

Trade Credit under a Pro-Creditor Bankruptcy Regime

Khushboo Thakkar*

Abstract

Trade credit provides customers the flexibility to procure goods from their suppliers without immediate cash payment, serving as a fundamental form of short-term financing. If all creditors are granted increased legal protection, does the availability of trade credit increase or decrease? This is an important consideration since an increase in the rights of creditors can influence the lending behaviour (supply) of suppliers and also the borrowing behaviour (demand) of debtors. Leveraging a recent bankruptcy reform in India which strengthened creditor rights, I find an uptick in trade credit usage of firms closer to default, without a corresponding drop in profitability or bank borrowing. Therefore, strengthening creditor rights increases the willingness of suppliers to extend more trade credit which plays a role in sustaining distressed firms.

JEL classification: G32, G33, D22

Keywords: Bankruptcy law, Creditor rights protection, Trade credit, Distressed firms

*Department of Economics, University of North Carolina, Chapel Hill.

1 Introduction

A key concern amongst economists and policymakers is the relation between legal protection of creditors and a country's financial and economic development (La Porta et al., 1998; Lopez-de-Silanes, Shleifer and Vishny, 1997). A substantial body of literature examines the costs and benefits of granting increased legal protection to creditors in bankruptcy. While stronger creditor rights in bankruptcy increase creditors' willingness to finance firms,¹ excessive rights can introduce a liquidation bias resulting in reduced borrowing and innovation.² Moreover, the rights granted to one class of creditors can affect the lending behaviour of the others (Vig, 2013; Ponticelli and Alencar, 2016; Costello, 2019). For instance, stronger secured creditor rights could raise the cost of unsecured credit, threatening the profitability of businesses. However, the interplay between the rights of different creditor groups remains overlooked.

In this paper, I study the impact of simultaneously increasing the rights of different classes of creditors, on trade credit availability. Trade credit is the main source of short-term corporate financing for firms worldwide.³ It plays an important role by compensating for unavailable bank credit.⁴ It also acts as a financial safety net for its customers in temporary distress (Cūnat, 2007). Provisions safeguarding trade creditors (suppliers) when their debtor (customer) firm defaults could incentivize suppliers to extend more trade credit (Sautner and Vladimirov, 2018; Costello, 2019). However, the contemporaneous excessive increase in financial creditor rights could result in a premature liquidation of firms, causing suppliers to retreat their trade credit supply. This, in turn, could threaten the survival of firms reliant on trade credit.

In order to examine the link between increased creditor rights and non-financial firm financing, the paper exploits the implementation of a recent bankruptcy reform in India, called the Insolvency and Bankruptcy Code (IBC) 2016, which marks a transition from a

¹See, Townsend (1979); Djankov, McLiesh, and Shleifer (2007); Qian and Strahan (2007); Ponticelli and Alencar (2016).

²See, Aghion, Hart, and Moore (1992); Acharya and Subramanian (2009); Acharya, Amihud, and Litov (2011); Vig (2013).

³See, for example, Petersen and Rajan (1997); Deloof and Jegers (1999); Demirgüç-Kunt and Maksimovic (2002); Fabbri and Klapper (2008); Barrot (2016); Costello (2019).

⁴See, Petersen and Rajan (1997); Wilner (2000); Nilsen (2002); Fisman and Love (2003); Love, Preve and Sarria-Allende, (2007).

debtor-centric law to a more creditor-friendly regime. Prior to this law, suppliers (trade creditors) and other unsecured financial creditors had no access to a specialized bankruptcy court and had to navigate through excessively congested district courts for debt recovery.⁵ With the introduction of this new law, these creditors were granted the right to initiate a bankruptcy proceeding against the defaulting debtor firms. Apart from initiation rights, it also granted control rights to financial creditors enabling them to take charge of the firm during bankruptcy, side-lining equity owners. Consequently, the IBC bolsters the rights of all creditor groups.

With stronger creditor rights, trade creditors are more likely to extend additional trade credit, leveraging their enhanced bargaining power. The threat of bankruptcy and loss of control compels debtor firms to meet payment terms, reducing default risk. Moreover, these rights increase the chances of out-of-court restructuring (Sautner and Vladimirov, 2018), potentially improving recovery rates for trade creditors. Moreover, stronger financial creditor rights may enable suppliers to secure more credit from financial institutions, which they can then extend to constrained debtor firms, aligning with the redistribution theory of trade credit (Meltzer, 1960; Petersen and Rajan, 1997). As a result, the supply of trade credit could increase following the implementation of creditor-friendly laws. However, in such environments, suppliers may hesitate to offer more credit if they anticipate an increased liquidation threat for the debtor firm.⁶ Additionally, the suppliers could decrease their bank borrowings due to increased personal bankruptcy costs (Vig, 2013), leading to a reduction in the amount of trade credit they supply (Love, Preve and Sarria-Allende, 2007).

On the demand side, increased access to bank credit may lower debtor firms' reliance on trade credit, consistent with the substitution hypothesis (Meltzer, 1960; Deloof and Jegers, 1999, Gopalan et al., 2016).⁷ However, weaker debtor firms may turn to trade credit when

⁵Districts serve as administrative divisions with the states in India. District courts, located in district capitals and major cities, represent the lowest tier of the Indian judiciary system. Above them are the high courts, situated in state capitals, and the Supreme Court of India, which stands as the highest judicial authority. According to Vidyasagar, Narasappa, and Tirumalai (2017), the average pendency of cases in district courts in India was approximately six years as of 2015, reflecting significant delays in the judicial process.

⁶As of March 2021, the recovery rate for trade creditors was around 2% from debtor firms that underwent liquidation under the new law.

⁷The substitution theory of trade credit suggests that firms use trade credit as an alternative source of

stronger creditor protections limit access to bank loans, as these rights reduce the ‘insurance value’ of default by easing collateral seizure and discouraging risky borrowing (Gropp et al., 1997; Lilienfeld-Toal et al., 2012; Kulkarni, 2017). Given these dynamics, the net effect of a pro-creditor bankruptcy law on trade credit cannot be predicted *ex-ante*.

I investigate the effect of the increase in rights of the creditors on trade credit by utilizing a firm-level panel data set collected by the Centre for Monitoring the Indian Economy (CMIE), covering the financial years from April 2013 to March 2021. Since the IBC aimed to expedite debt recoveries with a focus on firm resolution, the firms most impacted by this law are those that are financially distressed but have the potential for rehabilitation. Conversely, firms with the lowest default probability are likely to be least affected by the changes in the bankruptcy regime (Rodano et al., 2016; Sautner and Vladimirov, 2018; Bose et al., 2021; Schoenherr and Starmans, 2022).

Since I focus on the borrowers (customers), trade credit is defined as the ratio of accounts payable to cost of goods sold (COGS). Using a difference-in-differences (DID) framework, I find that the trade credit usage of distressed firms increased by 22.6% relative to their financially profitable counterparts. Since observed trade credit reflects the equilibrium between supply and demand dynamics, it raises the question: is the increase in trade credit usage driven by demand or supply? If distressed firms increased their demand for trade credit after the law due to higher costs of alternative financing (Atanasova and Wilson, 2003; Niskanen and Niskanen, 2006), suppliers would have likely passed the increased risk to these firms through higher implicit costs. However, I observe an improvement in gross profitability among unstable firms relative to more profitable firms after the law suggesting that the rise in trade credit utilization stems from the supply side. Costello (2019) also finds an increase in both the supply and duration of trade credit when suppliers gained rights to reclaim goods during bankruptcy.

The effects of the law may not be uniform across all distressed debtor firms. One possibility is that all distressed firms receive trade credit equally from suppliers. However, another

financing when access to bank loans is restricted due to poor creditworthiness, high interest rates, or stronger creditor protections.

scenario suggests that the effect of the law is concentrated within a more viable subset of distressed firms, or that it is substantially higher for the less efficient group of distressed firms. For example, Kulkarni (2017) finds that increased secured creditor rights reduced credit to low-quality borrowers, whereas enhanced supplier collateral rights led to increased lending to riskier firms (Ge et al., 2017; Costello, 2019). My analysis reveals that the law’s effects are concentrated among small, mature firms with limited growth prospects, poor working capital management, and operating in industries less dependent on intermediate inputs. This evidence suggests that the increased supply of trade credit flows to the most constrained distressed firms, which had a high demand for liquidity prior to the law. This finding aligns with theories that portray suppliers as liquidity providers (Wilner, 2000; Cūnat, 2007).

Lastly, the concurrent shift in financial creditor rights may have led to reduced access to bank credit for the low-quality firms. Given that trade credit serves as a substitute for bank credit (Petersen and Rajan, 1997; Garcia-Appendini and Montoriol-Garriga, 2012), constrained firms facing reduced access to bank credit may increase their reliance on trade credit. However, I find no significant change in the cost of borrowing from financial institutions for these firms.⁸ Likewise, there is no decline in long-term or short-term borrowings post-law.⁹ This further corroborates that the rise in trade credit usage is supply-driven rather than a result of increased demand.

To support these results, I conduct a series of robustness checks. For identifying distressed firms, I use the definition of a ‘sick industrial unit’ from the Sick Industrial Companies Act, which was in effect prior to the IBC. Firms with accumulated losses equal to or exceeding their net worth in the year preceding the law are classified as distressed or part of the treated group. Since this definition may lead to a delayed recognition of financial distress, I complement the analysis with an alternative measure—Altman’s (1968) Z-score for emerging

⁸Rodana et al. (2016) reports a decrease in the interest rates and increased investment when creditor rights are strengthened.

⁹Lilienfeld-Toal et al. (2012) highlights that a reform improving enforcement reduced borrowing for the bottom three quarters of firms organized by asset size, and raised it for the top quarter. To address potential concerns, I undertake propensity score matching to compare distressed firms with similar firms in the control group. I find insignificant results with PSM.

markets, which measures a firm’s default risk. The results remain consistent with this alternative definition of distress. Additionally, the preliminary results are robust to alternative model specifications. These include utilizing Propensity Score Matching (PSM) to equate the control and treatment groups and employing the advanced synthetic difference-in-difference method, which addresses concerns of unobserved correlation between treatment assignment and firm-level time trends.

Overall, the results of the paper underscore the significant influence that the rights of one group of creditors can have on the lending behavior of others. In a creditor-friendly regime where the financial creditors are granted control rights, initiation rights afforded to suppliers strengthens suppliers’ bargaining positions in out-of-court settlements, potentially increasing their willingness to extend trade credit, as observed in this paper. Conversely, in a debtor-centric regime where management retains control, initiation rights alone may not constitute a credible threat.

The design of the bankruptcy regime should, therefore, account for the interplay between the rights granted to different classes of creditors. This dynamic can influence the sustainability of small and emerging businesses, which are essential for maintaining economic stability in developing markets.

The rest of the paper is organized as follows. Section 2 discusses the relevant literature that grounds this research. Sections 3 and 4 present the institutional framework and the mechanism through which the supply and demand of trade credit are affected, respectively. Section 5 details the empirical framework. Section 6 presents the results. Section 7 describes the robustness checks. Section 8 concludes.

2 Related Literature

The paper contributes to the literature studying the advantages and disadvantages of a creditor friendly bankruptcy law. Overly strong creditor rights introduce ex-post inefficiencies by creating a liquidation bias (Aghion, Hart and Moore, 1992) which subsequently reduces borrowing (Vig, 2013, Schoenherr and Starmans, 2022), innovation (Acharya and Subramanian,

2009) and investment (Acharya, Amihud and Litov, 2009). On the contrary, La Porta et al. (1998), Gianetti (2003), Djankov, McLiesh, and Shleifer (2007), Qian and Strahan (2007), Ponticelli and Alencar (2016), Rodano et al., 2016; Favara, Gao, and Giannetti (2021) report that stronger creditor rights are linked to increased credit availability. However, changes in creditor reforms targeting specific creditor groups can simultaneously impact the cost of alternative financing sources (Vig, 2013; Gopalan et al., 2016; Ponticelli and Alencar, 2016; Costello, 2019).

The effect of creditor rights reforms on how different creditor groups interact remains underexplored. By leveraging a quasi-natural experiment that simultaneously strengthens the rights of all creditors, I disentangle the demand and supply dynamics driven by these interactions. I investigate the impact of transitioning to a pro-creditor bankruptcy regime on trade credit availability. From the demand side, stronger creditor rights influence a firm's reliance on non-financial financing, while on the supply side, they shape suppliers' lending behavior. My findings suggest that increased creditor rights lead to greater trade credit availability, as suppliers become more willing to extend credit to distressed firms. Disentangling the demand and supply dynamics, my findings suggest that stronger creditor rights lead to an increase in trade credit availability, as suppliers become more willing to extend credit to distressed firms.

This paper also contributes to the literature on the determinants of trade credit (Schwartz, 1974; Petersen and Rajan, 1997; Danielson and Scott, 2000; Burkart and Ellingsen, 2004; Niskanen and Niskanen, 2006; Atanasova, 2007; Cúñat, 2007; Barbosa, Moreira, and Novaes, 2017). One key determinant is the legal protection of creditors. Studies by Demirgüç-Kunt and Maksimovic (2002), Fisman and Love (2003), and Gopalan et al. (2016) document that firms in countries with stronger legal frameworks and better enforcement tend to rely less on trade credit. Meanwhile, research by Sautner and Vladimirov (2018), Ge et al. (2017), and Costello (2019) examines the effects of granting suppliers reclamation rights, which effectively increase the value of collateral, thereby boosting the amount of trade credit extended.

However, this paper shifts the focus to the impact of granting initiation rights to suppliers, which are not as comprehensive as reclamation rights. In a creditor-friendly regime, initiation

rights may serve as a significant deterrent, reducing the likelihood of default and improving recovery in case of default. In contrast, in debtor-centric regimes, initiation rights alone may not present a strong enough threat to be effective. Therefore, the bargaining power of suppliers in bankruptcy influences the credit extended to customers.

Lastly, the strengthening of creditor rights in bankruptcy improves access to trade credit, elevating the gross profitability of distressed firms. This finding complements the literature that highlights their role as key liquidity providers to firms in distress (Wilner, 2000; Cúñat, 2007; Sautner and Vladimirov, 2018).

3 Institutional Background

Before the introduction of the Insolvency and Bankruptcy Code (IBC) in December 2016, India’s bankruptcy framework was complex and multilayered.

3.1 Pre-IBC Regime

The Sick Industrial Companies Act (SICA) of 1985 governed most bankruptcy cases and was the primary mechanism for corporate filings (Panagariya, 2008). It allowed for decisions on loan renegotiation or liquidation, with the Board for Industrial and Financial Reconstruction (BIFR) overseeing cases. Upon filing for bankruptcy, an automatic stay was placed on the debtor firm’s assets. If declared insolvent, the firm’s board of directors retained control in the process, similar to Chapter 11 in the US.

In the event of default, creditors had to file a civil suit with the district court, which were notoriously slow, further delayed by provisions for appeals on interim and final orders. These delays increased non-performing assets in Indian banks and allowed debtor firms to file under SICA to shield their assets from creditors, leading to strategic filings to avoid repayments (Gormley, Gupta, and Jha, 2018).

To expedite loan recoveries for banks and financial institutions, Debt Recovery Tribunals (DRTs) were created under the ‘Recovery of Debt Due to Banks and Financial Institutions Act, 1993,’ enabling them to bypass the district courts. However, trade creditors were not

covered by this act and had to continue navigating district courts for debt recovery. These tribunals reduced delinquencies and lowered the cost of bank credit for larger loans (Visaria, 2009), but constrained credit to smaller borrowers (Lilienfeld-Toal, Mookherjee, and Visaria, 2012). However, judicial vacancies and court delays reduced the effectiveness of DRTs over time, with liquidation or rehabilitation proceedings taking 10 to 15 years (Kang and Nayar, 2003; Vig, 2013).

A major pro-creditor shift occurred with the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI) in 2002, which empowered secured creditors to seize assets without court intervention. While this reduced overall debt and increased liquidity hoarding (Vig, 2013), it created a two-tier system where creditors had to resort to DRTs when collateral did not fully cover the debtor’s obligations, complicating the law’s efficiency over time (Bose et al., 2021; Jose and Borad, 2021).

3.2 Post-IBC Regime

The Insolvency and Bankruptcy Code (IBC) created a unified system, superseding existing laws and establishing specialized bankruptcy courts across India. Unlike previous reforms that focused mainly on banks and financial institutions, the IBC allows both secured and unsecured financial creditors, as well as operational creditors (trade creditors and employees), to initiate bankruptcy for defaults over Rs. 100,000 (around USD 1,200). Debtor firms can also initiate proceedings, similar to the previous SICA framework. Furthermore, the control of the debtor firm is transferred to financial creditors, thereby significantly enhancing their legal rights in bankruptcy.

When a trade creditor faces default, they must first issue a demand notice, giving the debtor 10 days to pay the outstanding dues. If no payment is made, the creditor can initiate the formal bankruptcy proceeding with the National Company Law Tribunal (NCLT), which typically reviews the application within 14 days. Notably, more than half of trade creditor cases were settled before reaching the admission stage as of December 2021.¹⁰

¹⁰See <https://www.livemint.com/companies/news/operational-creditors-at-receiving-end-of-ibc-stall-11608516547149.html>

Upon verifying a default, the NCLT admits the case, triggering the Corporate Insolvency Resolution Process (CIRP), during which a moratorium on all legal actions against the debtor is declared, and an Insolvency Professional (IP) is appointed. Even after admission, settlements are possible, but once financial creditors file their claims with the IP and the Committee of Creditors (CoC) is formed, any settlement requires approval from 90% of the CoC (by value). Trade creditors, however, lack voting rights in this committee.

The IP creates resolution plans to help revive the business. The CoC, using a voting system based on debt size, must approve a plan within 330 days, or the firm goes into liquidation. If no plan is approved within this period, the firm enters liquidation, and the proceeds are distributed, with trade creditors being paid just before the shareholders.

A crucial aspect of the IBC is its emphasis on prioritizing resolution over liquidation. The strict timeline helps debtor firms resume operations by expediting the process. However, the concentration of control with financial creditors raises concerns about increased liquidation of otherwise viable firms.

4 Mechanism

Building on the institutional framework of the Insolvency and Bankruptcy Code (IBC), this section examines how stronger trade and financial creditor rights impact the provision of trade credit, considering both supply-side and demand-side dynamics through relevant theories and evidence from the literature.

4.1 Supply of trade credit

With stronger creditor protections, trade creditors are more inclined to offer additional trade credit, capitalizing on their increased bargaining power. The risk of bankruptcy and the potential loss of control to financial creditors push debtor firms to adhere to payment schedules, thereby lowering their likelihood of default. Furthermore, the recovery rates for trade creditors are likely to be higher than under the pre-IBC regime because of an increased probability of out-of-court restructurings / settlements in a creditor friendly regime (Sautner

and Vladimirov, 2018).

As of March 2021, 51% of all bankruptcy filings admitted to the NCLT were initiated by trade creditors, with around 13% of these cases being settled or restructured out of court.¹¹ Therefore, increase in probability of firm avoiding bankruptcy and increase in expected recovery rate could result in increased supply of trade credit to firms closer to bankruptcy (Sautner and Vladimirov, 2018).

The supply of trade credit to financially constrained debtor firms may also increase when suppliers gain greater access to bank credit. According to the redistribution theory of trade credit, suppliers with better access to credit tend to redistribute it to their financially constrained customers (Meltzer, 1960; Petersen and Rajan, 1997).

High credit risk firms may also experience a decline in trade credit supply, particularly in environments with stronger enforcement, where trade creditors anticipate an increased risk of premature liquidation (Vig, 2013). As of March 2021, recovery rates for trade creditors under liquidation have been poor, around 2%.¹² Financial creditors primarily focus on securing repayment by seizing assets to limit their losses. However, suppliers, who are paid before equity owners during liquidation, also lose their future revenue streams and any relationship-specific investments made when the debtor firm ceases to exist (Ge et al., 2017).

4.2 Demand of Trade Credit

Firms could increase or decrease their borrowings from financial institutions depending on the personal cost of bankruptcy for their owners and managers (Schoenherr and Starmans, 2022). The personal costs of bankruptcy (PCB) for owners and managers include the loss of control over the firm, future income, and private benefits associated with control. Under the IBC, the existing managers lose control to financial creditors in bankruptcy, thereby increasing their personal cost of bankruptcy.

Firms with initially low levels of personal bankruptcy costs often face financial constraints due to the weak incentives of owners and managers to prioritize creditor interests. However,

¹¹Source: Insolvency and Bankruptcy Board of India.

¹²Source: Insolvency and Bankruptcy Board of India.

stronger creditor protection improves these incentives by raising the personal costs that owners and managers incur in bankruptcy, thus alleviating financial constraints. Consequently, these firms are able to increase both their borrowing and investment levels (Schoenherr and Starmans, 2022). In such cases, their reliance on trade credit is likely to decline, in line with the substitution hypothesis (Meltzer, 1960; Deloof and Jegers, 1999; Gopalan et al., 2016).

On the other hand, firms that begin with high personal bankruptcy cost levels are less likely to engage in risky investment projects, even if they are not financially constrained, due to the significant personal repercussions of bankruptcy. As creditor protection strengthens, the increased personal costs discourage these firms from borrowing and investing, as the risks of bankruptcy become more pronounced (Schoenherr and Starmans, 2022). Similarly, Vig (2013) finds that stronger secured creditor rights, which introduce a liquidation bias, reduce debt by eroding the private benefits of control. In such a scenario, borrowers may shift from bank credit to trade credit, increasing the demand for trade credit.

Lastly, the increased bargaining power of suppliers to initiate bankruptcy proceedings upon default could also suppress the demand for trade credit.

5 Empirical Framework

5.1 Identification Strategy

Since the law was implemented uniformly across the country and applies to all firms and creditors, there are no naturally defined treatment and control groups to leverage. In accordance with existing literature, treatment and control groups can be constructed by utilizing the differential impact of the law on various firms. A strengthening of creditor rights increases the degree of cash flow verifiability (Rodano et al., 2016) which in turn increases the bargaining power of creditors during renegotiation. Therefore, debtor firms with high default risk or more likely to renegotiate are the most affected by a change in the design of the bankruptcy law (Rodano et al., 2016; Ge et al., 2017; Sautner and Vladimirov, 2018; Bose et al., 2021; Schoenherr and Starmans, 2022). Meanwhile, borrowers with low default risk are the least affected by the law and are also not heavily reliant on trade credit for

financing (Petersen and Rajan, 1997). I exploit the cross-sectional differences in the firms' levels of financial distress ex-ante to understand the impact of the policy on trade credit.

To classify firms as being closer to default, I follow the approach outlined in the Sick Industrial Companies Act (SICA), which was in effect before the introduction of the IBC law (Bose et al., 2021). According to this definition, the treated group comprises firms with accumulated losses equal to or exceeding their net worth by the end of the financial year preceding the reform.

Given that the bankruptcy law is likely to have minimal impact on financially stable firms, I have included in the control group only those firms with a positive balance of accumulated profits in every year during the pre-treatment period. This ensures that the control group consists of consistently financially strong firms, as a positive balance of accumulated profits each year indicates their ability to absorb any potential losses. This condition minimizes the likelihood of default ex-ante among firms in the control group.

5.2 Data

The research draws on firm-level financial data from the Centre for Monitoring Indian Economy (CMIE) Prowess database, covering the financial years from April 2013 to March 2021. This dataset includes information on all listed companies and a significant proportion of unlisted firms, based on audited annual financial statements submitted to the Ministry of Corporate Affairs. I excluded approximately 13% of firms with non-annual statements and 0.8% of firms whose financial years did not align with the April-to-March cycle. Following standard selection criteria, companies with missing data on accounts payable and those reporting negative values for sales, COGS (Cost of Goods Sold), or total assets were omitted, resulting in an unbalanced panel of 10,445 firms. To minimize the influence of outliers and in line with common practice in the literature, all variables in the regression analysis were winsorized at the 1% level (Shumway, 2001). The definitions of the variables used are outlined in Table 1.

5.3 Main Specification

Having defined the control and treated groups, I now investigate the impact of the law on firms by employing a difference-in-differences (DID) methodology. This method helps identify the causal effect of the law by comparing the outcomes of firms most likely to default before and after the law against those least likely to default. The following regression is estimated using firm-level data:

$$y_{it} = \alpha + \beta Post_t * Treated_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it} \quad (1)$$

where i represents firms or borrowers. $Post_t$ is a dummy variable equal to 1 for post treatment years (April 2017 to March 2021) and equal to 0 for the pre-treatment period (April 2013 to March 2016, excluding the financial year from April 2016 to March 2017 when the IBC took effect). $Treated_i$ is a dummy equal to 1 if the firm is distressed as of April 2015 – March 2016, and 0 if it is financially stable. y_{it} denotes the outcome of interest measured in year t for firm i , with ϵ_{it} as the error term.

The fixed effects γ_i and δ_{kt} correspond to firm and industry-year effects, respectively. Firm fixed effects capture time-invariant characteristics unique to each firm, allowing the estimation to rely on within-firm variation over time. The industry classification used is the two-digit National Industrial Classification (NIC). The industry-year fixed effects help account for time-varying industry specific shocks that may be correlated with outcome variable. Consequently, the $Post_t$ and $Treated_i$ dummies are not included separately as these are absorbed in industry-time and firm fixed effects respectively.

Given that the two groups of firms may differ in characteristics that could affect the outcome variable, I include time-varying firm-level controls such as size, leverage, liquidity, etc. This ensures that the estimated effect of the law is not confounded by these factors. The coefficient of interest, β , captures the change in y_i for the financially distressed firms post reform as compared to the financially stable firms. The regression is estimated using OLS, with standard errors clustered at the firm level to account for within-firm correlation.

5.4 Internal Validity

For difference-in-differences to be valid, the parallel trends assumption must hold, meaning that the trends in the outcome variable (y) should be similar between treated and control groups before the reform. A violation of this assumption suggests that other factors may be influencing the differences between the groups, leading to biased estimates of the treatment effect (β). To test for parallel trends, I estimate the following regression:

$$y_{it} = \alpha + \sum_{\tau} \beta_{\tau} Post_{\tau} * Treated_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it} \quad (2)$$

where τ ranges from March 2014 to March 2021. The parallel trends assumption holds if the interaction term coefficients for the pre-treatment years are insignificant.

6 Results

6.1 Summary Statistics

Table 2.1 presents summary statistics for the variables across the full sample and separately for treated and control firms. The dataset includes 1,762 distressed (treated) firms and 6,050 financially stable (control) firms. On average, profitable firms tend to be larger than distressed firms. Treated firms generally exhibit higher leverage, lower liquidity, and are younger than those in the control group.

On average, distressed firms have 50% of their assets tied up in long-term borrowings and an additional 35% in short-term borrowings. In contrast, profitable firms are significantly different, with only 13% of assets in long-term borrowings and 17% in short-term borrowings. To compare the credit risk between the two groups, interest payments account for 33% of borrowings for distressed firms, whereas for profitable firms, it is 22%. Furthermore, the average gross profit margin of distressed firms is -19%, as reflected by the EBITDA to total sales ratio, compared to a 9% average gross profit margin for the control group.

Distressed firms demonstrate a notably higher dependence on trade credit compared to financially stable firms. This is evident in both their greater use and extension of trade

credit, with the receivables-to-sales ratio for treated firms at 0.58, compared to 0.28 for profitable firms. Additionally, the payables-to-COGS ratio of distressed firms is around 1.71, indicating delayed payments to suppliers. Often, distressed firms extend more trade credit as a strategy to remain competitive and attract new customers (Barrot, 2016). Lastly, there is also a slightly higher percentage of unlisted companies among the treated firms relative to the control group.

[INSERT TABLE 2.1 HERE]

6.2 Univariate Analysis

Table 2.2 presents the summary statistics for distressed and non-distressed firms before and after the reform. The trade credit usage, as reflected by the accounts payable to COGS ratio, increased by 39% more for the treated firms than for the control firms following the reform. This suggests that the strengthening of both supplier and financial creditor rights has led to greater trade credit utilization. Furthermore, sales and cost of goods sold declined for distressed firms in comparison to their financially stable counterparts. The increase in the accounts payable to COGS ratio appears to be driven by the reduction in COGS. When replacing COGS with its pre-treatment average, the ratio no longer shows an increase for treated firms compared to control firms. However, the rise in the accounts payable to COGS ratio still provides evidence that treated firms are purchasing more goods and services on credit relative to control firms after the reform.

Additionally, gross profit margins for distressed firms improve relative to the non-distressed group, indicating that the decline in the cost of goods sold exceeds the decline in sales for the treated group after the law. This improvement in gross profit margin suggests that there has been no substantial increase in the implicit cost of trade credit utilized by financially weaker firms. Furthermore, the cost of alternative financing, measured by the cost of debt (total interest expenses divided by total borrowings), does not appear to change significantly between the treated and control groups. However, short-term and long-term borrowings increase more for distressed firms relative to non-distressed firms. With distressed firms experiencing increased access to institutional credit post-reform and no corresponding dete-

rioration in gross profit margin, there is evidence that the rise in trade credit is driven by supply-side factors outweighing demand-side influences.

[INSERT TABLE 2.2 HERE]

6.3 Impact of the Reform on Trade Credit Usage

The IBC reform grants suppliers the right to initiate bankruptcy proceedings in a specialized bankruptcy court against defaulting debtor firms, bypassing the heavily congested district courts. However, the concurrent strengthening of financial creditors' rights affects both the demand of debtor firms for trade credit and the lending behavior of suppliers. In order to estimate the impact of the law on the trade credit usage, I estimate the formal DID equation (1). The following time-varying firm-level controls are included: the natural logarithm of firm age and total assets (size), following Petersen and Rajan (1997) and Niskanen and Niskanen (2006); tangibility, measured as fixed assets to total assets, following Rajan and Zingales (1995); debt to assets (Meltzer, 1960; Deloof and Jegers, 1999); cash and bank balances to assets (Barrot, 2016); and gross profit to assets (Barrot, 2016).

In columns (1) to (3), I present the basic regression results without firm-level controls but with firm fixed effects and year, industry-year, and state-year fixed effects, respectively. Firm-level controls are incorporated in columns (4) to (6). The results remain consistent across all regression specifications. As shown in column (5), treated firms experience a significant 23% increase in payables compared to non-distressed firms, which translates to a 15.6% rise relative to the pre-reform level. Overall, the IBC reform has led to an increase in trade credit usage among firms.

[INSERT TABLE 3 HERE]

Finally, I assess the parallel trends assumption using equation (2), with the results presented in Table 4. The analysis indicates no significant differences in pre-reform trends between the control and treated groups. The coefficients on the interaction terms between the pre-reform year dummies and the distress indicator are statistically insignificant across all specifications in Table 4. Additionally, Figures 2 and 3 plot these interaction term coeffi-

cients alongside their 95% confidence intervals, both with and without firm-specific controls.

[INSERT TABLE 4 HERE]

[INSERT FIGURES 1 and 2 HERE]

6.3.1 Cross-Sectional Heterogeneity

In this section, I investigate whether the law generates heterogeneous effects within the treated group by focusing on firm characteristics outlined in the literature. To examine these cross-sectional effects, I modify the OLS regression (1) by introducing interactions between the $Post_t * Treated_i$ variable and the firm characteristic Ω , split into Ω_H and Ω_L . Specifically, Ω_H equals 1 if the firm is in the top half of the distribution for a given characteristic in the pre-treatment period, and Ω_L equals 1 if the firm is in the bottom half of that pre-treatment distribution. The following equation captures this three-way interaction:

$$y_{it} = \alpha + \beta_1 Post_t \cdot Treated_i \cdot \Omega_H + \beta_2 Post_t \cdot Treated_i \cdot \Omega_L + \beta_3 Post_t \cdot \Omega_H + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it} \quad (3)$$

In this specification, β_1 captures the change in y_{it} following the reform for financially distressed firms in the top half of the distribution for firm characteristic Ω , relative to non-distressed firms in the same half of the distribution. Similarly, β_2 measures the change in y_{it} for treated firms in the bottom half of the distribution for Ω after the reform, relative to their counterparts. β_3 reflects the overall change in y_{it} following the reform for all firms in the top half of Ω . If there is heterogeneity based on the firm characteristic given by Ω , the difference between β_1 and β_2 will be statistically significant.

Additionally, $Treated_i$, Ω_H and the interaction term $Treated_i * \Omega_H$ will be absorbed by the firm fixed effects because these variables are time-invariant for each firm. Similarly, $Post_t$ will be absorbed by year fixed effects.

Size is inversely related to trade credit usage, with smaller firms relying more heavily on trade credit due to their limited access to external financing (Niskanen and Niskanen, 2006). Firm age follows a similar pattern (Niskanen and Niskanen, 2006). Younger firms, despite

having more investment opportunities, often face financing constraints and are therefore more reliant on trade credit (Niskanen and Niskanen, 2006). By offering more trade credit to younger and growing yet currently unprofitable firms could enable suppliers to secure future profitable business relationships (Petersen and Rajan, 1997). Building on insights from the descriptive statistics, I examine whether firms with high receivables rely more on trade credit. Distressed firms, though financially constrained, often extend similar trade credit terms to their customers in order to remain competitive with non-constrained firms (Barrot, 2016). As a result, distressed firms with longer debtor days and extended gross working capital cycles require more liquidity and are thus more dependent on trade credit.

Tables 5.1 to 5.5 present the results of the heterogeneity analysis. Within the group of distressed firms, smaller firms are more likely to increase their trade credit usage compared to their larger counterparts. The difference between $Post_t * Treated_i * Large$ and $Post_t * Treated_i * Small$, shown at the bottom of Table 5.1, is both negative and significant. Likewise, older distressed firms with low sales growth tend to increase their accounts payable more than younger distressed firms with high sales growth. This is consistent with findings from Ng et al. (1999), who show that suppliers extend trade credit or offer unearned discounts to buyers with long-term relationships. Furthermore, Niskanen and Niskanen (2006) find no evidence that rapidly growing firms use more trade credit. The difference between $Post_t * Treated_i * Old$ and $Post_t * Treated_i * Young$, as reported at the bottom of Table 5.2, is positive and significant. Similarly, the difference between $Post_t * Treated_i * HighSales$ and $Post_t * Treated_i * LowSales$, presented at the bottom of Table 5.3, is negative and significant.

[INSERT TABLES 5.1, 5.2 and 5.3 HERE]

Consistent with the descriptive statistics, I observe that firms with higher receivables experience a greater increase in accounts payable in the post-reform equilibrium. Similarly, the effect of the law is more pronounced for distressed firms with longer gross working capital cycles. The positive and significant differences between $Post_t * Treated_i * HighReceivables$ and $Post_t * Treated_i * LowReceivables$, and between $Post_t * Treated_i * LongCycle$ and $Post_t * Treated_i * ShortCycle$, shown at the bottom of Tables 5.4 and 5.5, confirm these

patterns. Moreover, smaller, mature distressed firms with low sales growth and inefficient working capital management exhibit lower gross profitability ex-ante compared to larger, younger distressed firms with higher sales growth and relatively more efficient working capital management.

[INSERT TABLES 5.4 and 5.5 HERE]

The rise in trade credit may be driven by an increased supply directed toward the more distressed firms, whose demand was already high prior to the reform. Alternatively, it could stem from the less efficient distressed firms raising their demand after the reform, as they face a reduction in equilibrium bank borrowing.

To gain deeper insights into these dynamics, I further examine the effect of the reform on gross profit margins, which serves as a proxy for the cost of trade credit, as well as its impact on the borrowings of distressed firms from financial institutions.

6.4 Impact of the Reform on Gross Profit Margin

The increase in trade credit usage reflects an equilibrium between demand and supply dynamics. Given the lack of comprehensive data on trade credit contracts and supplier-customer relationships, it is difficult to determine whether the increase is driven by a supply-side expansion that overshadows demand changes, or a demand-side surge that outweighs supply adjustments. However, if gross profit margins have deteriorated for firms increasing their reliance on trade credit after the reform, it would suggest that demand-side changes are dominant. This would also indicate an increase in the implicit cost of trade credit, possibly through reduced credit duration or discounts.¹³ This would indicate that suppliers are transferring the increased risk of extending credit to distressed firms through less favorable trade credit terms.

Estimating the DID equation (1) with gross profit margin as the outcome variable, I observe an improvement in gross profit margin only when firm-level controls and industry-time fixed effects are included, as demonstrated in columns (2) and (5) of Table 6. Specifically, the

¹³The trade credit term 2/10, net 30 means the buyer gets a 2% discount if they pay within 10 days, but the full payment is due within 30 days (duration of trade credit) if the discount is not taken.

gross profit margin increases by 6% for treated firms relative to untreated firms post-reform, as seen in column (5). Although there is weak evidence of increased profit margins—since the results are not significant across all specifications—the use of propensity score matching (PSM) to align the control and treated firms based on key observable characteristics yields consistent results across specifications. Moreover, the increase in gross profit margin becomes significant when employing the synthetic DID approach, a doubly robust method that mitigates bias from unobserved confounders.

Additionally, I find no significant pre-trends when firm-level controls are included, as shown in column (5) of Table 7. Overall, the increased use of trade credit by distressed firms does not lead to a reduction in their gross profit margins, suggesting that suppliers are not transferring the increased risk of lending to these firms. This evidence is consistent with a supply-side explanation.

[INSERT TABLES 6 and 7 HERE]

6.5 Impact of the Reform on Other Forms of Credit

Since decreased access to bank credit can lead distressed firms to demand more trade credit (Petersen and Rajan, 1997), I further investigate the effect of the reform on the cost of credit from financial institutions. Stronger creditor rights increase the bank’s expected payoff in renegotiation by reducing the risk of strategic default, due to the heightened threat of liquidation. Without these rights, banks are more willing to negotiate since liquidation is less efficient, undermining their bargaining power during renegotiation. As a result, the cost of bank credit should decline for firms closer to default (Vig, 2013; Rodano et al., 2016).

I measure the cost of borrowings from financial institutions as the ratio of total interest expense to total borrowings, which includes both long-term and short-term borrowings from banks and other financial institutions. Consistent with the univariate analysis in Table 2.2, I do not find a significant decline in the cost of financial firm financing, as shown in column (1) of Table 8. When firm-level controls are included, a significant decline in borrowing costs for distressed firms compared to non-distressed firms emerges, as displayed in column (2) of Table 8. However, the significant pre-trend in column (2) of Table 9 indicates that factors

other than the treatment are driving the post-treatment differences. Using alternative model specifications, including propensity score matching and synthetic difference-in-differences, I find no significant change in cost of bank borrowings.

With reduced cost of borrowing and increased access to credit, there could also be a case wherein the firm reduces its borrowing due to an increased threat of premature liquidation (Vig, 2013). In other words, firms with high personal bankruptcy costs are worried about control rights of the financial creditors eroding their personal benefits during bankruptcy (Schoenherr and Starman, 2022).

When estimating the DiD specification (1) using long-term borrowings scaled by total assets, I find no significant change in total borrowings post-reform, as shown in columns (5) and (6) of Table 8. Similarly, no significant change is observed when using total borrowings scaled by total assets, as noted in column (3) of Table 8. However, once firm-level controls are added, total borrowings for distressed firms increase by 2.2% relative to non-distressed firms, as indicated in column (4) of Table 8. Likewise, short-term borrowings increase by 4-5% for treated firms in comparison to non-treated firms, as displayed in columns (7) and (8) of Table 8. However, significant pre-trends exist for both total borrowings and short-term borrowings, as displayed in columns (3), (4), (7) and (8) of Table 9, suggesting that factors other than the treatment are driving these changes. Using propensity score matching and synthetic difference-in-differences, I do not find a significant change in borrowings for distressed firms relative to their profitable counterparts, as detailed in the next section.

[INSERT TABLES 8 and 9 HERE]

The lack of a decline in bank borrowings for distressed firms after stronger creditor rights suggests that the increase in trade credit usage is supply-driven. This is further supported by the finding that gross profit margins do not deteriorate for firms that use more trade credit. Additionally, the absence of a significant increase in bank credit due to the reform provides no evidence for the redistribution hypothesis, which posits that suppliers receive more bank credit to pass on to constrained customers. Therefore, the increased willingness of suppliers to extend more trade credit likely results from a reduced risk of bankruptcy and improved recovery rates.

7 Robustness Checks

7.1 Propensity Score Matching

Given that treated and untreated firms differ markedly, the likelihood of a firm being distressed is calculated using a logit regression that considers variables such as size (log of total assets), leverage (total debt to total assets), asset turnover (sales to total assets), and two-digit industry classification. Following the calculation of these propensity scores, firms in the treatment group are matched with comparable units in the control group based on these scores. This method effectively minimizes selection bias by ensuring that matched firms share similar covariate values, thus approximating a randomized experimental set-up.

The analysis using these matched firms is detailed in Appendix A. Figure A.1 shows that, prior to the reform, trade credit usage in both groups followed similar trends. After the reform, the trade credit usage of treated firms increased significantly by 23.6% compared to untreated firms, as shown in column (5) of Table A.1. This estimate is consistent with the 22.6% increase reported in Table 3. Gross profit margin rises by 6% when firm-level controls are included, as observed in columns (4) to (6) of Table A.3, with no significant pre-trends.

Given that the matched control and treated firms are more comparable, Figures A.2 to A.5 plot coefficient estimates for the year-wise dummies after controlling for firm fixed effects, industry-time effects and time-varying firm covariates for total interest expense, total borrowings, long-term borrowings, and short-term borrowings for both groups, respectively. Each of these figures highlight that there is no evidence of an increase in the cost of bank credit or decline in long-term or short-term borrowings for distressed firms, and thus, no evidence of a demand-driven increase in trade credit post-reform.

To further enhance the comparability between treated and control firms, I employ a synthetic DiD approach which minimizes differences between groups that may arise due to selection biases or unobserved factors.

7.2 Synthetic Difference-in-Differences

Synthetic Difference-in-Differences (Arkhangelsky et al., 2021) is used to address the concern of unobserved correlation between treatment assignment and firm-level time trends (Berman and Israeli, 2022). This method constructs a synthetic control from a selection of appropriate control units using pre-intervention data, ensuring it reflects the counterfactual trends that the treated unit would have followed. By weighting the pre-intervention periods to resemble the post-intervention periods more closely, this technique guarantees that relying solely on the outcome variable for 'matching' is adequate. Figure B.1 in Appendix B demonstrates a significant increase in trade credit for distressed firms compared to the control group post-intervention, with a 39.4% increase observed when including only firm and year fixed effects. This result is significant at the 1% level and closely corresponds to the DID estimate of a 41.5% increase shown in column (1) of Table 3.

Similarly, gross profit margins do not decline for distressed firms after the reform compared to non-distressed firms and increase significantly by 3.5% for distressed firms post-reform. Meanwhile, total and long-term borrowings do not show any significant changes for treated firms relative to untreated firms. However, short-term borrowings increase by 6.6% for distressed firms. Thus, the results remain consistent: trade credit increases, with no decline in gross profit margins and no reduction in bank borrowings.

7.3 Alternate Measure of Distress

Since the definition of defining treated firms using the Sick Industrial Companies Act, could result in delayed identification of financial distress, I have also employed an alternative strategy for identifying distressed and non-distressed firms. The Altman's (1968) Z-score for emerging markets is used to measure a firm's anticipated default risk in the pre-treatment year i.e., the financial year running from April 2015 to March 2016. Firms that exhibit a Z-score lower than 1.1 in this pre-treatment year are designated as part of the treated group. A Z-score that is lower than 1.1 means that the company is in financial distress and with a high probability of going bankrupt. On the other hand, a score of 2.6 and above means that the company is in a safe zone and is unlikely to file for bankruptcy. A score of between 1.1

and 2.6 means that the company is in a grey area and with a moderate chance of filing for bankruptcy. Therefore, firms with a Z-score equal to or greater than 2.6 in every financial year of the pre-treatment period are included in the control group, excluding those that fall within the Z-score ‘grey zone’ ($1.1 \leq \text{Z-score} < 2.6$).

Utilizing this identification method, I identified 1,036 firms as distressed and 7,828 as non-distressed. The Z-score method tends to be more conservative, labelling fewer companies as distressed and more as financially stable compared to the earlier method. About 77 firms (which represent 7% of those deemed distressed by the Z-score criteria) are not marked as distressed under the definition of the old bankruptcy law. Likewise, 135 firms (approximately 2% of the control group identified by the earlier criteria) do not achieve a Z-score higher than 2.6 in every year of the pre-treatment period. All the findings remain qualitatively similar with the previous analysis and are reported in Tables C.1 to C.6 in Appendix C.

7.4 Additional Robustness Test

On 22 August 2014, the Ministry of Finance created the Bankruptcy Legislative Reforms Committee (BLRC) to draft the new bankruptcy law which was passed in May 2016 and came into effect from December 1, 2016. In order to account for possible anticipation, the main result is re-run by excluding the financial years from April 2014 to March 2015 and April 2015 to March 2016 (Rajgopal and Tantri, 2022). Following the law’s implementation, trade credit usage among distressed firms rose by 16.2% (column (5) of Table D.1) as compared to the previously computed DID estimate of 22.6% shown in column (5) of Table 3.

8 Conclusion

The influence of shifts in creditor bargaining power on trade credit remains a relatively unexplored area. Previous studies have predominantly examined the effects of providing suppliers with stronger trade creditor rights, such as reclamation or voting rights, within legal environments characterized by strict enforcement (Ge et al., 2017; Sautner and Vladimirov, 2018; Costello, 2019). This paper explores the shift to a regime where the rights of all creditors

are concurrently strengthened, though not necessarily equally. Specifically, it examines the impact of granting suppliers only initiation rights—without reclamation, negotiation, or voting rights—within a creditor-centric bankruptcy framework that also grants initiation and control rights to financial creditors.

I observe an increase in trade credit utilization among firms most likely to default. This increase is not accompanied by a reduction in gross profit margins, suggesting that the rise in trade credit is not driven by demand-side factors. This conclusion is further supported by the absence of a significant decline in bank borrowings for distressed firms following the enhancement of creditor rights. Moreover, the increase in trade credit is concentrated among distressed firms that are smaller, mature, and characterized by limited growth prospects and poor working capital management. This subset also shows lower gross profitability ex-ante compared to the more efficient group of distressed firms. Thus, the increased supply of trade credit primarily flows to the more constrained firms.

The increase in trade credit following the reform, without any corresponding rise in bank borrowings, suggests an increased willingness on the part of suppliers to extend credit. Without stronger financial creditor rights, simply granting initiation rights to trade creditors would not necessarily lower the risk of bankruptcy or increase the bargaining power of suppliers in out-of-court settlements. In a pro-debtor regime, even when initiation rights are present, debtors retain control, which can significantly enhance the bargaining power of the firm’s management during bankruptcy proceedings and settlements.

Without an increase in bank borrowings after the reform, the increase in trade credit is a result of an increased willingness on part of the suppliers to extend more credit. Without stronger financial creditor rights, the mere presence of initiation rights for trade creditors would not have resulted in making bankruptcy less likely and would not have resulted in settlements out of court for the cases filed. In a pro-debtor regime, with the initiation right intact, debtors retain control, which potentially strengthens the bargaining power of firm’s management in bankruptcy and out-of-court settlements. This underscores the importance of understanding how different creditor rights interact, as this relationship can significantly influence the financing available to firms, which in turn affects their stability and survival.

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Tables and Figures

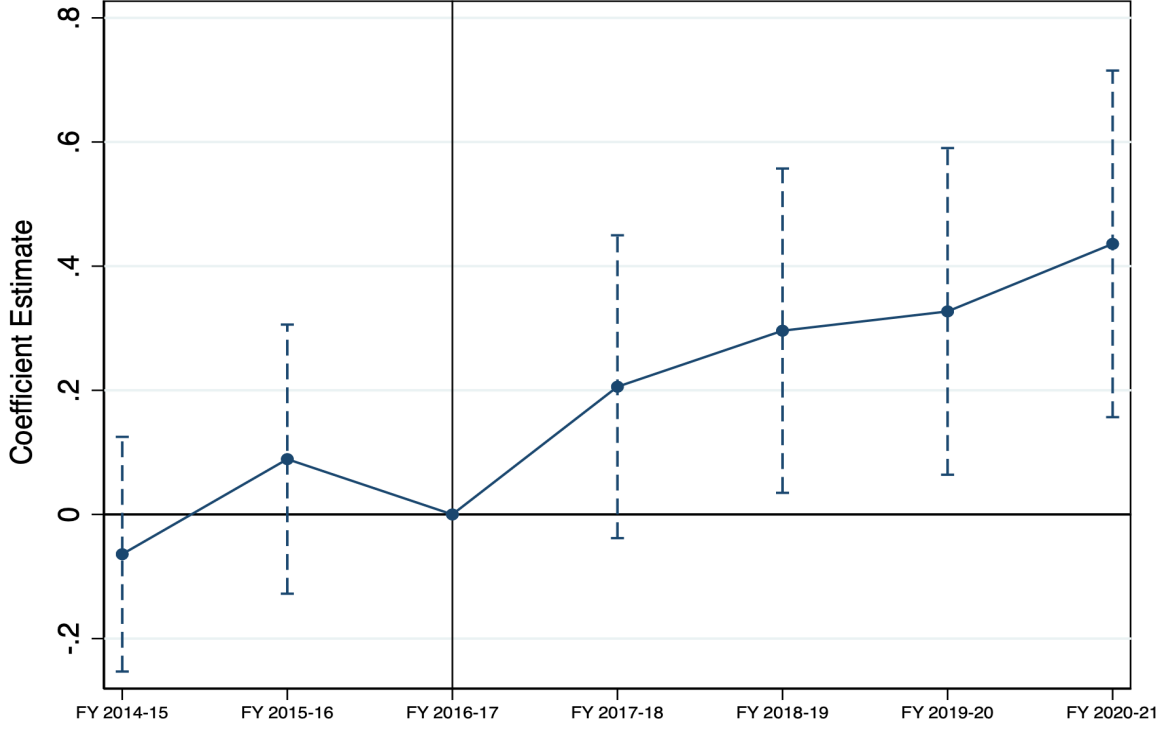


Figure 1: Effect of the IBC reform on payables: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. The dependent variable ap_{it} is the ratio of accounts payable to COGS for firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

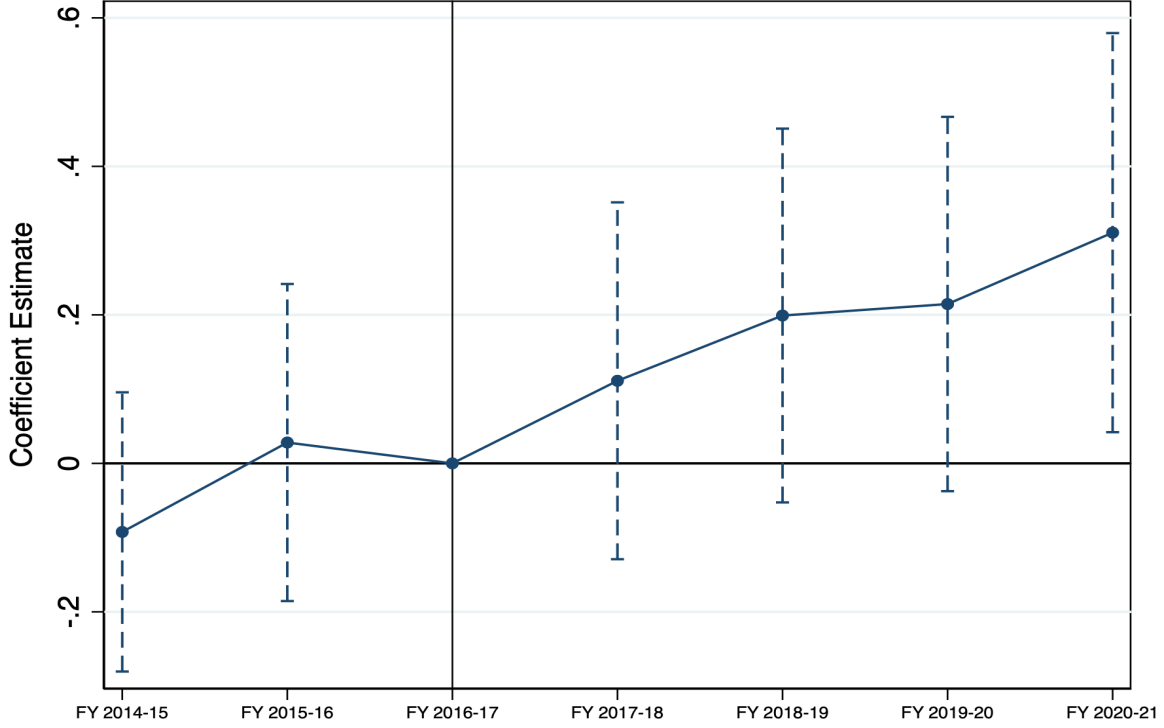


Figure 2: Effect of the IBC reform on payables: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. The dependent variable ap_{it} is the ratio of accounts payable to COGS for firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. X_{it} are the firm level, time varying controls that include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

Table 1: Variable Definition

| Variable | Definition |
|-----------------------|---|
| Age | Natural logarithm of (1+age) |
| Size | Natural logarithm of total assets |
| Tangibility | Plant, property and equipment scaled by total assets |
| Leverage | Total Debt/Borrowings scaled by total assets |
| Long term borrowings | Long term Borrowings scaled by total assets |
| Short term borrowings | Short term Borrowings scaled by total assets |
| Cost of debt | Total interest expense scaled by total borrowings |
| Liquidity | Cash and bank balances scaled by total assets |
| Sales | Natural logarithm of total sales |
| COGS | Cost of Goods Sold |
| Asset turnover | Sales scaled by total assets |
| Gross profit margin | EBDITA divided by total sales |
| Receivables | Trade receivables scaled by sales |
| Payables | Trade payables scaled by COGS |
| Payables ^o | Trade payables scaled by pre-treatment average of COGS |
| Altman's Z-score | Altman's (1968) Z-score for emerging markets defined as: $3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$ $X_1 = (\text{Current Assets} - \text{Current Liabilities})/\text{Total Assets}$, $X_2 = \text{Retained Earnings}/\text{Total Assets}$, $X_3 = \text{EBIT}/\text{Total Assets}$, $X_4 = \text{Book Value of Equity}/\text{Total Liabilities}$. |

Table 2.1: Descriptive Statistics

This table presents the summary statistics (number of observations, mean and standard deviation) for the variables used in the analysis. The sample period is from April 2013 to March 2021 (excluding the treatment year i.e. April 2016 to March 2017). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013-March 2016. All variables are defined in the Appendix.

| | Full Sample $N = 10,445$ | | | Control $N = 6,050$ | | | Treatment $N = 1,762$ | | |
|-----------------------|-----------------------------|-------|--------------|------------------------|-------|--------------|--------------------------|-------|--------------|
| | Obs. | Mean | Std. dev. | Obs. | Mean | Std. dev. | Obs. | Mean | Std. dev. |
| Age | 73,115 | 28.75 | 17.03 | 42,350 | 29.87 | 16.39 | 12,334 | 27.25 | 17.15 |
| Size | 73,071 | 6.90 | 2.00 | 42,350 | 7.11 | 1.85 | 12,295 | 6.16 | 2.24 |
| Tangibility | 70,588 | 0.25 | 0.22 | 41,529 | 0.23 | 0.19 | 11,347 | 0.31 | 0.28 |
| Leverage | 63,306 | 0.41 | 0.50 | 36,194 | 0.27 | 0.19 | 11,010 | 0.90 | 0.92 |
| Long term borrowings | 53,244 | 0.21 | 0.30 | 30,943 | 0.12 | 0.13 | 8,731 | 0.50 | 0.53 |
| Short term borrowings | 53,158 | 0.20 | 0.23 | 31,755 | 0.17 | 0.17 | 8,244 | 0.35 | 0.42 |
| Cost of debt | 42,383 | 0.24 | 5.59 | 26,162 | 0.22 | 5.23 | 5,761 | 0.33 | 5.15 |
| Liquidity | 72,039 | 0.08 | 0.12 | 42,127 | 0.09 | 0.12 | 11,769 | 0.07 | 0.12 |
| Sales | 69,508 | 6.69 | 2.15 | 41,669 | 7.10 | 1.94 | 10,614 | 5.68 | 2.39 |
| Cost of Goods Sold | 71,766 | 6.21 | 2.37 | 42,166 | 6.69 | 2.09 | 11,560 | 5.06 | 2.70 |
| Gross profit margin | 69,508 | 0.02 | 0.56 | 41,669 | 0.09 | 0.36 | 10,614 | -0.19 | 0.91 |
| Receivables | 67,455 | 0.37 | 0.92 | 41,009 | 0.28 | 0.62 | 9,845 | 0.58 | 1.37 |
| Payables | 71,766 | 0.74 | 3.04 | 42,166 | 0.38 | 1.76 | 11,560 | 1.71 | 4.92 |
| Payables° | 72,387 | 0.57 | 1.78 | 42,245 | 0.33 | 0.95 | 11,900 | 1.11 | 2.77 |
| % of Listed Firms | 18,396 | 25% | | 11,046 | 26% | | 2,632 | 21% | |
| % of Unlisted Firms | 54,677 | 75% | | 31,304 | 74% | | 9,702 | 79% | |

Table 2.2: Univariate Comparison

This table presents the before and after the treatment results for the full sample, treated firms and control firms. The treatment is the passing of the IBC, 2016 law in India. The sample period is from April 2013 to March 2021 (excluding the treatment year i.e. April 2016 to March 2017). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013-March 2016. 'Before' refers to the pre-treatment period from April 2013 to March 2016 and 'Diff.' refers to the difference between simple averages in the pre and post treatment periods. Standard errors are presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively. All variables are defined in the Appendix.

| | Pre-treatment | | | Post-treatment | | |
|-----------------------|-----------------------|-------------------------|----------------------|-----------------------|-------------------------|----------------------|
| | Control N = 6, 050 | Treatment N = 1, 762 | Diff. | Control N = 6, 050 | Treatment N = 1, 762 | Diff. in Diff. |
| Size | 6.887 (0.014) | 6.148 (0.030) | 0.739*** (0.013) | 7.281 (0.012) | 6.163 (0.027) | 1.117*** (0.027) |
| Tangibility | 0.242 (0.001) | 0.332 (0.004) | -0.089*** (0.003) | 0.223 (0.001) | 0.297 (0.003) | -0.074*** (0.003) |
| Leverage | 0.294 (0.002) | 0.857 (0.012) | -0.563*** (0.007) | 0.251 (0.001) | 0.942 (0.013) | -0.691*** (0.007) |
| Long term borrowings | 0.128 (0.001) | 0.502 (0.008) | -0.374*** (0.005) | 0.112 (0.001) | 0.497 (0.008) | -0.386*** (0.005) |
| Short term borrowings | 0.186 (0.001) | 0.336 (0.006) | -0.151*** (0.004) | 0.155 (0.001) | 0.369 (0.007) | -0.213*** (0.004) |
| Cost of debt | 0.153 (0.014) | 0.204 (0.041) | -0.051 (0.036) | 0.269 (0.055) | 0.435 (0.120) | -0.166 (0.133) |
| Liquidity | 0.084 (0.001) | 0.062 (0.002) | 0.022*** (0.002) | 0.086 (0.001) | 0.075 (0.013) | 0.011*** (0.007) |
| Sales | 6.976 (0.014) | 5.625 (0.034) | 1.351*** (0.033) | 7.189 (0.013) | 5.732 (0.032) | 1.457*** (0.030) |
| Profitability | 0.092 (0.003) | -0.199 (0.012) | 0.291*** (0.008) | 0.085 (0.002) | -0.175 (0.012) | 0.258*** (0.008) |
| Receivables | 0.252 (0.004) | 0.514 (0.018) | -0.262*** (0.013) | 0.299 (0.04) | 0.626 (0.020) | -0.327*** (0.013) |
| Payables | 0.335 (0.011) | 1.448 (0.062) | -1.113*** (0.039) | 0.407 (0.012) | 1.910 (0.065) | -1.503 (0.041) |
| Payables ^o | 0.264 (0.007) | 1.032 (0.037) | -0.768*** (0.023) | 0.374 (0.006) | 1.169 (0.034) | -0.796*** (0.022) |
| Cost of Goods Sold | 6.570 (0.015) | 5.109 (0.036) | 1.461*** (0.034) | 6.783 (0.014) | 5.021 (0.035) | 1.763*** (0.032) |
| | | | | | | 0.302*** (0.047) |

Table 3: Effect of the IBC Reform on Payables

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|----------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.415*** (0.096) | 0.306*** (0.087) | 0.426*** (0.096) | 0.302*** (0.088) | 0.226*** (0.084) | 0.319*** (0.088) |
| Age | | | | -0.526** (0.223) | -0.553** (0.230) | -0.518** (0.226) |
| Size | | | | -0.238*** (0.063) | -0.195*** (0.063) | -0.225*** (0.062) |
| Tangibility | | | | -0.797*** (0.222) | -0.747*** (0.220) | -0.805*** (0.222) |
| Leverage | | | | 0.436*** (0.123) | 0.357*** (0.118) | 0.440*** (0.123) |
| Liquidity | | | | -0.442** (0.191) | -0.420** (0.195) | -0.442** (0.192) |
| Profitability | | | | -0.006 (0.206) | 0.050 (0.209) | -0.008 (0.205) |
| Constant | 0.476*** (0.012) | 0.490*** (0.011) | 0.475*** (0.012) | 3.894*** (0.832) | 3.697*** (0.845) | 3.778*** (0.835) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 7,153 | 7,149 | 7,153 | 7,153 | 7,149 | 7,153 |
| No. of obs | 45,216 | 45,184 | 45,216 | 45,216 | 45,184 | 45,216 |
| Adjusted R^2 | 0.544 | 0.553 | 0.544 | 0.548 | 0.556 | 0.549 |

Table 4: Testing Parallel Trends - Payables

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|--------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | -0.041 (0.093) | -0.064 (0.096) | -0.038 (0.091) | -0.075 (0.093) | -0.092 (0.096) | -0.071 (0.091) |
| Treated x Year = $t - 1$ | 0.093 (0.106) | 0.089 (0.111) | 0.096 (0.104) | 0.013 (0.105) | 0.028 (0.109) | 0.018 (0.103) |
| Treated x Year = $t + 1$ | 0.264** (0.122) | 0.206* (0.124) | 0.269** (0.121) | 0.137 (0.119) | 0.111 (0.123) | 0.147 (0.117) |
| Treated x Year = $t + 2$ | 0.430*** (0.137) | 0.296** (0.133) | 0.445*** (0.137) | 0.296** (0.130) | 0.199 (0.128) | 0.317** (0.129) |
| Treated x Year = $t + 3$ | 0.458*** (0.143) | 0.327** (0.134) | 0.474*** (0.142) | 0.303** (0.133) | 0.215* (0.129) | 0.327** (0.132) |
| Treated x Year = $t + 4$ | 0.590*** (0.150) | 0.436*** (0.142) | 0.608*** (0.149) | 0.415*** (0.140) | 0.311** (0.137) | 0.441*** (0.139) |
| Constant | 0.472*** (0.020) | 0.488*** (0.020) | 0.471*** (0.019) | 3.902*** (0.834) | 3.705*** (0.848) | 3.787*** (0.836) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 7,153 | 7,149 | 7,153 | 7,153 | 7,149 | 7,153 |
| No. of obs | 45,216 | 45,184 | 45,216 | 45,216 | 45,184 | 45,216 |
| Adjusted R^2 | 0.544 | 0.553 | 0.545 | 0.549 | 0.556 | 0.549 |

Table 5.1: Effect of the IBC Reform on Payables, Conditional on Firm Size

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. Large and small are two dummies measuring whether the size (log of total assets) of the firm is above or below the sample median. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | |
|---------------------------------------|------------------------------|----------------------|----------------------|
| | 1 | 2 | 3 |
| Post x Treated x Large | -0.028 (0.128) | -0.085 (0.127) | -0.011 (0.129) |
| Post x Treated x Small | 0.573*** (0.128) | 0.477*** (0.123) | 0.590*** (0.128) |
| Post x Small | -0.024 (0.033) | -0.039 (0.033) | -0.036 (0.035) |
| Constant | 3.719*** (0.838) | 3.535*** (0.849) | 3.596*** (0.840) |
| Controls | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No |
| State*Year FE | No | No | Yes |
| No. of firms | 7,152 | 7,148 | 7,152 |
| No. of obs | 45,212 | 45,180 | 45,212 |
| Adjusted R^2 | 0.550 | 0.557 | 0.550 |
| Difference between Large -0.600*** | Small Sized Firms (0.186) | -0.602*** (0.185) | -0.562*** (0.187) |

Table 5.2: Effect of the IBC Reform on Payables, Conditional on Firm Age

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. Old and young are two dummies measuring whether the age of the firm is above or below the sample median. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | |
|----------------------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 |
| Post x Treated x Old | 0.504*** (0.138) | 0.378*** (0.132) | 0.520*** (0.137) |
| Post x Treated x Young | 0.134 (0.120) | 0.098 (0.119) | 0.153 (0.121) |
| Post x Young | 0.152** (0.062) | 0.138** (0.062) | 0.159** (0.062) |
| Constant | 4.312*** (1.021) | 4.169*** (1.024) | 4.258*** (1.023) |
| Controls | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No |
| State*Year FE | No | No | Yes |
| No. of firms | 7,153 | 7,149 | 7,153 |
| No. of obs | 45,216 | 45,184 | 45,216 |
| Adjusted R^2 | 0.549 | 0.556 | 0.549 |
| Difference between Old 0.367* | Young (0.188) | 0.370** (0.186) | 0.280 (0.187) |

Table 5.3: Effect of the IBC Reform on Payables, Conditional on Sales Growth

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. High and low sales growth are two dummies measuring whether the sales growth of the firm is above or below the sample median. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | |
|---|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 |
| Post x Treated x High Sales Growth | -0.017 (0.084) | -0.069 (0.085) | -0.008 (0.084) |
| Post x Treated x Low Sales Growth | 0.573*** (0.120) | 0.524*** (0.112) | 0.586*** (0.120) |
| Post x High Sales Growth | -0.041 (0.026) | -0.047* (0.025) | -0.035 (0.027) |
| Constant | 2.352*** (0.653) | 2.214*** (0.657) | 2.245*** (0.656) |
| Controls | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No |
| State*Year FE | No | No | Yes |
| No. of firms | 6,899 | 6,895 | 6,899 |
| No. of obs | 43,963 | 43,931 | 43,963 |
| Adjusted R^2 | 0.495 | 0.507 | 0.496 |
| Difference between High Low Sales Growth | -0.594*** (0.153) | -0.590*** (0.150) | -0.593*** (0.153) |

Table 5.4: Effect of the IBC Reform on Payables, Conditional on Receivables

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. High and low receivables are two dummies measuring whether the receivables to sales ratio of the firm is above or below the sample median. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | |
|-------------------------------------|----------------------------|---------------------|---------------------|
| | 1 | 2 | 3 |
| Post x Treated x High Receivables | 0.550*** (0.137) | 0.422*** (0.122) | 0.567*** (0.135) |
| Post x Treated x Low Receivables | -0.042 (0.086) | -0.054 (0.088) | -0.025 (0.086) |
| Post x High Receivables | 0.058** (0.029) | 0.047 (0.032) | 0.063** (0.030) |
| Constant | 4.168*** (0.719) | 4.054*** (0.729) | 4.048*** (0.721) |
| Controls | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No |
| State*Year FE | No | No | Yes |
| No. of firms | 6,844 | 6,840 | 6,844 |
| No. of obs | 43,564 | 43,532 | 43,564 |
| Adjusted R^2 | 0.494 | 0.503 | 0.494 |
| Difference between High 0.592*** | Low Receivables (0.169) | 0.591*** (0.160) | 0.475*** (0.167) |

Table 5.5: Effect of the IBC Reform on Payables, Conditional on Gross Working Capital Cycle

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. Long and short cycle are two dummies measuring whether the gross working capital cycle of the firm is above or below the sample median. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | |
|------------------------------------|------------------------------------|---------------------|---------------------|
| | 1 | 2 | 3 |
| Post x Treated x Long Cycle | 0.479*** (0.135) | 0.347*** (0.125) | 0.502*** (0.134) |
| Post x Treated x Short Cycle | 0.048 (0.095) | 0.030 (0.097) | 0.064 (0.096) |
| Post x Long Cycle | -0.023 (0.032) | -0.027 (0.035) | -0.024 (0.034) |
| Constant | 4.156*** (0.778) | 3.984*** (0.789) | 4.044*** (0.780) |
| Controls | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No |
| State*Year FE | No | No | Yes |
| No. of firms | 6,979 | 6,975 | 6,979 |
| No. of obs | 44,344 | 44,312 | 44,344 |
| Adjusted R^2 | 0.519 | 0.528 | 0.520 |
| Difference between Long 0.437** | Short Gross WC Cycle (0.172) | 0.430** (0.165) | 0.317* (0.170) |

Table 6: Effect of the IBC Reform on Profitability

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Gross Profit over Total Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Total Assets | | | | | |
|----------------|--------------------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.008 (0.019) | 0.036** (0.018) | 0.008 (0.019) | 0.045** (0.018) | 0.066*** (0.017) | 0.045** (0.018) |
| Age | | | | 0.028 (0.032) | 0.011 (0.032) | 0.022 (0.032) |
| Size | | | | 0.092*** (0.010) | 0.081*** (0.010) | 0.091*** (0.010) |
| Tangibility | | | | -0.039 (0.038) | -0.048 (0.037) | -0.036 (0.038) |
| Leverage | | | | -0.180*** (0.032) | -0.162*** (0.030) | -0.180*** (0.032) |
| Liquidity | | | | -0.034 (0.047) | -0.046 (0.046) | -0.033 (0.047) |
| Constant | 0.043*** (0.002) | 0.040*** (0.002) | 0.043*** (0.002) | -0.621*** (0.115) | -0.496*** (0.116) | -0.598*** (0.116) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 7,069 | 7,065 | 7,069 | 7,069 | 7,065 | 7,069 |
| No. of obs | 44,341 | 44,306 | 44,341 | 44,341 | 44,306 | 44,341 |
| Adjusted R^2 | 0.549 | 0.567 | 0.550 | 0.561 | 0.576 | 0.562 |

Table 7: Testing Parallel Trends - Profitability

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on Gross Profit over Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Total Assets | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | -0.030 (0.019) | -0.027 (0.018) | -0.030 (0.019) | -0.011 (0.019) | -0.010 (0.017) | -0.011 (0.019) |
| Treated x Year = $t - 1$ | -0.049** (0.022) | -0.047** (0.021) | -0.049** (0.022) | -0.013 (0.022) | -0.015 (0.021) | -0.013 (0.022) |
| Treated x Year = $t + 1$ | -0.040 (0.027) | -0.005 (0.025) | -0.038 (0.027) | 0.013 (0.027) | 0.039 (0.025) | 0.014 (0.027) |
| Treated x Year = $t + 2$ | -0.002 (0.026) | 0.019 (0.024) | -0.002 (0.026) | 0.048* (0.025) | 0.060** (0.024) | 0.047* (0.025) |
| Treated x Year = $t + 3$ | -0.012 (0.028) | 0.013 (0.027) | -0.013 (0.028) | 0.046* (0.028) | 0.062** (0.026) | 0.045 (0.028) |
| Treated x Year = $t + 4$ | -0.020 (0.029) | 0.018 (0.028) | -0.021 (0.029) | 0.044 (0.028) | 0.072*** (0.028) | 0.043 (0.028) |
| Constant | 0.049*** (0.004) | 0.045*** (0.003) | 0.049*** (0.004) | -0.62*** (0.115) | -0.49*** (0.116) | -0.60*** (0.116) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 7,069 | 7,065 | 7,069 | 7,069 | 7,065 | 7,069 |
| No. of obs | 44,341 | 44,306 | 44,341 | 44,341 | 44,306 | 44,341 |
| Adjusted R^2 | 0.549 | 0.567 | 0.550 | 0.561 | 0.576 | 0.562 |

Table 8: Effect of the IBC Reform on Borrowings

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expense over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and gross profit to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | | | | | |
|----------------|--------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Post x Treated | 0.004 (0.004) | -0.008* (0.004) | 0.017 (0.013) | 0.022* (0.016) | -0.014 (0.012) | -0.010 (0.012) | 0.047*** (0.009) | 0.042*** (0.009) |
| Age | | 0.010 (0.010) | | -0.028 (0.023) | | -0.060*** (0.021) | | 0.038** (0.016) |
| Size | | -0.018*** (0.003) | | -0.043*** (0.009) | | -0.025*** (0.009) | | -0.039*** (0.006) |
| Tangibility | | 0.033*** (0.009) | | 0.137*** (0.023) | | 0.184*** (0.021) | | -0.038** (0.018) |
| Liquidity | | 0.050** (0.023) | | -0.088*** (0.029) | | -0.008 (0.026) | | -0.057** (0.023) |
| Profitability | | 0.164*** (0.014) | | -0.395*** (0.031) | | -0.218*** (0.032) | | -0.209*** (0.021) |
| Constant | 0.119*** (0.000) | 0.196*** (0.034) | 0.342*** (0.001) | 0.749*** (0.096) | 0.164*** (0.001) | 0.502*** (0.092) | 0.182*** (0.001) | 0.381*** (0.063) |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| No. of firms | 5,688 | 5,688 | 5,781 | 5,781 | 5,781 | 5,781 | 5,781 | 5,781 |
| No. of obs | 30,987 | 30,987 | 31,805 | 31,805 | 31,805 | 31,805 | 31,805 | 31,805 |
| Adjusted R^2 | 0.360 | 0.370 | 0.783 | 0.795 | 0.769 | 0.777 | 0.725 | 0.733 |

Table 9: Testing Parallel Trends - Borrowings

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expenses over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | | | | | |
|--------------------------|--------------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 | TB over TA | LTB over TA | STB over TA | | |
| | | | | 4 | 5 | 6 | 7 | 8 |
| | | | | | | | | |
| Treated x Year = $t - 2$ | -0.004 (0.004) | -0.005 (0.004) | 0.040*** (0.008) | 0.033*** (0.008) | 0.024*** (0.008) | 0.020*** (0.008) | 0.020*** (0.006) | 0.016*** (0.006) |
| Treated x Year = $t - 1$ | -0.008 (0.005) | -0.010** (0.005) | 0.077*** (0.010) | 0.067*** (0.010) | 0.044*** (0.010) | 0.038*** (0.009) | 0.039*** (0.008) | 0.031*** (0.008) |
| Treated x Year = $t + 1$ | 0.000 (0.006) | -0.010* (0.006) | 0.065*** (0.015) | 0.062*** (0.014) | 0.018 (0.013) | 0.017 (0.013) | 0.066*** (0.011) | 0.058*** (0.011) |
| Treated x Year = $t + 2$ | -0.003 (0.006) | -0.017*** (0.006) | 0.051*** (0.016) | 0.052*** (0.016) | 0.003 (0.015) | 0.005 (0.015) | 0.063*** (0.012) | 0.055*** (0.011) |
| Treated x Year = $t + 3$ | -0.002 (0.007) | -0.017** (0.007) | 0.061*** (0.017) | 0.060*** (0.016) | 0.008 (0.016) | 0.009 (0.016) | 0.070*** (0.012) | 0.060*** (0.011) |
| Treated x Year = $t + 4$ | 0.004 (0.007) | -0.012* (0.007) | 0.049*** (0.018) | 0.052*** (0.018) | 0.005 (0.017) | 0.010 (0.017) | 0.069*** (0.013) | 0.060*** (0.012) |
| Constant | 0.120*** (0.001) | 0.198*** (0.034) | 0.335*** (0.002) | 0.740*** (0.096) | 0.160*** (0.002) | 0.496*** (0.093) | 0.178*** (0.001) | 0.376*** (0.063) |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| No. of firms | 5,688 | 5,688 | 5,781 | 5,781 | 5,781 | 5,781 | 5,781 | 5,781 |
| No. of obs | 30,987 | 30,987 | 31,805 | 31,805 | 31,805 | 31,805 | 31,805 | 31,805 |
| Adjusted R^2 | 0.360 | 0.370 | 0.784 | 0.795 | 0.769 | 0.778 | 0.726 | 0.733 |

Appendix A - Results using Propensity Score Matching

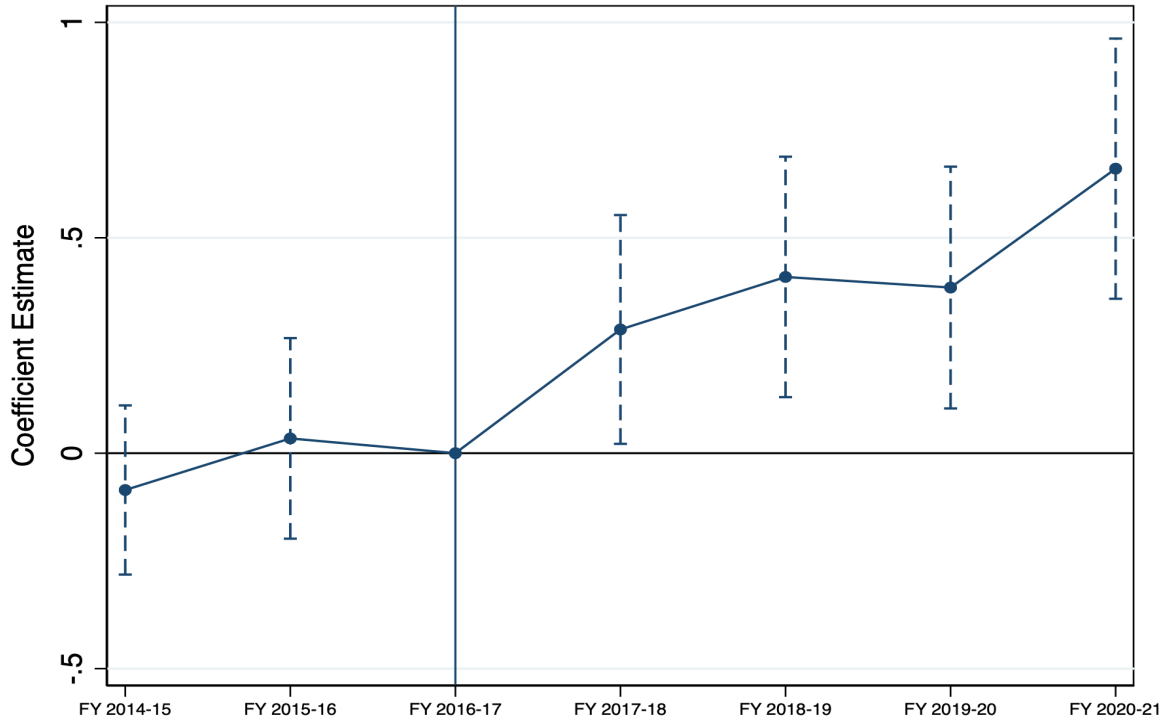


Figure A.1: Effect of the IBC reform on total interest expense: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The dependent variable y_{it} is the ratio of total interest expense to total borrowings firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

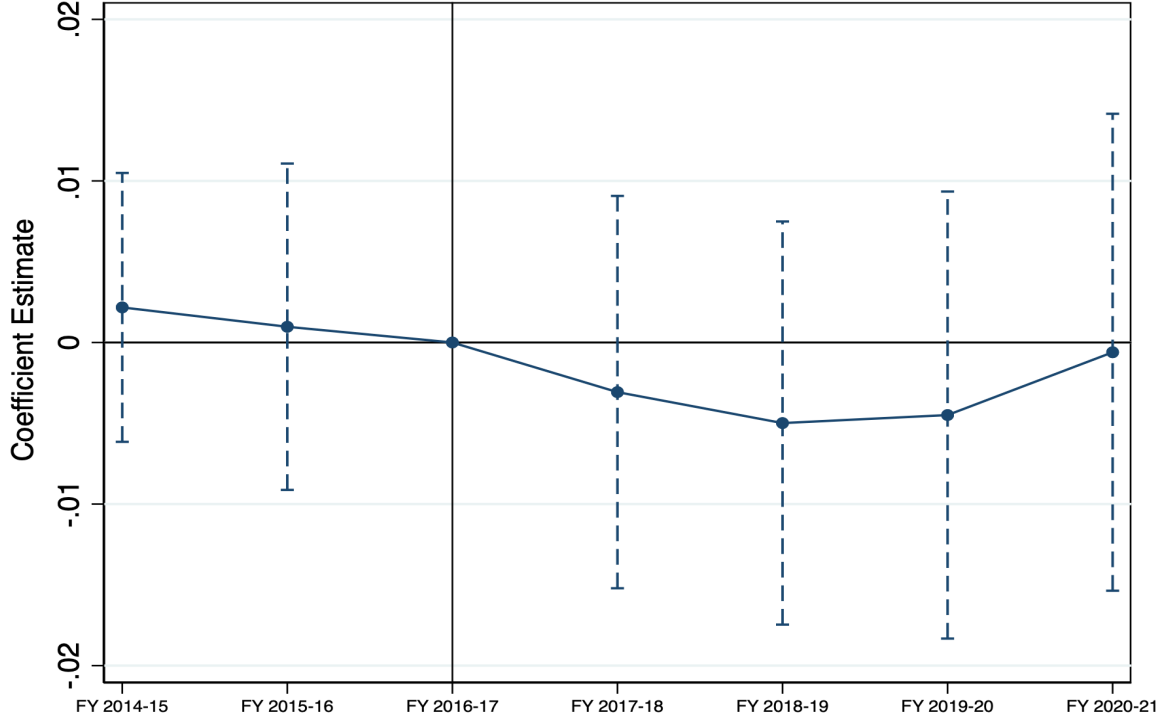


Figure A.2: Effect of the IBC reform on total interest expense: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The dependent variable y_{it} is the ratio of total interest expense to total borrowings firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. X_{it} are the firm level, time varying controls that include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and EBDITA to total assets. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

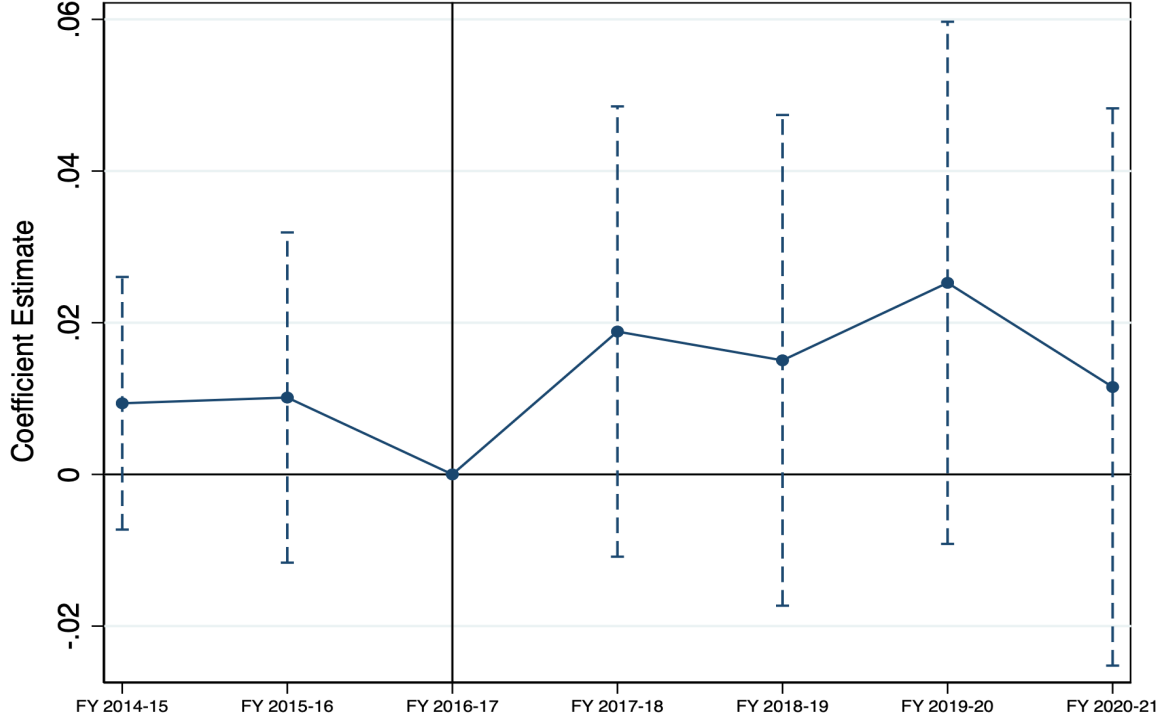


Figure A.3: Effect of the IBC reform on total borrowings: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The dependent variable y_{it} is the ratio of total borrowings to total assets for firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. X_{it} are the firm level, time varying controls that include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and EBDITA to total assets. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

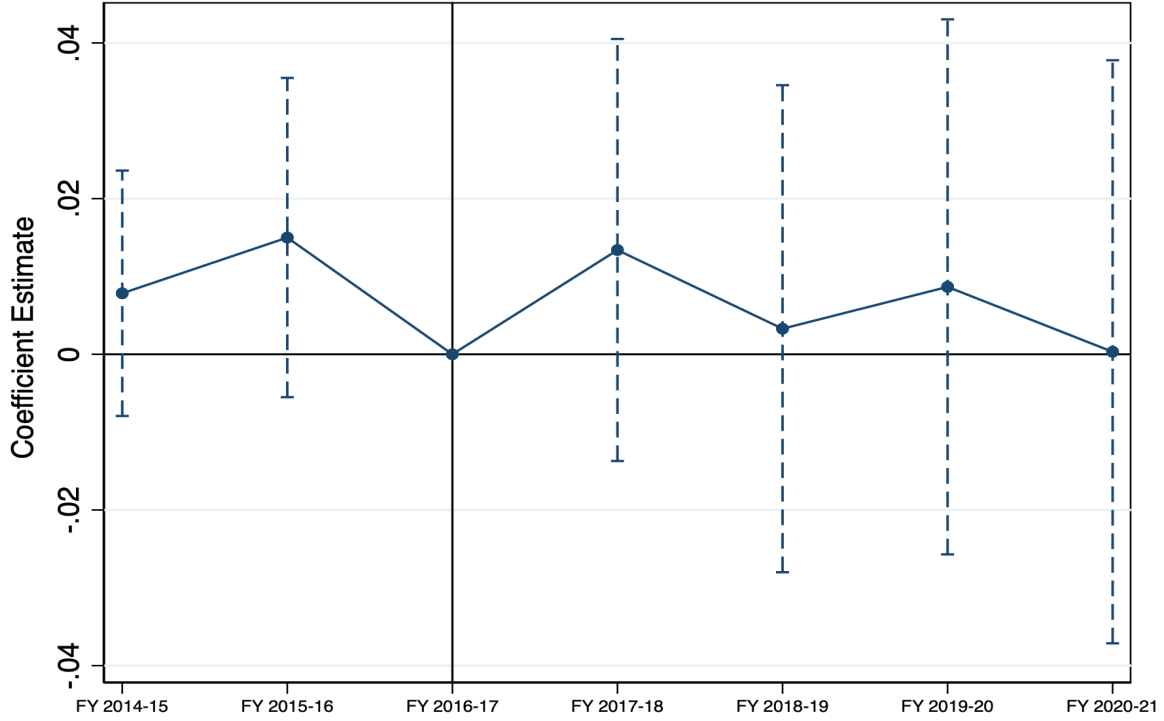


Figure A.4: Effect of the IBC reform on long-term borrowings: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The dependent variable y_{it} is the ratio of long-term borrowings to total assets for firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. X_{it} are the firm level, time varying controls that include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and EBDITA to total assets. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

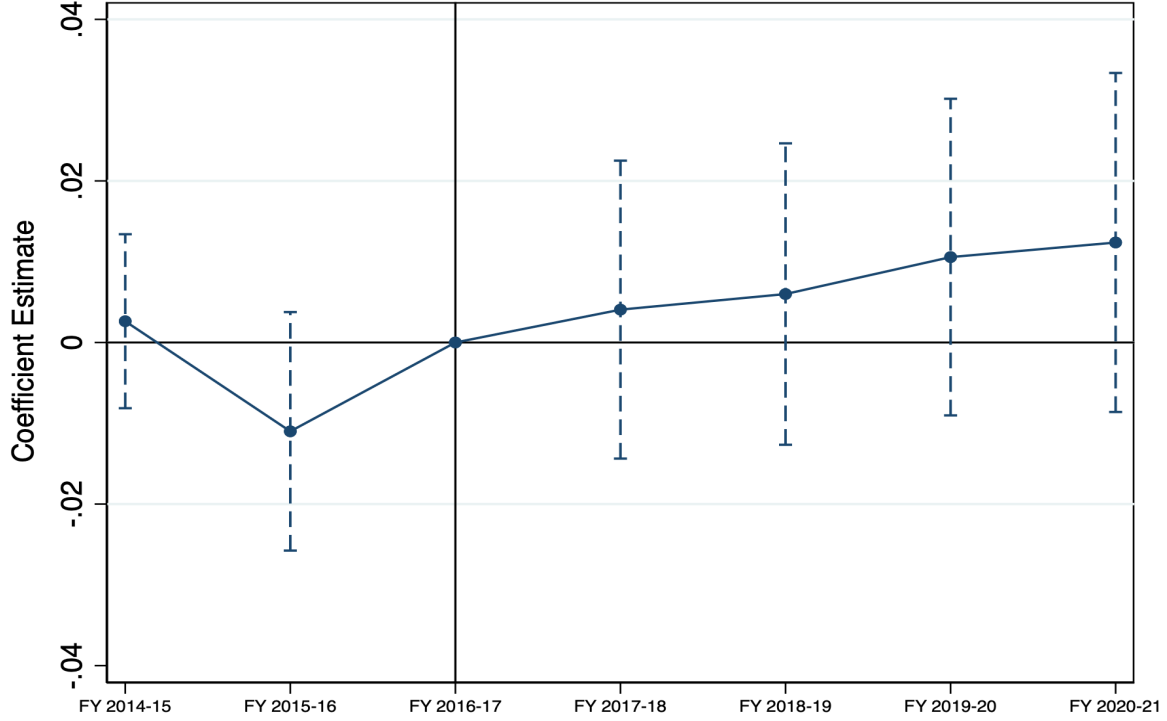


Figure A.5: Effect of the IBC reform on short-term borrowings: $y_{it} = \alpha + \sum_{\tau} \beta_{\tau} IBC_{\tau} * Distress_i + \phi X_{it} + \gamma_i + \delta_{kt} + \epsilon_{it}$, where τ ranges from March 2014 to March 2021. i indexes firms or trade credit customers. IBC_t is a dummy variable equal to 1 for years in the post treatment period (April 2017 to March 2021) and equal to 0 for the pre-treatment period. $Distress_i$ is a dummy variable equal to 1 if the firm is financially distressed and 0 if the firm is financially healthy as of the financial year April 2015 – March 2016. A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013 - March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The dependent variable y_{it} is the ratio of short-term borrowings to total assets for firm i in year t . γ_i and δ_{kt} are respectively the firm and industry-year fixed effects. X_{it} are the firm level, time varying controls that include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and EBDITA to total assets. The regression is estimated using OLS and errors are clustered at the individual firm level. The vertical line denotes the year of implementation of the law. The dashed lines around β_t are 5% confidence intervals.

Table A.1: Effect of the IBC Reform on Payables using PSM

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|----------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.450*** (0.094) | 0.372*** (0.086) | 0.487*** (0.095) | 0.285*** (0.084) | 0.236*** (0.082) | 0.335*** (0.086) |
| Age | | | | -1.106*** (0.416) | -0.945** (0.429) | -1.107*** (0.427) |
| Size | | | | -0.443*** (0.097) | -0.392*** (0.096) | -0.414*** (0.095) |
| Tangibility | | | | -1.061*** (0.312) | -0.957*** (0.311) | -1.086*** (0.309) |
| Leverage | | | | 0.419*** (0.126) | 0.331*** (0.123) | 0.437*** (0.127) |
| Liquidity | | | | -0.865** (0.391) | -1.146*** (0.392) | -0.834** (0.387) |
| Profitability | | | | 0.099 (0.318) | 0.224 (0.328) | 0.096 (0.317) |
| Constant | 0.539*** (0.025) | 0.556*** (0.023) | 0.528*** (0.026) | 7.013*** (1.445) | 6.224*** (1.449) | 6.803*** (1.461) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | No | No | Yes | No | No |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 2,838 | 2,834 | 2,838 | 2,838 | 2,834 | 2,838 |
| No. of obs | 18,689 | 18,663 | 18,689 | 18,689 | 18,663 | 18,689 |
| Adjusted R^2 | 0.463 | 0.468 | 0.465 | 0.474 | 0.475 | 0.475 |

Table A.2: Testing Parallel Trends - Payables

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|--------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | -0.051 (0.096) | -0.078 (0.101) | -0.025 (0.091) | -0.096 (0.094) | -0.119 (0.100) | -0.067 (0.090) |
| Treated x Year = $t - 1$ | 0.049 (0.106) | 0.027 (0.116) | 0.078 (0.103) | -0.055 (0.105) | -0.060 (0.114) | -0.018 (0.102) |
| Treated x Year = $t + 1$ | 0.274** (0.125) | 0.203 (0.131) | 0.334*** (0.126) | 0.095 (0.119) | 0.054 (0.126) | 0.169 (0.120) |
| Treated x Year = $t + 2$ | 0.445*** (0.136) | 0.336** (0.136) | 0.507*** (0.137) | 0.243* (0.126) | 0.168 (0.128) | 0.322** (0.127) |
| Treated x Year = $t + 3$ | 0.460*** (0.145) | 0.353** (0.141) | 0.505*** (0.145) | 0.232* (0.132) | 0.163 (0.135) | 0.296** (0.134) |
| Treated x Year = $t + 4$ | 0.633*** (0.151) | 0.541*** (0.153) | 0.688*** (0.153) | 0.387*** (0.138) | 0.336** (0.146) | 0.459*** (0.141) |
| Constant | 0.539*** (0.045) | 0.564*** (0.047) | 0.520*** (0.044) | 7.020*** (1.455) | 6.239*** (1.461) | 6.798*** (1.469) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 2,838 | 2,834 | 2,838 | 2,838 | 2,834 | 2,838 |
| No. of obs | 18,689 | 18,663 | 18,689 | 18,689 | 18,663 | 18,689 |
| Adjusted R^2 | 0.463 | 0.468 | 0.465 | 0.474 | 0.476 | 0.475 |

Table A.3: Effect of the IBC Reform on Profitability using PSM

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Gross Profit over Total Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Sales | | | | | |
|----------------|-------------------------|---------------------|-------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.012 (0.020) | 0.026 (0.019) | 0.011 (0.020) | 0.056*** (0.019) | 0.065*** (0.018) | 0.055*** (0.020) |
| Age | | | | 0.097 (0.061) | 0.039 (0.062) | 0.068 (0.063) |
| Size | | | | 0.125*** (0.018) | 0.114*** (0.019) | 0.121*** (0.018) |
| Tangibility | | | | -0.111* (0.064) | -0.113* (0.062) | -0.102 (0.064) |
| Leverage | | | | -0.168*** (0.036) | -0.150*** (0.034) | -0.170*** (0.036) |
| Liquidity | | | | -0.134 (0.113) | -0.132 (0.110) | -0.139 (0.113) |
| Constant | -0.007 (0.005) | -0.011** (0.005) | -0.007 (0.005) | -1.010*** (0.216) | -0.773*** (0.216) | -0.896*** (0.223) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 2,835 | 2,831 | 2,835 | 2,835 | 2,831 | 2,835 |
| No. of obs | 18,391 | 18,364 | 18,391 | 18,391 | 18,364 | 18,391 |
| Adjusted R^2 | 0.518 | 0.533 | 0.518 | 0.534 | 0.546 | 0.534 |

Table A.4: Testing Parallel Trends - Profitability

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Gross Profit over Total Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Sales | | | | | |
|--------------------------|-------------------------|-------------------|---------------------|--------------------|--------------------|--------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | -0.024 (0.019) | -0.023 (0.019) | -0.025 (0.020) | -0.006 (0.018) | -0.008 (0.018) | -0.007 (0.019) |
| Treated x Year = $t - 1$ | -0.057** (0.023) | — (0.023) | -0.058** (0.024) | -0.021 (0.023) | -0.027 (0.023) | -0.022 (0.024) |
| | | 0.060*** | | | | |
| Treated x Year = $t + 1$ | -0.037 (0.028) | -0.015 (0.026) | -0.036 (0.029) | 0.020 (0.027) | 0.036 (0.026) | 0.020 (0.028) |
| Treated x Year = $t + 2$ | -0.009 (0.026) | -0.001 (0.025) | -0.010 (0.027) | 0.047* (0.025) | 0.048* (0.025) | 0.045* (0.026) |
| Treated x Year = $t + 3$ | -0.009 (0.030) | 0.003 (0.029) | -0.012 (0.031) | 0.058** (0.029) | 0.063** (0.028) | 0.054* (0.030) |
| Treated x Year = $t + 4$ | -0.006 (0.030) | 0.004 (0.030) | -0.008 (0.031) | 0.065** (0.030) | 0.069** (0.030) | 0.062** (0.030) |
| Constant | 0.006 (0.008) | 0.003 (0.008) | 0.007 (0.009) | — (0.215) | — (0.216) | — (0.223) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 2,835 | 2,831 | 2,835 | 2,835 | 2,831 | 2,835 |
| No. of obs | 18,391 | 18,364 | 18,391 | 18,391 | 18,364 | 18,391 |
| Adjusted R^2 | 0.518 | 0.533 | 0.518 | 0.534 | 0.546 | 0.534 |

Table A.5: Effect of the IBC Reform on Borrowings using PSM

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expense over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and gross profit to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | | | | | | | | |
|----------------|--------------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---|-------------|---|
| | 1 | 2 | 3 | TB over TA | 4 | 5 | LTB over TA | 6 | 7 | STB over TA | 8 |
| Post x Treated | 0.005 (0.004) | -0.004 (0.005) | 0.040*** (0.014) | 0.011 (0.013) | -0.003 (0.013) | -0.001 (0.013) | 0.057*** (0.010) | 0.011 (0.007) | | | |
| Age | | 0.018 (0.013) | | -0.049 (0.038) | | -0.086** (0.038) | | 0.024 (0.023) | | | |
| Size | | -0.011*** (0.004) | | -0.071*** (0.014) | | -0.085*** (0.016) | | -0.010 (0.007) | | | |
| Tangibility | | 0.021* (0.012) | | 0.043 (0.035) | | 0.208*** (0.036) | | -0.190*** (0.024) | | | |
| Liquidity | | -0.018* (0.010) | | -0.210*** (0.030) | | 0.111*** (0.028) | | -0.397*** (0.023) | | | |
| Profitability | | 0.132*** (0.018) | | -0.358*** (0.050) | | -0.331*** (0.054) | | -0.021 (0.030) | | | |
| Constant | 0.110*** (0.001) | 0.116** (0.046) | 0.478*** (0.003) | 1.129*** (0.165) | 0.265*** (0.003) | 1.076*** (0.169) | 0.220*** (0.002) | 0.274*** (0.087) | | | |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes | | | |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| No. of firms | 2,296 | 2,296 | 2,339 | 2,339 | 2,339 | 2,339 | 2,339 | 2,339 | | | |
| No. of obs | 12,810 | 12,810 | 13,238 | 13,238 | 13,238 | 13,238 | 13,238 | 13,238 | | | |
| Adjusted R^2 | 0.352 | 0.363 | 0.715 | 0.755 | 0.736 | 0.754 | 0.683 | 0.807 | | | |

Table A.6: Testing Parallel Trends - Borrowings

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expense over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). A financially distressed firm has accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. A financially healthy firm has a positive balance of accumulated profits, in every year from April 2013-March 2016. 1,434 distressed firms are matched to 1,434 unique firms in the control group using the propensity score matching technique. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and gross profit to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | TB over TA | | LTB over TA | | STB over TA | |
|--------------------------|--------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Treated x Year = $t - 2$ | 0.003 (0.004) | 0.002 (0.004) | 0.024*** (0.008) | 0.009 (0.008) | 0.015* (0.008) | 0.008 (0.008) | 0.015** (0.007) | 0.003 (0.005) | |
| Treated x Year = $t - 1$ | 0.004 (0.005) | 0.001 (0.005) | 0.041*** (0.011) | 0.010 (0.011) | 0.023** (0.010) | 0.015 (0.010) | 0.023** (0.009) | -0.011 (0.008) | |
| Treated x Year = $t + 1$ | 0.006 (0.006) | -0.003 (0.006) | 0.061*** (0.016) | 0.019 (0.015) | 0.017 (0.013) | 0.013 (0.014) | 0.060*** (0.012) | 0.004 (0.009) | |
| Treated x Year = $t + 2$ | 0.006 (0.006) | -0.005 (0.006) | 0.056*** (0.017) | 0.015 (0.016) | 0.006 (0.015) | 0.003 (0.016) | 0.064*** (0.012) | 0.006 (0.010) | |
| Treated x Year = $t + 3$ | 0.007 (0.007) | -0.004 (0.007) | 0.074*** (0.019) | 0.025 (0.018) | 0.013 (0.017) | 0.009 (0.018) | 0.077*** (0.013) | 0.011 (0.010) | |
| Treated x Year = $t + 4$ | 0.012* (0.007) | -0.001 (0.008) | 0.058*** (0.020) | 0.012 (0.019) | 0.002 (0.018) | 0.000 (0.019) | 0.081*** (0.014) | 0.012 (0.011) | |
| Constant | 0.109*** (0.002) | 0.115** (0.046) | 0.468*** (0.005) | 1.125*** (0.166) | 0.260*** (0.004) | 1.071*** (0.169) | 0.215*** (0.003) | 0.276*** (0.087) | |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes | |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| No. of firms | 2,296 | 2,296 | 2,339 | 2,339 | 2,339 | 2,339 | 2,339 | 2,339 | |
| No. of obs | 12,810 | 12,810 | 13,238 | 13,238 | 13,238 | 13,238 | 13,238 | 13,238 | |
| Adjusted R^2 | 0.352 | 0.363 | 0.715 | 0.755 | 0.736 | 0.754 | 0.683 | 0.807 | |

Appendix B - Results using Synthetic Difference-in-Differences

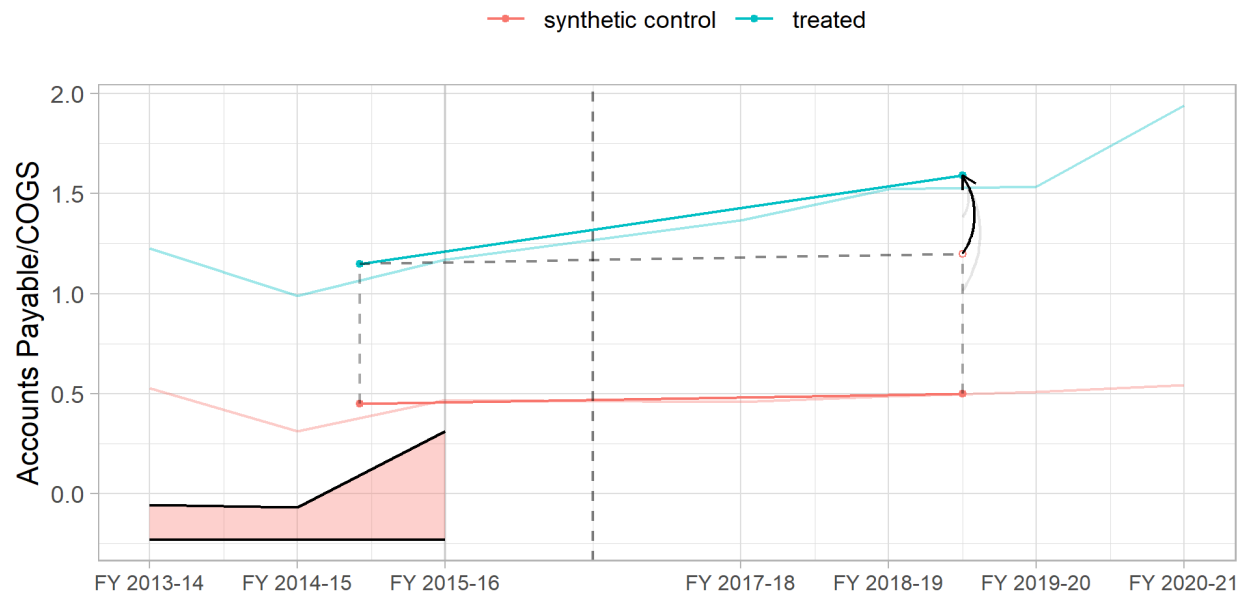


Figure B.1: Effect of the IBC reform on payables using SDID: The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016.

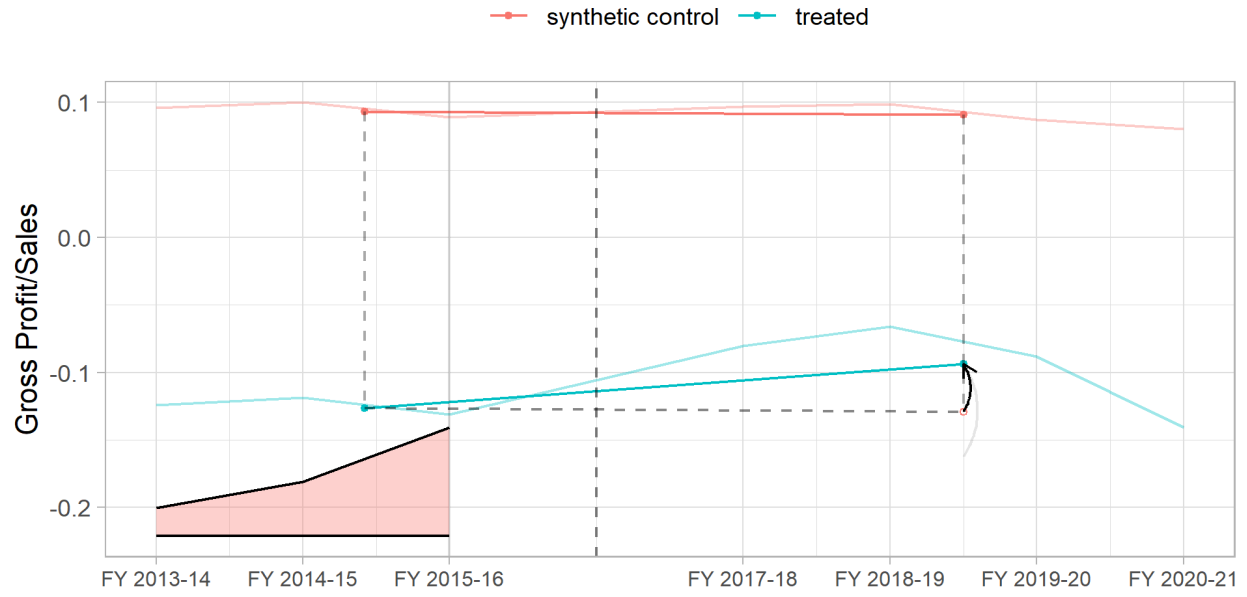


Figure B.2: Effect of the IBC reform on gross profit margin using SDID: The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2021.

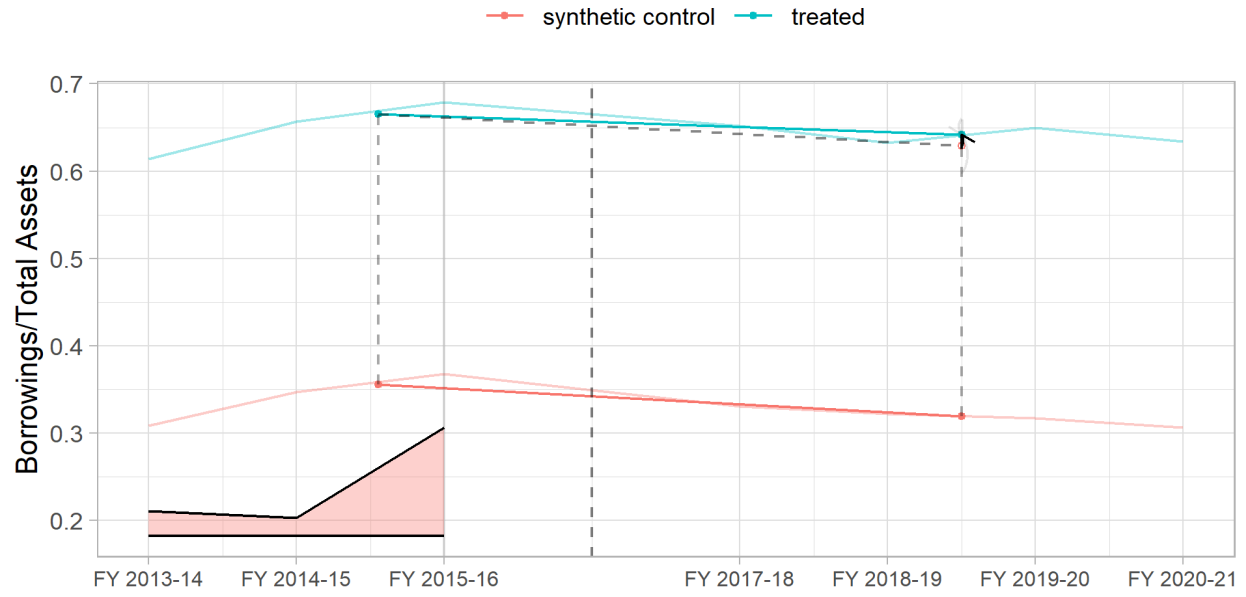


Figure B.3: Effect of the IBC reform on total borrowings using SDID: The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016.

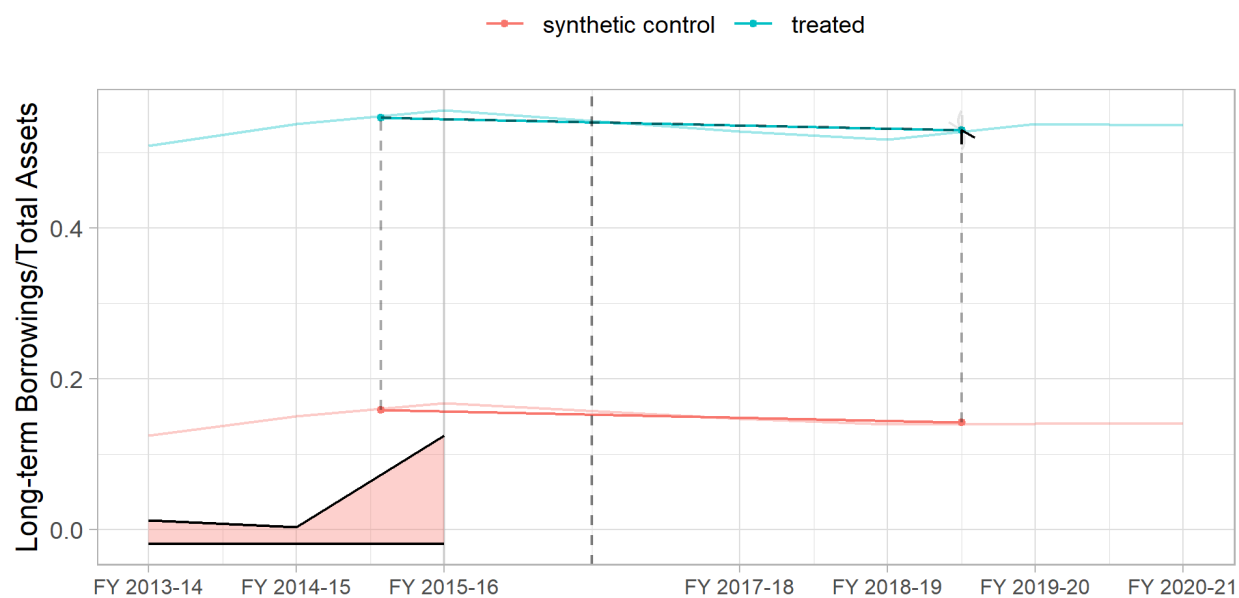


Figure B.4: Effect of the IBC reform on long-term borrowings using SDID: The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016.

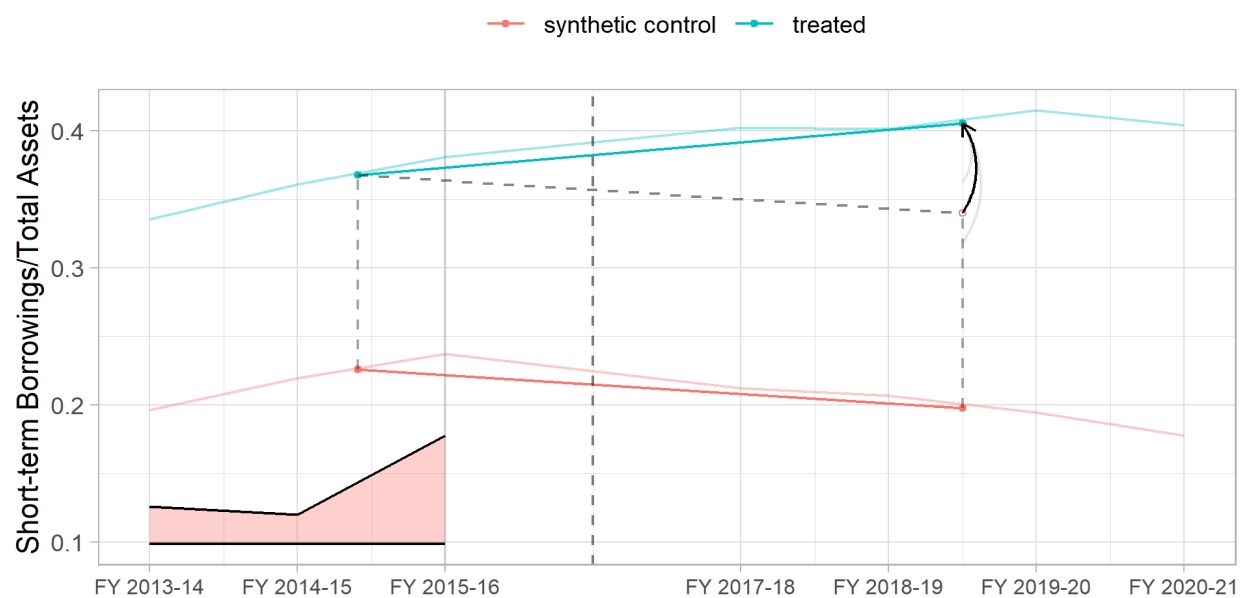


Figure B.5: Effect of the IBC reform on short-term borrowings using SDID: The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016.

Appendix C - Results using Altman's (1968) Z-score for measuring distress

Table C.1: Effect of the IBC Reform on Payables using Altman's Z-score

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|----------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.612*** (0.145) | 0.526*** (0.142) | 0.617*** (0.145) | 0.489*** (0.138) | 0.429*** (0.138) | 0.496*** (0.138) |
| Age | | | | -0.345* (0.209) | -0.349 (0.212) | -0.326 (0.208) |
| Size | | | | -0.266*** (0.056) | -0.249*** (0.056) | -0.260*** (0.056) |
| Tangibility | | | | -1.318*** (0.254) | -1.296*** (0.252) | -1.322*** (0.255) |
| Leverage | | | | 0.314** (0.122) | 0.282** (0.120) | 0.315** (0.123) |
| Liquidity | | | | -0.443** (0.205) | -0.485** (0.208) | -0.436** (0.206) |
| Profitability | | | | -0.468** (0.197) | -0.463** (0.199) | -0.459** (0.198) |
| Constant | 0.488*** (0.009) | 0.493*** (0.009) | 0.488*** (0.009) | 3.757*** (0.719) | 3.661*** (0.732) | 3.655*** (0.719) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 8,121 | 8,116 | 8,114 | 8,121 | 8,116 | 8,114 |
| No. of obs | 51,162 | 51,128 | 51,113 | 51,162 | 51,128 | 51,113 |
| Adjusted R^2 | 0.534 | 0.537 | 0.533 | 0.538 | 0.541 | 0.538 |

Table C.2: Testing Parallel Trends - Payables

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|--------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | 0.170 (0.123) | 0.090 (0.127) | 0.172 (0.122) | 0.116 (0.123) | 0.040 (0.128) | 0.119 (0.122) |
| Treated x Year = $t - 1$ | 0.314** (0.144) | 0.268* (0.152) | 0.313** (0.142) | 0.203 (0.143) | 0.175 (0.150) | 0.204 (0.141) |
| Treated x Year = $t + 1$ | 0.665*** (0.179) | 0.588*** (0.182) | 0.670*** (0.179) | 0.503*** (0.173) | 0.455** (0.178) | 0.512*** (0.173) |
| Treated x Year = $t + 2$ | 0.796*** (0.198) | 0.633*** (0.197) | 0.800*** (0.198) | 0.629*** (0.190) | 0.498*** (0.190) | 0.636*** (0.190) |
| Treated x Year = $t + 3$ | 0.784*** (0.207) | 0.658*** (0.204) | 0.793*** (0.207) | 0.612*** (0.199) | 0.517*** (0.199) | 0.623*** (0.199) |
| Treated x Year = $t + 4$ | 0.863*** (0.214) | 0.711*** (0.212) | 0.869*** (0.213) | 0.662*** (0.205) | 0.548*** (0.207) | 0.670*** (0.205) |
| Constant | 0.470*** (0.014) | 0.480*** (0.014) | 0.470*** (0.014) | 3.735*** (0.722) | 3.645*** (0.735) | 3.634*** (0.722) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 8,121 | 8,116 | 8,114 | 8,121 | 8,116 | 8,114 |
| No. of obs | 51,162 | 51,128 | 51,113 | 51,162 | 51,128 | 51,113 |
| Adjusted R^2 | 0.534 | 0.537 | 0.533 | 0.538 | 0.541 | 0.538 |

Table C.3: Effect of the IBC Reform on Profitability using Altman's Z-score

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Gross Profit over Total Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Total Sales | | | | | |
|----------------|-------------------------------|----------|----------|-----------|-----------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.052* | 0.069** | 0.051* | 0.088*** | 0.100*** | 0.087*** |
| | (0.029) | (0.028) | (0.029) | (0.028) | (0.027) | (0.028) |
| Age | | | | 0.037 | 0.030 | 0.036 |
| | | | | (0.028) | (0.029) | (0.029) |
| Size | | | | 0.083*** | 0.075*** | 0.083*** |
| | | | | (0.009) | (0.009) | (0.009) |
| Tangibility | | | | 0.066* | 0.061 | 0.067* |
| | | | | (0.038) | (0.039) | (0.038) |
| Leverage | | | | -0.140*** | -0.132*** | -0.140*** |
| | | | | (0.030) | (0.028) | (0.030) |
| Liquidity | | | | -0.025 | -0.021 | -0.026 |
| | | | | (0.042) | (0.041) | (0.042) |
| Constant | 0.051*** | 0.050*** | 0.051*** | -0.624*** | -0.550*** | -0.619*** |
| | (0.002) | (0.002) | (0.002) | (0.103) | (0.104) | (0.104) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 8,024 | 8,019 | 8,017 | 8,024 | 8,019 | 8,017 |
| No. of obs | 50,174 | 50,139 | 50,125 | 50,174 | 50,139 | 50,125 |
| Adjusted R^2 | 0.522 | 0.539 | 0.524 | 0.530 | 0.546 | 0.532 |

Table C.4: Testing Parallel Trends - Profitability

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Gross Profit over Total Sales. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets and cash balances to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Gross Profit over Sales | | | | | |
|--------------------------|-------------------------|---------------------|---------------------|--------------------|---------------------|--------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Treated x Year = $t - 2$ | -0.050* (0.030) | -0.042 (0.028) | -0.052* (0.030) | -0.026 (0.029) | -0.020 (0.028) | -0.028 (0.029) |
| Treated x Year = $t - 1$ | -0.080** (0.034) | -0.077** (0.033) | -0.082** (0.034) | -0.033 (0.034) | -0.035 (0.033) | -0.035 (0.034) |
| Treated x Year = $t + 1$ | -0.051 (0.043) | -0.028 (0.040) | -0.052 (0.042) | 0.010 (0.042) | 0.026 (0.040) | 0.008 (0.042) |
| Treated x Year = $t + 2$ | 0.032 (0.038) | 0.049 (0.037) | 0.030 (0.038) | 0.086** (0.038) | 0.096*** (0.037) | 0.084** (0.038) |
| Treated x Year = $t + 3$ | 0.030 (0.043) | 0.044 (0.042) | 0.026 (0.043) | 0.090** (0.043) | 0.097** (0.042) | 0.085** (0.043) |
| Treated x Year = $t + 4$ | 0.023 (0.042) | 0.052 (0.041) | 0.023 (0.042) | 0.090** (0.042) | 0.111*** (0.041) | 0.089** (0.042) |
| Constant | 0.056*** (0.003) | 0.054*** (0.003) | 0.056*** (0.003) | — (0.103) | — (0.103) | — (0.104) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 8,024 | 8,019 | 8,017 | 8,024 | 8,019 | 8,017 |
| No. of obs | 50,174 | 50,139 | 50,125 | 50,174 | 50,139 | 50,125 |
| Adjusted R^2 | 0.523 | 0.540 | 0.524 | 0.530 | 0.546 | 0.532 |

Table C.5: Effect of the IBC Reform on Borrowings using Altman's Z-score

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expense over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, cash balances to total assets and gross profit to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | | | | | |
|----------------|--------------------------|---------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|
| | 1 | 2 | 3 | TB over TA | LTB over TA | STB over TA | 7 | 8 |
| Post x Treated | 0.008 (0.006) | -0.006 (0.006) | 0.032 (0.022) | 0.043** (0.021) | -0.002 (0.020) | -0.007 (0.020) | 0.056*** (0.016) | 0.055*** (0.016) |
| Age | | 0.019** (0.009) | | -0.045** (0.019) | | 0.071*** (0.017) | | 0.034** (0.014) |
| Size | | -0.020** (0.003) | | -0.024*** (0.008) | | -0.010 (0.008) | | -0.028*** (0.005) |
| Tangibility | | 0.020*** (0.008) | | 0.131*** (0.020) | | 0.182*** (0.018) | | 0.048*** (0.016) |
| Liquidity | | 0.050** (0.022) | | -0.078*** (0.026) | | -0.012 (0.023) | | 0.046** (0.021) |
| Profitability | | 0.174*** (0.014) | | -0.366*** (0.028) | | -0.197*** (0.028) | | -0.194*** (0.019) |
| Constant | 0.119*** (0.000) | 0.183*** (0.032) | 0.330*** (0.001) | 0.645*** (0.080) | 0.155*** (0.001) | 0.417*** (0.076) | 0.178*** (0.001) | 0.313*** (0.053) |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| No. of firms | 6,441 | 6,441 | 6,542 | 6,542 | 6,542 | 6,542 | 6,542 | 6,542 |
| No. of obs | 34,948 | 34,948 | 35,857 | 35,857 | 35,857 | 35,857 | 35,857 | 35,857 |
| Adjusted R^2 | 0.342 | 0.353 | 0.782 | 0.792 | 0.767 | 0.775 | 0.733 | 0.740 |

Table C.6: Testing Parallel Trends - Borrowings

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016- 17) on Total Interest Expense over Total Borrowings (TB), Total Borrowings (TB), Long-Term Borrowings (LTB) and Short-Term Borrowings (STB) over Total Assets (TA). Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the three years prior to the reform (FY 2013-14, FY 2014-15, FY 2015-16). The treated group (1,036 firms) consists of firms with an Altman Z-score less than 1.1 at the end of the financial year 2015-16. The control group (7,828 firms) includes firms with an Altman Z-score equal to or greater than 2.6 in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and gross profit to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Interest Expense over TB | | | TB over TA | | LTB over TA | | STB over TA | |
|--------------------------|--------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Treated x Year = $t - 2$ | 0.003 (0.006) | 0.001 (0.006) | 0.053*** (0.012) | 0.047*** (0.012) | 0.030*** (0.012) | 0.026** (0.012) | 0.031*** (0.008) | 0.028*** (0.008) | |
| Treated x Year = $t - 1$ | 0.001 (0.007) | -0.000 (0.007) | 0.109*** (0.016) | 0.094*** (0.015) | 0.056*** (0.015) | 0.046*** (0.014) | 0.066*** (0.013) | 0.056*** (0.012) | |
| Treated x Year = $t + 1$ | 0.011 (0.009) | -0.002 (0.009) | 0.108*** (0.024) | 0.107*** (0.023) | 0.036* (0.021) | 0.036* (0.021) | 0.106*** (0.020) | 0.100*** (0.019) | |
| Treated x Year = $t + 2$ | 0.004 (0.009) | -0.011 (0.009) | 0.076*** (0.026) | 0.082*** (0.026) | 0.013 (0.023) | 0.019 (0.023) | 0.087*** (0.020) | 0.082*** (0.020) | |
| Treated x Year = $t + 3$ | 0.011 (0.009) | -0.004 (0.009) | 0.091*** (0.028) | 0.095*** (0.027) | 0.032 (0.025) | 0.036 (0.025) | 0.078*** (0.021) | 0.073*** (0.020) | |
| Treated x Year = $t + 4$ | 0.012 (0.009) | -0.006 (0.010) | 0.068** (0.029) | 0.078*** (0.028) | 0.027 (0.027) | 0.035 (0.027) | 0.082*** (0.022) | 0.078*** (0.021) | |
| Constant | 0.119*** (0.000) | 0.183*** (0.032) | 0.325*** (0.001) | 0.633*** (0.080) | 0.152*** (0.001) | 0.411*** (0.076) | 0.176*** (0.001) | 0.307*** (0.053) | |
| Controls | No | Yes | No | Yes | No | Yes | No | Yes | |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Ind*Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| No. of firms | 6,441 | 6,441 | 6,542 | 6,542 | 6,542 | 6,542 | 6,542 | 6,542 | |
| No. of obs | 34,948 | 34,948 | 35,857 | 35,857 | 35,857 | 35,857 | 35,857 | 35,857 | |
| Adjusted R^2 | 0.342 | 0.353 | 0.782 | 0.792 | 0.767 | 0.775 | 0.733 | 0.740 | |

Appendix D - Additional Robustness Checks

Table D.1: Effect of the IBC Reform on Payables (Dropping two pre-treatment years)

This table presents the DID estimates of the effect of the bankruptcy reform (FY 2016-17) on payables over COGS. Post is a dummy equal to one in the four years following the reform (FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21) and zero in the year (FY 2013-14). The pre-treatment years FY 2014-15 and FY 2015-16 were dropped. The treated group (1,762 firms) consists of firms with accumulated losses exceeding or equal to the net worth at the end of the financial year 2015-16. The control group (6,050 firms) includes firms with a positive balance of accumulated profits, in every year from April 2013 - March 2016. The controls include log of age, log of total assets, fixed assets to total assets, debt to total assets, cash balances to total assets and EBDITA to total assets. Standard errors are corrected for clustering at the firm-level and presented in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

| | Payables over COGS | | | | | |
|----------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Post x Treated | 0.428*** (0.127) | 0.302** (0.122) | 0.441*** (0.126) | 0.243** (0.117) | 0.162 (0.116) | 0.264** (0.115) |
| Age | | | | -0.685*** (0.251) | -0.730*** (0.263) | -0.683*** (0.257) |
| Size | | | | -0.283*** (0.064) | -0.239*** (0.064) | -0.270*** (0.063) |
| Tangibility | | | | -0.792*** (0.264) | -0.735*** (0.261) | -0.809*** (0.263) |
| Leverage | | | | 0.551*** (0.134) | 0.483*** (0.131) | 0.553*** (0.134) |
| Liquidity | | | | -0.355 (0.243) | -0.361 (0.247) | -0.360 (0.242) |
| Profitability | | | | 0.055 (0.251) | 0.093 (0.255) | 0.064 (0.250) |
| Constant | 0.481*** (0.022) | 0.502*** (0.021) | 0.478*** (0.021) | 4.732*** (0.896) | 4.582*** (0.932) | 4.633*** (0.903) |
| Controls | No | No | No | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Ind*Year FE | No | Yes | No | No | Yes | No |
| State*Year FE | No | No | Yes | No | No | Yes |
| No. of firms | 6,916 | 6,911 | 6,916 | 6,916 | 6,911 | 6,916 |
| No. of obs | 31,967 | 31,942 | 31,967 | 31,967 | 31,942 | 31,967 |
| Adjusted R^2 | 0.580 | 0.587 | 0.580 | 0.586 | 0.591 | 0.586 |