

**Creditor Rights and Related-Party Transactions:
Evidence from the Implementation of the Insolvency Reforms in India**

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Abstract

Non-arm's-length business and personal transactions between a firm and its related parties, or related-party transactions (RPTs), are prevalent in emerging economies. RPTs can fulfill legitimate business needs but are often used opportunistically. We examine the role of the firm's creditors. Specifically, using the enactment of India's Insolvency and Bankruptcy Code (IBC) in 2016 as a quasi-experiment, we investigate whether enhanced creditor rights due to IBC affect RPT levels. We do not observe any significant overall effects on *total* RPTs. However, consistent with stronger creditor rights deterring opportunistic financing RPTs and making arm's-length external financing more attractive, we find that firms with greater reliance on unsecured credit reduce their reliance on *financing-related* RPTs, including loans from related parties, following the implementation of IBC. The effect is weaker for firms with stronger corporate governance, for private firms that face more severe financing constraints, and for firms that are affiliated with business groups.

Keywords: Related-Party Transactions; Creditor Rights; Insolvency; Bankruptcy; Emerging Markets; IBC; India; Corporate Governance; Public and Private Firms; Real Effects of Regulations; Unintended Consequences of Regulations

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1. Introduction

Related-party transactions (RPTs) refer to non-arm's-length transfers of resources, services, or obligations between a firm and its related parties including insiders. RPTs are used extensively around the globe.¹ Given their economic importance and wide prevalence, it is not surprising that RPTs have attracted attention from both practitioners and researchers. However, RPTs remain controversial. On one hand, RPTs may reduce transaction costs, thereby improving operational and contracting efficiency. On the other hand, the business press is replete with examples of RPTs being misused by opportunistic insiders for self-dealing and transfer of wealth from investors to related parties. RPTs can thus signal deep-rooted governance problems. While studies have examined the role of shareholder-focused governance and auditors in the context of RPTs, the role of creditors has been overlooked. We fill this void by examining the relation between creditor rights and RPTs. Specifically, we use the enactment of the Insolvency and Bankruptcy Code (IBC) in 2016 as a shock to creditor rights in India. The enactment of IBC, effective December 2016, is widely seen as one of the most significant legal reforms in recent Indian corporate history. While we do not detect a significant effect of IBC implementation on the overall level of RPTs, we predict and find that the improvement in rights of financial creditors due to IBC resulted in a decrease in financing-oriented (hereafter, “financing”) RPTs in the post-IBC period.

Two competing explanations exist for the use of RPTs (e.g., Gordon, Henry, and Palia 2004). The first explanation is that RPTs represent efficient contracting due to lower information asymmetry between related parties. Thus, RPTs may enable a reduction in transaction costs and lead to improvements in contracting efficiency. For example, in the Indian context, Khanna and Palepu (2000) document a positive relation between RPT usage and firms' return on assets. Others suggest a more nuanced perspective on

¹ For example, Kohlbeck and Mayhew (2004) report that almost two-thirds of the S&P 1500 firms in their sample conduct RPTs. Internationally, studies such as The OECD (2012) document extensive usage of RPTs in 31 countries around the world.

RPTs. For example, Kohlbeck and Mayhew (2004) provide evidence that RPTs can be efficiently used for executive compensation.

However, the dominant view in the emerging-markets setting is that RPTs represent opportunistic rent extraction by insiders for their own benefit (or “tunneling,” “self-dealing,” or “private benefits of control”). For example, the OECD (2009) highlights the opacity surrounding RPTs to be one of the biggest corporate governance challenges in Asia. In a follow-up report, the OECD (2012) calls for curbing opportunistic RPTs to protect minority shareholders. Empirical evidence supports this perspective. In the Mexican setting, La Porta, Lopez-de-Silanes, and Zamarripa (2003) show that loans to related parties not only carry lower interest rates but also exhibit higher default risk. Using a cross-country sample, Dahya, Dimitrov, and McConnell (2008) document a negative relation between the prevalence of RPTs and firm valuation. Similarly, Jian and Wong (2010) find that controlling shareholders use RPTs as a tool of real earnings management. Jiang, Lee, and Yue (2010) provide evidence of tunneling by controlling shareholders in China using inter-company loans at the expense of minority shareholders. Ryngaert and Thomas (2012) decompose RPTs based on their timing and show a negative relation between ex-post RPTs (i.e., originating after the transacting party achieves related-party status) and financial performance.² Li (2021) further explores this theme in the Indian context and demonstrates that improved minority shareholder voting rights under the Companies Act of 2013 limit firms’ ability to conduct opportunistic RPTs.

Overall, while the literature has recognized the benefits as well as problems posed by RPTs, there is surprisingly limited evidence about a potentially important constituency that is directly impacted by RPTs – the *firms’ creditors*. Creditors’ asymmetric payoff function gives them a particularly strong monitoring incentive because of their desire to ensure timely payment and protect collateral. Accordingly, we investigate the role of creditor rights in influencing RPT outcomes. Some creditors such as banks are

² In contrast, Ryngaert and Thomas (2012) conclude that RPTs that originate before the parties become related can be value-enhancing.

highly efficient monitors of borrowers' corporate financial policies due to their monitoring incentives, lending relationships, contracting provisions, and potential access to private inside information (e.g., Diamond 1984; Ramakrishnan and Thakor 1984; Fama 1985; Shleifer and Vishny 1997). Consistent with this idea, creditors draw up contracts that enable them to exercise strong control rights over the borrower's operating and financial policies (e.g., DeAngelo, DeAngelo, and Wruck 2002; Nini, Smith, and Sufi 2009; Denis and Wang 2014). We argue that the extensiveness and materiality of borrowers' RPT activities may have a direct bearing on creditors' ability to recover their investment, and therefore should naturally be important for creditors to monitor.

The ability of creditors to exercise and enforce their rights, however, depends upon the legal institutional framework. There is significant variation in how countries protect the interests of creditors. Bankruptcy and insolvency resolution systems are perhaps the most important legal recovery mechanisms available to creditors to exercise their contractual rights and recover their investments upon borrower default through a legally-sanctioned process. Bankruptcy systems vary with respect to how debtor- or creditor-friendly they are. The U.S. Bankruptcy Code, particularly the Chapter 11 reorganization process, is arguably on the debtor-friendly side of the spectrum. Armour and Cumming (2006, 2008) and Lee, Yamakawa, Peng, and Barney (2011) argue that such insolvency resolution regimes encourage entrepreneurial activity and enable optimal risk-taking by debtors without fear of unduly harsh consequences.

To study the effect of variation in creditor rights on RPTs, one could conduct cross-country analyses as in Djankov, McLiesh, and Shleifer (2007). However, the main identification challenge with such approaches is whether the effects can be attributed to creditor rights or other unobserved legal and social institutional factors (Fang 2022). We address this issue by conducting within-country differences-in-differences (DiD) analyses using the enactment of IBC in India in 2016 as a shock to creditor rights. This approach provides us with distinct empirical advantages. First, we can use the enactment of IBC to evaluate the effect of creditor rights on RPTs, while keeping country-level factors constant. Second,

within-country analyses allow us to identify the impact of specific aspects of creditor rights that have changed. Specifically, our focus is on financial creditors because the implementation of IBC can have a significant impact on how firms obtain financing and the associated costs of borrowing.

The IBC is widely perceived to have improved the rights and ultimate recovery of creditors in India compared to the patchwork of legislation that existed prior to its enactment.³ Unlike the U.S. Chapter 11 process, the IBC is decidedly *creditor-friendly*: The debtor's board of directors is suspended upon commencement of insolvency proceedings and the pre-filing management is no longer in control. The control shifts to a committee of creditors (generally limited to financial creditors). An independent insolvency resolution professional is appointed to manage the insolvent business, to enable coordination among the various creditors, and to eventually draw up a resolution plan. The resolution professional remains in charge during the insolvency resolution process subject to supervision by creditors.

The impact of IBC on the prevalence of RPTs is unclear ex ante. On one hand, the transfer of control to an independent insolvency professional supervised by the creditors implies that the question of siphoning off assets or conducting transactions at a discount with related parties does not arise (or is unlikely to happen) after the commencement of insolvency proceedings. This is in contrast to the previous insolvency resolution regimes in India such as the Sick Industrial Companies Act (SICA) of 1985. Further, the specter of preferential or fraudulent RPTs being canceled ex post looms large over the debtor after the commencement of insolvency, acting as a disincentive for unscrupulous insiders to conduct opportunistic RPTs in the period leading up to insolvency. On the other hand, this possibility of avoidance actions by a creditor-supervised resolution professional could also provide management with a greater incentive to conduct opportunistic RPTs before the commencement of insolvency (and corresponding loss of control).⁴ Strengthened creditor rights may lead to an improvement in credit supply as lenders are

³ India's jump in the World Bank's "Ease of Doing Business" global rankings from 142 in 2015 to 63 in 2020 is largely attributable to improvements in debt recovery and insolvency resolution due to IBC.

⁴ Avoidance actions refer to potential claims or causes of action that seek to avoid (or claw-back or reverse) certain transfers

more confident of their ex-post recoveries in the event of borrower default. Thus, arm's-length external financing may become more abundantly available, leading to a decrease in the prevalence of legitimate financing-related RPTs. Furthermore, it is also possible that the overall efficiency-enhancing effects of RPTs dominate any changes that perceived or real changes due to enhanced creditor rights.

We overcome the limitations of traditional pre-post analyses by employing a DiD research design. While IBC applies to all firms in India, the law affects certain firms more than others. Specifically, while the rights of secured creditors were strengthened by the SARFAESI Act in 2002 (e.g., Vig 2013), the overall strengthening of creditor rights including those of unsecured creditors had to wait until the implementation of IBC in 2016. As a result, we expect the IBC to have a stronger impact on firms with greater reliance on unsecured credit and classify firms with above-median (below-median) levels of unsecured debt as treatment (control) firms.

Overall, we are unable to detect any significant effect of IBC implementation on *total* RPTs. This is not surprising given the numerous countervailing forces discussed above and the heterogenous nature of various RPT transactions that constitute total RPTs. However, our results on *financing* RPTs are consistent with the ex-ante deterrence and credit-supply arguments. That is, consistent with the IBC strengthening creditor rights, we find that firms with greater reliance on unsecured credit reduce their reliance on financing RPTs in the post-IBC period. We then examine whether the reduction in financing RPTs is the result of firms *receiving* funds from or *providing* funds to related parties. Specifically, we separate financing RPTs into two categories based on their inflows and outflows. Financing RPT inflows include loans received, interest income, capital issuance, and guarantees taken from related parties. Financing RPT outflows, in contrast, involve payment for dividends, payment for interest, total capital payments, loans, and guarantees provided to related parties. Our findings show that the decline in RPT

of property or transactions conducted by the debtor that favor certain creditors or other constituencies at the expense of other legitimate claimants. Such actions can be brought under insolvency and bankruptcy laws or under relevant other laws (e.g., the Companies Act in India and the Uniform Fraudulent Transfers Act in the U.S.).

financing is primarily attributable to a reduction in RPT inflows, particularly RPT loan inflows, indicating that firms have reduced their reliance on related parties for financing.

We further explore the implications of IBC for financing access and financing costs. With the strengthening of creditor rights, arm's-length creditors may gain greater assurance of their potential recoveries upon default. Consequently, this may boost the availability of credit as arm's-length external debt financing could become more accessible, potentially with better terms. As a result, external debt financing could replace the current RPT financing for firms. Consistent with this expectation, we find that the overall leverage ratios of treated firms remain stable after the implementation of IBCs, but that their arm's-length borrowings increase, and funding costs as measured by yield-to-maturity decrease. Our findings suggest that IBC leads to an improvement in credit supply as arm's-length external financing is more readily available and funding costs become more favorable, thereby substituting RPT financing.

Our primary analyses are based on DiD tests with *firm* and year fixed effects. While the DiD design helps empirical identification, we provide further robustness by including employing entropy balancing analyses, assessing the parallel-trend assumption, and employing an alternative approach to identify the treatment and control groups. Our inferences remain robust.

Tunneling of corporate resources to insiders is prevalent in emerging economies with weak governance and other institutions. Good corporate governance may substitute for creditor rights as tunneling harms both minority shareholders and creditors. Specifically, we investigate whether and how the effect of enhanced creditor rights on RPTs impacts firms with good corporate governance. We find that effects of creditor rights enhancement due to IBC are muted in the presence of strong corporate governance, suggesting a substitution effect between governance and creditor rights insofar as RPTs are concerned. In addition, sub-sample analyses suggest that the effect of IBC on financing RPTs is stronger for private firms that are likely to face more severe financing constraints.

We further study the impact of IBC on tunneling activities within business groups in India. Critics argue that business groups in emerging economies, characterized by a controlling group overseeing multiple entities, may undermine minority shareholder rights and extract rents from them (Bertrand, Mehta, and Mullainathan (2002)). We thus consider business-group affiliation as an indicator of potential for tunneling via RPTs. In sub-sample analyses, we contrast firms within business groups to standalone firms and find that IBC affects both types of firms, but has a more significant effect on business group firms. These analyses suggest that IBC implementation is potentially associated with a reduction of RPT-driven tunneling activities.

Our study contributes to several streams of literature in accounting, finance, and economics. First, by documenting an important but under-examined effect of creditor rights on RPTs, we contribute to research on the relation between creditor rights and firm- and macro-level outcomes (e.g., La Porta, Lopez-De-Silanes, Shleifer, and Vishny 1997, 1998; Djankov et al. 2007; Bae and Goyal 2009; Acharya, Amihud, and Litov 2011; Vig 2013; Ersahin 2020). We show that IBC has important effects on financing RPTs. Second, we contribute to the literature that examines bankruptcy and insolvency systems around the world (e.g., Thorburn 2000; Franks and Sussman 2005; Strömberg 2000; Davydenko and Franks 2008; and Chakraborty, Kallapur, Tantri, and Mahapatro 2020). Chakraborty et al. (2020) examine the impact of IBC implementation on equity capital. They find that as a result of IBC, equity capital increases significantly, and the cost of borrowing is lowered. They support the view that tunneling is one of the channels for the increase in equity capital. We differ from this study in several ways: We document that IBC has an important effect on financing RPTs. Further, we categorize all RPT transactions by their types and focus on the volume of RPTs. In addition, we look at both public and private firms, as private firms are economically important and their financing opportunities are systematically different from those of public firms.

Third, we contribute to research in the India setting, a fast-developing economy (with the world's largest population), but with limited direct research evidence concerning its dynamic institutional

environment. Related but distinct from our study, Gopalan, Martin, and Srinivasan (2023) study the opportunistic behavior of controlling shareholders for Indian distressed firms. They find that insiders intentionally engage in earnings management and tunneling through RPTs to before filing for bankruptcy under the pre-IBC insolvency regime that was clearly debtor friendly. Our study follows a different trajectory. We focus on the strengthening of creditor rights following IBC implementation and examine the nuanced effects of creditor rights on RPT-based vs. arms-length financing. In other words, our focus is on how enhanced creditor rights mitigate moral hazard in the credit markets and make arms-length lending more attractive compared to financing from related parties. Finally, we provide further insights into financing practices in private (i.e., unlisted) firms. Private firms dominate around the world but there is limited research relative to publicly traded companies.⁵ Our findings provide evidence that creditor rights not only influence RPTs among public firms but also among private firms that are vital to the economy.

2. Background and Hypotheses

2.1. The Insolvency and Bankruptcy Code (2016)⁶

The Insolvency and Bankruptcy Code of 2016 (IBC) superseded a patchwork of disparate and confusing corporate bankruptcy and restructuring legislation post-independence India, including under the Companies Act (1956, 2013), the Sick Industrial Companies Act (SICA, 1985), the Recovery of Debts due to Banks and Financial Institutions Act (RDDBFI, 1993), and the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI, 2002). The resultant legislative complexity was viewed as being too debtor friendly, notoriously slow, and ineffective in stopping unscrupulous promoters from siphoning off the insolvent firms' assets. Inefficient insolvency

⁵ With respect to RPTs, due to data limitations, most studies focus on public firms (e.g., Gordon et al. 2004; Ryngaert and Thomas 2012; Kohlbeck and Mayhew 2010, 2017; Hope and Lu 2020; Li 2021; Kushwaha and Dixit 2021).

⁶ Background information in this section comes from Datta (2018), Ho and Banerjee (2018), Chandhiok (2021), Gupta (2021), Khaitan & Co. (2021), and Pryor and Garg (2020).

resolution was an important reason behind India's lack of competitiveness in international business, as reflected in its dismal 142nd rank in the 2014 World Bank's Ease of Doing Business global rankings.⁷ The IBC was enacted in 2016 to change this by having a single unified code for timely and efficient resolution of corporate insolvencies.⁸

Unlike the previous patchwork legislation (and the Chapter 11 process in the U.S.), the IBC is clearly creditor-friendly – the new regime can be characterized as a “creditor-in-control” system rather than the “debtor-in-possession” system that was prevalent previously in India (and presently in North America). A key feature of IBC is the appointment of an independent (but creditor-supervised) insolvency resolution professional to manage the insolvent business, coordinate actions of creditors, and formulate an insolvency resolution plan. A committee of (mostly financial) creditors, through the appointed insolvency resolution professional, wrests control of assets from pre-filing management, and the debtor's existing board of directors is suspended upon commencement of insolvency proceedings. The IBC speeds up insolvency resolution by providing a time limit of 180 days for resolution that can be extended by another 90 days upon approval by the adjudicating authority. The company is operated as a going concern and controlled by the resolution professional until a resolution plan is approved and put in place. The creditors' committee is in charge of corporate decisions and resolution plan approval. Important decisions, such as plan approval, require a two-thirds majority. Routine decisions require a simple majority. If the resolution cannot be completed within the permitted time-period of 270 days, or if the creditors' committee so decides, the adjudicating authority (the National Company Law Tribunal) orders liquidation of the debtor under the supervision of the resolution professional. The reforms have had a meaningful impact on the timeliness and extent of creditor recoveries: India's ranking in the World Bank's Ease of Doing Business global rankings improved from 142 in 2014 to 63 in 2020, in large part

⁷ <https://www.thehindu.com/opinion/editorial/good-report-card/article29789953.ece>

⁸ See for example, Gupta (2021). <https://www.mondaq.com/advicecentre/content/3750/The-Journey-of-Insolvency-Bankruptcy-Code>

due to the IBC (Sahoo 2019).

2.2. Hypotheses Development

Creditors face an asymmetric payoff function. In terms of downside, they risk potentially losing all their investment upon borrower default. In contrast, in terms of upside, their return is limited to principal and interest. This asymmetric payoff function acts as a strong monitoring incentive for creditors because of their desire to ensure timely payment and protect collateral. In exchange for taking on this asymmetric payoff function, creditors are afforded certain rights, most importantly upon borrower insolvency. For example, in most jurisdictions, creditors assert asset control rights upon bankruptcy and attempt to recover their investment under legal supervision.

However, the ability of creditors to exercise and enforce their rights depends upon the legal institutional framework that bestows such rights upon them in the first place. For example, there is variation in the extent to which bankruptcy and insolvency resolution systems are considered as debtor- or creditor-friendly. Research provides evidence on how creditor rights determine various corporate- and macro-economic outcomes (e.g., Acharya et al. 2011; Bae and Goyal 2009; Ersahin 2019; Vig 2013; Djankov et al. 2007; La Porta et al. 1998). The enactment of IBC in 2016 was an important shock to creditor rights in India. In particular, the IBC is a creditor-friendly regime that has improved the rights and recovery for creditors in India compared to the earlier legal regime.

While RPTs can improve contracting efficiency, empirical and anecdotal evidence suggests widespread concerns and evidence about misuse of RPTs by opportunistic insiders (e.g., Gordon, Henry, and Palia 2004; Ryngaert and Thomas 2012; Kohlbeck and Mayhew 2010, 2017; Hope and Lu 2020; Gopalan et al. 2023). For example, in “Anuj Jain, IRP for Jaypee Infratech Ltd v. Axis Bank Ltd and Ors. (2020),” the Supreme Court of India affirmed that the mortgaging of land belonging to the corporate debtor (Jaypee Infratech Limited) as security for loans issued to a related party (i.e., the holding company of the debtor Jaiprakash Associates Limited) fit the description of being preferential as per the relevant

provisions in the IBC, and thus upheld the avoidance actions initiated by the resolution professional. This suggests that the IBC poses a credible threat that opportunistic RPTs detrimental to creditors may be unwound at a later stage upon commencement of insolvency proceedings. The effect of such deterrence is, however, unclear ex ante. On the one hand, the prospect of such ex post avoidance actions could lead to lower opportunistic RPTs. On the other hand, as the insiders are likely to be removed upon commencement of insolvency, they may be incentivized to conduct tunneling activity ex ante in advance of an insolvency proceeding.

Regardless of the motives behind RPTs, creditors would naturally be interested in monitoring and influencing transactions that have a direct bearing on their ultimate payoff. Accordingly, we investigate the role of creditor rights in influencing RPT outcomes but are unable to make a directional prediction for the overall level of RPTs. Based on this discussion, we state the first hypothesis in null form:

Hypothesis 1: RPTs are unchanged among firms in India following the enactment of IBC.

Our primary goal is to study the impact of IBC on the prevalence of *financing* RPTs among Indian firms. We appeal to the pecking order theory for capital structure choices (Myers 1984; Myers and Majluf 1984). Although the pecking order theory does not distinguish between financing from related and arm's-length parties, we can extend the key arguments that are based on asymmetric information and net financing costs to our research setting. We view financing from related parties as being similar to financing from insider sources – as such it will be preferred over arm's-length financing when feasible and when not otherwise at a disadvantage. However, the passage of IBC altered the cost-benefit calculus for financing alternatives in several important ways. The transfer of control to a creditor-supervised insolvency professional limits ex-post fraudulent or preferential transactions that are detrimental to arm's-length creditors. IBC thus reduces the potential tunneling benefits associated with RPT transactions (that may benefit both RPT debt and equity positions) due to the likelihood of being unwound ex post at the behest of the resolution professional after the commencement of insolvency

proceedings. Further, to ensure adequate protection of debtors' property during insolvency proceedings, the IBC prohibits related parties from serving on the committee of creditors (e.g., Saraf 2018). For example, recognizing the deep conflict of interest that would arise if related parties were allowed to participate in the Committee of Creditors (CoC) and exercise influence over the resolution process, the Supreme Court of India states in *Phoenix ARC Pvt. Ltd. v. Spade Financial Services Limited* (2020) that financial debt extended by related parties (Spade and AAA) did not entitle them to be a part of the CoC as they were related parties to the corporate debtor. IBC thus enhances the potential recoveries of arm's-length financial creditors upon borrower insolvency and thereby reduces the expected costs of financial distress.

Furthermore, as discussed earlier, the fear that the resolution professional and/or creditors can bring avoidance actions (refer to footnote 4 for details) may function as an ex ante deterrent for unscrupulous insiders from conducting opportunistic financing RPTs (e.g., taking guarantees or providing seniority to related party creditors) prior to insolvency. IBC thus increases the net costs of RPT loans as it reduces the ability of related parties to influence the insolvency resolution process, to preferentially prime other arm's-length financial creditors, and to fraudulently extract resources from the business away from the reach of arm's-length creditors. Furthermore, IBC reduces the potential control benefits associated with RPT financing as management and the board of directors are replaced upon commencement of insolvency proceedings.

Thus, strengthened creditor rights make arm's-length creditors more confident of their recoveries in the event of default, while creating a potential disadvantage for related party financial creditors. This may lead to an improvement in credit supply as arm's-length external financing may become more easily available and at more favorable terms, thereby substituting the now disadvantaged RPT financing.⁹

⁹ The above discussion assumes that the firm's optimal leverage is unchanged due to the implementation of IBC. In other words, while IBC improves the recovery of arm's-length financial creditors, it does so due to reduction in misdirection of resources to related party financiers. It is possible that the resolution professional is so competent that value is created during

Please note, however, that IBC does not explicitly alter the net costs of raising financing from external minority equity holders. Indirectly, however, to the extent that the interests of the debtor management and external equity holders are aligned, IBC might increase the net anticipated cost of external equity by constraining the ability of the debtor to make cash distributions to external equity holders close to insolvency, as such transfers can be potentially clawed back by the resolution professional for the benefit of creditors.

Based on the above arguments, we state our second and primary hypotheses in alternate form:

Hypothesis 2a: Financing RPTs are less prevalent among firms in India following the enactment of IBC.

Hypothesis 2b: RPT loans inflows are less prevalent among firms in India following the enactment of IBC.

3. Data and Empirical Methodology

3.1. Data Source

We obtain our data from the Prowess database, produced and maintained by the Centre for Monitoring Indian Economy (CMIE). CMIE is an independent think tank established in 1976 in India. It provides the largest and most trusted information of Indian companies' financial data, such as financial statements, detailed transaction-level RPTs, ownership, and governance data for Indian corporations, both listed and unlisted. The Prowess database has been used in numerous studies in economics and corporate finance (see Bertrand, Mehta, and Mullainathan, 2002; Gormley, Kim, and Martin, 2012; Vig 2013, among others).

Our final sample contains 106,840 observations, including both public and private firms. Of these, 57% are publicly listed while the remainder are privately held. The sample spans 2012-2021 with non-

the insolvency resolution process for the benefit of all parties – arm's-length as well as related parties. We leave the examination of this conjectural possibility to future research.

missing variables used in the main analyses. We exclude firms in the finance and utility industries. Appendix A outlines our sample-selection process. Table 1 shows the industry breakdown of the sample. About half of the firms in our sample are in the manufacturing sector.

3.2. Classification of RPTs

An advantage of our research setting is that Prowess provides *detailed RPT data* for each type of transaction as the Indian Accounting Standard 18 mandates RPT disclosure in the annual reports. In addition, the enactment of the Companies Act 2013 further requires the disclosure of RPTs and the Act applies to *all* Indian corporations (Section 188). Importantly, Prowess provides us the advantage to further distinguishing the *types* of financing RPTs into funding received (*inflows*) and funding given out (*outflows*).¹⁰

3.3. Identification Strategy

To examine the effect of the 2016 IBC legal reform on firms' RPT activities, we employ a DiD methodology in a quasi-experimental setting. The 2016 IBC legal reform applies to all firms in India. We note that the treatment and control groups are not randomly assigned in our analysis. However, IBC does not affect all firms in the same way. In 2002, India already implemented the 2002 SARFAESI Act for secured creditors to circumvent potentially lengthy legal battles to collect on collateralized assets of defaulting loans. As the 2002 SARFAESI Act already provides sufficient support to *secured* creditors (e.g., Vig 2013), we expect the IBC enacted in 2016 to have a more significant impact on *unsecured* creditors. Essentially, firms that are reliant on unsecured debt are likely to be more affected by this legal reform than firms with less unsecured debt. Accordingly, we classify firms into treatment and control groups based on the ratio of unsecured debt over total assets (*UNSECURED*) three years prior to IBC enactment (2014, 2015, and 2016). Specifically, based on the pre-treatment three-year average of the

¹⁰ Appendix B provides detailed variable definitions.

unsecured debt ratio, firms above (below) the median of unsecured debt ratio are classified in the treated (control) group.¹¹ We employ the following DiD regression model with firm fixed effects.

$$Y_{i,t} = \alpha_i + \beta_1 TREAT_i \times POST_t + Controls_{i,t-1} + \delta_t + \mu_{i,t} \quad (1)$$

In Eq. (1), i , t , are subscripts for firm and year, respectively. The outcome variable Y is the RPT variables as a percentage of lagged total assets. $POST$ is an indicator variable that equals 1 for years between 2017 and 2021 period, and 0 for the 2012-2016 period.¹² To control for other observable firm-level heterogeneity, we control for firm characteristics, including firm size ($SIZE$), operating cash-flow ratio (CFO), and profitability (ROA). Importantly, α_i and δ_t denote *firm fixed effects* and year fixed effects, respectively.¹³ Firm fixed effects are an important component of our research design as they control for unknown and time-invariant firm characteristics. The variable of interest is β_1 , which captures the difference in the outcome variables between the treatment and control groups before versus after the legal reform.

3.4 Descriptive Statistics

Panel A of Table 2 reports summary statistics for the final sample used for regression analyses. Average total RPT volume ($TOTAL_RPT$) is 41.6 percent of lagged total assets, reflecting significant transacting with related parties for our sample firms. Average financing RPT volume ($FINANCE_RPT$) is 12.4 percent of lagged total assets, of which 6.9 percent is financing RPT inflows ($FINANCE_RPT_IN$) and 4.2 percent is financing RPT outflows ($FINANCE_RPT_OUT$).¹⁴ Turning to firm characteristics, the

¹¹ Our identification strategy is similar to the approaches in Vig (2013) among others, who use tangibility as treatment variables to study the effects of the 2002 SARFAESI Act on secured credit usage.

¹² The treatment group is identified by the unsecured debt ratio from the 3 years preceding the IBC. This window directly captures the immediate and direct effects of the treatment. The $POST$ variable, defined over a 10-year window (5 years pre and post-IBC), captures the general trends and trajectories of both the treatment and control groups over a more extended period. It ensures that any observed post-treatment effects are not simply a continuation of pre-existing trends. In untabulated results, we use 3 years pre and post-IBC to define the $POST$ period. Our inferences remain unchanged.

¹³ We also report results of DiD specifications *without* time-varying control variables due to the possibility of “bad controls” in our main analyses (Angrist and Pischke 2009; Gormley and Matsa 2016). Furthermore, in untabulated robustness tests, we replace year fixed effects by macroeconomic control variables such as the ratio of bank non-performing assets (NPAs) to GDP and yearly GDP growth and find that the inferences are unchanged.

¹⁴ The total amount of financing RPT inflows and outflows is slightly different from the total financing RPT volume as a small

mean leverage ratio is 16.2 percent, including 11.8 percent of arm's-length loans (*LEVERAGE_EX_RPT*). The average return on assets (*ROA*) is 1.2 percent, and the operating cash-flow ratio (*CFO*) is 3.6 percent.

Panel B of Table 2 reports descriptive statistics for the samples in the pre- and post- periods, respectively. IBC was enacted in May 2016 and became effective in December of 2016; thus, the pre-period comprises fiscal years 2012-2016 and the post-period is fiscal years 2017-2021.¹⁵ The table reports the means of variables in the pre- and post- periods for firms in the treatment and control groups. On average, financing RPTs (*FINANCE_RPT*) decrease by 5.7 percentage points for the treatment group and by 0.3 percentage points for the control group in the post-period. The univariate DiD analysis shows that the difference is statistically significant at the 1% level. The main source of reduction in financing RPTs in the treatment group are financing inflow RPTs (*FINANCE_RPT_IN*) that decline by 3.8 percentage points. The primary contributor of this decline in financing RPT inflows is the decline in RPT loan inflows (*RPT_LOANS_IN*) by 2.8 percentage points. Further, the means across the two groups are significantly different at the 1% level.

4. Empirical Analyses

4.1 The Effect of IBC on Total RPTs

We first examine the impact of the IBC legal reform on *total* RPTs outcomes using univariate, multivariate DiD analyses, and entropy balancing to empirically evaluate our hypothesis.¹⁶

amount of financing RPT are left unclassified (as either inflows or outflows) in the Prowess database. Appendix B provides detailed variable definitions.

¹⁵ Note that the fiscal year-end for most domestic Indian companies is March 31. So, to be precise, the pre-period starts in April 2011 and ends in March of 2016 and the post-period starts in April 2016 and end in March 2022.

¹⁶ To address the possibility that the difference in the treatment outcome between treated and untreated groups may be caused by factors that predict the treatment rather than the treatment itself, we examine the robustness of our findings to employing entropy balancing (EB) for the entire set of analyses (e.g., Heckman, Ichimura, Smith, and Todd, 1998; Heckman, Ichimura, and Todd, 1997). Entropy balancing achieves high covariate balance by imposing a large set of constraints that involve multiple moments and interactions (Hainmueller 2012; McMullin and Schonberger 2020). EB eliminates the need for conventional balance checking for the included characteristics. We match on firm size, cash-flow ratio, profitability, and growth trends in total RPTs or financing RPTs in the 5 years prior to the shock. In untabulated analyses, we find that EB allows us to achieve a close balance between the treatment and control groups.

As described in equation (1), Y is a set of RPT outcome variables that include total RPTs ($TOTAL_RPT$), inflows of total RPTs ($TOTAL_RPT_IN$), and outflows of total RPTs ($TOTAL_RPT_OUT$). Table 3 reports the OLS regression results of estimating equation (1) with RPT dependent variables. In Panel A of Table 3, we focus on total RPTs ($TOTAL_RPT$) as the outcome variable. The estimated coefficients are not statistically significant in Columns (1) to (3). Panel B reports the results for total RPT inflows ($TOTAL_RPT_IN$) and total RPT outflows ($TOTAL_RPT_OUT$). In column (1), we find that the coefficient on $TREAT \times POST$ is negative and significant for total RPT inflows ($TOTAL_RPT_IN$). However, the coefficient on $TREAT \times POST$ is not statistically significant for total RPT inflows ($TOTAL_RPT_IN$) using the entropy balancing method. In columns (2) and (4), the coefficients on $TREAT \times POST$ are not statistically significant for total RPT outflows ($TOTAL_RPT_OUT$). Overall, the results presented in Table 3 suggest that we do not have conclusive evidence that IBC has any significant effects on *total* RPTs. In other words, the contrasting effects of RPTs on efficiency and tunneling potentially inhibit our observation of clear empirical evidence concerning total RPTs. However, these results motivate us to further investigate the effect of IBC on *financing* RPTs, which has more direct implications. Therefore, we focus on examining the effect of IBC on financing RPTs as our primary analysis.

4.2 The Effect of IBC on Financing RPTs

We next analyze the impact of the IBC legal reform on financing-related RPTs, including total financing RPTs ($FINANCE_RPT$), inflows of financing RPTs ($FINANCE_RPT_IN$), and outflows of financing RPTs ($FINANCE_RPT_OUT$) using univariate and multivariate DiD analyses, as described in equation (1).

4.2.1. The Effect of IBC on Total Financing RPTs

Panel A of Table 4 presents the baseline results with $FINANCE_RPT$ as the outcome variable. The analyses include *firm fixed effects* to control for unobserved firm-level heterogeneity and year fixed

effects to control for time-variant macroeconomic factors. Column (1) of Panel A Table 4 reports the results without time-varying control variables for the full sample. The coefficient on the interaction term, -0.0322, is statistically significant at the 1% level. Column (2) includes controls for firm characteristics such as firm size (*SIZE*), operating cash flow (*CFO*), and return on assets (*ROA*). The coefficient on the interaction term (*TREAT* × *POST*) is negative and remains statistically significant at the 1% level. The coefficient of -0.0365 is similar to the coefficient without controls in column (1). To account for potential differences between firms with high and low unsecured debt ratios on other dimensions, we employ entropy balancing in Column (3). The results show that the coefficients on *TREAT* × *POST* are negative and statistically significant at the 1 % level across all specifications in columns (1) – (3). In summary, the results in Table 4 suggest that the enactment of IBC has a significantly negative impact on the prevalence of financing RPTs among Indian firms.

4.2.2 Types of Financing RPTs

We examine whether the reduction in financing RPTs is the result of firms *receiving* or *providing* funds to related parties. One of the strengths of our setting relative to other settings around the world is that the Prowess database allows for such analysis. Specifically, we separate financing RPTs into two categories based on their inflows and outflows. Financing RPT inflows (*RPT_FINANCE_IN*) include equity issuance, sale of investments and fixed assets, loans received, guarantees taken, interest income, and dividend income received from related parties. Financing RPT outflows (*RPT_FINANCE_OUT*), in contrast, involve payment for dividends, payment for interest, payment for investments and fixed assets, loans, and guarantees provided to related parties.

Columns (1) to (2) of Table 4, Panel B, show the results for financing RPT *inflows*. The coefficients of the interaction term, *TREAT* × *POST*, are negative and statistically significant at the 1% level, suggesting significant reductions in financing RPT inflows for treated firms after the implementation of IBC. In columns (3) and (4), we further explore the different financing activities, including RPT loans

(*RPT_LOANS_IN*) and RPT capital (*RPT_CAPITAL_IN*). The coefficients on *TREAT*×*POST*, for both variables, are negative and statistically significant.

We repeat these analyses for financing RPT *outflows* and report the results in Panel C of Table 4. In columns (1) to (2), our primary variable of interest (*TREAT*×*POST*) is not statistically significant, suggesting that the implementation of IBC has no significant effect on how firms give out funds after the implementation of IBC. The findings indicate that the decrease in financing RPTs stems from transactions that assist the firm in fulfilling its *funding needs*, rather than transactions where the firm provides funds to others. However, we observe a reduction in capital outflows via RPTs (column (4) of Panel C of Table 4). In other words, firms not only reduce their reliance on RPTs to meet their funding needs in the post-IBC era via RPTs, but they also restrict capital transfers to related parties. In the next section, we further investigate how the implementation of IBC impacts the financing strategies employed by firms.¹⁷

4.3. Implications of IBC for Financing Access and Costs

Although our primary focus is on how IBC affects the financing of firms by related parties, we further investigate whether and how the implementation of IBC affects firms' financing strategies with arm's-length parties. With the strengthening of creditor rights, arm's-length creditors may become more confident in their ability to recover their funds in the event of default. This, in turn, could lead to an improvement in credit supply as arm's-length external debt financing may become more easily accessible, and possibly available on more favorable terms. As a result, arm's-length debt financing could substitute the RPT financing for firms.

To measure arm's-length financing (*LEVERAGE_EX_RPT*), we subtract loans received from related parties (*RPT_LOAN_IN*) from the total leverage (*LEVERAGE*). As we do not have access to loan-pricing

¹⁷ In untabulated analyses, we control for growth opportunities and repeat the same analyses for financing RPT *inflows* and *outflows*. We use two sets of controls: the first set includes the sales growth rate lagged by both one and two periods, while the second set includes interactions between year and industry fixed effects, capturing any industry-level growth trends. Our inferences remain consistent and suggest that our findings are not driven by growth opportunities.

data, we use the yield-to-maturity (*YTM*) from trading in the secondary bond market as a proxy for overall debt pricing. In doing so, we assume that despite being of potentially lower seniority, corporate bonds and bank loans face the same enterprise-wide default risk. Accordingly, secondary bond-price movements signal shifts in market perception of credit risk that may be positively correlated with bank-loan pricing.¹⁸ To test how IBC affects firms' financing strategies, we employ the same OLS regressions as in equation (1), but replace the RPT outcome variables with leverage ratio, yield-to-maturity, and the extent of arm's-length loan financing.

Panel A of Table 5 presents the results for the total leverage ratio, *LEVERAGE*, which includes both arm's-length and non-arm's-length loans, and borrowing costs (*YTM*). For leverage ratio, the coefficient on *TREAT*×*POST* is negative but are not statistically significant across all specifications in columns (1) through (3), indicating that the overall leverage ratios of treated firms do not increase after the implementation of IBCs. In contrast, the negative and significant coefficients of *YTM* indicate that the implementation of IBCs reduces borrowing costs (columns (4) to (6)). In particular, the implementation of IBC appears to reduce *YTM* by 1.23 percentage points for treated firms, or 0.9 standard deviations in borrowing costs (Column 5). Panel B of Table 5 presents the results for arm's-length borrowings. We find that treated firms increase arm's-length borrowings (*LEVERAGE_EX_RPT*), consistent with arm's-length external financing being more easily available after IBC.

Overall, our findings suggest that IBC leads to an improvement in credit provision as arm's-length external financing may be more readily available and funding costs become more favorable, thereby substituting RPT financing.

¹⁸ Please note, as a caveat, that such data are only available for 96 companies from our data provider, Prowess. After merging with the sample used in the main analyses, we have a sample of 211 observations for this test.

4.4. Identification Assumptions and Robustness Checks

Our primary analyses are based on DiD tests with *firm* and year fixed effects, as discussed in Section 3.3. This approach controls for many typical sources of otherwise unknown heterogeneity. In addition, in this section, we conduct additional sensitivity analyses to ensure the robustness of our inferences. Specifically, we assess the parallel-trend assumption, employ an entropy balancing approach throughout the analyses, and employ an alternative approach to identify the treatment and control groups.

4.4.1. Parallel-Trend Assumption

The key identifying assumption in the DiD specification is the parallel-trend assumption that the trends in the outcome variable of interest should be similar for high and low unsecured borrowers in the absence of treatment. The assumption requires similar trends in financing RPTs in the pre-event years for the treatment (*HIGH_UNSECURED*) and control groups (*LOW_UNSECURED*). We conduct two tests to ensure that parallel trend assumption is supported.

First, we plot the time-series demeaned outcome variables for the treatment (*HIGH_UNSECURED*) and control groups (*LOW_UNSECURED*) from 2012 to 2021. Panel A of Figure 1 shows that firms in the treatment group generally engage in more financing RPT (*FINANCE_RPT*) than firms in the control group in the pre-event period, but the two groups generally move in similar directions. However, after the enactment of IBC, the gap in financing RPTs between the two groups narrows. Panel B of Figure 1 presents the trend for RPT loans inflows (*RPT_LOANS_IN*) and we notice a similar trend to total financing RPTs (*FINANCE_RPT*).

Second, we examine differences in pre-IBC trends in financing RPTs across high unsecured (treatment) and low unsecured (control) groups by mapping out counterfactual treatment effects over our sample period (e.g., Christensen, Floyd, Liu, and Maffett 2017). Specifically, we modify equation (1) and estimate the following model by including separate year indicators and interaction terms:

$$Y_{i,t,t} = \alpha_i + \sum_{n=2012}^{n=2021} YEAR_n + \sum_{n=2012}^{n=2021} TREAT \times YEAR_n + Controls_{i,t-1} + \mu_{i,t} \quad (2)$$

YEAR2012 to *YEAR2021* equal 1 if the observations are in fiscal years 2012 to 2021, respectively, and 0 otherwise. We exclude the indicator for 2016, which is the year before the IBC takes effect, and set it as the benchmark period. If our parallel-trends assumption holds, we expect the coefficients β_9 through β_{12} to be neither economically nor statistically significant. Figure 2 presents the coefficients and 95% confidence intervals for the four years before and five years after the IBC to analyze two different outcome variables. The outcome variables are financing RPTs (*FINANCE_RPT*) and RPT loan inflows (*RPT_LOANS_IN*) in Panels A and B, respectively. Overall, the two graphs indicate that prior to the enactment of IBC, the estimated coefficients in the pre-period are economically small and not statistically significant in both Panels A and B. This suggests that there is no significant difference in *FINANCE_RPT* and *RPT_LOANS_IN* between the treatment and control groups before the implementation of IBC. The difference between the two groups only becomes visible and significant after the implementation of IBC, which suggests that our DiD approach supports the parallel-trends assumption.^{19, 20}

4.4.2. Alternative Classification of Treatment and Control Groups

As discussed in Section 3.3, our primary classification of treatment and control groups is based on firms' reliance on unsecured debt. This is because secured creditors are already afforded adequate support under the 2002 SARFAESI Act (Vig 2013). We expect the 2016 IBC legal reform to have a much more significant impact on unsecured creditors. One caveat of the identification strategy is that IBC incrementally benefits secured creditors, especially in cases when the secured loans are undercollateralized. To address this possibility, we conduct additional robustness checks by reclassifying the treatment and control groups based on firms' reliance on debt relative to equity (i.e., total debt to

¹⁹ We begin with 2012 because Prowess modified the classification of certain RPTs into specific subcategories following 2011.

²⁰ It is also possible that our results are driven by anticipation effects, potentially undermining empirical identification (Hennessy and Strebulaev 2020). For instance, treated firms may decrease financing RPT in anticipation of the implementation of IBC. In this case, it may be the anticipation effects of IBC adoption that drive the observed changes in *FINANCE_RPT*. However, the two tests regarding the parallel-trend assumption discussed in this section do not provide evidence to support the possibility of such anticipation effects.

equity ratio). Specifically, we classify a firm as belonging to the treatment group if its total debt over equity ratio (*DEBT_EQUITY*) is above the median value of three-year average values preceding the treatment period, and to the control group if its debt-equity ratio is below the median value of the three-year pre-event average (2014-2016). In unreported analyses, we repeat the same analyses as in the baseline described in Section 4.2. and find that our inferences are similar to our previous findings, and the conclusions remain robust under this alternative classification approach.

4.5 Exploring Cross-Sectional Variation in Corporate Governance

In the identification strategy detailed above, we compare financing RPTs of firms with more unsecured debt (treatment group) to firms with less unsecured debt (control group). In this section, we conduct additional analyses to examine if heterogeneous treatment effects exist. As discussed, tunneling corporate resources to insiders is prevalent in emerging economies with weak governance and other institutions. We contend that good corporate governance can potentially serve as a substitute for credit rights protection insofar as tunneling adversely affects the payouts of minority shareholders as well as creditors. Accordingly, we investigate whether and how the effect of enhanced creditor rights on financing RPT impacts firms with good corporate governance. To examine these cross-sectional effects, we perform the following regression analyses:

$$Y_{i,t} = \beta_1 TREAT_i \times POST_t + \beta_2 Z_i \times POST_t + \beta_3 Z_i \times TREAT_i \times POST_t + CONTROLS_{i,t-1} + FIRM FE + YEAR FE + \mu_i \quad (3)$$

As before, i indexes firms, t indexes time. Z_i is a continuous variable that proxies for corporate governance. Corporate governance measures used in these analyses include the degree of board independence (*INDEP*), institutional ownership (*INSTITU*), and the relative importance of the board's Audit Committee (*AUDITCOM*).²¹ Z_i is calculated as the 3-year average of the respective variables in

²¹ Specifically, *INDEP* is measured as the fraction of independent directors divided by the total number of directors, *INSTITU* is measured as the percent ownership by institutions, and *AUDITCOM* is measured as the fraction of audit committee members divided by the total number of members on the board.

the pre-treatment years 2014-2016. All control variables are included in these analyses but are suppressed for brevity. β_3 captures the cross-sectional effect.

Panel A of Table 6 reports the results where *FINANCE_RPT* is the dependent variable. As shown, the coefficients in columns (1) - (3) for *TREAT*×*POST* are negative and statistically significant at the 1% level, implying that (as before) enhanced creditor rights reduce financing RPTs. Further, the coefficients on the triple interaction term, *Z* × *TREAT* × *POST* are positive and statistically significant across all three measures of corporate governance. The results using the entropy balancing method are reported in columns (4) to (6). We repeat these analyses for RPT loans inflows (*RPT_LOANS_IN*) and report the results in Panel B of Table 6. Our inferences generally remain similar. Overall, the findings support the idea that corporate governance can serve as a substitute for the effect of enhanced creditor rights on financing RPTs.

4.6. Additional Analyses

4.6.1. Financing Opportunities (Public vs. Private Firms)

Several studies document that private firms face more severe financing constraints than public firms (see Hope and Vyas 2017 for a survey). As a result, we expect that the creditor rights reforms would impact private firms more than public firms, as private firms may rely more on their related parties for financing. We divide the sample into public and private firms and continue to use Eq. (1).

Panel A of Table 7 reports the result for the public and private firm samples separately, with financing RPTs as the dependent variable (*FINANCE_RPT*). The coefficient of *TREAT*×*POST* on financing RPTs (*FINANCE_RPT*) is negative and statistically significant for both types of firms in Columns (1) and (3). More importantly, consistent with our expectations, the magnitude of this effect is larger for the private firm sample (i.e., the estimated coefficients for the test variables are considerably larger for private than for public firms). The coefficients on *TREAT* × *POST* are not statistically significantly different across columns (1) and (3) (p -value = 0.6532). In addition, we find that the significant effect for public firms

disappears in column (2) when using the entropy balancing approach. However, the inferences remain unaffected for private firms in column (4). Panel B of Table 7 reports the results for RPT loans inflows (*RPT_LOANS_IN*). While the coefficients on *TREAT* × *POST* are not statistically significantly different across columns (1) and (3) (p -value = 0.5938), the magnitude of the IBC effect is larger for the private firm sample. These findings suggest that improved creditor rights due to IBC have a stronger effect on financing RPTs for private firms.

4.6.2. Tunneling in Business Groups

Business groups are common organizational forms in emerging economies with weak legal systems (Johnson et al. 2000; Siegel 2005). This type of business structure is often referred to as a pyramid in which a common group controls a set of business entities (see La Porta, Lopez-d-Silanes, Shleifer, and Vishny 1998). Firms within business groups are significantly enmeshed for financing, production, and knowledge-sharing purposes. Bertrand, Mehta, and Mullainathan (2002) suggest that Indian business groups appear to expropriate minority shareholder rights and tunnel resources via nonoperating components of profit. Gopalan, Nanda, and Seru (2007) further conclude that groups extend loans to financially weaker firms to avoid the negative spillover effect from member firms if member firms default. However, the conventional wisdom that business groups are expropriation devices for the controlling shareholders has been challenged by Siegel and Choudhury (2012) who demonstrate that business groups can also be value-creating.

Motivated by these studies, we expect that the enhanced creditor rights may further reduce intra-corporate tunneling by firms within business groups for two possible reasons. First, IBC has potentially improved insolvency resolution efficiency so that member firms' default may not be as harmful as it was prior to IBC. Thus, business groups may reduce tunneling via RPT transactions among member firms. Second, enhanced creditor rights may complement minority shareholder rights, thus reducing tunneling activities among business groups. In particular, the possibility that tunneling-related transactions may be

unwound ex post by the court at the behest of the independent resolution professional upon commencement of an insolvency proceeding may act as a strong ex ante deterrent.

We rely on the company classification table provided by CMIE to identify whether the firm belongs to a business group. CMIE monitors business groups and any changes in their structure, associating a company with a business group or any ownership class (Prowess Manual, December 29, 2020). Table 8 reports the results for the effect of IBC on financing RPTs (*FINANCE_RPT*) and RPT loans inflows (*RPT_LOANS_IN*) for business-group and non-group firms, respectively. The coefficients on the interaction terms, $TREAT \times POST$, are negative and are statistically significant across columns within the full sample. We notice that the regression coefficients of $TREAT \times POST$ are not significantly different across columns (1) and (5) (p -value = 0.6117). However, the estimated coefficients are larger for the business group firms than for standalone firms (columns (1) and (5)), suggesting that IBC affects both types of firms but has a more substantial impact on business group firms.^{22, 23}

5. Conclusions

Non-arm's-length business and personal transactions between a firm and its related parties, or related-party transactions (RPTs), are prevalent in emerging economies. RPTs can fulfill legitimate business needs in less developed markets. However, RPTs are often used opportunistically and reflect self-dealing by firm insiders and their related parties at the expense of external capital providers and minority shareholders. This study is the first to examine the effect of *creditor rights* on RPTs. Specifically, we investigate whether enhanced creditor rights affect RPTs, mainly financing RPT, using detailed

²² Following Bertrand et al. (2002), we further use the propagation of earnings shocks to detect tunneling activities within business groups. Bertrand et al. (2002) find that when business group firms experience earnings shocks, they tend to tunnel resources from entities in which they have low cash-flow rights to entities in which they have high cash-flow rights. Consistent with our expectations, in untabulated analyses, we find that business group entities with high cash-flow rights are more sensitive to earnings shocks pre-IBC, but are less sensitive to the propagation of earnings shocks post-IBC. These findings further reinforce our arguments that IBC implementation is associated with a reduction of RPT-driven tunneling activities.

²³ As tunneling could also occur through operating RPTs, we additionally consider potential effects on operating RPTs. However, in untabulated analyses, contrary to the tunneling results observed for financing RPTs, we observe a significant increase in the use of operating RPTs by the treated firms in the post-period. We conjecture that the findings reflect IBC's unfavorable treatment of operational creditors unintentionally driving firms towards conducting more operational RPTs (e.g., Datta 2018; Ho and Banerjee 2018).

information of types of RPTs from India. We use the enactment of the Insolvency and Bankruptcy Code (IBC) in 2016 as a shock to the rights of external creditors. Consistent with stronger creditor rights deterring opportunistic RPTs and making arm's-length external financing more attractive, in difference-in-differences analyses with firm fixed effects, we find that firms with greater reliance on unsecured credit (i.e., the treatment firms) reduce their reliance on financing RPT following the implementation of IBC. Cross-sectional analyses further suggest that the effects of creditor rights on RPTs are amplified for private firms that face greater financing constraints and are muted in the presence of strong corporate governance. Lastly, we document that IBC has a more significant effect on RPTs of firms affiliated with business groups.

We note that our findings are subject to empirical identification caveats, as IBC also incrementally benefits financial creditors with undercollateralized loans. However, we find similar results when we use total debt to equity to alternatively classify treatment and control groups. This alternative approach, along with assessing the parallel-trend assumption and employing entropy balancing analyses, provides comfort that the identification limitations of one specific empirical approach do not significantly affect our overall conclusions.

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Appendix A. Sample Selection

	# of obs.
1. Financial statement data from CIME Prowess December 2022 Vintage for 2011-2021	358,078
2. Sample after excluding firms in finance and utility industries	274,145
3. Sample after including firms with entity type “Public Ltd.” or “Private Ltd.”	271,167
4. Sample after merging with related party transaction table from CIME Prowess	203,577
5. Sample from 2012-2021 after constructing lagged variables using 2021 data	176,057
6. Baseline sample with non-missing values for variables used in main analyses from 2012 -2021	106,840

Appendix B. Variable Definitions

RPT Variables

We classify RPTs into groups based on transaction types: Total RPT, Total RPT inflows, Total RPT outflows, Financing RPT, Financing RPT inflows, and financing RPT outflows.

RPT Variables	Data item names in Prowess	Description in Prowess
<i>TOTAL_RPT</i>	The sum of the following items divided by lagged total assets:	
	rpt_dividend_exp	“Payment for dividend”
	rpt_interest_inc	“Interest income from related parties”
	rpt_dividend_inc	“Dividend income from related parties”
	rpt_interest_exp	“Payment for interest”
	rpt_share_cap_in_yr	“Share capital issued during the year”
	rpt_sales	“Total capital receipts”
	rpt_purchases	“Total capital account payments”
	rpt_borr_recv_during_year	“Borrowings received during the year”
	rpt_loans_advances_given_during_	“Loans & advances given during the year”
	rpt_gaurantees_given_in_yr	“Guarantees given during the year”
	rpt_gaurantees_taken_in_yr	“Guarantees taken during the year”
	rpt_borr_unclass	“Loans not specified as given or received”
	rpt_dividend_unclass	“Dividends not specified as given or received”
	rpt_interest_unclass	“Interest not specified as given or received”
	rpt_borr_unclass	“Loans not specified as given or received”
	rpt_dividend_unclass	“Dividends not specified as given or received”
	rpt_goods_n_services_inc	"Income from sale of goods to related parties"
	rpt_operating_inc	"Income from services to related parties"
	rpt_rent_inc	"Rent income from related parties"
	rpt_reimbursement_inc	"Reimbursement of expenses by related party"
	rpt_other_inc	"Other income from related parties"
	rpt_raw_material_exp	"Payment for raw material/fin. goods"
	rpt_energy_exp	"Payment for energy, power and fuel"
	rpt_wages_exp	"Payment for salaries and wages to related parties"
	rpt_marketing_exp	"Payment for marketing expenses"
	rpt_processing_exp	"Payment for processing charges/jobworks"
	rpt_rent_exp	"Payment for rent"
	rpt_royalty_exp	"Payment for royalties/technical know-how fees"

rpt_reimbursement_exp	"Expenses reimbursed to related party"
rpt_other_exp	"Payment for other revenue expenses"
rpt_operating_exp	"Payment for other operating expenses"
rpt_rent_unclass	"Rent not specified as given or received"
rpt_services_unclass	"Services not specified as given or received"
rpt_other_unclass	"Other transactions"

TOTAL_RPT_IN The sum of the following items divided by lagged total assets:
rpt_goods_n_services_inc, rpt_operating_inc, rpt_rent_inc,
rpt_reimbursement_inc, rpt_other_inc, rpt_interest_inc, rpt_dividend_inc,
rpt_sales, rpt_gaurantees_taken_in_yr, rpt_borr_rcv_during_year,
rpt_share_cap_in_yr

TOTAL_RPT_OUT The sum of the following items divided by lagged total assets:
rpt_raw_material_exp, rpt_energy_exp, rpt_marketing_exp_r_wl,
rpt_processing_exp, rpt_rent_exp, rpt_royalty_exp, rpt_reimbursement_exp,
rpt_other_exp, rpt_operating_exp, rpt_dividend_exp, rpt_interest_exp,
rpt_loans_advances_given_during_, rpt_gaurantees_given_in_yr, rpt_purchases

Financing RPT
FINANCE_RPT

The sum of the following items divided by lagged total assets: rpt_dividend_exp,
rpt_interest_inc, rpt_dividend_inc, rpt_interest_exp, rpt_share_cap_in_yr,
rpt_sales, rpt_purchases, rpt_borr_rcv_during_year,
rpt_loans_advances_given_during_, rpt_gaurantees_given_in_yr,
rpt_gaurantees_taken_in_yr, rpt_borr_unclass, rpt_dividend_unclass,
rpt_interest_unclass, rpt_borr_unclass, rpt_dividend_unclass

RPT_FINANCE_IN The sum of the following items divided by lagged total assets: rpt_interest_inc,
rpt_dividend_inc, rpt_sales, rpt_gaurantees_taken_in_yr,
rpt_borr_rcv_during_year, rpt_share_cap_in_yr

RPT_FINANCE_OUT The sum of the following items divided by lagged total assets: rpt_dividend_exp,
rpt_interest_exp, rpt_loans_advances_given_during_,
rpt_gaurantees_given_in_yr, rpt_purchases

Operating RPT
OPERATING_RPT

TOTAL_RPT minus *FINNANCE_RPT*

Subcategories: all items are divided by lagged total assets

RPT_LOANS_IN	rpt_borr_rcv_during_year	"Borrowings received during the year"
RPT_CAPITAL_IN	rpt_share_cap_in_yr	"Share capital issued during the year"

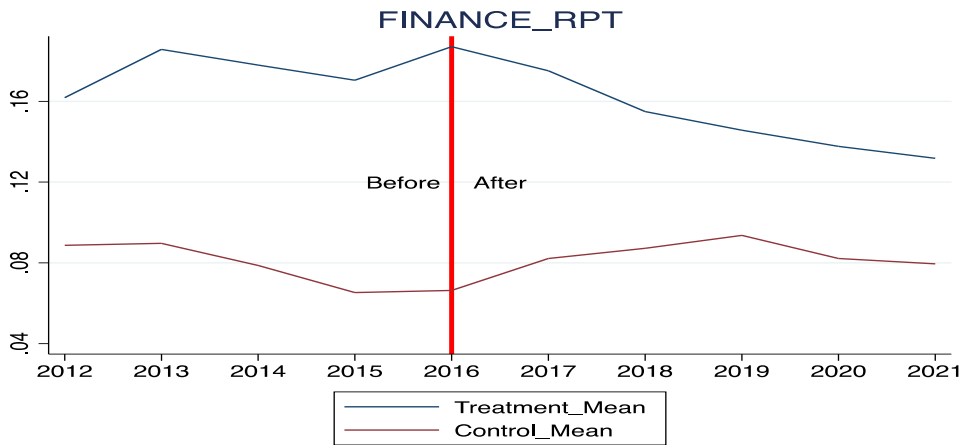
<i>RPT_LOANS_OUT</i>	rpt_loans_advances_given_during_	“Loans & advances given during the year”
<i>RPT_CAPITAL_OUT</i>	rpt_purchases	“Total capital account payments”
Other Variables	Definition	Data Item Names in Prowess or Otherwise Specified
<i>TOTAL_ASSETS</i>	Sum of all current and non-current assets, in millions INR	total_assets
<i>UNSECURE</i>	Total unsecured borrowing divided by total assets. Specifically, unsecured borrowings include fixed deposits, unsecured Bank borrowings, unsecured borrowings from financial institutions, unsecured borrowings syndicated across banks & institutions, unsecured debentures and bonds, unsecured deferred credit, unsecured borrowings from central & state govt, unsecured foreign currency borrowings, unsecured inter-corporate loans, unsecured loans from promoters, directors and shareholders, commercial papers, sub-ordinated debt (banks and finance companies), interest accrued and due (un-secured borrowings), and other unsecured borrowings	unsecured_borrowings
<i>TREAT</i>	Indicator variable takes value of 1 if firms belong to the treatment group, and 0 otherwise. Firms whose average unsecured debt ratio (<i>UNSECURE</i>) in the three-year pre-event periods is above (below) the median belong to the treatment (control) group	
<i>TREAT2</i>	Indicator variable takes value of 1 if firms belong to the treatment group, and 0 otherwise. Firms whose average debt over equity ratio in the three-year pre-event periods is above (below) the median belong to the treatment (control) group	
<i>POST</i>	POST is an indicator variable that takes value of 1 (0) if years are in the post (pre) - IBC period: 2017-2021 (2012-2016).	
<i>LEVERAGE</i>	The sum of short-term and long-term borrowings from banks over total assets	lt_borrowing_from_banks, short_term_bank_borrowings

<i>LEVERAGE_EX_RPT SIZE</i>	<i>LEVERAGE</i> minus <i>RPT_LOANS_IN</i> The natural logarithm of <i>Total Assets</i> plus one at the period end	total_assets
<i>CFO</i>	Net cash flow from operating activities divided by total assets	cf_net_frm_op_activity
<i>ROA</i>	Profit before tax divided by total assets	pbt
<i>YTM</i>	Weighted yield to maturity of a debt security traded on National Stock Exchange.	nse_wcdm_weighted_ytm
<i>BUSINESS_GROUP</i>	Indicator variable that equals one if the ownership description includes “group” and takes zero otherwise	owner_gp_name
<i>INSTITU</i>	The percentage ownership by institutional investors	institutions_pct, non_inst_corpt_bodies_pct
<i>INDEP</i>	Board Independence, measured as the number of independent directors divided by the total number of directors	indep_non_indep_category
<i>AUDITCOM</i>	The number of audit committee members divided by the total number of members on the board. Audit committee members are classified as the committee name that contains “Audit.”	committee_name
<i>PUBLIC_FIRM</i>	Indicator variable that equals one if the entity type is “Public Ltd.” and zero if the entity type is “Private Ltd.”	entity_type
<i>PRE_TOTAL_RPT_G</i>	The average of pretreatment <i>TOTAL_RPT</i> growth rate from year 2012 to 2016. The growth rate is calculated as $(TOTAL_RPT_t - TOTAL_RPT_{t-1}) / ((TOTAL_RPT_t + TOTAL_RPT_{t-1})/2)$	Authors’ Calculations
<i>PRE_FINANCE_RPT_G</i>	The average of pretreatment <i>FINANCE_RPT</i> growth rate from 2012 to 2016. The growth rate is $(FINANCE_RPT_t - FINANCE_RPT_{t-1}) / ((FINANCE_RPT_t + FINANCE_RPT_{t-1})/2)$	Authors’ Calculations

Figure 1 Time-Series Averages for Financing RPTs and RPT Loans Inflows

This figure plots the time-series averages of *FINANCE_RPT* (Panel A) and *RPT_LOANS_IN* (Panel B) for both treatment and control groups from 2012 to 2021. The sample is divided into two groups based on firms' unsecured debt ratio (*UNSECURE*). Firms whose average unsecured debt ratio in the three years prior to the implementation of the Insolvency and Bankruptcy Code (IBC) is above (below) the median are assigned to the treatment (control) group, respectively. Variable definitions are in Appendix B. All ratio variables are winsorized at the 1% and 99% level.

Panel A. Time-Series Averages for Financing RPTs (*FINANCE_RPT*)



Panel B. Time-Series Averages for RPT Loan Inflows (*RPT_LOANS_IN*)

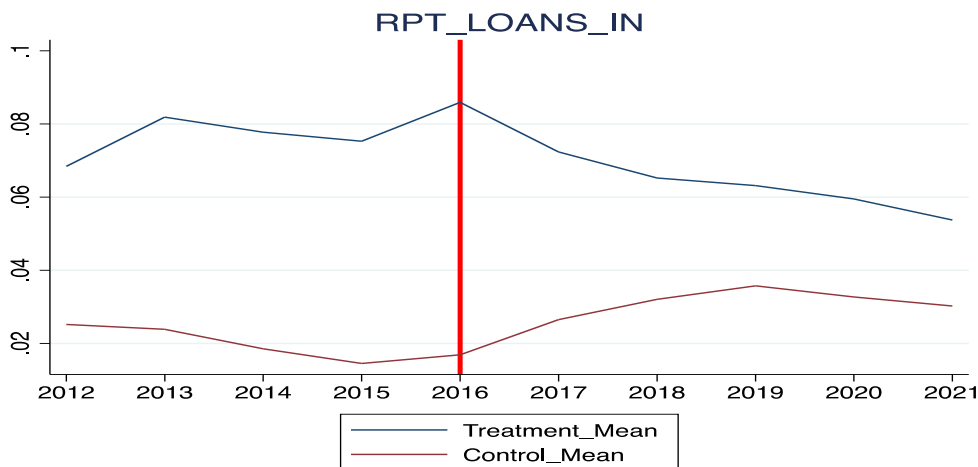
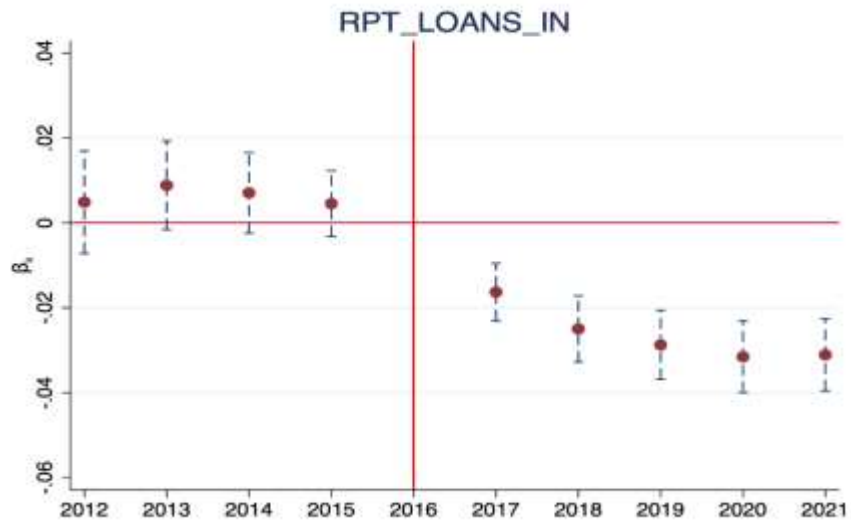


Figure 2 Counter-Factual Treatment Effect

This figure presents the coefficients and 95% confidence intervals for the four years before and five years after the IBC by estimating equation (2). The outcome variables are financing RPTs (*FINANCE_RPT*) and RPT loan inflows (*RPT_LOANS_IN*) in Panels A and B, respectively. Year 2016 is set as the benchmark year. Variable definitions are in Appendix B. All ratio variables are winsorized at the 1% and 99% levels.

Panel A



Panel B

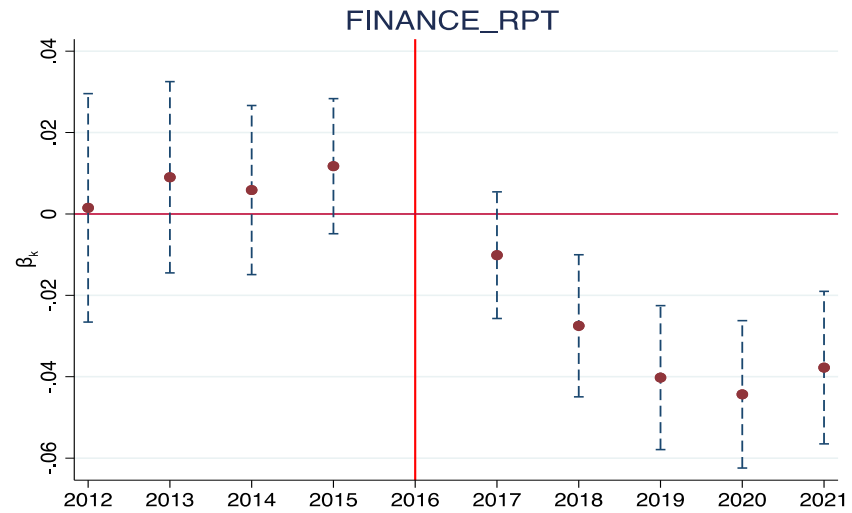


Table 1: Sample Composition by Industry

This table presents the sample composition by industry.

Industry	No. Obs	Percent	Cum.
Agriculture, Forestry and Fishing	1,721	1.61	1.61
Mining and Quarrying	1,019	0.95	2.56
Manufacturing	51,112	47.84	50.4
Construction	9,402	8.8	59.2
Wholesale and Retail	19,502	18.25	77.46
Transportation and Storage	4,454	4.17	81.63
Accommodation and Food	2,249	2.11	83.73
Information and Communication	6,023	5.64	89.37
Professional, Scientific, and Technical Activities	3,087	2.89	92.26
Admins, Education, Health, Social Work, Arts, and Other	8,271	7.74	100
Total	106,840	100	

Table 2. Descriptive Statistics**Panel A. Full Sample**

This panel presents descriptive statistics for the variables used in the main analyses. The data are obtained from the Prowess database maintained by CMIE. Our final sample spans 2012-2021. Variable definitions are in Appendix B. All ratio variables are winsorized at the 1% and 99% levels.

Variable	No. Obs	Mean	SD	P25	Median	P75
TOTAL_RPT	106,840	0.4160	0.7610	0.0280	0.1250	0.4340
TOTAL_RPT_IN	106,840	0.1950	0.4080	0.0000	0.0260	0.1690
TOTAL_RPT_OUT	106,840	0.1460	0.3070	0.0010	0.0240	0.1290
FINANCE_RPT	106,840	0.1240	0.3310	0.0000	0.0090	0.0780
FINANCE_RPT_IN	106,840	0.0690	0.2060	0.0000	0.0000	0.0270
RPT_LOANS_IN	106,840	0.0440	0.1420	0.0000	0.0000	0.0080
RPT_CAPITAL_IN	106,840	0.0040	0.0230	0.0000	0.0000	0.0000
FINANCE_RPT_OUT	106,840	0.0420	0.1270	0.0000	0.0010	0.0190
RPT_LOANS_OUT	106,840	0.0160	0.0600	0.0000	0.0000	0.0000
RPT_CAPITAL_OUT	106,840	0.0070	0.0310	0.0000	0.0000	0.0000
LEVERAGE	106,831	0.1620	0.1920	0.0000	0.0920	0.2700
LEVERAGE_EX_RPT	106,831	0.1180	0.2450	0.0000	0.0670	0.2500
UNSECURE (Treat)	31,862	0.4750	0.7570	0.1390	0.2400	0.4690
UNSECURE (Control)	65,688	0.1620	0.4760	0.0200	0.0490	0.1130
SIZE (log)	106,840	6.8070	2.0460	5.5330	6.8340	8.1560
CFO	106,840	0.0360	0.1670	-0.0140	0.0430	0.1110
ROA	106,840	0.0120	0.1650	-0.0080	0.0220	0.0740
YTM	211	8.5310	1.3840	7.8280	8.7170	9.5400
INSTITU	106,840	0.0340	0.0850	0.0000	0.0000	0.0000
INDEP	99,384	0.0690	0.0980	0.0000	0.0000	0.1470
AUDITCOM	99,384	0.0750	0.1020	0.0000	0.0000	0.1670
BUSINESS_GROUP	67,880	0.3980	0.4890	0.0000	0.0000	1.0000
PUBLIC_FIRM	106,840	0.5700	0.4950	0.0000	1.0000	1.0000

Table 2. Panel B. Change in Outcome Variables from the Pre-Treatment to the Post-Treatment Period Treatment between (*HIG_UNSECURED*) vs Control (*LOW_UNSECURED*) Groups

This panel presents the means of treatment and control groups in the pre-event and post-event periods. Pre-event years are 2012-2016 and post-event years are 2017-2021. We divide the sample into two groups based on firms' unsecured debt ratio (UNSECURE). Firms whose average unsecured debt ratio in the pre-event years is above (below) the median belong to the treatment (control) group. Unsecured debt ratio is total unsecured debt to total assets. Appendix B provides detailed variables definitions. "Univariate DiD" in Column (7) equals [(column3 – column 2) – (column 6 – column 5)]. Column (8) reports the t-statistics for the "Univariable DiD" test.

	Treatment			Control			(7) Univariate DiD	(8) t-statistics
	(1) No. Obs	(2) Pre. Mean	(3) Post.Mean	(4) No. Obs	(5) Pre. Mean	(6) Post.Mean		
TOTAL_RPT	31,862	0.519	0.485	74978	0.392	0.374	-0.016	-1.519
TOTAL_RPT_IN	31,862	0.256	0.234	74978	0.180	0.170	-0.012	-2.107
TOTAL_RPT_OUT	31,862	0.173	0.157	74978	0.150	0.132	0.002	0.559
FINANCE_RPT	31,862	0.217	0.160	74978	0.100	0.097	-0.054	-11.958
FINANCE_RPT_IN	31,862	0.134	0.096	74978	0.045	0.053	-0.045	-16.114
RPT_LOANS_IN	31,862	0.095	0.067	74978	0.021	0.034	-0.041	-21.696
RPT_CAPITAL_IN	31,862	0.006	0.004	74978	0.004	0.003	-0.001	-2.418
FINANCE_RPT_OUT	31,862	0.061	0.048	74978	0.044	0.034	-0.004	-2.516
RPT_LOANS_OUT	31,862	0.020	0.016	74978	0.017	0.013	0.000	0.435
RPT_CAPITAL_OUT	31,862	0.010	0.006	74978	0.008	0.006	-0.001	-3.251

Table 3. The Effect of IBC on Total RPTs

This table presents regression results for equation (1): $Y_{i,t} = \alpha_i + \beta_1 TREAT_i \times POST_t + CONTROLS_{i,t-1} + \delta_{i,t} + \mu_{i,t}$

Here, *i* and *t* are subscripts for firm and year, respectively. The dependent variable, $Y_{i,t}$, is a set of outcome variables including total RPTs (*TOTAL_RPT*), total RPT inflows (*TOTAL_RPT_IN*), and total RPT outflows (*TOTAL_RPT_OUT*). *TREAT* is an indicator variable that takes a value of 1 (0) if the firm is in the treatment (control) group. We divide the sample into two groups based on firms unsecured debt ratio (*UNSECURE*). Firms whose average unsecured debt ratio in the three-year pre-event periods is above (below) the median belong to the treatment (control) group. *POST* is an indicator variable that takes value of 1 (0) if years are in the post (pre) -IBC period: 2017-2021 (2012-2016). $\mu_{i,t}$ is the error term. All variables are defined in the Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Panel A. Total RPTs

VARIABLES	(1)	(2)	(3)
	TOTAL_RPT	TOTAL_RPT	TOTAL_RPT Entropy Bal.
TREAT×POST	0.0057 (0.0132)	-0.0112 (0.0131)	0.0066 (0.0143)
SIZE (log)		-0.2438*** (0.0121)	-0.2419*** (0.0150)
CFO		0.0021 (0.0234)	-0.0180 (0.0320)
ROA		-0.0498 (0.0330)	-0.0979** (0.0429)
Constant	0.4919*** (0.0096)	2.0531*** (0.0791)	2.0733*** (0.0983)
Observations	106,840	106,840	93,856
Adj. R-squared	0.5705	0.5929	0.5847
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes

Panel B. Total RPT Inflows and Outflows

VARIABLES	(1)	(2)	(3)	(4)
	TOTAL_RPT_IN	TOTAL_RPT_OUT	TOTAL_RPT_IN	TOTAL_RPT_OUT
			Entropy Bal.	
TREAT×POST	-0.0157** (0.0067)	-0.0001 (0.0048)	-0.0092 (0.0071)	0.0033 (0.0051)
SIZE (log)	-0.0882*** (0.0054)	-0.0590*** (0.0039)	-0.0855*** (0.0065)	-0.0565*** (0.0046)
CFO	-0.0048 (0.0115)	0.0035 (0.0079)	-0.0156 (0.0152)	0.0040 (0.0097)
ROA	-0.0256 (0.0159)	0.0258** (0.0108)	-0.0480** (0.0192)	0.0168 (0.0132)
Constant	0.7947*** (0.0354)	0.5527*** (0.0256)	0.7969*** (0.0425)	0.5406*** (0.0298)
Observations	106,840	106,840	93,856	93,856
Adj. R-squared	0.6232	0.6169	0.6108	0.6119
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Table 4. The Effect of IBC on Financing RPTs

This table presents regression results for equation (1): $Y_{i,t} = \alpha_i + \beta_1 TREAT_i \times POST_t + CONTROLS_{i,t-1} + \delta_{i,t} + \mu_{i,t}$

Here, i and t are subscripts for firm and year, respectively. The dependent variable, $Y_{i,t}$, is the outcome variable, Financing RPTs ($FINANCE_RPT$), Financing RPT inflows ($FINANCE_RPT_IN$), and outflows ($FINANCE_RPT_OUT$). $TREAT$ is an indicator variable that takes a value of 1 (0) if the firm is in the treatment (control) group. We divide the sample into two groups based on firms unsecured debt ratio ($UNSECURE$). Firms whose average unsecured debt ratio in the three-year pre-event periods is above (below) the median belong to the treatment (control) group. $POST$ is an indicator variable that takes value of 1 (0) if years are in the post (pre) -IBC period: 2017-2021 (2012-2016). $\mu_{i,t}$ is the error term. All variables are defined in Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Panel A. Financing RPTs

VARIABLES	(1)	(2)	(3)
	FINANCE_RPT	FINANCE_RPT	FINANCE_RPT Entropy Bal.
TREAT×POST	-0.0322*** (0.0064)	-0.0365*** (0.0063)	-0.0201*** (0.0074)
SIZE (log)		-0.0927*** (0.0056)	-0.1067*** (0.0075)
CFO		-0.0314*** (0.0116)	-0.0464*** (0.0176)
ROA		-0.0774*** (0.0171)	-0.0809*** (0.0231)
Constant	0.1655*** (0.0051)	0.7620*** (0.0363)	0.9023*** (0.0488)
Observations	106,840	106,840	87,389
Adj. R-squared	0.4080	0.4272	0.4457
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes

Panel B. Financing RPT Inflows (*FINANCE_RPT_IN*)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	RPT_FINANCE_IN	RPT_FINANCE_IN	RPT_LOANS_IN	RPT_CAPITAL_IN	RPT_FINANCE_IN
	Full Sample				Entropy Bal.
TREAT×POST	-0.0302*** (0.0041)	-0.0315*** (0.0040)	-0.0207*** (0.0026)	-0.0012*** (0.0004)	-0.0244*** (0.0047)
SIZE (log)		-0.0491*** (0.0036)	-0.0262*** (0.0021)	-0.0026*** (0.0003)	-0.0563*** (0.0047)
CFO		-0.0296*** (0.0074)	-0.0191*** (0.0052)	-0.0024*** (0.0007)	-0.0422*** (0.0109)
ROA		-0.0677*** (0.0107)	-0.0445*** (0.0073)	-0.0030*** (0.0011)	-0.0701*** (0.0138)
Constant	0.0912*** (0.0031)	0.4083*** (0.0233)	0.2272*** (0.0144)	0.0221*** (0.0024)	0.4883*** (0.0309)
Observations	106,840	106,840	106,840	106,840	87,389
Adj. R-squared	0.3870	0.4029	0.4223	0.2396	0.4205
Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes

Panel C. Financing RPT Outflows (*FINANCE_RPT_OUT*)

VARIABLES	(1) RPT_FINANCE_ OUT	(2) RPT_FINANCE_ OUT	(3) RPT_LOANS_OUT	(4) RPT_CAPITAL_OUT	(5) RPT_FINANCE_OUT Entropy Bal.
TREAT×POST	-0.0014 (0.0024)	-0.0030 (0.0024)	0.0014 (0.0011)	-0.0022*** (0.0006)	0.0029 (0.0028)
SIZE (log)		-0.0209*** (0.0019)	-0.0038*** (0.0008)	-0.0033*** (0.0005)	-0.0239*** (0.0024)
CFO		-0.0002 (0.0041)	-0.0002 (0.0018)	-0.0002 (0.0008)	-0.0006 (0.0058)
ROA		0.0036 (0.0057)	0.0116*** (0.0022)	0.0043*** (0.0011)	0.0033 (0.0073)
Constant	0.0574*** (0.0022)	0.1913*** (0.0126)	0.0459*** (0.0051)	0.0304*** (0.0030)	0.2223*** (0.0157)
Observations	106,840	106,840	106,840	106,840	87,389
Adj. R-squared	0.3533	0.3590	0.3733	0.2256	0.3643
Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes

Table 5. Implications of IBC for Financing Access and Costs

This table presents regression results for: $Y_{i,t} = \alpha_i + \beta_1 TREAT_i \times POST_t + CONTROLS_{i,t-1} + \delta_t + \mu_{i,t}$

Here, i and t are subscripts for firm and year, respectively. The dependent variable, $Y_{i,t}$ is a set of outcome variables including leverage ratio (*LEVERAGE*), yield-to-maturity (*YTM*), and leverage excluding RPT loans inflows (*LEVERAGE_EX_RPT*). *TREAT* is an indicator variable that takes a value of 1 (0) if the firm is in the treatment (control) group. We divide the sample into two groups based on firms unsecured debt ratio (*UNSECURE*). Firms whose average unsecured debt ratio in the three-year pre-event periods is above (below) the median belong to the treatment (control) group. *POST* is an indicator variable that takes value of 1 (0) if years are in the post (pre) -IBC period: 2017-2021 (2012-2016). $\mu_{i,t}$ is the error term. All variables are defined in Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Panel A. Leverage Ratio and Borrowing Costs

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	LEVERAGE	LEVERAGE	LEVERAGE	YTM	YTM	YTM
	Full Sample		Entropy Bal.	Full Sample		Entropy Bal.
TREAT×POST	-0.0049 (0.0031)	-0.0007 (0.0030)	-0.0043 (0.0033)	-0.9220* (0.5025)	-1.2319*** (0.4138)	-1.2247*** (0.4507)
SIZE (log)		0.0214*** (0.0017)	0.0226*** (0.0021)		-2.0785 (1.6597)	-1.7795 (1.8240)
CFO		-0.0178*** (0.0037)	-0.0142*** (0.0051)		-0.1255 (0.7182)	0.2082 (0.6843)
ROA		-0.1025*** (0.0061)	-0.0997*** (0.0076)		-1.6399 (5.2263)	-2.1729 (3.3141)
Constant	0.1789*** (0.0021)	0.0459*** (0.0104)	0.0353*** (0.0131)	9.7065*** (0.1517)	33.0319* (18.7377)	29.9891 (20.6933)
Observations	106,831	106,831	87,384	211	211	205
Adj. R-squared	0.7242	0.7301	0.7054	0.6390	0.6489	0.7221
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Leverage Ratio Excluding RPT Loans Inflows (*RPT_LOANS_IN*)

VARIABLES	(1)	(2)	(3)
	LEVERAGE_EX_ RPT	LEVERAGE_EX_ RPT	LEVERAGE_EX_ RPT
			Entropy Bal.
TREAT×POST	0.0250*** (0.0043)	0.0298*** (0.0042)	0.0263*** (0.0047)
SIZE (log)		0.0492*** (0.0029)	0.0555*** (0.0039)
CFO		0.0010 (0.0065)	0.0125 (0.0092)
ROA		-0.0598*** (0.0098)	-0.0532*** (0.0124)
Constant	0.1207*** (0.0029)	-0.1916*** (0.0189)	-0.2575*** (0.0253)
Observations	106,966	106,966	87,384
Adj. R-squared	0.6194	0.6279	0.6017
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes

Table 6. Financing RPTs and Corporate Governance

This table presents the results for the following regression specification:

$$Y_{i,t} = \beta_1 TREAT_i \times POST_t + \beta_2 Z_i \times POST_t + \beta_3 Z_i \times TREAT_i \times POST_t + CONTROLS_{i,t-1} + FIRM FE + YEAR FE + \mu_i$$

Here, i indexes firms and t indexes time. The dependent variables are Financing RPTs ($FINANCE_RPT$) and RPT loans inflows (RPT_LOANS_IN) in Panels A and B, respectively. $TREAT$ is an indicator variable that takes a value of 1 (0) if the firm is in the treatment (control) group. We divide the sample into two groups based on firms unsecured debt ratio ($UNSECURE$). Firms whose average unsecured debt ratio in the pre-event years is above (below) the median belong to the treatment (control) group. $POST$ is an indicator variable that takes value of 1 (0) if years are in the post (pre)- IBC period. Pre-event (Post-event) years are 2012-2016 (2017-2021). Z_i is a continuous variable that proxies for one of the corporate governance variables including independent board ($INDEP$), institutional ownership ($INSTITU$), audit committee ($AUDITCOM$). It is calculated as the 3-year average in the pre-event years 2014-2016. Our variable of interest is β_4 , which captures the triple differences-in-differences (DiDiD) effect. Control variables include logarithm of total assets plus one ($SIZE$), operating cash flow (CFO), and return on assets (ROA). $\mu_{i,t}$ is the error term. All variables are defined in Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Panel A. Financing RPTs and Corporate Governance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	FINANCE_RPT	FINANCE_RPT	FINANCE_RPT	FINANCE_RPT	FINANCE_RPT	FINANCE_RPT
	Public Firms Sample			Entropy Balancing		
TREAT×POST	-0.0485*** (0.0140)	-0.0368*** (0.0098)	-0.0568*** (0.0146)	-0.0367* (0.0193)	-0.0292** (0.0125)	-0.0465** (0.0199)
INDEPTREAT×POST	0.2102** (0.0889)			0.1685 (0.1158)		
INSTITU×TREAT×POST		0.1845** (0.0753)			0.1816** (0.0886)	
AUDITCOM×TREAT×POST			0.2492*** (0.0926)			0.2199* (0.1216)
Constant	0.7643*** (0.0476)	0.7508*** (0.0469)	0.7645*** (0.0476)	0.9745*** (0.0670)	0.9553*** (0.0664)	0.9747*** (0.0669)

Observations	56,183	57,958	56,183	43,695	44,619	43,695
Adj. R-squared	0.4300	0.4275	0.4300	0.4527	0.4510	0.4526
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sample	Public	Public	Public	Public	Public	Public

Panel B. RPT Loans inflow (*RPT_LOANS_IN*) and Corporate Governance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN
	Public Firms Sample			Entropy Balancing		
TREAT×POST	-0.0415*** (0.0061)	-0.0323*** (0.0043)	-0.0398*** (0.0065)	-0.0468*** (0.0085)	-0.0370*** (0.0053)	-0.0422*** (0.0091)
INDEP×TREAT×POST	0.1474*** (0.0400)			0.1604*** (0.0521)		
INSTITU×TREAT×POST		0.1092*** (0.0259)			0.1263*** (0.0314)	
AUDITCOM×TREAT×POST			0.1167*** (0.0411)			0.1056* (0.0556)
Constant	0.2217*** (0.0207)	0.2176*** (0.0202)	0.2218*** (0.0207)	0.2860*** (0.0297)	0.2813*** (0.0293)	0.2858*** (0.0297)
Observations	56,183	57,958	56,183	46,226	47,194	46,226
Adj. R-squared	0.4306	0.4300	0.4304	0.4443	0.4448	0.4440
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Sample	Public	Public	Public	Public	Public	Public

Table 7. Effect of IBC on Financing RPTs for Public vs. Private Firms

This table presents the sub-sample analyses for public and private firms. The dependent variable is financing RPT (*FINANCE_RPT*) and RPT loans inflows (*RPT_LOANS_IN*) in Panels A and B, respectively. Columns (1) and (2) show the results for the public firm sample and Columns (3) and (4) show the results for the private firm sample. All variables are defined in Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Panel A. Financing RPTs for Public vs. Private Firms

VARIABLES	(1) FINANCE_RPT	(2) FINANCE_RPT	(3) FINANCE_RPT	(4) FINANCE_RPT
	Public Firms Sample		Private Firms Sample	
		Entropy Bal.		Entropy Bal.
TREAT×POST	-0.0285*** (0.0084)	-0.0138 (0.0098)	-0.0469*** (0.0096)	-0.0260** (0.0115)
SIZE (log)	-0.0895*** (0.0068)	-0.1080*** (0.0088)	-0.0977*** (0.0098)	-0.1052*** (0.0136)
ROA	-0.0635*** (0.0218)	-0.0679** (0.0292)	-0.1013*** (0.0276)	-0.1010*** (0.0368)
CFO	-0.0272 (0.0167)	-0.0491* (0.0257)	-0.0345** (0.0160)	-0.0378 (0.0230)
Constant	0.7571*** (0.0457)	0.9230*** (0.0584)	0.7743*** (0.0607)	0.8881*** (0.0857)
Observations	60,920	51,839	45,920	35,550
Adj. R-squared	0.4332	0.4585	0.4191	0.4267
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Panel B. RPT Loans Inflow (*RPT_LOANS_IN*) for Public vs. Private Firms

	(1)	(2)	(3)	(4)
VARIABLES	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN	RPT_LOANS_IN
	Public Firms Sample		Private Firms Sample	
		Entropy Bal.		Entropy Bal.
TREAT×POST	-0.0269*** (0.0037)	-0.0271*** (0.0042)	-0.0355*** (0.0042)	-0.0359*** (0.0051)
SIZE (log)	-0.0256*** (0.0029)	-0.0314*** (0.0039)	-0.0314*** (0.0040)	-0.0353*** (0.0056)
ROA	-0.0434*** (0.0092)	-0.0416*** (0.0117)	-0.0427*** (0.0122)	-0.0523*** (0.0162)
CFO	-0.0293*** (0.0075)	-0.0386*** (0.0108)	-0.0071 (0.0072)	-0.0102 (0.0104)
Constant	0.2255*** (0.0196)	0.2842*** (0.0257)	0.2592*** (0.0248)	0.3090*** (0.0349)
Observations	60,920	51,839	45,920	35,550
Adj. R-squared	0.4376	0.4513	0.4027	0.4055
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Table 8. The Effect of IBC on Financing RPTs for Business-Group vs. Non-Group Firms

This table presents the sub-sample analyses results for Business-Group firms and non-Group firms. The dependent variables are financing RPT (*FINANCE RPT*) in Columns (1) and (3) and RPT loans inflows (*RPT_LOANS_IN*) in Columns (2) and (4). All variables are defined in Appendix B. All ratio variables are winsorized at the 1% and 99% levels. Coefficients on the year and firm indicators are not tabulated for brevity. Robust standard errors (in parentheses) are adjusted for firm clustering. ***, **, and * denoted significance at the 1%, 5%, and 10% levels (two-tailed).

Sub-sample Analyses for Business-Group and Non-Group Firms

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FINANCE_ RPT	RPT_LOANS _IN	FINANCE_ RPT	RPT_LOANS _IN	FINANCE_ RPT	RPT_LOANS _IN	FINANCE_ RPT	RPT_LOANS _IN
	Business-Group Sample				Non-Group Sample			
			Entropy Bal.				Entropy Bal.	
TREAT× POST	-0.0455*** (0.0133)	-0.0433*** (0.0056)	-0.0235 (0.0153)	-0.0445*** (0.0068)	-0.0204** (0.0083)	-0.0217*** (0.0038)	-0.0097 (0.0099)	-0.0215*** (0.0044)
SIZE (log)	-0.0949*** (0.0093)	-0.0238*** (0.0040)	-0.0982*** (0.0118)	-0.0241*** (0.0051)	-0.0854*** (0.0075)	-0.0299*** (0.0032)	-0.1088*** (0.0107)	-0.0385*** (0.0046)
ROA	-0.1328*** (0.0301)	-0.0569*** (0.0122)	-0.1475*** (0.0398)	-0.0639*** (0.0150)	-0.0374 (0.0231)	-0.0369*** (0.0101)	-0.0245 (0.0309)	-0.0298** (0.0132)
CFO	-0.0411* (0.0247)	-0.0354*** (0.0112)	-0.0525 (0.0334)	-0.0421*** (0.0146)	-0.0136 (0.0169)	-0.0214*** (0.0074)	-0.0392 (0.0279)	-0.0295*** (0.0111)
Constant	0.9338*** (0.0670)	0.2531*** (0.0287)	0.9982*** (0.0830)	0.2762*** (0.0358)	0.6611*** (0.0482)	0.2338*** (0.0206)	0.8411*** (0.0685)	0.3031*** (0.0290)
Obs.	26,620	26,620	23,976	23,976	40,267	40,267	33,297	33,297
Adjusted R- squared	0.4462	0.4216	0.4499	0.4173	0.3944	0.4385	0.4209	0.4605
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes