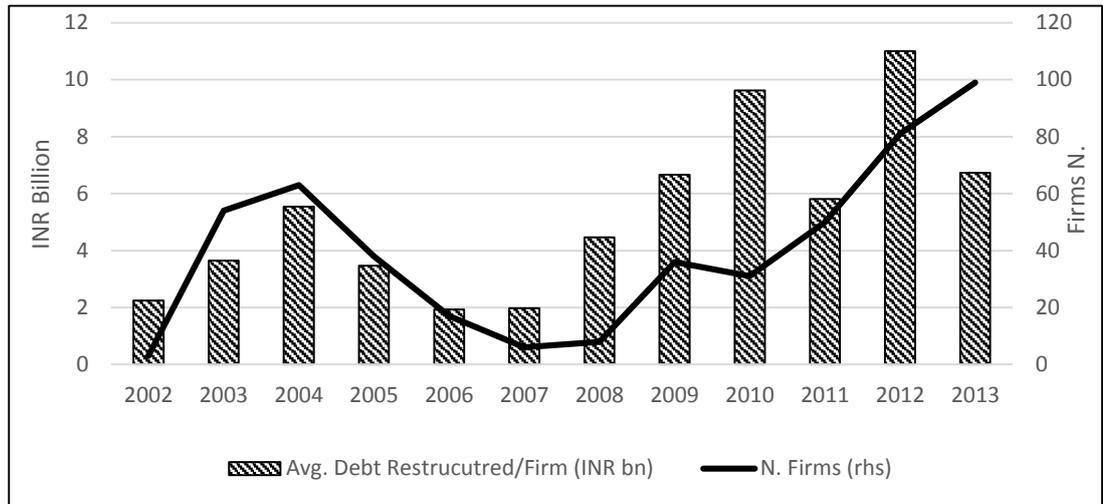


Figure 3: Failure rate and loans restructured under CDR

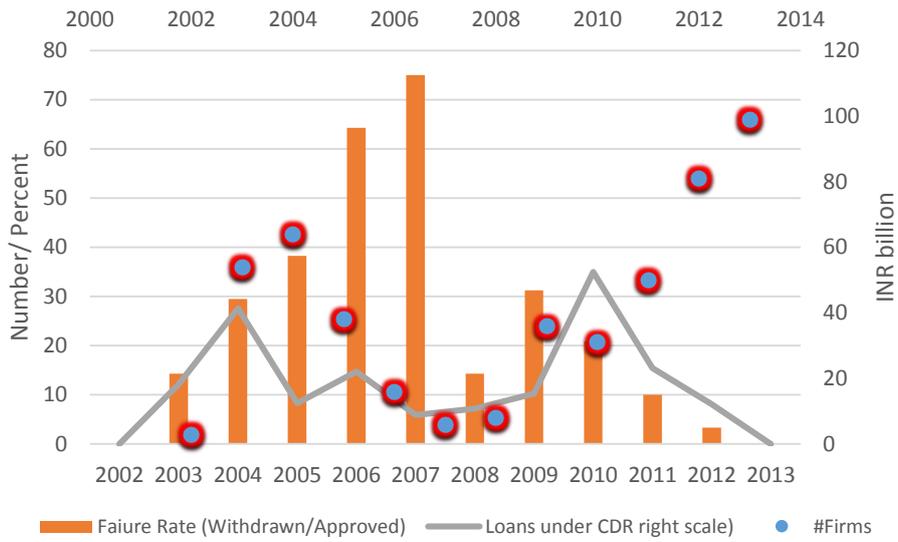


Figure 4: Smoothed hazard function for different types of firm exits

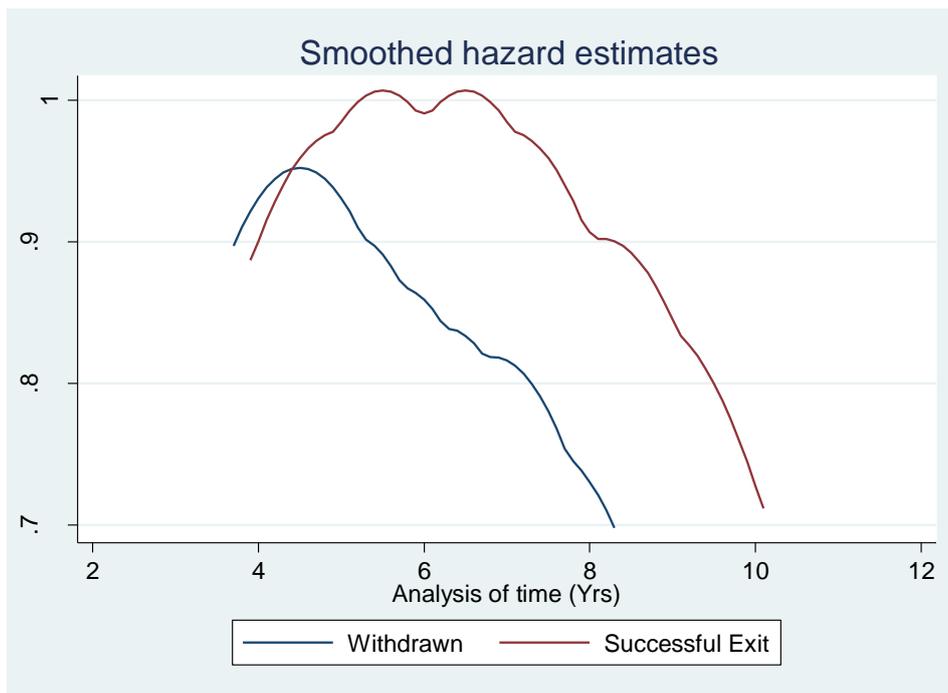
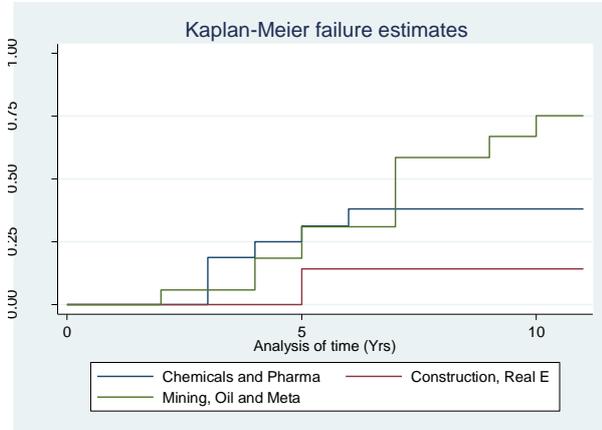
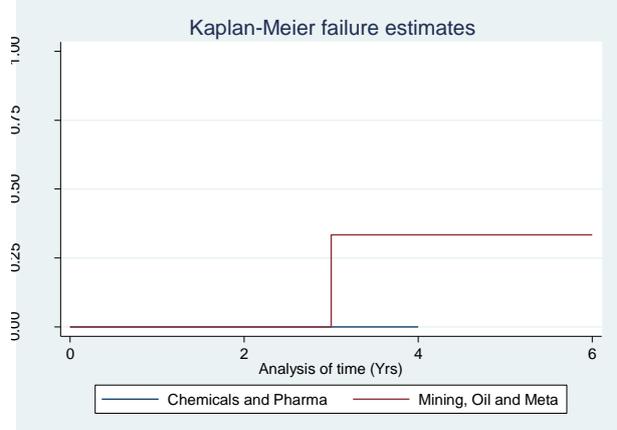


Figure 5: Kaplan-Meier failure estimates across industries (pre- and post-crisis)

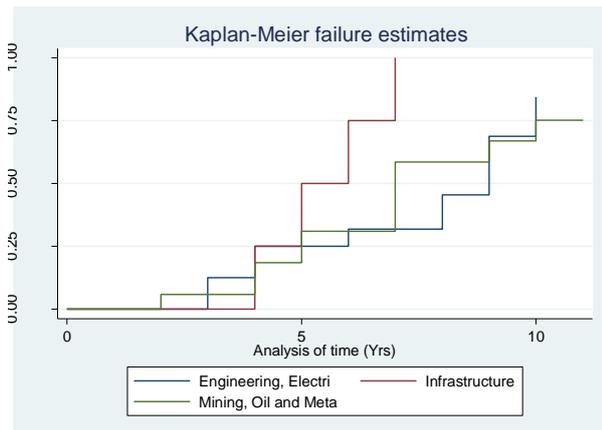
Most distressed during 2003-05



Least distressed during 2008-10



Least distressed during 2003-05



Most distressed during 2008-10

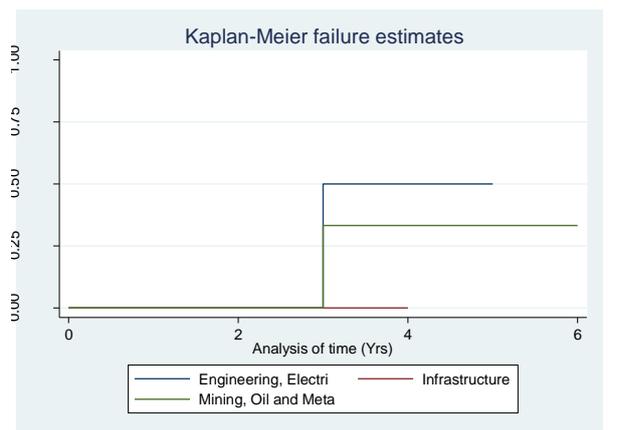


Table 1: Recovery under various schemes - Year-wise pattern (Per cent)

	Recoveries to total outstanding for the year			Recoveries to NPA			Recoveries to GDP		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	<i>Lok</i>			<i>Lok</i>			<i>Lok</i>		
Year	DRTs	SARFAESI	<i>Adalats</i>	DRTs	SARFAESI	<i>Adalats</i>	DRTs	SARFAESI	<i>Adalats</i>
2003-04	10.0	5.5	0.7	3.1	1.7	0.2	0.07	0.04	0.005
2004-05	9.5	8.4	0.4	4.3	3.8	0.2	0.08	0.07	0.003
2005-06	27.6	20.1	1.3	8.1	5.9	0.4	0.13	0.09	0.006
2006-07	18.3	19.8	0.6	6.9	7.4	0.2	0.08	0.09	0.002
2007-08	19.8	29.1	1.2	6.0	8.8	0.3	0.06	0.09	0.004
2008-09	16.6	19.7	0.5	5.9	7.1	0.2	0.06	0.07	0.002
2009-10	10.0	13.6	0.4	3.7	5.0	0.1	0.05	0.07	0.002
2010-11	7.9	23.1	0.3	4.0	11.8	0.2	0.05	0.15	0.002
2011-12	6.7	16.5	0.3	2.9	7.1	0.1	0.05	0.11	0.002
2012-13	4.1	17.5	0.4	2.2	9.5	0.2	0.04	0.18	0.004
2013-14	3.0	14.6	0.8	2.3	11.1	0.6	0.05	0.22	0.013
Average	12.1	17.1	0.6	4.5	7.2	0.3	0.07	0.11	0.004

Table 1 reports ratios Amount recovered to Total debt outstanding for recovery, Amount recovered to total NPAs and Amount recovered to the Gross domestic product during the period 2003-14.

Table 2: Industry-wise classification of firms referred to CDR

Industry Groups	<i>Process</i> firms (BIFR referred)	<i>Of which debt restructuring data available for</i>			
		Firms N. (%)	INR. billion		
			Mean	Median	Total (%)
	1	2	3	4	5
Automobiles and related	8 (3)	7 (2)	13.95	0.74	98 (5)
Chemicals and Pharmaceuticals	33 (9)	22 (6)	9.12	4.46	201 (10)
Construction and Real Estate	16 (4)	12 (3)	8.37	5.94	100 (5)
Engineering, Electrical and related	42 (21)	33 (9)	5.25	1.68	193 (10)
Food and Accommodations	37 (11)	29 (8)	6.38	2.67	185 (9)
Information Technology	6 (2)	5 (1)	9.32	6.33	47 (2)
Infrastructure	29 (4)	20 (5)	19.84	7.53	397 (19)
Mining, Oil and Metals	56 (21)	43 (11)	8.02	3.34	345 (17)
Services	7 (3)	4 (2)	2.88	2.87	12 (1)
Textiles	61 (32)	45 (12)	5.57	2.28	287 (14)
Others NEC	68 (27)	46 (13)	3.99	2.31	183 (9)
All Industries	363 (135)	266 (73)	7.49	2.66	2,048

Table 2 reports Industry-wise classification of total number of firms referred to the CDR mechanism during the period 2002-2013 and their mean and median and total debt restructured. Total Debt restructured is calculated as summation of Total amount rescheduled, Total amount converted to other instruments, Total Lenders sacrifice, Total One-time Settlement in Cash or Equity and Total Working Capital limit sanctioned (fund-based and non fund-based). Figures in brackets in column 1 indicates BIFR referred firms. Figures in brackets in column 2 indicate percentage of firms for which debt restructured can be calculated. Figures in brackets in column 5 indicates percentage of the total debt restructured amount.

Table 3: Year-wise status of firms referred to CDR

Year	<i>of which</i>							Exited (%)	Real GDP growth, %
	Referred	<i>Prowess</i> firms	Rejected	Live	In-Process	Withdrawn	Exited		
	1	2	3	4	5	6	7	8	9
2002	3	2		1			1	50	3.9
2003	54	45	8	13		5	19	42	8.0
2004	63	47	2	15		15	15	32	7.1
2005	38	34	2	9		12	11	31	9.5
2006	16#	12#	2	3		6	2	15	9.6
2007	6	4	1			3			9.3
2008	8	6	1	3		1	1	14	6.7
2009	35 #	25#	1	18		7			8.6
2010	31	20	3	13		4			8.9
2011	50	33	7	23		3			6.7
2012	81	66	4	51	9	2			4.5
2013	98 #	69#	6	45	19				4.7
Total	483	363	37	194	28	58	49	13	7.3 ##

The table reports the number of firms referred to CDR in each fiscal year in column 1. Column 2 reports number of CDR firms matched with the Prowess database. Columns 3, 4, 5, 6 and 7 report the status of the Prowess firms referred in each fiscal year. Column 8 reports the percentage of firms that exited the CDR mechanism of the firms referred in that fiscal year. Column 9 reports the Gross domestic product (GDP) growth rate at constant prices for each fiscal year. The base year for GDP is fiscal year 2004-05. # indicates one re-entered firm excluded in that year. ## Average GDP growth rate for the period 2002-2013.

Table 4: Withdrawal of firms and average duration in CDR mechanism

Reasons for Withdrawal	#Firms	Mean duration (YRS)	Median duration (YRS)	<i>Of which data available for</i>	
				#Firms	Total restructured debt INR billion (%)
	1	2	3	4	5
Failure in implementation of CDR package	31	3.0	2.8	24	89.6 (70)
One-time Settlement (OTS)	15	3.8	3.4	8	8.1 (6)
Default in payment of Instalments	7	3.6	2.7	3	9.5 (7)
Closure in operations	3	3.2	2.8	3	15.9 (13)
Debt taken-over by ARCIL	2	2.5	2.5	1	1.6 (1)
Total	58	3.3	2.8	39	127.2

The table reports the 5 important reasons for the withdrawal of firms from the CDR mechanism. Column 1 reports the number of firms withdrawn from the CDR. Column 2 and 3 reports the duration the firms remained in the CDR mechanism before being withdrawn. The duration is calculated as the difference in years between the Date of withdrawal and the Date of reference. Column 4 reports the number of firms for which the total restructured debt can be calculated. Column 5 reports the total debt restructured calculated as the summation of Total amount rescheduled, Total amount converted to other instruments, Total Lenders sacrifice, Total One-time Settlement in Cash or Equity and Total Working Capital sanctioned (fund-based and non fund-based). The figured in brackets indicate the percentage of the restructured debt of the 39 withdrawn firms.

Table 5: Industry-wise classification of successfully exited firms

Industry Groups	Referred Firms N.	Successfully exited firms N. (%)	Mean duration (YEARS)	Median duration (YEARS)	<i>Of which data available for</i>	
					Firms N.	Total restructured debt INR billion (%)
1	2	3	4	5	6	7
Automobiles and related	8	1 (13)	3.1	3.1	1	0.63 (1)
Chemicals and pharmaceuticals	33	5 (15)	2.0	2.0	2	11.25 (12)
Construction and real estate	16	1 (6)	3.7	3.7	...	...
Engineering, Electrical and Related	42	5 (12)	5.8	6.9	3	6.68 (7)
Food and Accommodation	37	7 (19)	4.6	3.7	4	17.88 (19)
Information technology	6	1 (17)	4.5	4.5	1	3.18 (3)
Infrastructure	29	3 (10)	4.9	4.8	2	6.43 (7)
Mining, Oil and Metals	56	11 (20)	5.2	4.3	6	44.34 (48)
Services	7	1 (14)	3.4	3.4	...	...
Textile and textile products	61	5 (8)	4.6	5.3	2	1.61 (2)
Others NEC	68	9 (13)	3.6	3.4	2	0.73 (1)
Total	363	49 (13)	4.4	4.4	23	92.73

The table reports industry-wise classification of total number of prowess firms referred to CDR. Column 3 reports industry-wise classification of total number of successfully exited firms. Figures in brackets indicate exited firms as a percentage of total firms referred in that industry. Column 4 and 5 reports mean and median duration in years the firms continued in CDR. The duration is calculated as difference in Date of exit and Date of reference. Column 6 reports the number of exited firms for which Total debt restructured can be calculated with available data. Column 7 reports total debt restructured of firms in column 6.

Table 6: Debt Restructurings by Bank Category

Restructuring Outcome	Figures in INR billion															
	Successful Restructurings Exited cases (8)				Unsuccessful Restructurings Withdrawn (36) + Rejected (7)				Ongoing Restructurings Live (156) + Under Process (19)				All Firms			
	Pub.	Pvt.	Forgn.	Others	Pub.	Pvt.	Forgn.	Others	Pub.	Pvt.	Forgn.	Others	Pub.	Pvt.	Forgn.	Others
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Addl. WC Limit (Fund Based)	0.4	0.0	1.5	0.0	2.3	0.1	0.0	0.0	26.7	3.3	0.8	0.0	29.4	3.4	2.3	0.0
Addl. WC Limit (Non-fund based)	2.7	1.7	5.5	0.0	0.4	0.0	0.0	0.0	32.8	6.0	1.0	0.3	35.9	7.7	6.5	0.3
Lenders Sacrifice	0.7	0.0	0.0	0.2	13.2	1.6	2.7	15.0	91.5	11.9	2.7	14.1	105.3	13.5	5.4	29.2
OTS – Cash	1.4	1.4	0.0	0.2	0.0	0.0	0.9	0.0	0.5	4.6	0.8	0.8	1.9	5.9	1.7	1.0
Loan swap	0.0	0.0	0.0	0.1	2.9	1.3	0.0	0.2	16.2	2.5	0.0	13.1	19.1	3.8	0.1	13.4
New Term Loans	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	13.0	1.2	0.6	8.2	13.4	1.5	0.6	8.2
Amount Rescheduled	7.8	6.0	0.2	3.6	33.4	6.0	0.9	2.3	464.5	71.0	21.8	90.5	505.7	82.9	22.9	96.3
<i>Reworked Cases</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>7.4</i>	<i>4.6</i>	<i>0.8</i>	<i>2.3</i>	<i>22.9</i>	<i>1.8</i>	<i>4.5</i>	<i>1.4</i>	<i>30.3</i>	<i>6.4</i>	<i>5.3</i>	<i>3.7</i>
Total	12.9	9.1	7.2	4.1	52.5	9.3	4.5	17.4	645.2	100.5	27.7	127	710.7	118.8	39.4	148.4

Table 5 reports available data on Bank category-wise total debt restructured in INR billion under each restructuring outcome for 219 CDR firms. CDR firms are categorized as successful restructurings, unsuccessful restructurings and ongoing restructurings.

Table 7: Debt restructurings by category (in the year of reference)

(1)	Panel A		Panel B		Panel C		Test of difference					
	49 successful restructurings		95 unsuccessful restructurings (Withdrawn and/or rejected)		222 ongoing restructuring (Live and in progress)		Panel A vs. Panel B		Panel A vs. Panel C		Panel B vs. Panel C	
	Mean	Median	Mean	Median	Mean	Median	t-test	Wilcoxon	t-test	Wilcoxon	t-test	Wilcoxon
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Firm characteristics												
Assets (INR bn.)	12.74	2.63	3.51	1.50	9.13	3.46	-2.41**	-2.50**	-0.91	0.97	4.35***	4.63***
Age (in years)	28.63	26.00	20.79	17.00	22.50	18	-2.65***	-2.54**	-2.23***	-2.18**	0.94	0.95
Performance characteristics												
PBDITA, %	8.19	6.51	-0.30	0.36	2.20	2.73	-3.04***	-4.95***	-2.58**	-3.86***	1.30	2.55**
Tobin's Q	0.84	0.71	0.82	0.81	0.74	0.73	-0.27	1.31	-1.87*	0.09	-1.99*	-2.21**
BHAR, %	0.65	0.34	-0.06	-0.34	-0.21	-0.42	-2.40***	-2.04**	-3.28***	-3.16***	-0.86	-0.32
MM Score	0.64	0.58	-0.005	0.04	0.28	0.27	-3.84***	-3.70***	-2.79***	-2.86***	2.07**	2.33***
ICR	1.84	0.90	-0.88	-0.50	-0.24	-0.49	-4.56***	-5.40***	-3.90***	-4.96***	-1.74*	2.38***
Duration (years)#	4.62	3.87	2.35	1.75	3.13	1.57	-5.69***	-5.54***	-3.86***	-4.96***	2.40**	1.76*
Capital structure characteristics												
Leverage	0.66	0.63	0.77	0.75	0.68	0.66	-2.39***	2.58***	0.63	0.95	-2.53***	-3.02***
Bank debt	0.41	0.42	0.59	0.62	0.71	0.76	3.72***	3.16***	8.22***	6.72***	3.21***	3.03***
Secured debt	0.86	0.91	0.88	0.93	0.87	0.93	0.83	1.02	0.73	1.13	-0.25	-0.15
Tangible Assets	0.70	0.72	0.78	0.80	0.70	0.72	1.23	1.28	-0.14	-0.15	-1.73**	-1.86**
#Banks/FIs	9	7	6	5	8	7	-2.68***	-3.44***	-0.25	-1.01	3.15***	3.23***

Table 7 reports mean and median firm, performance and capital structure characteristics of CDR firms classified as successful restructurings, unsuccessful restructurings and ongoing restructurings in the year of reference and Test statistics based on simple two-sided t-test of differences in means and Wilcoxon Rank sum test of difference in the medians. *, ** and *** denote difference between the samples are statistically significant at 10%, 5% and 1% level respectively. Refer Appendix A for definitions of the variables.

Table 8: Restructured debt (in INR billion) by industry groups during the post-financial crisis and pre-financial crisis period

Industry Groups	Post-financial crisis Firms (2010-2013)				Pre-financial crisis Firms (2002-2007)			
	#Firms	<i>Data available for</i>			#Firms	<i>Data available for</i>		
		#Firms	Mean	Median		#Firms	Mean	Median
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Automobiles and related	1	1	90.1	90.1	6	5	1.4	0.7
Chemicals and pharmaceuticals	13	13	9.9	5.2	19	8	8.8	2.5
Construction and real estate	8	8	6.6	5.9	8	4	11.8	10.8
Engineering, Electronics and electrical	17	16	10.3	2.5	22	14	1.6	0.8
Food and Accommodation	18	15	8.3	4.0	15	10	4.6	1.0
Information technology	5	4	10.9	10.0	1	1	3.2	3.2
Infrastructure	19	16	24.2	18.9	10	4	2.5	2.9
Mining, Oil and Metals	29	27	9.4	2.7	22	11	5.1	2.5
Services	5	4	2.9	2.9	2	...	...	...
Textile and textile products	32	30	4.3	2.3	17	6	0.7	6.3
Others NEC	41	34	4.7	2.9	22	8	2.4	0.6
All Industries	188	168	9.2	3.2	144	71	4.0	1.5

Table 8 reports industry-wise total number of firms referred and mean and median debt restructured during the post and pre-financial crisis periods. Debt restructured is calculated as the summation of Total amount rescheduled, Total amount converted to other instruments, Total Lenders sacrifice, Total One-time Settlement in Cash or Equity and Total Working Capital sanctioned (fund-based and non fund-based).

Table 9: Multinomial Logit Regression Analysis of the restructuring outcome of the CDR firms

Variables	Model 1		Model 2		Model 3		Model 4									
	Successful V/s Failed	Ongoing V/s Failed	Successful V/s Failed	Ongoing V/s Failed	Successful V/s Failed	Ongoing V/s Failed	Successful V/s Failed	Ongoing V/s Failed								
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)								
Log Asset	0.110	0.359	0.203	0.335	-0.464	(0.466)	-0.179	0.439	-0.040	(0.399)	0.066	(0.379)	-0.930	(0.605)	-0.890	0.612
Log Age	0.613	0.537	0.203	0.495	0.954	(0.622)	-0.076	0.594	0.633	(0.556)	0.292	(0.528)	1.394**	(0.701)	-0.100	0.680
PBDITA	0.154***	0.050	0.108**	0.045	0.174***	(0.057)	0.112**	0.051	0.175***	(0.057)	0.136**	(0.054)	0.225***	(0.071)	0.164**	0.068
Leverage	0.018	0.014	0.009	0.013	0.017	(0.016)	0.013	0.014	0.022	(0.016)	0.012	(0.015)	0.025	(0.019)	0.022	0.019
Bank Debt	-0.012	0.012	0.021**	0.011	-0.016	(0.014)	0.027**	0.013	-0.009	(0.014)	0.013	(0.013)	-0.019	(0.017)	0.011	0.017
Tangible Assets	-0.009	0.010	0.003	0.010	-0.010	(0.012)	0.007	0.012	-0.007	(0.011)	0.003	(0.012)	-0.006	(0.013)	0.009	0.015
#Banks/FIs	0.201	0.145	0.263*	0.141	0.367**	(0.186)	0.445**	0.182	0.356*	(0.183)	0.420**	(0.181)	0.603**	(0.251)	0.748***	0.250
D_BG	0.855	0.693	-0.550	0.650	0.665	(0.770)	-1.211	0.840	0.671	(0.758)	-0.546	(0.748)	0.796	(0.860)	-1.106	1.034
D_Listed	0.698	0.812	0.099	0.692	1.920*	(1.110)	0.131	0.893	0.597	(0.861)	0.035	(0.768)	2.205*	(1.262)	0.849	1.151
D_BIFR	-0.120	0.920	0.002	0.815	-0.495	(1.017)	0.024	0.866	-0.206	(0.945)	0.199	(0.872)	-0.354	(1.079)	0.586	1.034
CDR lending Bank/ FI Category																
D_SBI&A	-1.326*	0.732	0.230	0.686	-1.796**	(0.875)	0.214	0.852	-1.380*	(0.780)	0.153	(0.757)	-2.492**	(1.070)	-0.187	1.061
D_DPB	0.528	0.751	-1.208*	0.632	0.246	(0.798)	-1.218*	0.739	0.378	(0.805)	-1.109	(0.696)	0.038	(0.924)	-1.195	0.866
D_FB	0.173	0.687	0.468	0.641	0.126	(0.826)	-0.010	0.816	-0.049	(0.723)	0.199	(0.693)	-0.257	(0.940)	-0.653	0.950
D_Others	-0.280	0.714	1.066	0.689	-0.106	(0.821)	1.741**	0.871	-0.371	(0.746)	1.191	(0.780)	-0.423	(0.924)	2.072*	1.091
No. of Observations	131		131		131		131		131		131		131		131	
McFadden R squared	0.273		0.393		0.340		0.469		0.340		0.469		0.469		0.469	
Industry FE	NO		YES		NO		YES		NO		YES		YES		YES	
Year FE	NO		NO		YES		YES		YES		YES		YES		YES	

Table 9 reports Multinomial Logit Regression estimates for status of the firm referred to CDR. The dependent variable takes the value 0 if the restructuring process is failed or unsuccessful, 1 if the firm has been successful and 2 if the firm is still under CDR. Regressions are based on a sample of 131 firms that were referred during the period 2002-2009. All accounting measures are as on year of reference Refer Appendix A for variable definitions.

Table 10: Logit Regression Analysis of Successful *versus* Unsuccessful Firms

Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
	(1)		(2)		(3)		(4)	
Log Asset	-0.235	0.422	-1.649	1.020	-0.152	0.489	2.181	2.728
Log Age	-0.082	0.633	0.642	1.180	-0.210	0.752	-1.938	2.920
PBDITA	0.196***	0.070	0.426***	0.159	0.214***	0.079	1.702**	0.781
Leverage	0.019	0.017	0.069**	0.033	0.020	0.019	0.297**	0.148
Bank Debt	-0.015	0.014	-0.059*	0.033	-0.017	0.018	-0.303**	0.140
Tangible Asset	-0.021	0.014	-0.083**	0.035	-0.023	0.015	-0.455**	0.209
#Banks/FIs	0.272	0.198	0.789*	0.438	0.383	0.235	-0.071	0.711
D_BG	1.340	0.847	-0.263	1.250	0.889	0.993	-1.705	2.675
D_Listed	0.956	0.973	7.468**	3.245	1.093	1.093	29.137**	13.300
D_BIFR	-0.773	1.125	-1.363	1.634	-1.345	1.223	-12.690*	7.556
CDR lending Bank/FI Category								
D_SBI&A	-1.368	0.892	-4.034*	2.168	-1.753*	1.030	-3.709	3.333
D_DPB	0.104	0.891	-2.283	1.523	-0.197	0.996	-4.187	3.263
D_FB	0.283	0.823	-1.430	1.814	0.256	0.942	2.439	4.153
D_Others	-0.374	0.898	0.003	1.389	-0.736	0.958	-0.809	2.938
No. of Observations	79		78		70		69	
McFadden's R Squared	0.411		0.603		0.402		0.746	
Industry Fixed Effects	NO		YES		NO		YES	
Year Fixed Effects	NO		NO		YES		YES	

Table 10 reports Binomial Logit Regression estimates for the status of the firm referred to CDR. The dependent variable takes the value 0 if the restructuring process is failed or unsuccessful, 1 if the firm has been successful. Regressions are based on a sample of 79 firms that were referred during the period 2002-2009 and have been either successful or unsuccessful in servicing debt under CDR. All accounting measures are as on year of reference Refer Appendix A for variable definitions.

Table 11: Characteristics of firms (in the year of reference) according to positive *versus* negative change in equity during the CDR

Variables	Positive Additional Equity						Equity Stripping			
	Successful restructurings		Unsuccessful restructurings		Ongoing restructuring		All Firms		All Firms	
Panel A										
#Firms	43		59		145		247		52	
Equity (INR bn.)	131.91		13.49		190.00		335.42		-9.34	
Mean Equity (Median Equity)	3.06 (0.52)		0.23 (0.03)		1.31 (0.14)		1.36 (0.12)			
T Test (Wilcoxon)										
Successful restructurings	-		-2.99*** (-4.3***)		-2.16** (-2.34**)					
Unsuccessful restructurings	-2.99*** (-4.3***)		-		2.29** (3.40***)					
Ongoing restructuring	-2.16** (-2.34**)		2.29** (3.40***)		-					
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel B										
Firm characteristics										
Asset (INR bn.)	13.66	2.64	3.46	1.39	9.84	3.51	9.02	3.09	5.55	2.68
Panel C										
Performance characteristics										
PBDITA	8.06	6.18	0.28	1.14	2.28	2.67	2.82	2.93	1.17	1.59
ICR	1.90	0.75	-0.43	-0.38	-0.25	-0.02	0.09	0.00	-0.40	-0.49
Duration (Years)#	4.6	3.9	2.8	2.0	4.3	3.2	4.0	3.2	2.8	2.3
Panel D										
Capital structure characteristics										
Leverage	66.52	65.12	74.57	74.97	68.37	66.48	69.50	68.38	68.90	63.46
Bank debt	42.63	42.82	59.46	64.30	69.77	72.95	62.78	64.32	65.32	70.49
Promoter's Share	44.77	45.90	40.15	45.45	47.59	46.51	45.39	46.03	54.26	55.61
Indian Promoter	33.83	36.03	33.32	34.35	42.94	44.64	38.88	40.05	50.75	53.71
#Banks/FIs	6	5	8	8	9	8	8	7	7	5

Table reports change in equity during the CDR period of CDR firms and comparative financial analysis of firms that had a positive *versus* negative change in equity. Refer Appendix A for variable definitions. Change in Equity calculated as Change in Net worth – Retained Profit for the current fiscal year

Table 12: Industry-wise classification of firms that brought in Additional Equity (INR billion) during the CDR period

Industry Groups	All Firms				Successful restructurings				Unsuccessful restructurings				Ongoing restructuring				
	#Firms	Additional Equity			Promoter Share (Mean)	Additional Equity			Promoter Share (Mean)	Additional Equity			Prmoter Share (Mean)	Additional Equity			Promoter Share (Mean)
		Total	Mean	Median		Total	Mean	Median		Total	Mean	Median		Total	Mean	Median	
Automobiles and auto ancillaries	6	2.2	0.5	0.3	40	0.4	0.3	0.4	28	0.2	0.2	0.2	49	1.7	0.4	0.3	41
Chemicals and pharmaceuticals	25	51.0	2.0	0.2	44	1.3	0.4	0.5	58	1.5	0.4	0.1	32	48.2	2.7	0.2	44
Construction and real estate	12	32.1	2.7	0.6	50	0.8	0.8	0.8	40	0.1	0.0	0.0	37	31.2	3.5	0.9	53
Engineering and Electrical	27	16.1	0.6	0.3	43	3.6	0.7	0.8	45	2.8	0.3	0.1	45	9.7	0.9	0.5	40
Food and Accommodations	23	19.6	0.9	0.3	45	3.9	0.6	0.1	42	2.9	2.9	2.9	19	12.8	0.9	0.3	49
Information technology	3	5.9	2.0	0.1	20	...	...	...	...	...	...	...	...	5.9	2.0	0.1	20
Infrastructure	22	59.7	2.6	0.4	44	9.3	3.1	3.4	29	0.5	0.1	0.0	40	50.0	3.2	0.6	47
Mining, Oil and Metals	42	127.7	2.9	0.2	45	105.6	9.9	2.1	46	4.9	0.5	0.4	32	17.2	0.8	0.1	53
Services	2	0.2	0.1	0.1	36	0.1	0.1	0.1	36	...	...	...	...	0.1	0.1	0.1	...
Textile and textile products	45	7.4	0.2	0.0	51	4.2	1.1	0.1	58	0.3	0.0	0.0	47	2.9	0.1	0.0	52
Others NEC	40	13.5	0.3	0.0	41	2.7	0.3	0.1	38	0.4	0.0	0.0	38	10.4	0.6	0.1	46
All Industries	247	335.4	1.3	0.1	45	131.9	2.9	0.5	45	13.5	0.2	0.0	40	190.0	1.3	0.1	48

Table reports industry-wise total, mean and median additional equity (positive change in equity) of CDR firms during the CDR period. Change in Equity calculated as Change in Net worth – Retained Profit for the current fiscal year. Promoter’s share is on year of reference.

Table 13: Logit Regression Analysis of Additional Equity brought in by CDR firms during the CDR period

Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
	1	2	3	4	5	6	7	8
Promoters	-0.039**	0.015	-0.048***	0.016	-0.033**	0.017	-0.042**	0.017
Log Asset	-0.059	0.222	-0.058	0.239	-0.055	0.217	-0.134	0.217
PBDITA	0.028	0.029	0.025	0.029	0.007	0.031	0.005	0.030
Leverage	0.004	0.017	0.002	0.016	-0.017	0.023	-0.016	0.023
Tobin's Q	0.004	0.008	0.002	0.009	0.014	0.011	0.012	0.013
Tangible	-0.018**	0.009	-0.015*	0.008	-0.018**	0.008	-0.013*	0.007
D_PI	-15.790***	1.331	-14.920***	1.442	-14.751***	1.306	-13.960***	1.295
D_BG	-16.249***	1.290	-15.431***	1.412	-15.368***	1.407	-14.431***	1.409
Log Duration	0.326	0.226	0.323	0.271	0.128	0.307	0.192	0.320
Constant	19.738***	2.604	19.037***	2.478	17.913***	3.891	17.129***	4.160
McFadden R Squared	0.149		0.171		0.235		0.253	
Observations	177		154		161		139	
Industry Fixed Effects	NO		YES		NO		YES	
Year Fixed Effects	NO		NO		YES		YES	

Table reports the Logit Regression estimates for the additional equity brought in by CDR firms during the CDR period. The dependent variable takes the value 0 if the additional equity brought in during the CDR period is less than 0 and takes the value 1 if additional equity brought in by during the CDR period is greater 0. Refer Appendix A for variable definitions.

Table 14: Logit Regression Analysis of Additional Equity brought in by CDR firms during the CDR period

Variables	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
	1		2		3		4	
Promoters	-0.033**	0.016	-0.048***	0.016	-0.029	0.018	-0.046**	0.021
Log Asset	-0.047	0.275	-0.018	0.300	-0.003	0.267	-0.190	0.321
PBDITA	0.058*	0.030	0.058*	0.034	0.040	0.035	0.021	0.039
Leverage	0.022	0.024	0.023	0.024	0.002	0.029	0.004	0.028
Tobin's Q	0.004	0.009	0.003	0.009	0.013	0.012	0.015	0.012
Tangible	-0.017	0.010	-0.013	0.008	-0.014	0.010	-0.009	0.009
D_PI	-14.746***	1.505	-14.400***	1.861	-16.182***	1.712	-15.178***	1.773
D_BG	-15.146***	1.499	-14.815***	1.816	-16.375***	1.748	-14.930***	1.814
Log Duration	0.222	0.270	0.128	0.331	0.170	0.303	0.297	0.362
Constant	17.588***	3.003	17.277***	2.939	16.938***	3.749	16.076***	3.838
McFadden R Squared	0.128		0.180		0.184		0.242	
Observations	162		139		131		111	
Industry Fixed Effects	NO		YES		NO		YES	
Year Fixed Effects	NO		NO		YES		YES	

The table reports logit Regression estimates for the additional equity brought in by CDR firms during the CDR period. The dependent variable takes the value 0 if the additional equity brought in during the CDR period is less than or equal to p11 (p11 = INR -48) and takes the value 1 if additional equity brought in by during the CDR period is greater than or equal to p36 (p36 = INR 48). Refer Appendix A for variable definitions.

Table 15: Regression Analysis of firms that brought in additional equity (positive equity) during the CDR period

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Estimation Method	Logit Regressions						Fixed Effects					
	1		2		3		4		5		6	
Promoters	-0.017	0.031	0.018	0.015	0.021	0.021	-0.023	0.039	-0.014	0.021	-0.018	0.024
Log Asset	1.064**	0.508	1.031***	0.285	1.430**	0.616	1.939***	0.473	1.723***	0.275	1.807***	0.279
PBDITA	-0.056	0.081	-0.009	0.029	0.003	0.039	0.004	0.094	0.035	0.063	0.046	0.093
Leverage	-0.024	0.057	-0.007	0.023	0.011	0.043	0.014	0.043	-0.006	0.029	0.008	0.046
Tobin's Q	0.011	0.049	0.025	0.016	0.042	0.03	0.012	0.03	0.036***	0.013	0.030	0.027
Tangible	-0.051***	0.019	-0.010	0.009	-0.004	0.012	-0.014	0.017	-0.010	0.012	-0.005	0.013
D_PI	9.317***	2.921	12.020***	1.202	11.657***	2.374	0.321	3.029	-0.539	2.175	-1.901	3.11
D_BG	11.365***	3.82	12.299***	1.174	12.627***	2.392	0.884	2.441	-0.769	2.599	-2.267	3.563
Log Duration	3.547*	1.874	1.167***	0.298	1.799**	0.891	1.638	1.258	1.860***	0.253	1.371***	0.465
Bank Balance Sheet Variables												
Size	-0.249	0.453					-0.231	0.287				
RoA	1.791	3.124					-1.799*	1.041				
NPL	0.587	0.403					0.127	0.302				
CRAR	-1.178*	0.631					-0.228	0.258				
Core Deposits	0.015	0.054					0.023	0.023				
CDR lending Bank/FI Category												
D_DPB	-0.618	1.171	-0.657	0.559	-0.031	1.128	-0.531*	0.297	-0.080	0.528	-0.164	0.908
D_SBI&A	-0.081	1.263	-0.367	0.626	-1.738*	0.952	0.329	1.09	0.891	1.224	0.807	1.433
D_FB	1.062	0.923	0.349	0.491	0.890	0.744	-0.202	0.786	0.252	0.619	0.426	0.579
D_Others	0.601	0.981	0.465	0.497	1.569**	0.779	-0.147	0.778	-0.678	0.878	-0.017	0.804
Constant	-7.675	16.75	-25.656***	3.166	-37.269***	11.801	-24.792	19.027	-27.859***	5.703	-29.699***	6.515
McFadden/R Squared	0.488		0.271		0.466		0.372		0.459		0.543	
Observations	75		128		123		89		128		128	
Industry Fixed Effects	YES		NO		YES		YES		NO		YES	
Year Fixed Effects	YES		NO		YES		YES		NO		YES	

The table reports Linear Regression on firms that have brought in greater than equal to the median positive additional equity during the CDR period. In Model 1, 2 & 3 dependent variable takes the value 1 if the equity is greater than the median of positive equity values and 0 if it is less than or equal to the median of positive equity values. In model 4, 5 & 6 the dependent variable is the log of equity. The sample consists of firms that brought in positive equity during the CDR period Refer Appendix A for variable definitions.

Table 16: Impact of policy change on additional equity brought in by promoters

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Promoters	-0.021***	0.009	-0.021**	0.009	-0.019***	0.007	-0.026*	0.015	-0.047***	0.013
D_Post2009			-0.695***	0.211	-0.823***	0.246	-0.484	0.483	-2.013*	1.100
Promoters*Post2009									0.026	0.021
PBDITA					0.033***	0.009			0.037***	0.01
Leverage					-0.0002	0.003			-0.008	0.006
Log Asset					1.003***	0.154			1.233***	0.368
Log Duration					0.057	0.441			1.441***	0.41
#Banks/FIs					0.030	0.028			-0.052	0.056
D_BG					-0.464	0.968			0.951	1.342
D_PI					-0.219	1.029			1.832	1.224
Bank Balance Sheet Variables										
Size							0.457	0.277	0.177	0.261
RoA							-0.638	0.652	-0.669	0.625
NPL							-0.044	0.18	-0.066	0.159
CRAR							0.129	0.155	0.251	0.177
Core Deposits							0.006	0.019	-0.002	0.017
CDR lending Bank/FI Category										
D_SBI&A							-0.555	0.885	0.257	1.034
D_DPB							-0.202	0.366	-0.625	0.39
D_FB							0.812*	0.452	0.113	0.425
D_Others							1.152***	0.415	0.848***	0.285
Constant			2.958***	0.455	-4.799*	2.619	-6.043	4.756	-19.432***	5.156
Observations	520		520		448		236		236	
R-squared	0.146		0.152		0.353		0.204		0.408	
Year fixed effects	Yes		No		No		No		No	
Industry Fixed Effects	GDP growth		Yes		Yes		Yes		Yes	

The table reports Regression on firms that have brought in additional equity during the CDR period on a set of firm- and bank-specific variables, including their ownership. The dependent variable is the logarithm of additional equity brought in by promoters. The coefficient of interest is promoter equity and its interaction with year dummy. Refer Appendix A for variable definitions.

Table 17: Competing Risk Model with time varying covariates

Variables	Model 1 <i>Failure = Successfully exited Firms</i>		Model 2 <i>Failure = Withdrawn Firms</i>	
	Coeff.	SE	Coeff.	SE
Main				
Log Asset	-0.038	0.391	-1.331**	0.665
PBDITA	0.082	0.068	-0.022	0.043
Leverage	-0.069***	0.027	0.003	0.014
Bank Debt	-0.043*	0.024	-0.011	0.023
Tangible	0.033	0.021	-0.000	0.015
D_BG	1.522	1.271	0.624	0.726
D_PI	0.116	1.232	-0.054	0.742
D_State	2.397	1.551	-14.576***	0.823
Time Varying Covariates				
Log Asset	0.080*	0.044	0.230**	0.103
PBDITA	-0.006	0.009	0.001	0.008
Leverage	0.009***	0.003	0.001	0.003
Bank Debt	0.005	0.005	0.002	0.005
Tangible	-0.007**	0.003	0.001	0.003
CDR Lending Bank/FI Category				
D_SBIandA	-0.525	0.602	-0.247	0.482
D_DPB	1.157**	0.456	0.435	0.435
D_FB	-0.817	0.698	0.097	0.583
D_Others	-0.402	0.522	-1.089*	0.588
#Banks/FIs	-0.120	0.098	-0.065	0.067
GDP growth	0.156	0.159	-0.018	0.123
Observations	902		902	
Industry Fixed Effects	Yes		Yes	
Log pseudo-likelihood	-85.5		-103.7	

The table reports Competing Risk regression for firms with both firm-specific variable and time-varying covariates. Robust standard errors are clustered at the firm level. Refer Appendix A for variable definitions.

Table 18: Cox Proportional Hazard Model with time varying covariates

Variables	Model 1		Model 2		Model 3	
	<i>Failure = Exit</i>		<i>Failure = Successful Exit</i>		<i>Failure = Withdrawn</i>	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Main						
Log Asset	-0.457	0.441	0.865	0.687	-1.051	0.787
PBDITA	-0.014	0.042	0.114	0.086	-0.019	0.054
Leverage	-0.006	0.01	-0.070**	0.028	0.000	0.014
Bank Debt	-0.015	0.016	-0.040**	0.02	-0.020	0.024
Tangible	0.019*	0.011	0.049**	0.023	0.005	0.017
D_BG	0.661	0.488	0.400	1.197	0.655	0.851
D_PI	0.025	0.489	-0.662	1.261	-0.125	0.701
D_State	-0.017	0.895	1.049	1.677	-36.891***	0.927
Time Varying Covariates						
Log Asset	0.094	0.057	-0.062	0.089	0.194	0.139
PBDITA	0.002	0.007	-0.013	0.012	0.001	0.01
Leverage	0.002	0.001	0.008***	0.003	0.001	0.003
Bank Debt	0.002	0.003	0.004	0.004	0.004	0.005
Tangible	-0.004**	0.002	-0.008***	0.003	-0.001	0.003
CDR Lending Bank/FI Category						
D_SBIandA	-0.286	0.335	-0.377	0.689	-0.431	0.589
D_DPB	0.692**	0.308	1.339**	0.527	0.275	0.475
D_FB	-0.277	0.408	-0.738	0.627	0.102	0.654
D_Others	-0.909**	0.374	-1.080*	0.643	-1.000*	0.546
#Banks/FIs	-0.067	0.053	-0.146	0.095	-0.058	0.07
GDP growth	0.071	0.086	0.210	0.173	0.049	0.122
Observations	902		775		740	
Industry Fixed Effects	Yes		Yes		Yes	
Log pseudo-likelihood	-211.4		-79.7		-98.5	

The table reports Cox proportional hazard model regression for firms with both firm-specific variable and time-varying covariates. Robust standard errors are clustered at the firm level. Refer Appendix A for variable definitions.

Appendix: Variable definition and summary statistics

Variable	Unit	Empirical Definition	N. Obs	Mean (SD)	p.75 (p.25)
Firm-level					
Log Asset	..	Log (Total asset/WPI)	295	8.09 (1.30)	8.94 (7.14)
Asset	INR bn	Total asset of the firm	295	10.61 (20.47)	9.03 (1.46)
Log Age	..	Log(1+Age)			
Age	Years	Age of the firm	363	22.92 (15.60)	30.00 (12)
PBDITA	..	Profit before depreciation, interest and taxes/ Total asset	295	0.03 (0.15)	0.08 (-0.02)
Tobin's Q	..	(Market Value of Equity + Book value of Debt)/Total asset	186	0.78 (0.30)	0.85 (0.64)
BHAR	%	Annual Buy-and-Hold Abnormal Returns, calculated as: $ER_{j[a-b]} = \prod_{t=a}^b (1 + R_{j,t}) - \prod_{t=a}^b (1 + MR_t)$	189	-0.01 (1.09)	0.21 (-0.64)
		where, ER is the market-adjusted returns, R is the firm's daily closing stock price return; MR is the market's daily closing index return and (t=a to b) is the time frame			
Leverage	%	Total borrowings/ Total asset	294	70 (23)	79 (55)
Secured	%	Secured borrowings / Total borrowings	294	87 (13)	97 (81)
Bank Debt	%	Bank borrowings/ Total borrowings	292	63 (27)	87 (44)
Tangible	%	Plant, property and equipment/ Total asset	295	72 (35)	93 (48)
ICR	..	Profit before interest and tax/Total interest	289	-0.15 (6.83)	0.75 (-0.83)
MacKie-Mason (MM) score	..	3.3*(EBIT/Total asset) + 1.0*(Sales/Total asset) + 1.4*(Retained earnings/ Total asset) + 1.2 *(Working capital/ Total asset). Lower values indicate greater likelihood of financial distress.	290	0.28 (1.04)	0.78 (-0.12)
Equity	INR mn	Additional Equity brought in during the CDR period of the firm. It is defined as $Networth_t - Networth_{t-1} - Retained Profit_t$	366	890.92 (3508.41)	0.25 (0)
Promoter	%	Promoter's share in total equity	197	46.71 (16.84)	40.73 19.56)
D_BG	Dummy	1 = Business Group Firm	366	0.39 (0.49)	..
D_PI	Dummy	1 = Private Indian Firm	366	0.55 (0.50)	..
D_PF	Dummy	1 = Private Foreign Firm	366	0.02 (0.16)	..
D_STATE	Dummy	1 = State owned Firm	366	0.04 (0.19)	..
D_EQUITY	Dummy	1 = Positive equity brought in during CDR period, else zero	353	0.67 (0.47)	..
Bank-level					
Size	..	Log (Bank asset/WPI)	219	16.82 (1.18)	18.11 (16.19)
RoA	%	Profit before depreciation, interest and taxes/Bank asset	219	8.79 (0.48)	1.01 (0.68)
CRAR	%	Capital (tier-I plus tier-II)/Risk-weighted assets	219	13.10 (1.76)	13.73 (12.16)
NPL	%	Non-performing loan/Total loans	219	3.48 (1.64)	4.7 (2.6)
Coredep	%	Core Deposits /Total deposits	219	64.20 (16.02)	74.29 (61.58)
D_SBI&A	Dummy	1 = SBI and/or its associate banks	316	0.72 (0.45)	..
D_NAT	Dummy	1= Nationalised bank	316	0.97 (1.67)	..
D_DPB	Dummy	1= Domestic private bank	316	0.59 (0.49)	..
D_FB	Dummy	1= Foreign Bank	316	0.29 (0.45)	..
D_Others	Dummy	1= Investment bank/Development bank/NBFCs	316	0.44 (0.50)	..
CDR-related					
#Banks/FIs	Number	Number of financial entities associated with the firm	321	7.60 (5.07)	10.00 (4.00)
Duration	Years	Period for which a firm has been part of the CDR process	366	3.13 (2.98)	4.4 (0.9)
Log Duration	..	Log(Years)	366	3.13 (1.16)	3.98 (2.42)