Creditor Rights and Corporate Labor Policy: Evidence from a Policy Experiment *

Shashwat Alok Ritam Chaurey Vasudha Nukala

Preliminary and Incomplete: Please do not cite or quote

21 February 2017

Abstract

We study how firms respond to a strengthening of creditor rights by focusing on their choice of inputs of production. Following a legal reform that strengthened the rights of secured creditors in India, we find that there was an increase in the number of workers employed, higher wages for workers, but a reduction in investment in fixed capital and plant and machinery. These results are consistent with stronger creditor rights leading to a higher threat of liquidation for firms, that subsequently substitute secured formal credit for trade credit. The results suggest that firms preemptively substitute capital with labor in their production process in response to stronger creditor rights. We find support for our main results across different labor regimes, regions with differing pre-policy court efficiency, as well as across industries with differing capital-labor ratios and different elasticities of substitution between capital and labor.

Key Words: Creditor Rights, Labor Markets, Corporate Finance, Firms, Employment protection laws, Investor protection laws.
JEL Classification: G34, K22, K42

*Corresponding Author: Shashwat Alok, Indian School of Business, phone: (+91) 4023187188, email:shashwat_alok@isb.edu, Ritam Chaurey, State University of New York at Binghamton, email: rchaurey@binghamton.edu; Vasudha Nukala, email: vasudha_nukala@isb.edu, Indian School of Business, India. The usual disclaimer applies.

1 Introduction

A fundamental question in financial economics is whether and how do legal rules governing the financial contracting environment in general and the protection of creditor rights in particular affect real decisions of firms ((La Porta et al. (1998)). The extant literature examining the impact of creditor rights on real firm outcomes has focused extensively on firms' financing choices and capital investments (Benmelech and Bergman (2011), Roberts and Sufi (2009), Acharya et al. (2011) Vig (2013), and Gopalan et al. (2016)). However, comparatively little is known regarding the effect of creditor rights on factors of production other than capital and the choice between capital and labor.

There is a growing body of work highlighting the interaction between labor and firm financing. However, much of this literature focuses on the impact of labor market frictions on firm's capital structure decisions (Agrawal and Matsa (2013), Simintzi et al. (2014)). Benmelech et al. (2015) is a recent exception who examine the role of financial market imperfections on employment. Thus, the extant empirical evidence regarding the role of financial contracting environment on firm-level employment decisions is scarce. In this paper, we seek to address this gap by examining the impact of strengthening of creditor rights on corporate labor policies, and in particular the choice between labor and capital investment.

In this paper, we exploit a plausibly exogenous increase in creditor rights in India brought about by the passage of Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests Act (SARFAESI from now) of 2002 (Vig (2013), Bhue et al. (2015)) to investigate firm-level responses. SARFAESI allowed the secured creditors to circumvent the lengthy and inefficient judicial process by giving them the power to seize and liquidate the defaulter's assets.

Because SARFAESI was passed throughout India in 2002, the main empirical challenge in our setting is to construct a valid counterfactual. To circumvent this issue, we exploit cross-sectional variation in firms' access to collateralizable assets to generate variation in exposure

to the law. Specifically, we follow Vig (2013) and employ a difference-in-differences strategy that compares the outcomes of firms with a higher proportion of tangible assets (*treatment group firms*) to those firms with lower proportion of tangible assets (*control group firms*). To the extent that tangible assets are more easily securitized, firms with more tangible assets are more likely to be affected by the passage of SARFAESI that governs secured lending transactions. Moreover, we control for factory (firm) fixed effects, year fixed effects and industry-year fixed effects in all our tests. The use of firm fixed effects in a difference-in-differences framework essentially implies that our estimates are identified through within firm variation in outcome variables across our treatment and control sample before and after the passage of SARFAESI. Furthermore, by including industry-year fixed effects, we are controlling for the time-varying differences across industries in a flexible manner.[1]

Another challenge related to studies examining corporate labor policies is the lack of granular data on firm level employment and wages.[2] To this end, we use detailed establishment level panel data from Annual Survey of Industries (ASI) in India. ASI provides information on employment, wages, capital investment, and furnishes a detailed break up of the number of permanent and contract workers at each establishment along with wage expenses and financial statements.

Using the DID strategy, we find that as a result of SARFAESI, treated firms differentially reduce the amount of secured formal loans in the short-term as compared to control firms. This result is consistent with the evidence presented in Vig (2013). Next, we document a novel result with regards to other sources of firm financing. We find that treated firms differentially increase their reliance on trade credit post-SARFAESI compared to control firms. In essence, post-SARFAESI, treated firms substitute away from secured credit towards trade credit (unsecured credit) as compared to control firms. To the extent that trade credit

[1]These fixed effects ensure that our results are not driven by entry of new firms with a higher labor-capital ratio or time-varying changes in labor-capital mix for some industries. For instance, a skeptic could be concerned that our results may be confounded by growth/entry of IT industry in India which employs more labor relative to capital.

[2]For instance wage expense is missing for 90% of Compustat Firm-year observations.

is a costly source of finance (Petersen and Rajan (1994), De and Singh (2013)), this evidence is consistent with SARFAESI resulting in higher threat of liquidation that raised the effective cost of secured credit for firms and led them to substitute towards unsecured credit.

Since secured debt is generally used to finance capital investment, an increase in the effective cost of secured loans due to higher threat of liquidation, might lead firms to substitute away from investing in capital towards hiring more workers. We find evidence for this channel. We find that treated firms differentially increase the total number of workers, and pay them higher wages compared to control firms as a result of SARFAESI. However, treated firms differentially invest lesser in fixed capital, and plant and machinery relative to control firms.

Next, we examine the dynamic effects of passage of SARFAESI. Consistent with the idea that it takes time to change the production process from capital-intensive to labor intensive, we find that the impact of SARFAESI on firm financing, labor, and capital investments that we discussed above cumulatively increases over time (See figure 1). This suggests that the effect is not transitory and persists over the long-term. Most importantly, we do not observe any pre-trends in the data, which is critical for identification in a difference-in-differences setting.

Next, we exploit cross-sectional variations across space to look at heterogeneous effects of SARFAESI. We use a difference-in-differences-in-differences (DIDID) to examine whether SARFAESI differentially affected treated and control firms across (i) different labor regimes (pro-worker versus pro-employer) and (ii) states with varying levels of pre-SARFAESI judicial efficiency. We find evidence supporting our main results. We find that treated firms as compared to control firms in pro-employer states differentially hire more workers, but find no differential effect on capital investment, post-SARFAESI as compared to before the law change. Finally, we find that in states with lower pre-SARFAESI court efficiency (where the effects of SARFAESI should have been larger) as compared to higher court-efficiency,

treated firms differentially hire more workers, invest lesser in plant and machinery, relative to control firms.

Finally, we look at the heterogeneity of treatment effects across different industries using triple-differences specifications. We compare the effects of SARFAESI on treated firms versus control firms in (i) industries with different elasticities of substitution between capital and labor, and (ii) industries with different capital-labor ratios. We find that in industries with high elasticity of substitution, treated firms differentially hire more workers and invest less in capital than control firms after SARFAESI relative to before SARFAESI, compared to industries with low elasticity of substitution. The differential effects across industries with high and low capital-labor ratios are also similar, with treated firms substituting capital for labor more than control firms.

Overall, the DIDID tests exploiting cross-sectional heterogeneity further strengthen the causal interpretation of our findings.

From a theoretical perspective, the ex-ante effects of strengthening creditor rights on labor input choice are a priori ambiguous. On one hand stronger creditor rights serve to increase expected debt recovery, thereby both lowering the cost of credit and increasing credit supply (La Porta et al. (1998), Djankov et al. (2007), Visaria (2009), and Haselmann et al. (2010)). This in turn can spur investments through increased access to capital (Benmelech and Bergman (2011); Gopalan et al. (2016)). To the extent that capital and labor may be complements, this would imply a positive impact on employment as well. However, on the other hand creditor rights could be excessive and may lead to an increase in inefficient liquidation and the likelihood of default (Aghion et al. (1992), Shleifer and Vishny (1992), Assunção et al. (2014)). This in turn can increase the effective cost of leverage, thereby dampening the demand for credit and at the same time adversely impacting the investment decisions of firms (Vig (2013), Acharya and Subramanian (2009), Acharya et al. (2011)). Under the assumption that capital and labor are complements, strengthening creditor rights

can indirectly have an adverse impact on employment through its impact on firm level investment.

Capital and labor may also be substitutes (Arrow et al. (1961)) and thus the financing environment of the firm can have diametrically opposite effects on labor and capital (Garmaise (2008)). Specifically, in settings under which creditor rights result in an increase in liquidation bias, firms may find it optimal to substitute capital with labor for at least three reasons, First, since tangible assets are easier to seize and liquidate, firms may choose to substitute tangible assets (for instance, fixed assets such as plant and machinery) with intangible assets (labor). Second, to the extent that capital requires upfront investments and needs to be financed, while labor expenses can at least partially be met ex-post from sales revenue, firms trying to reduce their leverage risk (driven by liquidation bias) may substitute capital with labor. Finally, Brown and Matsa (2015) find that financial distress adversely effects the ability of firms to attract talent. Thus, if creditor rights are associated with increased risk of liquidation and default, firms may prefer to hoard labor ex-ante to avoid the aforementioned situation in an event that distress ever arises. In our setting, we find that the strengthening of creditor rights led to an increased liquidation bias for treated firms that subsequently hired more workers, and invested less in fixed capital including plant and machinery. In some sense after SARFAESI, the stronger creditor rights had the unanticipated effect of moving firms towards more labor-intensive production processes.

Our study contributes to several strands of literature. First, it contributes to the growing body of work in the area of "labor and finance" that acknowledges and examines the linkages between firm financing and labor. However much of this literature focuses on the impact of labor market frictions on firm's capital structure decisions. Agrawal and Matsa (2013) find that higher unemployment benefits are associated with an increase in firm leverage. Simintzi et al. (2014) find that increase in employment protection is associated with a decrease in leverage possibly because labor protection increases the costs of financial distress. Conversely financial contracting environment can also impact firms' labor input and wage decisions

(Benmelech et al. (2015)). Consistent with this view, Benmelech et al. (2012) and Falato and Liang (2014) find that financial distress and covenant violations are associated with a downward revision in wages and drop in employment respectively. Our paper attempts to further the scholarship in this area by investigating the ex-ante effects of strengthening creditor rights on firm level employment, wages, and capital investment.

Second, our study also relates to the large body of work that examines the impact of creditor rights and debt enforcement on corporate policies (Acharya et al. (2005), Haselmann et al. (2010), Acharya and Subramanian (2009)), Bae and Goyal (2009), Acharya et al. (2011), Gopalan et al. (2016)) and more broadly to the literature on real effects of financial frictions (Campello et al. (2010), Chaney et al. (2012), Hombert and Matray (2015)). To the best of our knowledge, however, this is the first paper to show that strengthening of creditor rights might lead to an ex-ante firm-level readjustment of labor and capital investment in opposite directions to counteract the increased threat of liquidation.

The rest of the paper is organized as follows. In section 2, we discuss creditor rights in India, followed by a description of the data in section 3. The empirical strategy and results are discussed next in sections 4 and 5 respectively. Finally, section 6 concludes.

2 Creditor Rights in India

Historically, regulatory bottlenecks and judicial delays in the recovery of secured assets by creditors were the hallmarks of lender-borrower relationships in India. All loan recovery cases in the event of a default were filed in the civil court system, which had to follow the tedious Code of Civil Procedure Act of 1908. For example, according to the Law Commission of India (1988), approximately 40 percent of the debt recovery cases in 1985 had been pending for more than 8 years. The lengthy judicial process, led to a large depreciation in the value of secured assets held as collateral by the bank.

To fasten the judicial process in debt recovery cases and thereby strengthen creditor rights, the Government of India passed two reforms: (1) The Debt Recovery Tribunal Act of 1993 (DRT Act) and (2) the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests Act of 2002 (SARFAESI Act).

Debt Recovery Tribunals were specialized courts for loan recovery cases that were set up across India beginning in 1994. To ensure quick recovery on defaulted loans, the tribunals were not required to follow the lengthy Code of Civil Procedure. DRTs set up their own streamlined procedures to expedite the processing of loan default cases. For more detailed discussion on DRTs, see Visaria (2009), Lilienfeld et al. (2012), and Gopalan et al. (2016).

However, even after the establishment of DRTs, secured creditors could not seize security of a defaulting firm without a court/tribunal order. Before 2002, the lack of any mechanism outside of tribunal proceedings meant that recovery of security interests was effectively stayed. Furthermore, the Industrial Disputes Act of 1947, that governs labor laws in India, also made restructuring and liquidation hard by forcing firms with greater than 100 workers to seek prior government approval before closing down. This meant that assets of defaulting firms would depreciate significantly, leading to lower values of recovered secured credit for banks and financial institutions.

The SARFAESI Act of 2002 made creditor rights much stronger than the pre-SARFAESI era by allowing secured creditors to seize the assets of a defaulting firm without having to go through the court/tribunal process. Importantly, the law applied to both old and new contracts, and only covered secured loans leaving unsecured loans outside of its purview. Essentially, after 2002 (SARFAESI Act), if a firm defaulted on its payments for more than 6 months, a secured creditor (bank or financial institution) could seize and liquidate their assets by giving a 60-day demand notice. After the 60-day period, banks would advertise a possession (or auction) notice in leading newspapers, essentially to complete the seizure and liquidation of the assets. In figure 1, we show an example of such a possession/auction notice. Secured creditors also had the right to take over the business or the management of assets under SARFAESI.

The SARFAESI Act did provide an avenue for appeal by the debtor. But, an appeal was only possible after the property was seized, and to seek an injunction, the borrower had to deposit 75% of the defaulted amount with a tribunal. Under SARFAESI, the secured creditor had the right to take control of the management of the secured assets and also to sell the secured assets to recover the dues. The Act did not change the priority rights in insolvency, with secured creditors and workmen's dues at the top, followed by government dues, and other preferential claims. Note however, that SARFAESI did not consider the rights of unsecured creditors. Batra (2003), Umarji (2004), and Vig (2013) provide a comprehensive discussion of the SARFAESI Act.

There is evidence that banks used the provisions of the SARFAESI Act aggressively. Figure **??** plots the number of possession/auction notices in leading newspapers before and after SARFAESI. After 2002, we see a big jump in the number of such notices in newspapers. This is suggestive evidence that banks started using SARFAESI provisions to seize and liquidate the assets of firms. There is other supporting evidence that loan recovery by banks improved a lot after SARFAEASI. For example, post-SARFAESI, there was a steep decline in the amount of non-performing assets held by banks between 2002-08 (figure **??**).

In summary, post-SARFAESI creditor rights became much stronger relative to the pre-SARFAESI regime, as secured creditors could bypass the lengthy court/tribunal proceedings and seize and liquidate the assets of the defaulting firm to recover their obligations. Many termed SARFAESI as a draconian piece of legislation, with corporate lobby groups arguing that this law would lead to abuse of power by banks as they did not have to seek the court?s permission to invoke its provisions. Borrowers were clearly aware of the law change, as this was discussed widely in media outlets and on banks' websites. In response to this sudden and dramatic change in the balance of power between debtors and creditors, firms most definitely felt threatened and would have made adjustments in fear of being liquidated. We study these firm adjustments in response to SARFAESI in this paper.

3 Data

Our main data source for the analysis is the Annual Survey of Industries (ASI), conducted by the Ministry of Statistics and Program Implementation (MoSPI) in India. This unique data set provides information about all industrial units covered under Sections 2(m)(i) and 2(m)(ii) of the Factories Act, 1948 which includes all firms employing 10 or more workers using electricity and 20 or more if the unit does not use electricity. This data is particularly well-suited for our study as it provides extensive information on the intensive and extensive margins of labor supply at the firm level i.e. number of permanent workers and contract workers for each firm/ factory. For the purposes of this study, we will use factories and firms interchangeably.

We study data from the ASI over the period 1999 to 2008. The data consists of yearly observations from over 200,000 factories spread all across India. The data set consists of over 500,000 observations. 39.40% of the factories are located in rural areas, while 59.88% are located in urban areas. The data set consists of factories that can be categorized into various types of organizations majorly consisting of individual proprietorship (20.65%), joint

family (1.61%), partnership (28.22%), public limited company (18.31%) and private limited company (26.79%).

The ASI frame is divided into census (surveyed every year) and sample (sampled every few years) sectors. In this data set, 34.75% of the data are from census sector, while around 65.25% are from sample sector. The definition of these two sectors has undergone changes over the years. The census sector covers all firms in five industrially backward states (Manipur, Meghalaya, Nagaland, Tripura and Andaman and Nicobar Islands) and large factories. In the ASI, the definition of a large factory to be covered in the census sector has changed from 200 or more employees (1998-2000) to 100 or more employees (2001 onwards). The rest of the firms are covered in sample sector. A third of these firms are randomly selected in the survey each year. The reference year for the ASI is the accounting year from 1st April of the previous year to 31st March of the next year. For example, data from 2004 to 2005 will include the period from 1st April 2004 to 31st March 2005.

The primary outcome variables of interest are divided into four categories: (i) employment (ii) capital investments and (iii) debt. For detailed discussion of the variables considered, refer to the subsection - "Summary statistics" below.

We extend our analysis by interacting SARFAESI law with state labor laws regime prevalent in India. The Industrial Disputes Act (IDA) of 1947, set up by federal government, is the core of labor laws in India and covers various aspects such as resolution of industrial disputes by setting up tribunals and labor courts, hiring and firing workers, closure of establishments, strikes and lockouts in the formal sector. Although passed by the federal government, IDA was known to be amended several times by the state governments. These amendments have made some states pro-employer while some pro-worker, resulting in different labor regimes across different states. Labor regulation measures used in this paper is based on Besley and Burgess (2004) (BB code henceforth). BB code encodes each state level amendment made to the IDA between 1958 and 1992 as either being pro-worker (+1), neutral (0), or pro-employer

(-1). A pro-worker (pro-employment) amendment is one which decreases (increases) a firm's flexibility in hiring and firing of workers while a neutral amendment leaves it unchanged. The cumulated sum of these scores in all previous years would determine the state's labor regime in a particular year. We follow BB and use the following categorizations: "pro-worker states" - West Bengal, Maharashtra, Orissa, "pro-employer states" - Rajasthan, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Gujarat and "neutral states" - Punjab, Haryana, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Assam, Chhattisgarh, Jharkhand, and Madhya Pradesh. Since this measure is a cumulated sum of scores over years, this labor regulation measure varies both across states and over time. IDA regulations are intended primarily for protecting permanent workers. Hence, firms have more flexibility in hiring and firing contract workers in comparison to permanent workers. This flexibility is further increased due to the lower wages paid to contract workers relative to permanent workers.

We further extend our analysis by interacting SARFAESI law with court efficiency in various states. Court efficiency reflects the speed of the judiciary system in India. The data on court efficiency are obtained at the state-year level from annual "Crime in India" Reports, published by India's National Crime Records Bureau. This is an annual publication of the Ministry of Home Affairs that details the trends and patterns in crime throughout India. The report provides detailed information on the duration of all cases brought before the lower-level courts in each state in any given year. Court efficiency measures used in this paper is based on - Amirapu (2015) (Amirapu henceforth). Amirapu (2015) uses the fraction of trials that are disposed of in less than one year in the District/Sessions court. We use the court efficiency data for the year 2001, one year prior to the passage of the SARFAESI law.

3.1 Summary Statistics

The following tables and figures present summary statistics of the main variables used in the analysis. After calculating the pretreatment asset tangibility measure of firms (discussed

later in the methodology section) i.e. weighted average of asset tangibility of unique firms prior to the enforcement of the legal reform, and then matching it to the entire sample period of 1999-2008, we end up with over 350,000 observations for the analysis. The summary statistics for the main variables, obtained from the ASI database are shown in Table 2.

The summary statistics are divided into five sections i.e. debt, employment, capital, performance and control. **Debt** variables include STtradecredit, STformalcredit and STDebt. STtradecredit which stands for short term trade credit is defined as working sundry creditors. STformalcredit which stands for short term formal credit is defined as working overdraft. STDebt which stands for short term debt is defined as working total liabilities. **Employment** variables include number of permanent, contract & total workers and wage per worker for permanent, contract & total worker. **Capital** variables include GVAFC and GVAPM. GVAFC is gross value added to fixed capital while GVAPM is gross value added to plant & machinery. **Control** variables include profit and total assets. In establishing a causal relation between the main variables and the law, we also need to take into account that some of the affects might be influenced due to the firm size. To address this issue, we control for size using the above mentioned control variables.

The table below summarizes the **court efficiency** statistics. Amirapu (2015) uses fraction of trials that are disposed of in less than one year in the District/Sessions court.

Court Efficiency Statistics					
	Observations	Mean	Standard Deviation	Minimum	Maximum
Amirapu ratio	32	0.213726	0.235898	0	1

4 Empirical Strategy

We examine the impact of the SARFAESI law on firms by using a difference-in-differences (DID) setup. Because SARFAESI was a national policy enacted in 2002 affecting all firms,

we use an asset tangibility measure to define our treatment and control groups following Vig (2013). Asset tangibility is defined as the ratio of fixed assets to total assets (Rajan and Zingales (1995)), and can be thought of as a measure of collateralizable assets. To the extent that tangible assets are more likely to used as collateral for long-term debt and longer duration borrowings are used to finance capital investments (Benmelech et al. (2015)), a policy that strengthens creditor rights should differentially affect inputs and debt choices of firms with a higher proportion of tangible assets as compared to those with a lower proportion. Hence, we divide our sample into terciles (top 33%, middle 33% and the bottom 33%) based on the pre-SARFAESI average measure of asset tangibility. We define the highest tercile as the treated group and the lowest tercile as the control group. Specifically, the DID regressions estimate the effect of SARFAESI by comparing the average change in firms' outcomes in the highest tercile of asset tangibility to those in the lowest tercile of asset tangibility, before and after the policy. Before looking at the difference-in-differences regression specifications, we graphically look at the parallel trends assumption. In figures 4 and 5, we can visually check that the treated and control firms have similar trends for the demeaned values of various outcome variables (employment, capital investment, and debt) before 2002. These parallel pre-treatment trends provide visual support for the use of difference-in-differences (DID) strategy in this context to estimate the causal effect of the policy change.

Formally, to evaluate the effect of the SARFAESI law, we estimate the following regression specification using firm-level data:

$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\, Law_t + \beta_1\, Treatment_i + \beta_2\, Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt} \qquad (1)$$

where i indexes firm, j indexes industry and t indexes year. Y_{ijt} refers to the *dependent variable* of interest for firm i in industry j in year t, and ν_i and δ_{jt} are firm and 3-digit industry-year fixed effects respectively. The firm fixed effects control for any time-invariant unobserved heterogeneity at the firm level. Law_t is an indicator variable that takes on a value of 1 in years in which the law is in place (2002-2008), and 0 otherwise (1999-2001),

and $Treatment_i$ is an indicator variable that takes on a value of 1 if the firm belongs to the treated group (high tangibility group) and 0 if it belongs to the control group (low tangibility group). Note that Law_t will be completely absorbed by industry-year (firm) fixed effects, δ_{jt} while $Treatment_i$ will be completely absorbed by firm, ν_i. X_{it} refers to the *control variables* (profit/total assets and log(total assets)), and ϵ_{idt} is the error term. The coefficient on the interaction term $Law_t \times Treatment_i$, β_2 captures the differential impact of the law on *treatment group* relative to the *control group* and hence is the parameter of interest.

The standard DID specification controls for any possible omitted variable bias arising out of pre-treatment time-invariant differences between the treatment and control group as well as aggregate time trends. However, one concern may be that the passage of SARFAESI was correlated with time-varying differences across different industry groups. We address this concern by including 3-digit industry$X$year fixed effects in our regression specifications. This is a nonparametric way of controlling for time-varying industry-specific shocks. This implies that the regression estimates are identified through within-firm and within-industry variation in our outcome variables of interest around the passage of the law. At the same time industry-year fixed effects also controls for industry specific time trends. We cluster standard errors at the firm level.

To look at the heterogeneous effects of SARFAESI across different regions and industries, we use difference-in-difference-in-differences (DIDID) regressions. First, we focus on the responsiveness to SARFAESI of firms in the treated and control groups located in states where courts are more efficient in settling cases compared to states where legal procedures are slow, before and after the policy. We use Amirapu (2015) measure for the efficiency of courts, which is calculated as the fraction of trials disposed of in less than one year in the District/Sessions court in the state. SARFAESI should affect firms in the treated and control groups differentially based on whether they are located in high court-efficiency states versus low court-efficiency states. Firms in states with low court-efficiency were used to slower and lengthier legal procedures and experienced a differentially larger shock with the advent of

SARFAESI. This is in contrast to the experience of firms in states with high court-efficiency that were used to faster court procedures.

To examine the differential response of firms, we estimate the following difference-in-difference-differences (DIDID) specification:

$$\begin{aligned} Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ Court-efficiency}_\text{s} + \beta_3 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} \\ + \beta_4 \text{ Law}_\text{t} \text{ X Court-efficiency}_\text{s} + \beta_5 \text{ Court-efficiency}_\text{s} \text{ X Treatment}_\text{i} + \\ \beta_6 \text{ Court-efficiency}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_7 X_{ijt} + \epsilon_{ijst} \end{aligned} \tag{2}$$

where court-efficiency$_\text{s}$ is an indicator variable that takes on a value of zero if a state is considered to be highly efficient (if the Amirapu court efficiency measure is above the median) and one if it is less efficient (if the Amirapu court efficiency measure is below the median). The rest of the terms are similar to equation (3). The coefficient on the triple interaction terms, β_6 captures the DIDID effect and is the parameter of interest.

Next, we look at the differences in treatment effects between firms in the treated group compared to firms in the control group located across different labor regulations in India. We run regressions of the form:

$$\begin{aligned} Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ Pro-worker}_\text{s} + \beta_3 \text{ Pro-employer}_\text{s} \\ + \beta_4 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_5 \text{ Pro-worker}_\text{s} \text{ X Treatment}_\text{i} + \beta_6 \text{ Pro-employer}_\text{s} \text{ X Treatment}_\text{i} + \\ \beta_7 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} + \beta_8 \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} + \beta_9 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} \\ + \beta_{10} \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_{11} X_{ijt} + \epsilon_{ijst} \end{aligned} \tag{3}$$

where i indexes firm, t indexes time, j indexes industries, and s indexes state. Y_{isjt} refers to the *outcome variable* of interest for firm i, in year t, in state s, and in industry j; ν_i and $\delta_j t$ are firm and industry-year fixed-effects respectively; *law*, and *treatment* are defined similar to the DID specification above. We use labor regulation measures from Besley and Burgess (2004) - (BB code) who code each state-level amendment made to the Industrial Disputes Act

between 1958 and 1992 as being pro-worker (+1), neutral (0), or pro-employer (-1). Based on this cumulative score, a state is then assigned to one of the three groups pro-worker, pro-employer, or neutral. Hiring and firing of permanent workers is easier in pro-employer states, followed by neutral states, and pro-worker states. The Industrial Disputes Act, however, does not apply to contract workers (temporary workers). Based on the BB measure we define *Pro-worker* as an indicator variable that takes on a value of one if a state is pro-worker and zero otherwise. *Pro-employer* is an indicator variable that takes on a value of one if a state is pro-employer and zero otherwise. X_{isjt} refers to the *control variables* (e.g., profit/total assets and log(total assets)), and ϵ_{idt} represents the error term. The coefficient on the triple interaction terms, β_9 and β_{10} capture the DIDID effects and hence are the parameters of interest. The omitted category in this regression is firms in neutral states.

We then focus on differential responses of firms to SARFAESI across industries with varying ease of labor-capital substitution. We use Goldar et al. (2013)for our measures of the elasticity of substitution for manufacturing industries at the 2-digit industry-level. Similar to our baseline regressions, we divide our sample into terciles based on these measures. We define the highest tercile as the treated group and the lowest tercile as the control group.

Formally, to examine the difference in response of high and low ease of substitution firms to the SARFAESI law, we estimate the following difference-in-difference-differences (DIDID) specification:

$$\begin{aligned} Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ High Substitution}_\text{i} + \beta_3 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} \\ + \beta_4 \text{ Law}_\text{t} \text{ X High Substitution}_\text{i} + \beta_5 \text{ High Substitution}_\text{i} \text{ X Treatment}_\text{i} + \\ \beta_6 \text{ High Substitution}_\text{i} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_7 X_{ijt} + \epsilon_{ijst} \end{aligned} \tag{4}$$

where *High Substitution*$_i$ is an indicator variable that takes on a value of one (zero) if a firm i is in the highest (lowest) tercile of ease of substitution. The rest of the terms are similar to equation (3). The coefficient on the triple interaction terms, β_6 captures the DIDID effect and is the parameter of interest.

In addition to estimating the baseline DID regression equation (1) which compares the average differential response to SARFAESI (Post-SARFAESI vs Pre-SARFAESI) by the treatment relative to the control group, we also analyze the inter-temporal dynamics of employment, capital investment, and debt responses of treated and control firms. Specifically, we estimate the following distributed lag model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \alpha_0 \, Treatment_i + \sum_{n=1999}^{2008} \beta_n \, I_n \times Treatment_i + \sum_{n=1999}^{2008} \theta_n I_n + \alpha_1 X_{ijt} + \epsilon_{ijt} \tag{5}$$

Following Agarwal and Qian (2014), the results can be interpreted as an event study. I_n is a dummy variable that identifies the year n. The coefficient β_{2002} measures the immediate DID effect of SARFAESI law on the dependent variable. The *marginal* coefficients β_{2003},..., β_{2008} measure the *additional* marginal responses one year,..., six years after the implementation of the SARFAESI law respectively. Similarly, coefficients β_{1999},β_{2000}, β_{2001} capture the difference of trends for each of the dependent variable between the treatment group and the control group in each of the three pre-treatment years.

5 Results

We begin by investigating the impact of SARFAESI on our main variables of interest - employment and investment in capital by firms using our baseline difference-in-differences specification. Next, we focus on the heterogeneous effects of SARFAESI on firms in the treated and control group located across regions with varying court efficiency, across different labor regimes, and across industries with differing elasticities of substitution between capital and labor using triple differences specification (DIDID). After discussing our main results, we turn to our results on the impacts of SARFAESI on debt, and firm closures.

In all our regressions, we control for firm fixed effects. Additionally, we control for time-varying industry-specific shocks by controlling for 3-digit industry-year fixed effects. Note

that industry-year fixed effects also controls for time-varying aggregate economic shocks and trends.

5.1 Employment, and Investment in Capital

In Table 4, we focus on the impact of SARFAESI on firm-level employment. The **employment** variables include number of permanent, contract, and total workers and we also look at wages per worker for permanent, contract, and total workers. In columns 1 and 2 (with controls), we find that firms in the treated group hire 6.8%-7.9% more permanent workers than firms in the control group post-SARFAESI as compared to before SARFAESI. In columns 3 and 4, we find similar increases (7.4%-8.2%) in the number of contract workers. These are workers (often temporary in nature) who are hired through outside contractors and are not on the payrolls of the firm. Columns 5 and 6, confirm that the total number of workers (the sum of permanent and contract) also increase for firms in the treated group as compared to the control group. In columns 7 through 12, we look at the impact of SARFAESI on the wages of permanent, contract, and total workers. Similar to the results on employment, we find that wages of workers increase substantially in firms in the treated groups relative to the control group.

In table 5, we look at the impact of SARFAESI on capital investment by firms. Investment by firms includes the actual additions made to fixed capital and plant and machinery, and we focus on the ratio of GVAFC (gross value additions to fixed capital) to total workers, and the ratio of GVAPM (gross value of additions to plant and machinery) to total workers. Finally, we also look at the expenditures by firms on rental plant, machinery, and fixed capital. In columns 1 and 2, we find that SARFAESI led to a significant reduction in GVAFC/total workers for treated firms relative to control firms. Columns 3 and 4 confirm these results for the ratio of GVAPM to total workers. We interpret the results in tables 4 and 5, as a response to SARFAESI by firms in the treated group to hire more workers and

reduce their fixed capital investment relative to the control group. This is consistent with firms in the treated group differentially experiencing a higher threat of liquidation post-SARFAESI, thereby substituting away from factors of production that can be seized by banks (tangible fixed assets) towards labor. Furthermore, in columns 5 and 6, we find that treated firms differentially spend more on rental plant, machinery, and fixed capital. This is again consistent with the other results because in the event of default, banks are unable to seize rental machinery, and plants as opposed to those owned by the firm.

These results are also visually clear in figure 4, where we plot the demeaned values of (a) GVAFC by total workers, (b) GVAPM by total workers, and (c) log [total workers]. Before 2002, the demeaned trends of both GVAFC by total workers, and GVAPM by total workers for the treated and control firms are parallel, with the trends for treated firms starting above those for the control firms. After 2002, we see a sharp decline in the trends for treated firms, whereas no such changes are seen in the trends for the control firms. The demeaned trends for log [total workers] are also parallel for the treated and control firms before SARFAESI (2002), and post-2002 we see an increase in the employment trends for the treated firms whereas the trends for control firms do not show any change. In essence, both the regression analysis and the graphs show that after SARFAESI, the firms with the highest threat of liquidation reduce investment in capital and hire more workers.

Additionally, we also show robustness of our results to alternate treatment definitions. We use two different measures in defining the treatment group. First, we use the ratio of land and buildings to total assets as a measure of collateralizable assets. This is based on the fact that land is often used as a collateral for loans in India. Based on this definition, we define the treatment group as firms in the highest tercile and the control group as firms in the lowest tercile of the ratio of land and buildings to total assets (before SARFAESI). Our second measure is simply based on the amount of outstanding loans before the passage of SARFAESI. For the sake of consistency, we again define the treatment and control groups as the highest and lowest tercile of this measure. In table A1, we use our first measure -

ratio of land and buildings to total assets. In column 1, we confirm that treated firms hire more workers, and invest less in fixed capital, and plant and machinery (columns 2 and 3). We report results from using our second measure (amount of outstanding loans) in table A2. We again find that treated firms increase the number of workers (column 1) and reduce their capital investments (columns 2 and 3).

We provide further credence to our main results by showing heterogeneous treatment effects across regions and industries next.

5.1.1 Heterogeneity across states with different court efficiency

In our main results, we show that in response to SARFAESI, treated firms invested less in capital, and increased the number of workers. These effects should be stronger in regions where the threat of liquidation after SARFAESI was higher. In relative terms, after SARFAESI, banks had a higher incentive to liquidate defaulting firms in states where resolution of disputes in courts took longer (thus lower court efficiency) before SARFAESI, than in states that had speedier resolution of disputes (high court efficiency). Thus, the law change should have had a larger effect in states that were used to slower legal procedures (thus had lower court efficiency) before the passage of SARFAESI in 2002. In states where the courts were already efficient (in a relative sense) before 2002, SARFAESI should have had a smaller effect. Based on this intuition, we run triple-differences (DIDID) regression specifications, where we look at the differential effect on our main outcomes of interest - employment and capital investment, between firms in the treated and control groups located across states with high (above median) and low (below median) court efficiency, after the passage of SARAFESI compared to the pre-SARFAESI era. We use the Amirapu (2015) measure of pre-SARFAESI court efficiency - the fraction of cases disposed off in less than one year in the Districts/Sessions court before 2002.

These DIDID regressions are a strict test for our initial findings that treated firms dif-

ferentially hire more workers and invest lesser in capital compared to control firms after SARFAESI relative to before the law change.

In table 9, columns 1 and 2, we find that treated firms differentially hire more workers than control firms in states with low court efficiency compared to states with high court efficiency after the policy relative to before SARFAESI. In columns 3 through 6, we find that treated firms differentially invest lesser in fixed capital, and plant and machinery (as compared to control firms) in low court-efficiency states relative to high court efficiency states after SARFAESI compared to before SARFAESI.

These results provide strong support to our main results because we find that in areas where SARFAESI had a bigger bite, treated firms hired more workers, and invested lesser in capital.

5.1.2 Heterogeneity across states with different labor law regimes

Labor regulations in India differ by states and apply differently across types of laborers. We use Besley and Burgess (2004) codes to classify states as pro-worker, pro-employer, and neutral. In pro-worker states, hiring and firing of permanent workers is the hardest, followed by neutral, and pro-employer states. However, there are no such regulations on the hiring and firing of contract workers. If post-SARFAESI firms in the treated group hire more workers than the control group, we would expect to see a differential response by these firms located across labor regimes in the hiring of different kinds of workers (permanent or contract workers). We would thus expect to see treated firms in pro-employer states differentially hire permanent workers, and treated firms in pro-worker states differentially hire contract workers relative to control firms in response to SARFAESI. However, we do not expect SARFAESI to cause a differential response in terms of capital investments by treated firms compared to control firms across states with different labor regulations.

Thus, we run DIDID regression specifications and look at the difference in outcomes

(employment, and capital investment) for firms in the treated group located across different labor regimes (pro-worker, neutral, and pro-employer) compared to firms in the control group before and after the passage of SARFAESI. Note that neutral states are the omitted category in this regression.

In table 7, columns 1 and 2, we find that as a result of SARFAESI, treated firms differentially hire more permanent workers than control firms in *pro-employer* states as compared to pro-worker states. In columns 3 and 4, we look at the differential response for firms (in treated and control groups) located across labor regimes in the hiring of contract workers. We find that treated firms in *pro-worker* states differentially hire more contract workers relative to pro-employer states.[3] These results make intuitive sense because hiring and firing of permanent workers is easier in pro-employer states than in pro-worker states, whereas these rules do not apply to contract workers. In columns 5 and 6 we find some weak evidence that treated firms differentially hire more workers (permanent + contract) than control firms in pro-employer states as compared to pro-worker states.

Next, we look at the differential effect on investment across labor regimes for firms in the treated and control group in table 8. We find no evidence of differential effects on investment. This result also makes sense because apart from the difficulties in hiring and firing of permanent workers, these states do not differ along other margins that would differentially affect investment behavior of firms in the treated and control groups.

Our DIDID results showing heterogeneous effects of SARFAESI across regions with varying court efficiency and labor regulations strengthen our main findings. We give further evidence for our main results by focusing on heterogeneity across industries.

[3]These results are similar to Chaurey (2015), who finds that in response to demand shocks, firms in pro-worker states differentially hire more contract workers.

5.1.3 Elasticity of substitution

We show in our main results that SARFAESI caused firms in the treated group to hire more workers and invest less in capital as compared to the control group. These effects should be differentially larger in industries where the elasticity of substitution between labor and capital is higher. For this analysis we use measures of elasticity of substitution for 22 manufacturing industries (at the 2-digit level) for India from Goldar et al. (2013). We divide industries in to terciles with and compare the effects on the treated firms before and after SARFAESI in the highest tercile (industries with the highest elasticity of substitution) to the lowest tercile relative to the same changes in the control firms. In table 10, columns 1 and 2, we find that firms in the treated group (when compared to the control group), in industries with high elasticity of substitution between capital and labor relative to industries with low elasticity of substitution differentially hire more workers after SARFAESI as compared to before SARFAESI. These firms in the treated group also invest less in fixed capital and plant and machinery (columns 3-6). Taken together, we find that the treatment effect of SARFAESI on employment and capital investment, is higher in industries with higher elasticity of substitution as compared to industries with low elasticity of substitution between capital and labor.

5.2 Debt

Thus far, we have discussed how the SARFAESI-induced increased threat of liquidation for firms with higher share of collateralizable assets led them to increase employment and reduce their capital investment. We now discuss other results to support our claims.

We consider whether the passage of SARFAESI in 2002, differentially affected firms in the treated and control groups with respect to the amount and source of short-term debt. A strengthening of creditor rights (SARFAESI) could have two opposing effects on the amount of secured debt demanded by firms. Since the value of collateral increased post-SARFAESI,

secured creditors should have been willing to lend more. However, as discussed earlier, if firms experience a higher threat of liquidation after SARFAESI, they should take on less secured debt and move towards unsecured/informal sources of debt. Both of these effects should be larger for firms with a higher fraction of collateralizable assets (treatment group). Note that in the ASI data set, we do not have good information on long-term debt therefore, we only focus on short-term debt variables for this analysis.

In Table 11, we look at the impact of SARFAESI on short-term debt variables. In columns 1 through 4, we look at the effect on short-term formal credit. This includes over draft, cash credit, and other short-term loans from banks and financial institutions. In Columns 1 (without controls) and 2 (with controls), we find that SARFAESI led to a decline in short-term formal credit for firms in the treated group to increase by 22.5%-31.6% as compared to firms in the control group. We also confirm this result by focusing on the ratio of short-term formal credit to total assets in columns 3 and 4.

Next, we focus on the effects of SARFAESI on short-term trade credit (amount owed to sundry creditors) in columns 5 through 8. Short-term trade credit is generally unsecured loans that firms owe to sundry creditors/suppliers. We find a statistically significant increase in trade credit by 11.6%-20.3% in columns 5 and 6. Columns 7, and 8 show similar results for the ratio of short-term trade credit to total assets. These results show that as a result of SARFAESI, firms in the treated group differentially accessed more short-term trade credit than firms in the control group.

Finally, in columns 9 to 12, we focus on short-term total debt. We find in columns 9, and 10 a significant increase (7.7%-16.9%) in the amount of short-term total debt taken by firms in the treated group as compared to the control group. Columns 11, and 12 corroborate these results. Taken together, we find that SARFAESI led to a reduction in formal secured debt and an increase in unsecured trade credit by firms in the treated group relative to those in the control group. Note however, that total short-term debt increased for treated

firms compared to firms in the control group. These results are consistent with Vig (2013)[4], and provide evidence that the passage of SARFAESI led to an increase in the threat of liquidation faced by firms and induced them to substitute away from formal credit towards unsecured trade credit. A higher threat of liquidation for existing plants must have followed from a number of firm closures following the policy. We look at the proportion of firms that remained open following SARFAESI in the next table.

5.3 Firm closures

In Table 6, we look at the impact of SARFAESI on the proportion of firms remaining operational. In columns 1 and 2 (with controls), we find that firms in the treated group were 0.36% less likely to remain operational as compared to firms in the control group. This suggests that the firms in the treated group (with a higher proportion of collateralizable assets) were more severely impacted by the law and a substantial fraction of them were liquidated (closed down) or become non-operational. These results strengthen our interpretation that SARFAESI increased the threat of liquidation for firms with a higher share of collaterizable assets.

5.4 Distributed Lag Model

In addition, we investigate the dynamic evolution of debt, employment and investment measures' response during the pre-law and post-law years in our sample period i.e. three years prior to the law until six years post the implementation of the law. Figure 1 graphs the entire paths of cumulative coefficients b_s, s = 1999, 2000,..., 2007, 2008, and the dotted lines depict the corresponding 95 percent confidence intervals. Standard errors of the cumulative effects are calculated based on the standard errors of the marginal coefficients in

[4]Vig (2013) uses the Center for Monitoring the Indian Economy (CMIE) data set and shows that the SARFAESI reform led to a reduction in secured debt for firms with a higher proportion of tangible assets.

the regressions, which are clustered at the firm level. The results can be interpreted as an event study, with year 2002 being the implementation of the SARFAESI law. In essence, this graph plots the coefficients on the DID regressions that show the difference between the firms in the treated group and the control group over time. All these coefficients are relative to the year 2001, which therefore is omitted. As is visually clear from figure 1, before 2002 (passage of SARFAESI), there was no statistically significant difference between the treated and the control firms. This in essence confirms the parallel pre-treatment trends assumption needed for our DID estimates. Post-2002, we see a statistically significant difference between the treated and control firms. We show that trade credit, total short-term debt, and total number of workers increase after the passage of SARFAESI, whereas formal credit, GVAPM, and GVAFC significantly decline. This is the crux of our argument and confirms our DID estimates.

6 Conclusion

There is a well-developed literature in finance and economics focusing on the financial contracting environment and firms' capital investments. More recently, researchers have begun to focus on the effects of financial constraints on firm-level employment decisions as well. However, relatively little is known about how creditor rights affect the firm's choice between capital and labor.

In this paper, we focus on a law change in India that strengthened creditor rights. In our context, the passage of SARFAESI Act in 2002, allowed secured creditor rights to seize and liquidate the assets of defaulting firms thereby bypassing the lengthy judicial process. In response to this increased threat of liquidation, firms with a higher proportion of collateralizable assets (treated firms) hired more workers and reduced their capital investments. We also confirm that the law change caused the firms to move away from secured debt towards unsecured trade credit in the short term.

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TABLE 1: Variable Description

The description of variables used in the study is presented below.

Variable	Description
	Panel A: Annual Survey of Industries[5]
Permanent workers	count; workers on the factory payroll.
Contract workers	count; workers hired through contractors.
Total workers	count; sum of workers on the factory payroll and workers hired through contractors.
Wages per worker (Permanent)	in INR; yearly average wage paid to a permanent worker.
Wages per worker (Contract)	in INR; yearly average wage paid to a contract worker.
Wages per worker	in INR; yearly average wage paid to a worker.
GVAFC	in INR; Gross additions to the total fixed assets, this includes assets equipment, transport and land.
GVAFC per worker	in INR; GVAFC/ total workers.
GVAPM	in INR; Gross additions to plant and machinery.
GVAPM per worker	in INR; GVAPM/ total workers.
STformalcredit	in INR; Overdraft, cash credit, other short terms loan from banks and other financial institutions.
STtradecredit	in INR; sundry creditors.
Total assets	in INR; sum of fixed assets (includes land, building, P&M, transport equipment, computer equipment including software and capital work-in-progress) and current assets (includes cash in hand and at bank, sundry debtors and other current assets).

[5]Variables are constructed using the definition from ASI tabulation scheme.

TABLE 2: **Descriptive Statistics**

This table reports the descriptive statistics of the various variables considered in the analysis.

	Observations	Mean	Standard Deviation
Employment variables			
Permanent workers	212,080	100.063	501.0989
Contract workers	212,080	35.34213	510.7026
Total workers	212,080	135.4051	748.121
Wage per worker - Permanent	212,080	38217.64	40743.91
Wage per worker - Contract	212,080	8387.548	18294.56
Wage per worker - Total	212,080	36253.15	28616.64
Capital variables			
GVAFC	212,080	3.00E+07	6.76E+08
GVAFC per worker	212,080	0.1379951	3.135226
GVAPM	212,080	1.79E+07	5.67E+08
GVAPM per worker	212,080	0.0696849	1.062284
Debt variables			
STtradecredit	212,080	2.29E+07	7.41E+07
STtradecredit/total assets	206,931	0.2013705	0.2260363
STformalcredit	212,080	1.77E+07	6.33E+07
STformalcredit/total assets	206,931	0.1129264	0.1654234

TABLE 3: Summary Statistics - Control vs. Treated

This table reports the descriptive statistics of the variables in the control vs. treated groups considered in the analysis.

	Control			Treated		
	Obs	Mean	StdDev	Obs	Mean	StdDev
Total workers	26111	127.6238	1010.545	25813	163.7877	778.6733
GVAFC by total workers	26111	.0248807	.1958889	25813	.2881695	7.609175
GVAPM by total workers	26111	.0093254	.0702967	25813	.1395156	1.656186
Short term formal credit	26111	1.25e+07	5.18e+07	25813	1.97e+07	6.67e+07
Short term trade credit	26111	1.42e+07	5.22e+07	25813	2.37e+07	7.66e+07

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POSSESSION NOTICE

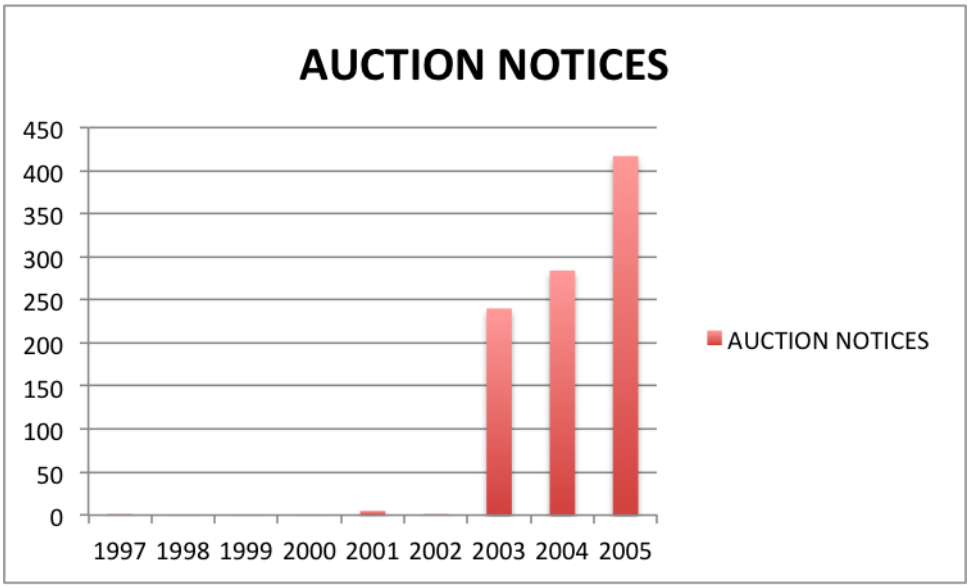
(for immovable property)

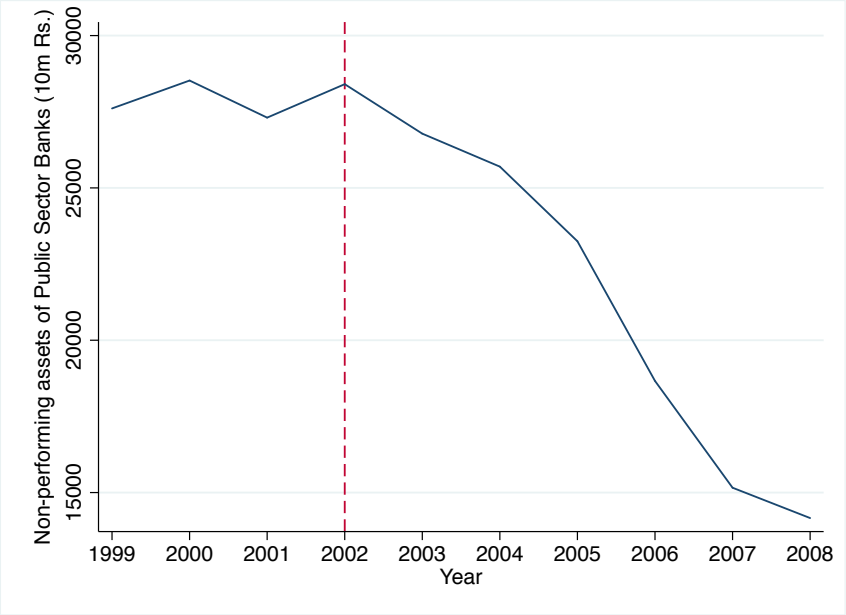
Notice is hereby given under the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (Ord. 3 of 2002) and in exercise of powers conferred under section 13(12) read with rule 9 of the Security Interest (Enforcement) Rules, 2002 issued a demand notices on the dates mentioned against each account/borrower and stated hereinafter calling upon them to repay the amount within 60 days from the date of receipt of said notice.

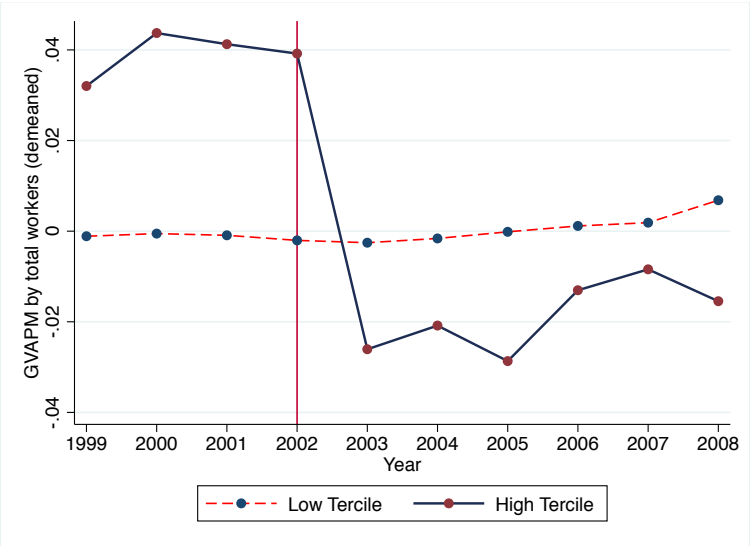
The borrowers having failed to repay the amount, notice is hereby given to the borrowers and the public in general that the undersigned has taken possession of the property described here in below in exercise of powers conferred on him / her under section 13(4) of the said Act read with rule 9 of the said rule on the dates mentioned against each account.

The borrowers in particular and the public in general is hereby cautioned not to deal with the property and any dealing with the property will be subject to the charge of Oriental bank of Commerce for the amounts and interest thereon.

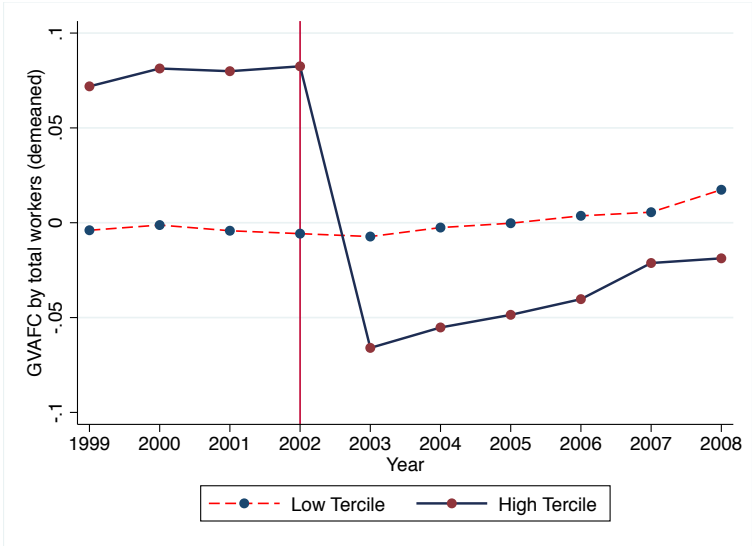
S. No.	Name of the Branch	Name of the Account	Name of the Borrower (owner of the property)	Description of the property mortgaged All that part & parcel of the properties consiting of :-	Date of Demand Notice	Date of Possession Notice	Amount O/S as on date of Demand Notice
1.	Chandni Chowk Delhi		Ashok Kumar s/o Kishori Lal Adopted son of Smt. Dhapo Devi	E.M. of property bearing Municipal no. WZ-1611, Khasra no. 179, Khewat no. 639, situated at village Nangal Raya, New Delhi	14.8.2002	17.01.2003	1194655.49
2.	Daryaganj Delhi		Ravinder Kumar Sagwan s/o Sh. K.R. Sagwan, Raj Kumar Sagwan s/o Sh. S.N. Sagwan	E.M. of 2-1/2 storeyed residential house bearing no. 1289, Sec.-17, Faridabad measuring 350 sq. yards.	13.8.2002	17.01.2003	2559409.00
3.	Daryaganj Delhi		M/S Mahamaya Transport Co.	E.M. of property bearing Khasra no. 1722 situated at Village Pasonda, Pargana Loni, Matka Wali Piao, G.T. Rd. U.P. Border, Ghaziabad measuring 640 sq. yds.	29.04.03	14.08.03	384004.84
4.	G.T. Karnal Road Delhi	Azadpur Delhi.	M/S Techno Electric Pacific Instruments Pvt. Ltd. Sh. Rakesh Sharma & Sh. Mukesh Sharma S/O K.K. Sharma	1. Negative lien over flat No. 203, at Sasco Bhawan, B-2/2, Azadpur Commercial Complex, Azadpur Delhi, measuring 422, Sq. ft. of M/s. Techno Electric. 2. E.M of property of factory land & building at 42/17, Sahibabad Industrial Area, Site -IV, Ghaziabad in the name of company, measuring 660.62 sq. meters. 3. E.M of plot No. 23, Block K, out of Khasra No. 431/64/1, at Kewal Park Extn., Azadpur, Delhi, measuring 100 sq. yards.	12.04.03	18.08.03	4500908.17


AUCTION NOTICES
450
400
350
300
250
200
150
100
50
0
1997 1998 1999 2000 2001 2002 2003 2004 2005
AUCTION NOTICES

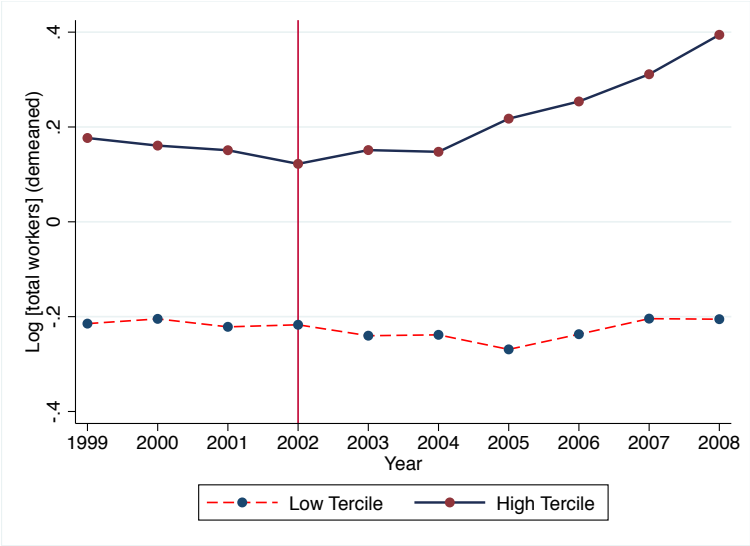

Non-performing assets of Public Sector Banks (10m Rs.)
15000
20000
25000
30000
1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
Year



(a) GVAPM by total workers

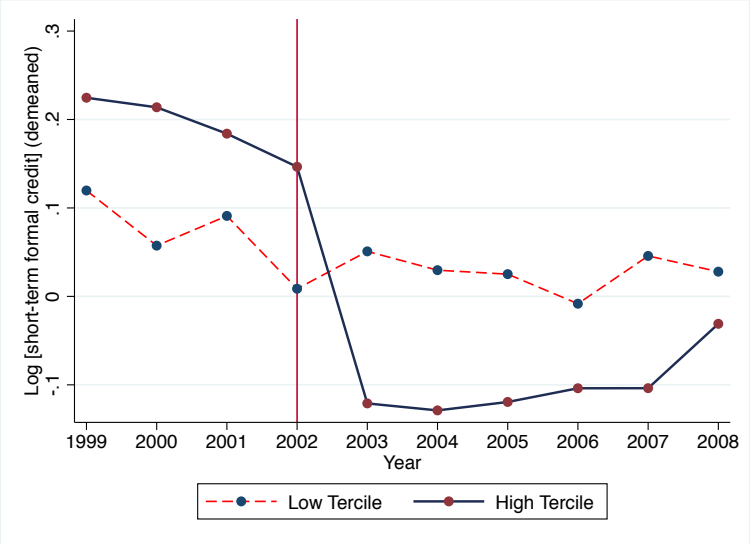


(b) GVAFC by total workers

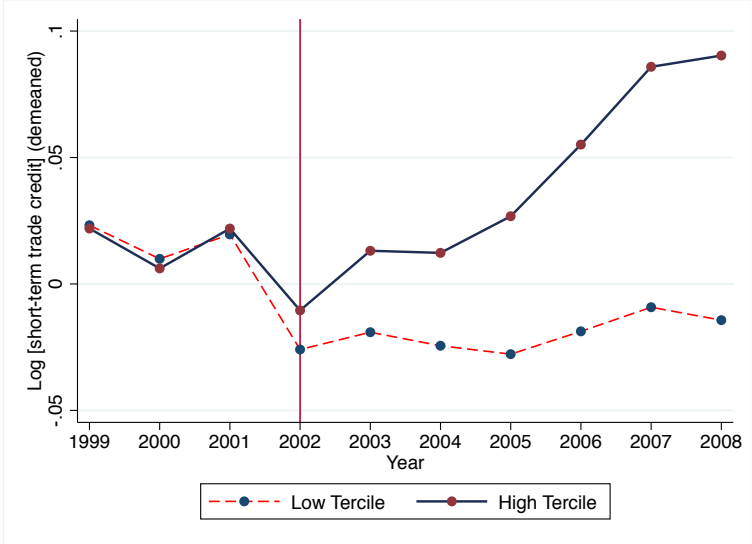


(c) Log [total workers]

Figure 1: Demeaned plots of capital investment and employment



(a) Log [formal credit]



(b) Log [trade credit]

Figure 2: Demeaned plots of short-term formal credit and short-term trade credit

TABLE 4: **Impact of SARFAESI on Employment**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI law on the number of types of worker at a given establishment. Specifically, we estimate the following panel regression model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the number of *permanent* workers employed in firm i in industry j in year t in columns (1) and (2), *contract* workers in columns (3) and (4) and *total workers* in columns (5) and (6); wages of *permanent* workers employed in firm i in year t in columns (7) and (8), *contract* workers in columns (9) and (10) and *total* workers in columns (11) and (12). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

Panel A:Log(Number of Workers)						
	Permanent		Contract		Total	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	0.0687***	0.0796***	0.0746***	0.0820***	0.0798***	0.0917***
	(0.0110)	(0.0108)	(0.0187)	(0.0190)	(0.00843)	(0.00796)
N	212,080	206,926	212,080	206,926	212,080	206,926
R^2	0.923	0.927	0.802	0.803	0.947	0.953
Panel B: Log(Wage per worker)						
	Permanent		Contract		Total	
	(7)	(8)	(9)	(10)	(11)	(12)
Law X Treatment	0.0599**	0.0701***	0.137***	0.149***	0.0403***	0.0443***
	(0.0243)	(0.0246)	(0.0502)	(0.0510)	(0.00513)	(0.00513)
N	212,080	206,926	212,080	206,926	212,080	206,926
R^2	0.816	0.818	0.774	0.775	0.898	0.900
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 5: **Impact of SARFAESI on Capital Investments**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI on capital additions at a given establishment. Specifically, we estimate the following panel regression model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the levels of *GVAFC* in firm i in industry j in year t in columns (1) and (2), *GVAFC per worker* in columns (3) and (4), levels of *GVAPM* in firm i in year t in columns (5) and (6), *GVAPM per worker* in columns (7) and (8). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	GVAFC/total workers		GVAPM/total workers		Log(rentPMFC)	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	-0.0834***	-0.0794***	-0.0579***	-0.0561***	0.137**	0.184***
	(0.0194)	(0.0197)	(0.0105)	(0.0107)	(0.0674)	(0.0667)
N	212,080	206,926	212,080	206,926	212,080	206,926
R^2	0.808	0.808	0.371	0.371	0.166	0.150
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

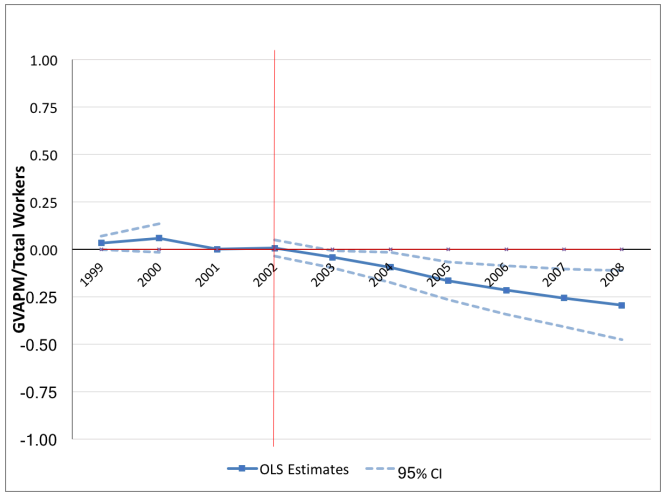
TABLE 6: **Impact of SARFAESI on Firm closure**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI law on the proportion of firms that remained open (operational). Specifically, we estimate the following panel regression model:

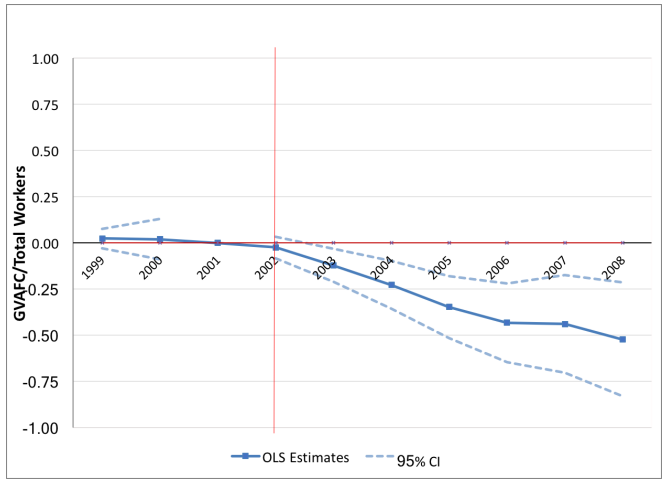
$$Y_{ijt} = \nu_i + \delta_j + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the levels of *firm closures* in industry j in year t in columns (1) and (2). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

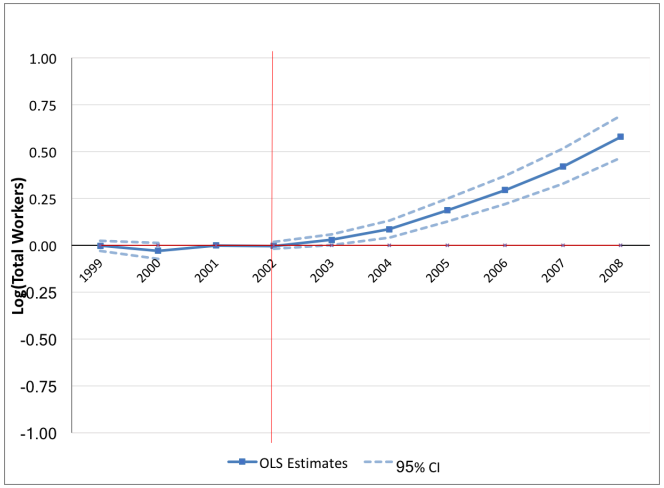
	Open	
	(1)	(2)
Law X Treatment	-0.00359***	-0.00331***
	(0.00115)	(0.00117)
N	212,080	206,926
R^2	0.009	0.011
Firm FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes
Industry FE	Yes	Yes



(a) GVAPM



(b) GVAFC



(c) total workers

Figure 3: Dynamic results graphs of capital variables - GVAFC/total worker and GVAPM/total worker, and employment variable - total workers.

Notes: This figure plots the entire paths of cumulative coefficients b_s, s = 1999,2000,..,2007,2008, along with their corresponding 95 percent confidence intervals of GVAFC, GVAPM and total workers.

TABLE 7: **Impact of SARFAESI: Triple interaction with State laws - Employment**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI on firms along with the interaction of state-laws. Specifically, we estimate the following panel regression model:

$$Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ Pro-worker}_\text{s} + \beta_3 \text{ Pro-employer}_\text{s}$$
$$+\beta_4 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_5 \text{ Pro-worker}_\text{s} \text{ X Treatment}_\text{i} + \beta_6 \text{ Pro-employer}_\text{s} \text{ X Treatment}_\text{i} +$$
$$\beta_7 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} + \beta_8 \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} + \beta_9 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i}$$
$$+\beta_{10} \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_{11} X_{ijt} + \epsilon_{ijst}$$

where Y_{ijst} refers to the number of *permanent* workers employed in firm i in industry j in state s in year t in columns (1) and (2), *contract* workers in columns (3) and (4) and *total workers* in columns (5) and (6); wages of *permanent* workers employed in firm i in year t in columns (7) and (8), *contract* workers in columns (9) and (10) and *total* workers in columns (11) and (12). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	Permanent Worker		Contract Worker		Total Worker	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	0.0531***	0.0744***	0.0169	0.0285	0.0642***	0.0880***
	(0.0172)	(0.0168)	(0.0345)	(0.0346)	(0.0142)	(0.0134)
Proworker X Treatment	-0.0640	-0.0367	-0.370**	-0.383**	-0.163**	-0.139**
	(0.0529)	(0.0506)	(0.155)	(0.157)	(0.0660)	(0.0650)
Proemployer X Treatment	-0.0896*	-0.0372	0.0612	0.0358	-0.0372	-0.0168
	(0.0488)	(0.0457)	(0.0847)	(0.0869)	(0.0355)	(0.0341)
Proworker X Law	-0.0310*	-0.0243	-0.0225	-0.0164	-0.0563***	-0.0465***
	(0.0176)	(0.0173)	(0.0336)	(0.0339)	(0.0145)	(0.0138)
Proemployer X Law	-0.0783***	-0.0677***	-0.00350	0.00981	-0.0544***	-0.0388***
	(0.0179)	(0.0179)	(0.0294)	(0.0304)	(0.0136)	(0.0131)
Proworker X Law X Treatment	0.00465	-0.00686	0.144***	0.134**	0.0367	0.0214
	(0.0269)	(0.0260)	(0.0545)	(0.0546)	(0.0230)	(0.0216)
Proemployer X Law X Treatment	0.0946***	0.0813***	-0.00281	-0.0127	0.0373*	0.0201
	(0.0244)	(0.0242)	(0.0439)	(0.0446)	(0.0191)	(0.0182)
N	194,002	188,897	194,002	188,897	194,002	188,897
R^2	0.926	0.930	0.803	0.804	0.948	0.954
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 8: Impact of SARFAESI: Triple interaction with State laws - Capital

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI on firms along with the interaction of state-laws. Specifically, we estimate the following panel regression model:

$$Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ Pro-worker}_\text{s} + \beta_3 \text{ Pro-employer}_\text{s}$$
$$+\beta_4 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_5 \text{ Pro-worker}_\text{s} \text{ X Treatment}_\text{i} + \beta_6 \text{ Pro-employer}_\text{s} \text{ X Treatment}_\text{i} +$$
$$\beta_7 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} + \beta_8 \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} + \beta_9 \text{ Pro-worker}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i}$$
$$+\beta_{10} \text{ Pro-employer}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_{11} X_{ijt} + \epsilon_{ijst}$$

where Y_{ijst} refers to the levels of *GVAFC* in firm i in industry j in state s in year t in columns (1) and (2), *GVAFC per worker* in columns (3) and (4), levels of *GVAPM* in firm i in year t in columns (5) and (6), *GVAPM per worker* in columns (7) and (8). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	GVAFC/total workers		GVAPM/total workers	
	(1)	(2)	(3)	(4)
Law X Treatment	-0.0952*	-0.0877*	-0.0846**	-0.0803**
	(0.0498)	(0.0498)	(0.0332)	(0.0332)
Proworker X Treatment	0.260	0.267	0.190	0.195
	(0.211)	(0.211)	(0.179)	(0.179)
Proemployer X Treatment	0.139	0.145	0.109*	0.114*
	(0.0923)	(0.0929)	(0.0577)	(0.0581)
Proworker X Law	0.0157***	0.0192***	0.00447***	0.00641***
	(0.00392)	(0.00416)	(0.00146)	(0.00165)
Proemployer X Law	0.00673**	0.00902**	0.00143	0.00261*
	(0.00325)	(0.00358)	(0.00124)	(0.00149)
Proworker X Law X Treatment	0.00196	-0.00126	0.0103	0.00865
	(0.0839)	(0.0841)	(0.0491)	(0.0492)
Proemployer X Law X Treatment	-0.0287	-0.0324	-0.00245	-0.00480
	(0.0586)	(0.0590)	(0.0380)	(0.0383)
N	194,002	188,897	194,002	188,897
R^2	0.804	0.804	0.344	0.345
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes

TABLE 9: **Impact of SARFAESI: Triple interaction with Court efficiency**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI on firms along with the interaction of court efficiency. Specifically, we estimate the following panel regression model:

$$Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ Court-efficiency}_\text{s} + \beta_3 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_4 \text{ Law}_\text{t} \text{ X Court-efficiency}_\text{s} + \beta_5 \text{ Court-efficiency}_\text{s} \text{ X Treatment}_\text{i} + \beta_6 \text{ Court-efficiency}_\text{s} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_7 X_{ijt} + \epsilon_{ijst}$$

where Y_{ijst} refers to the log of the number of *total* workers employed in firm i in industry j in state s in year t in columns (1) and (2), *GVAFC/Total workers* in columns (3) and (4), *GVAPM/Total workers* in columns (5) and (6). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	Total Workers		GVAFC/Total workers		GVAPM/Total workers	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	0.0588***	0.0774***	-0.0336*	-0.0277	-0.0295**	-0.0269**
	(0.0122)	(0.0116)	(0.0189)	(0.0194)	(0.0131)	(0.0134)
Law X Court efficiency	-0.0387***	-0.0295***	0.00934*	0.0110*	0.00269	0.00341
	(0.0115)	(0.0109)	(0.00559)	(0.00594)	(0.00313)	(0.00332)
Court efficiency X Treatment	0.0625	0.0829	1.179	1.193	0.741	0.749
	(0.0725)	(0.0678)	(1.026)	(1.040)	(0.681)	(0.690)
Court efficiency X Law X Treatment	0.0455***	0.0307**	-0.121**	-0.125***	-0.0696**	-0.0712**
	(0.0166)	(0.0156)	(0.0472)	(0.0477)	(0.0278)	(0.0281)
N	204,671	199,637	204,671	199,637	204,671	199,637
R^2	0.948	0.953	0.863	0.863	0.373	0.373
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes

TABLE 10: **Impact of SARFAESI: Triple interaction with Elasticity of Substitution**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI on firms along with the interaction of industry analysis. Specifically, we estimate the following panel regression model:

$$Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ High Substitution}_\text{i} + \beta_3 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_4 \text{ Law}_\text{t} \text{ X High Substitution}_\text{i} + \beta_5 \text{ High Substitution}_\text{i} \text{ X Treatment}_\text{i} + \beta_6 \text{ High Substitution}_\text{i} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_7 X_{ijt} + \epsilon_{ijst}$$

where Y_{ijst} refers to the log of the number of *total* workers employed in firm i in industry j in state s in year t in columns (1) and (2), *GVAFC/Total workers* in columns (3) and (4), *GVAPM/Total workers* in columns (5) and (6). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	Total Workers		GVAFC/Total workers		GVAPM/Total workers	
	(1)	(2)	(3)	(4)	(5)	(6)
Law X Treatment	0.0684***	0.0821***	-0.0769	-0.0700	-0.0265	-0.0225
	(0.0221)	(0.0207)	(0.0607)	(0.0611)	(0.0286)	(0.0288)
Law X Goldar	-0.0361**	-0.0199	0.00829*	0.0157***	0.00360*	0.00780***
	(0.0168)	(0.0158)	(0.00470)	(0.00524)	(0.00205)	(0.00250)
Treatment X Goldar	-0.0765	-0.0792	0.0508	0.0490	0.0687	0.0681
	(0.0580)	(0.0522)	(0.0722)	(0.0726)	(0.0504)	(0.0506)
Law X Goldar X Treatment	0.0461*	0.0463*	-0.0480	-0.0494	-0.0916**	-0.0923**
	(0.0261)	(0.0245)	(0.0754)	(0.0759)	(0.0403)	(0.0406)
N	102,625	100,732	102,625	100,732	102,625	100,732
R^2	0.946	0.953	0.545	0.545	0.319	0.319
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes

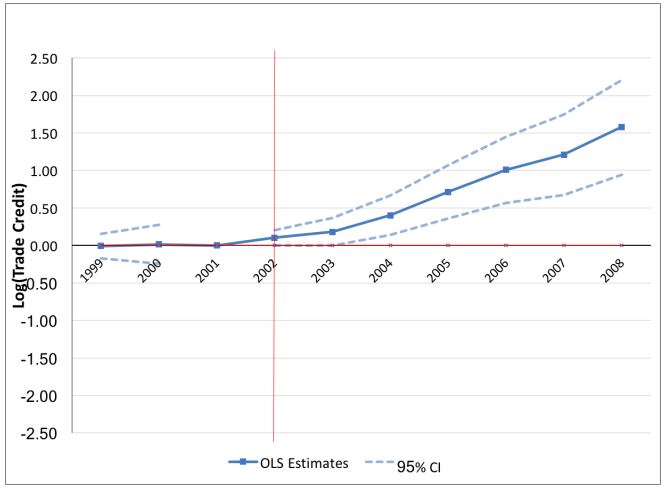
TABLE 11: **Impact of SARFAESI on Debt**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI law on the levels of short term and long term debt at a given establishment. Specifically, we estimate the following panel regression model:

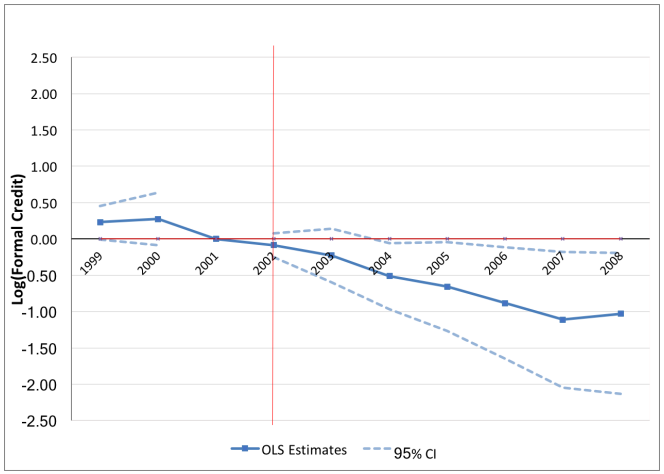
$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the levels of *Short term debt* in firm i in industry j in year t in columns (1) and (2), *Short term debt by total assets* in columns (3) and (4), *ST trade credit* in columns (5) and (6), *ST Trade Credit by total assets* in columns (7) and (8), *ST formal credit* in columns (9) and (10), *ST formal credit by total assets* in columns (11) and (12). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

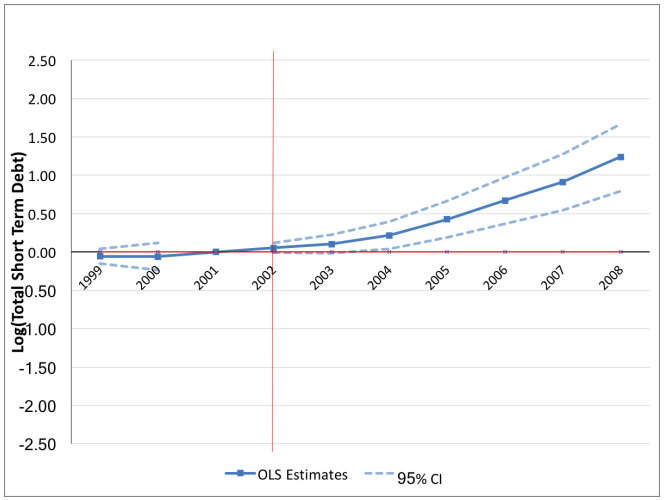
	Log(STformalcredit)		STformalcredit/total assets		Log(STtradecredit)		STtradecredit/total assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Law X Treatment	-0.316***	-0.225***	-0.00457**	-0.00323*	0.116**	0.203***	0.0202***	0.0211***
	(0.0829)	(0.0813)	(0.00197)	(0.00196)	(0.0511)	(0.0467)	(0.00248)	(0.00248)
N	212,080	206,926	206,931	206,926	212,080	206,926	206,931	206,926
R^2	0.786	0.796	0.761	0.763	0.851	0.867	0.793	0.794
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



(a) trade credit



(b) formal credit



(c) short-term debt

Figure 4: Dynamic results graphs of debt variables - trade credit, formal credit and short-term debt.
Notes: This figure plots the entire paths of cumulative coefficients b_s, s = 1999,2000,..,2007,2008, along with their corresponding 95 percent confidence intervals of trade credit, formal credit and stdebt.

Appendix A

This Appendix reports results of robustness tests that are briefly described in the text. Additional details are available from the authors upon request.

TABLE A1: Robustness Tests: Using just land and buildings only in defining treatment/control groups

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI law on the levels of labor and capital at a given establishment. For these tests, we consider fixed assets in the definition of treatment/control as inclusive of land and buildings only. Specifically, we estimate the following panel regression model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the log of levels of *total workers* in firm i in industry j in year t in column (1), *GVAFC/total workers* in column (2), and *GVAPM/total workers* in column (3). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	Total workers	GVAFC/total worker	GVAPM/total worker
	(1)	(2)	(3)
Law X Treatment	0.0198**	-0.0294*	-0.0161*
	(0.00806)	(0.0159)	(0.00847)
N	212,308	212,308	212,308
R^2	0.944	0.863	0.330
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Controls	No	No	No

TABLE A2: **Robustness Tests: Using outstanding loans for defining treatment/control groups**

This table reports the estimates from a panel regression model examining the impact of the implementation of SARFAESI law on the levels of labor and capital at a given establishment. For this test, we define treatment/control groups based on outstanding loans. Specifically, we estimate the following panel regression model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \beta_0\ Law_t + \beta_1\ Treatment_i + \beta_2\ Law_t \times Treatment_i + \beta_3 X_{ijt} + \epsilon_{ijt}$$

where Y_{ijt} refers to the log of levels of *total workers* in firm i in industry j in year t in column (1), *GVAFC/total workers* in column (2), and *GVAPM/total workers* in column (3). The data spans the period 1999-2008 and consists of all factory firms in the ASI census survey. Firm-clustered robust standard errors are reported in parentheses. *, **, and *** indicate significance better than 10%, 5%, and 1%, respectively.

	Total workers	GVAFC/total worker	GVAPM/total worker
	(1)	(2)	(3)
Law X Treatment	0.113***	-0.0643***	-0.0536***
	(0.00856)	(0.0205)	(0.0127)
N	199,692	199,692	199,692
R^2	0.953	0.843	0.353
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry-year FE	Yes	Yes	Yes
Controls	No	No	No