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

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Preliminary and Incomplete: Please do not cite or quote

1 December 2016

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

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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, Lopez-de Silanes, Shleifer, and Vishny (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, Amihud, and Litov (2011) Vig (2013), and Gopalan, Mukherjee, and Singh (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, Vig, and Volpin (2014)). Benmelech, Bergman, and Seru (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, Prabhala, and Tantri (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 firm (factory) fixed effects, year fixed effects and industry-year fixed effects in all our tests. The use of factory 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

[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.

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 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, Lopez-de Silanes, Shleifer, and Vishny (1998), Djankov, McLiesh, and Shleifer (2007), Visaria (2009), and Haselmann, Pistor, and Vig (2010)). This in turn can spur investments through increased access to capital (Benmelech and Bergman (2011); Gopalan, Mukherjee, and Singh (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, Hart, and Moore (1992), Shleifer and Vishny (1992), Assunção, Benmelech, and Silva (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, Amihud, and Litov (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, Chenery, Minhas, and Solow (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, Vig, and Volpin (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, Bergman, and Seru (2015)). Consistent with this view, Benmelech, Bergman, and Enriquez (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, John, and Sundaram (2005), Haselmann, Pistor, and Vig (2010), Acharya and Subramanian (2009)), Bae and Goyal (2009), Acharya, Amihud, and Litov (2011), Gopalan, Mukherjee, and Singh (2016)) and more broadly to the literature on real effects of financial frictions (Campello, Graham, and Harvey (2010), Chaney, Sraer, and Thesmar (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. This 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 a more detailed discussion on DRTs, see Visaria (2009), Lilienfeld, Mookherjee, and Visaria (2012), and Gopalan, Mukherjee, and Singh (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. Kang and Nayar (2003) report that the length of liquidation proceedings was between 10-15 years. 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 notice. Furthermore, 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 workmens 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.

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. This in essence meant that the value of the secured assets depreciated substantially lesser post-SARFAESI as compared to the previous regime.

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 05 will include the period from 1st April 2004 to 31st March 2005.

The primary outcome variables of interest are divided into four categories: (i) Debt (ii) Employment (iii) Capital and (iv) Performance. 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 considered as the pith of labor laws in India. The IDA is known to handle various labor issues 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 based on 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 1.

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 below table 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

In this paper, we examine the effect of the passage of the SARFAESI law on firms by employing the Difference-in-Differences (DID) methodology. The DID methodology is felicitous for our study in establishing causal claims since the research design is a quasi-experimental setting. We compare the effect of SARFAESI on groups that are more affected by the law (henceforth, treated) with those that are less affected (henceforth, control). In our case, DID estimates the effect of the policy by comparing the average change after SARFAESI relative to before SARFAESI for outcome variables in the treatment group and compares them to the same difference for the control group. DID is intended to mitigate the effects of any other changes that might affect both the control and treated groups.

Because SARFAESI was a national policy 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 investmentsBenmelech, Bergman, and Seru (2015), a policy that strengthens creditor rights should differentially affect capita-labor input choice 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 pretreatment average measure of asset tangibility. We define the highest tercile as the treated group and the lowest tercile as the control group.

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 treatment and control group as well as aggregate time trends. However, one may still be worried that the passage of SARFAESI is correlated with time-invariant or time-varying differences across different industry clusters. This is particularly worrisome if our treatment and control group firms belong to different industry clusters. We address this concern by including 3-digit industry-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 both within-firm and within-industry variation in our outcomes 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.

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 debt, employment and investment responses. Specifically, we estimate the following distributed

lag model:

$$Y_{ijt} = \nu_i + \delta_{jt} + \alpha_0\, Treatment_i + \sum_{n=1999}^{2008} \beta_n\, I_n \times Treatment_i + \sum_{n=1999}^{2008} \theta_n I_n + \alpha_1 X_{ijt} + \epsilon_{ijt} \tag{2}$$

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.

Next we explore cross-sectional heterogeneity by running difference-in-difference-in-differences (DIDID) specifications. First, we look at the differences in treatment effects between firms in the treated group (high tercile of asset tangibility) compared to firms in the control group (low tercile of asset tangibility) located across pro-worker and pro-employer states. We run regressions of the form:

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

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. Note that the omitted category in this regression is firms in neutral states.

Next, we focus on the responsiveness to SARFAESI of firms in the treated and control groups located in high court-efficiency states compared to low court-efficiency states before and after the policy. We use Amirapu (2015) measure which is calculated as the fraction of trials disposed off 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:

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

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 focus examine whether the response of firms to SARFAESI varies with respect to the ease with which they can substitute capital with labor. We use two proxies for the ease of labor-capital substitution. The first is the 2-digit industry-level measure of elasticity of substitution between labor and capital (Goldar, Pradhan, and Sharma (2013)). We use Goldar, Pradhan, and Sharma (2013) which calculates the elasticity of substitution of manufacturing industries. Our second proxy is the ex-ante ratio of total capital to total workers (capital-labor ratio). The underlying idea is the firms at the top end of the distribution in terms of capital-labor ratio are more likely to be able to substitute capital with labor. Firms that are already using less capital in their production process may not find it optimal to do so. Similar to our baseline tests, we divide our sample into terciles based on these measures. We defined 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:

$$\begin{aligned} Y_{ijst} = \nu_i + \delta_j t + \beta_0 \text{ Law}_\text{t} + \beta_1 \text{ Treatment}_\text{i} + \beta_2 \text{ High Substitution}_\text{i} + \beta_3 \text{ Law}_\text{t} \text{ X Treatment}_\text{i} \\ + \beta_4 \text{ Law}_\text{t} \text{ X High Substitution}_\text{i} + \beta_5 \text{ High Substitution}_\text{i} \text{ X Treatment}_\text{i} + \\ \beta_6 \text{ High Substitution}_\text{i} \text{ X Law}_\text{t} \text{ X Treatment}_\text{i} + \beta_7 X_{ijt} + \epsilon_{ijst} \end{aligned} \tag{5}$$

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.

5 Results

We begin by investigating the impact of SARFAESI on debt, firm closures, employment, and investment using the baseline difference-in-differences, equation (1) and report the results in tables 2 to 5. After discussing the main results, we discuss the heterogeneous effects of SARFAESI on firms in the treated and control group located across different labor regimes and across regions with varying court efficiency using triple differences specification (DIDID) in tables 6 to 8. Further, we discuss the effects of SARFAESI on firms in the treated and control group based on Goldar's measure of elasticity of substitution between capital and labor, and Industry's ex-ante capital-labor ratio in tables 9 to 10.

We control firm fixed effects in all regressions. For further robustness, 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 Debt

First, 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 SARFEASI, they should contract out of 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).

In Table 2, 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. 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. Short-term trade credit is generally unsecured loans that firms owe to sundry creditors/suppliers.

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 move from formal secured debt towards 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), and provide evidence that the passage of SARFAESI led to an increase in the threat of liquidation faced by firms and caused 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.

5.2 Firm closures

In Table 3, 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 did in fact close down or become non-operational. These results strengthen our interpretation that SARFAESI increased the threat of liquidation leading to the substitution away from secured formal credit and an increase in firm closures. This SARFAESI-induced liquidation bias should have also impacted inputs of production, as firms generally need debt financing for investing in capital and machinery, but labor expenses can at least partially be met from sales revenue. We focus on employment, and investment in machinery next.

5.3 Employment

In Table 4, we focus on the impact of SARFAESI on firm-level employment. The **employment** variables include number of permanent, contract & total workers and we also look at wages per worker for permanent, contract & 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.

5.4 Capital

In table 5, we look at the impact of SARFAESI on investment by firms. Since investment by firms are the actual additions made to fixed capital and plant and machinery, 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. 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 and substituting away from formal secured credit to unsecured credit. In essence, after SARFAESI, the firms with the highest threat of liquidation substitute away from investing in capital towards hiring more workers.

5.5 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 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.

5.6 Interaction with Labor Law Regimes

In the baseline results presented so far, we empirically established that firms with a higher proportion of collaterizable assets (in the treated group) face a higher liquidation bias after the passage of SARFAESI and take on less formal credit and move towards unsecured trade credit, compared to the firms in the control group. We also showed that these treated firms also differentially hire more workers and invest in fixed capital lesser relative to firms in the control group. In the next set of results, we check for cross-sectional heterogeneity using DIDID specifications. Essentially, we look at the difference in outcomes (employment,and 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.

We look at firms in the treated and control groups located across pro-worker, pro-employer, and neutral states. In these DIDID regression specifications, firms in neutral states are the omitted category. 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). This is because 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.

In table 6, 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. 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 7. 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.

Taken together, we find that SARFAESI led to a heterogeneous impact on firms in the treated group compared to the firms in the control group located across pro-employer and pro-worker states. There was a differentially larger treatment effect on treated firms compared to control firms in the hiring of permanent workers and total workers in pro-employer states relative to pro-worker states. However, treated firms differentially hired more contract workers in pro-worker states. We find no evidence for differential adjustment

on investment in capital between treated and control firms in pro-worker and pro-employer states post-SARFAESI as compared to before SARFAESI. However, states could differ in terms of the their judicial efficiency before SARFAESI was enacted and these differences may result in differential adjustments by treated and control group firms. We look at this cross-sectional heterogeneity next.

5.7 Interaction with Court Efficiency

We use the Amirapu measure of pre-SARFAESI court efficiency: (i) the fraction of cases disposed off in less than one year in the Districts/Sessions court before 2002. The rationale for this analysis is that SARFAESI 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 various outcomes of interest (employment, wages, investment in capital, and firm performance) 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. In this sense, these DIDID regressions are a strict test for our initial DID findings that treated firms differentially hire more workers and invest lesser in capital compared to control firms after SARFAESI relative to before the law change.

In table 8, 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 taken together provide strong support to our DID results because we find that in areas where SARFAESI had a bigger bite - we find that treated firms hired more workers, and invested lesser in capital. Next, we look at heterogeneous treatment effects across industries.

5.8 Elasticity of substitution

Our results show that SARFAESI led to firms in the treated group hiring more workers and investing 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, Pradhan, and Sharma (2013). We divide industries in to terciles with and compare the the effects on the treated group 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 group. In table 9, 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 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 is higher in industries with higher elasticity of substitution as compared to industries with low elasticity of substitution between capital and labor.

5.9 Industries with different capital-labor ratios

Finally, we check whether the treatment effects of SARFAESI are differential across industries with different pre-policy capital intensities (capital-labor ratio). We divide the industries in our sample based on pre-SARFAESI capital-labor ratios. Given that the threat of liquidation

after SARFAESI should be differentially higher for firms with a higher proportion of tangible assets, we would expect the capital to labor substitution to be more concentrated in industries with higher capital-labor ratios. In table 10, we look at the differential treatment effect across industries with different capital-labor ratios. We essentially compare the differential effect across industries in the highest tercile of capital-labor ratios to those in the lowest tercile by estimating triple differences specifications. In columns 1 and 2, we find that treated firms differentially hire more workers in more capital-intensive industries relative to less capital-intensive industries as compared to control firms across these groups. In columns 3 through 6, we find that treated firms also invest lesser in capital compared to control firms across these industries. These results further strengthen our main findings.

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. Consistent with Vig (2013), we first confirm that the law change increased the threat of liquidation for firms with a higher proportion of collateralizable assets (treated firms) and they moved away from secured debt towards unsecured trade credit in the short term. In response to this increased liquidation bias, the treated firms hired more workers and reduced their investment in fixed capital, in essence substituting capital for labor in their production process.

References

Acharya, Viral, Kose John, and Rangarajan Sundaram, 2005, Cross-country variations in capital structures the role of bankruptcy codes, *Journal of Financial Intermediation* 20, 25–54.

Acharya, Viral V, Yakov Amihud, and Lubomir Litov, 2011, Creditor rights and corporate risk-taking, *Journal of Financial Economics* 102, 150–166.

Acharya, Viral V, and Krishnamurthy V Subramanian, 2009, Bankruptcy codes and innovation, *Review of Financial Studies* 22, 4949–4988.

Agarwal, Sumit, and Wenlan Qian, 2014, Consumption and debt response to unanticipated income shocks: Evidence from a natural experiment in singapore, *The American Economic Review* 104, 4205–4230.

Aghion, Philippe, Oliver Hart, and John Moore, 1992, The economics of bankruptcy reform, Discussion paper, National Bureau of Economic Research.

Agrawal, Ashwini K, and David A Matsa, 2013, Labor unemployment risk and corporate financing decisions, *Journal of Financial Economics* 108, 449–470.

Amirapu, Amrit, 2015, Judicial institutions, relationship-specificity and growth: Evidence from India, *Working Paper*.

Arrow, Kenneth J, Hollis B Chenery, Bagicha S Minhas, and Robert M Solow, 1961, Capital-labor substitution and economic efficiency, *Review of Economics and Statistics* pp. 225–250.

Assunção, Juliano J, Efraim Benmelech, and Fernando SS Silva, 2014, Repossession and the democratization of credit, *Review of Financial Studies* 27, 2661–2689.

Bae, Kee-Hong, and Vidhan Goyal, 2009, Creditor rights, enforcement, and bank loans, *Journal of Finance* 64, 823–860.

Batra, Sumant, 2003, The asian recovery: Progress and pitfalls, *The position of India, Global Forum on Insolvency Risk Management*.

Benmelech, Efraim, and Nittai K Bergman, 2011, Vintage capital and creditor protection, *Journal of Financial Economics* 99, 308–332.

——— , and Ricardo J Enriquez, 2012, Negotiating with labor under financial distress, *Review of Corporate Finance Studies* 1, 28–67.

Benmelech, Efraim, Nittai K Bergman, and Amit Seru, 2015, Financing labor, Discussion paper, National Bureau of Economic Research.

Besley, Timothy, and Robin Burgess, 2004, Can labor regulation hinder economic performance? evidence from India, *Quarterly Journal of Economics* 119, 91–134.

Bhue, Gursharan Singh, NR Prabhala, and Prasanna Tantri, 2015, Creditor rights and relationship banking: Evidence from a policy experiment, *Working Paper*.

Brown, Jennifer, and David A Matsa, 2015, Boarding a sinking ship? an investigation of job applications to distressed firms, *Journal of Finance*.

Campello, Murillo, John Graham, and Campbell Harvey, 2010, The real effects of financial constraints: Evidence from a financial crisis, *Journal of Financial Economics* 97, 470–487.

Chaney, Thomas, David Sraer, and David Thesmar, 2012, The collateral channel: How real estate shocks affect corporate investment, *American Economic Review* 102, 2381–2409.

De, Sankar, and Manpreet Singh, 2013, Credit rationing in informal markets: The case of small firms in India, *Working Paper*.

Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer, 2007, Private credit in 129 countries, *Journal of Financial Economics* 84, 299–329.

Falato, Antonio, and Nellie Liang, 2014, Do creditor rights increase employment risk? evidence from loan covenants, *Journal of Finance, Forthcoming*.

Garmaise, Mark J, 2008, Production in entrepreneurial firms: The effects of financial constraints on labor and capital, *Review of Financial Studies* 21, 543–577.

Goldar, Bishwanath, Basanta K Pradhan, and Akhilesh K Sharma, 2013, Elasticity of substitution between capital and labour inputs in manufacturing industries of the indian economy, *The Journal of Industrial Statistics*.

Gopalan, Radhakrishnan, Abhiroop Mukherjee, and Manpreet Singh, 2016, Do debt contract enforcement costs affect financing and asset structure?, *Review of Financial Studies* p. hhw042.

Haselmann, Rainer, Katharina Pistor, and Vikrant Vig, 2010, How law affects lending, *Review of Financial Studies* 23, 549–580.

Hombert, Johan, and Adrien Matray, 2015, Can innovation help u.s. manufacturing firms escape import competition from China?, *C.E.P.R. Discussion Papers*.

Kang, Nimrit, and Nitin Nayar, 2003, The evolution of corporate bankruptcy law in India, *ICRA Bulletin - Money & Finance* pp. 37–58.

La Porta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer, and Robert W Vishny, 1998, Law and finance, *Journal of Political Economy* 106.

Lilienfeld, Ulf Von, Dilip Mookherjee, and Sujata Visaria, 2012, The distributive impact of reforms in credit enforcement: Evidence from Indian debt recovery tribunals, *Econometrica - Journal of the Econometric Society* 80, 497–558.

Petersen, Mitchell A, and Raghuram G Rajan, 1994, The benefits of lending relationships: Evidence from small business data, *Journal Of Finance* 49, 3–37.

Rajan, Raghuram, and Luigi Zingales, 1995, What do we know about capital structure? some evidence from international data., *Journal of Finance* 50, 1421–1460.

Roberts, Michael R, and Amir Sufi, 2009, Control rights and capital structure: An empirical investigation, *Journal of Finance* 64, 1657–1695.

Shleifer, Andrei, and Robert W Vishny, 1992, Liquidation values and debt capacity: A market equilibrium approach, *Journal of Finance* 47, 1343–1366.

Simintzi, Elena, Vikrant Vig, and Paolo Volpin, 2014, Labor protection and leverage, *Review of Financial studies* p. hhu053.

Umarji, M.R., 2004, Law and practice relating to securitisation and reconstruction of financial assets and enforcement of security interest (as amended by enforcement of security interest and recovery of debts laws (amendment) ordinance 2004), .

Vig, Vikrant, 2013, Access to collateral and corporate debt structure: Evidence from a natural experiment, *Journal of Finance* 68, 881–928.

Visaria, Sujata, 2009, Legal reform and loan repayment: The microeconomic impact of debt recovery tribunals in India, *American Economic Journal: Applied Economics* 1, 59–81.

TABLE 1: **Summary Statistics**

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

	Observations	Mean	Standard Deviation
Debt variables			
STDebt	354,417	6.13E+07	1.86E+08
Log(STDebt)	354,417	14.63233	4.396809
STDebt/total assets	347,784	0.426463	0.341797
STtradecredit	354,417	2.31E+07	7.29E+07
Log(STtradecredit)	354,417	12.9465	5.429473
STtradecredit/total assets	347,784	0.208002	0.220942
STformalcredit	354,417	1.79E+07	6.26E+07
Log(STformalcredit)	354,417	8.61768	7.693994
STformalcredit/total assets	347,784	0.119846	0.165353
Employment variables			
Permanent workers	354,417	93.77016	422.8202
Log(Permanent workers)	354,417	3.125785	1.576977
Contract workers	354,417	31.28878	400.9959
Log(Contract workers)	354,417	0.985464	1.743595
Total workers	354,417	125.0589	609.5965
Log(Total workers)	354,417	3.523171	1.455504
Wage per worker - Permanent	354,417	37687.89	32506.35
Log(Wage per worker - Permanent)	354,417	9.772421	2.479804
Wage per worker - Contract	354,417	8423.778	16016.62
Log(Wage per worker - Contract)	354,417	2.806736	4.562987
Wage per worker	354,417	37109.48	27801.76
Log(Wage per worker)	354,417	10.30072	0.665521
Capital variables			
GVAFC	354,417	2.57E+07	5.53E+08
Log(GVAFC)	354,417	9.857561	6.597042
GVACF per worker	354,417	0.16085	2.746947
Log(GVAFC per worker)	354,417	0.079359	0.234185
GVAPM	354,417	1.50E+07	4.58E+08
Log(GVAPM)	354,417	7.596121	6.94196
GVAPM per worker	354,417	0.082522	1.156923
Log(GVAPM per worker)	354,417	0.044865	0.171132
Performance variables			
EBIT	354,417	3.69E+07	1.21E+08
EBIT/total assets	347,784	0.528757	1.150931
Control variables			
Profit	354,417	2.80E+07	1.01E+09
Total assets	347,838	2.47E+08	2.68E+09
Profit/total assets	347,784	0.08201	0.345915
Log(Total assets)	347,777	16.57137	2.253765

TABLE 2: **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
	Log(STDebt)		STDebt/total assets					
	(9)	(10)	(11)	(12)				
Law X Treatment	0.0776**	0.169***	0.0199***	0.0213***				
	(0.0388)	(0.0327)	(0.00392)	(0.00391)				
N	212,080	206,926	206,931	206,926				
R^2	0.896	0.920	0.800	0.800				
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

TABLE 3: **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

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 Capitalization by Firms**

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	
	(1)	(2)	(3)	(4)
Law X Treatment	-0.0834***	-0.0794***	-0.0579***	-0.0561***
	(0.0194)	(0.0197)	(0.0105)	(0.0107)
N	212,080	206,926	212,080	206,926
R^2	0.808	0.808	0.371	0.371
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
Industry-year FE	Yes	Yes	Yes	Yes

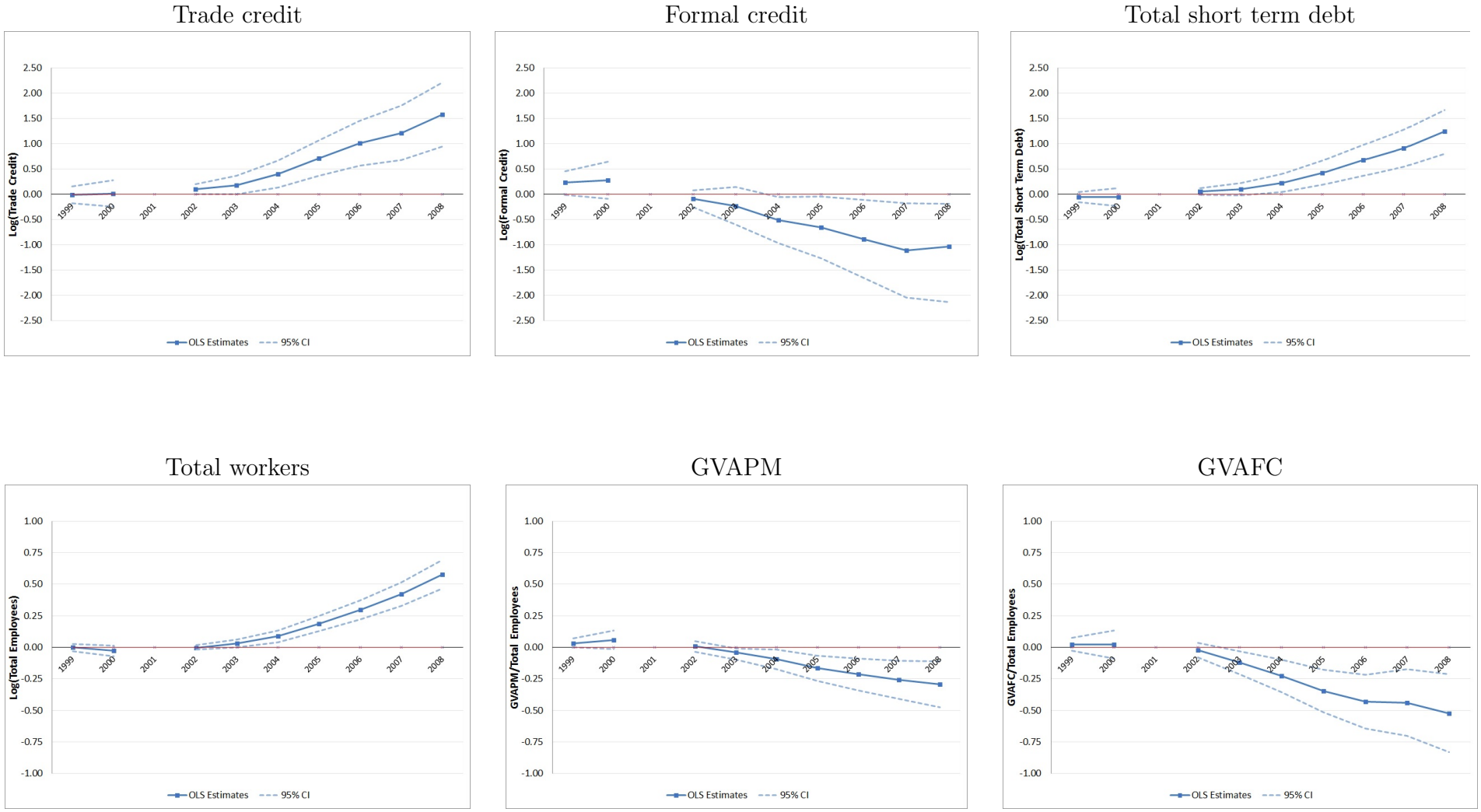

Figure 1: Dynamic Effect graphs

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, short term debt, total workers, GVAFC and GVAPM.

TABLE 6: **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 7: 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 8: **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
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 9: **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 10: **Impact of SARFAESI: Triple interaction with industries with Capital Intensity Ratio**

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 Industry	-0.672	-0.475	0.359	-0.147	0.143	-0.0763
	(1,093)	(409.0)			(2,692)	
Law X Treatment	0.0614***	0.0655***	-0.0408	-0.0362	-0.0388**	-0.0367**
	(0.0151)	(0.0144)	(0.0297)	(0.0302)	(0.0172)	(0.0175)
Industry X Treatment	-0.0195	-0.0492*	0.126**	0.121**	0.0723**	0.0689**
	(0.0316)	(0.0294)	(0.0555)	(0.0562)	(0.0325)	(0.0329)
Law X Industry X Treatment	0.0280	0.0459**	-0.141**	-0.138**	-0.0754**	-0.0735**
	(0.0214)	(0.0203)	(0.0594)	(0.0603)	(0.0318)	(0.0322)
N	146,234	142,210	146,234	142,210	146,234	142,210
R^2	0.944	0.950	0.812	0.813	0.382	0.382
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes