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Creditor's Rights and the Persistence of Zombie Borrowing in India

The Insolvency and Bankruptcy Code (IBC) of 2016 in India aims to facilitate the exit of financially non-viable firms and address broader issues in credit dynamics. The time-bound procedures coupled with empowering creditors intend to curb the zombification of corporate firms, i.e., firms that remain operational despite the inability to service their debts out of current earnings over a long horizon. In this backdrop, the study aims to, first, analyse the present trends of firm zombification in India, and secondly, assess the impact of IBC reform on firm zombification. Finally, the study attempts to empirically examine the influence of the IBC on zombie borrowing in India.

in the pre-IBC period (Bhaduri and Selarka, 2022). In the post-reform era, we observe the persistence of firm zombification growth as well (Kulkarni et al., 2021). According to the RBI Bulletin¹, around 10% of non-financial firms in India are considered zombie firms. Moreover, it also claims a spurt in the borrowing of zombie firms at a lower cost, based on countercyclical policy support, which leads to inefficient credit allocation in the economy (Acharya et al., 2024). Their ongoing existence disrupts the competitive environment by undermining more efficient and capable firms, making it harder for new players to enter the market, and increasing the overall productivity difference in the economy. The rise of zombie firms poses a serious challenge to how resources are allocated and to achieving long-term economic efficiency (Caballero and Hammour, 2001). Lenders' weak screening incentives, reluctance to recognise non-performing assets, and other factors are responsible for the

continued credit growth of zombie firms despite the reform (Kulkarni et al., 2021). However, such phenomena are further amplified during COVID-19, based on regulatory forbearance and liquidity initiatives (although these are inevitable for systemic stability), which unintentionally support those financially non-viable firms, allowing more debt accumulation at a cheaper cost². Against this backdrop, the study aims to first analyse the present trends of corporate firm zombification in India (section 2) and, secondly, assess the impact of IBC reform on firm zombification (section 3). Finally, the study attempts to empirically examine the influence of the IBC on Zombie borrowing in India (section 4). Therefore, the study intends to show the impact of IBC reform, the current picture of firm zombification, and zombie borrowing in the Indian financial market, thereby offering some important insights to market participants, investors, researchers, and so on.

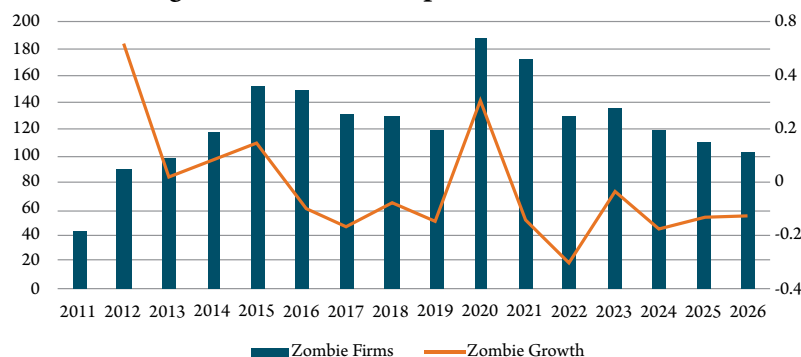
Introduction

The Insolvency and Bankruptcy Code (IBC) of 2016 in India aims to facilitate the exit of financially non-viable firms and address the broader issue of credit dynamics (IBBI, 2025). The time-bound procedures coupled with empowering creditors intend to curb the zombification of corporate firms, i.e., firms that remain operational despite the inability to service their debts out of current earnings over a long horizon (Caballero et al., 2008). However, prior studies exhibit a sudden surge in zombie borrowing (Figure 1)

¹ RBI Bulletin (2022), Zombies and the process of creative destruction. Weblink: https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/02AR_1702226379127C57444208BD066FEB3E8200F8.PDF

² Economic Times Report (2023), 'Share of zombie firms in India doubled between FY12 & FY22'. See Weblink: <https://economictimes.indiatimes.com/news/company/corporate-trends/share-of-zombie-firms-in-india-doubled-between-fy12-fy22/articleshow/97088588.cms?from=mdr>

Figure 1: Trends of Corporate Zombification



Source: Computed from the data collected from Prowess DX (2026)

Trends of Corporate Firm Zombification in India

To identify zombie firms, the paper adopts the criteria outlined in the RBI Bulletin (Pattanaik *et al.*, 2022). A firm is classified as a zombie if it simultaneously satisfies three conditions: an interest coverage ratio (ICR) below 1 (calculated as EBIT divided by interest expenses), positive debt growth, and leverage above the respective industry median. Firms not meeting these conditions are considered non-zombie.

Table 1 shows a significant rise in zombie firms between 2011 and 2015, with their share of all firms rising to 14.3% in 2015. This indicates the presence of firms with financial distress before the introduction of the IBC. After the reform, the proportion of zombie firms gradually decreased to 9.5% by 2019, reflecting a positive impact of the reform. However, in 2020, the zombie share jumped back up to 12.7% due to the expected impacts of COVID-19 and credit forbearance, revealing some

underlying weaknesses in the system. From 2021 to 2026, the zombie share continued to decline, hitting 6.01%, which points to a slow but steady return to financial discipline and potential benefits from the IBC reforms. In a nutshell, it indicates the potential effectiveness of the IBC in curbing corporate firm zombification since 2016. However, its usefulness is restricted by delays, weak enforcement, and strategic maneuvers by both lenders and borrowers. The study further compares the zombie and non-zombie firms using univariate statistics on key financial indicators like total assets, return on assets (ROA), cash profit, borrowing, and cost of debt. This analysis intends to highlight the fundamental differences in firm size, profitability, and financing behaviour between the two types of firms, thereby providing preliminary evidence of the distortions arising out of zombie lending. Therefore, the study has framed the following hypotheses:

H1: Zombie firms enjoy greater credit compared to non-zombie firms

H2: Zombie firms enjoy a lower cost of credit than non-zombie firms

The study has extracted yearly data for the period 2011-2026 from Prowess dx³. Identification of zombie firms follows the above-mentioned criteria of the RBI Bulletin⁴. The following estimations are done using univariate statistics. Table 2 presents a comparative analysis of mean borrowing (estimated via leverage) and the cost of debt for zombie and non-zombie firms over the entire study period. In addition, the same analysis is also conducted for total assets, return on assets (ROA), and cash profit ratio (cash profit-to-sales).

The findings show that the average borrowing (leverage) of zombie firms

Table 1: Trends of Corporate Firm Zombification

Year	Zombie Firms	Zombie Growth	Total Firms	Zombie Share (%)
2011	44	-	740	5.94
2012	89	0.704	817	10.89
2013	99	0.106	840	11.78
2014	118	0.176	921	12.81
2015	153	0.260	1067	14.33
2016	149	-0.026	1184	12.58
2017	132	-0.121	1237	10.67
2018	131	-0.008	1248	10.49
2019	119	-0.096	1257	9.46
2020	188	0.457	1476	12.73
2021	173	-0.083	1522	11.36
2022	130	-0.286	1614	8.05
2023	136	0.045	1707	7.96
2024	119	-0.134	1655	7.19
2025	110	-0.078	1685	6.53
2026	103	-0.065	1715	6.01

Source: Computed by Authors (2026)

³ Prowess dx is a web-based database from CMIE providing detailed financial and performance data on Indian companies. Weblink: <https://prowessdx.cmie.com>

⁴ RBI Bulletin (2022), Zombies and the process of creative destruction. Weblink: https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/02AR_1702226379127C57444208BD066FEB3E8200F8.PDF

Table 2: Univariate Statistics between zombie and non-zombie firms

	A. Zombie Firms	B. Non-Zombie firms	Mean Difference (T-test) (A-B)
Total Assets (Cr. in INR)	50910.96	85379.18	-34468.22*
ROA	-0.0844	0.1828	-0.2672***
Cash Profit Ratio	-42.7944	0.0506	-42.8450**
Leverage	0.8823	0.3301	0.5522***
Cost of Debt	0.0946	0.1307	-0.0361**

Source: Authors' computations using Stata 17 (2026)

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

(0.8823) significantly exceeds that of non-zombie firms (0.3301). On the other hand, zombie firms, on average, enjoy a lower cost of borrowing (.0946) by a mean of 3.61% per year. This may be argued that zombie firms may have good relations with the banks (through influential promoters) who are reluctant to write off the existing credit as non-performing assets (NPAs). Similarly, some of the zombie firms belong to strategic sectors like telecom, infrastructure that enjoy continued cheaper credit because of government policies and low risk perceptions. Therefore, the study fails to reject both hypotheses H1 and H2.

Other variables show that zombie firms hold lower mean assets and suffer from lower profitability (ROA and cash profit ratio) as compared to other healthy firms.

IBC and Firm Zombification

The Insolvency and Bankruptcy Code (IBC) aimed to help resolve or liquidate financially distressed firms on time, to reallocate financial resources more effectively. However, ongoing delays, legal challenges, and a tendency to prioritize the revival of even unviable firms have often resulted in the existence of zombie companies. Practices such as loan evergreening



by banks, repeated restructuring, and selling assets at a discount further weaken market discipline. While the IBC has the potential to tackle this zombification issue through strict resolution timelines and enhanced institutional capacity, its success hinges on normalizing liquidation when needed, penalizing zombie lending, and ensuring that resolution plans genuinely restore business viability. Table 3 exhibits the role of IBC on firm zombification.

Table 3: IBC and Corporate Firm Zombification

Aspects	Policy Undertaken	Current Status
Objective of IBC	Ensuring time-bound resolution of distressed firms	- Over 8,492 cases admitted till 2025 - Delays in resolution persist, though average resolution time has improved (317-713 days)
Expected Outcome	- Strengthening exit mechanisms - Improving recovery	- Share of zombie firms increased post-IBC - Policy gaps, with improved disclosure and governance
Systemic Challenges	- Efficient tribunals - Responsible borrower behavior - Institutional readiness	- Resolution takes >700 days on average - High NCLT case backlog
Credit Market Effects	Discourage lending to unsustainable firms via better credit discipline	- Zombie firms still access credit, with improving recovery rates - RBI reports GNPA ratio declined to 2.3% (March 2025) - Weak risk assessment in banks
Policy Gaps	- Strong enforcement - Promoter accountability - Less legal reliance	IBC 2.0, mediation frameworks, PPIRP and e-filing introduced - Challenges on asset tracking and interim finance - Limited on-ground results
Reform Imperatives	- Faster resolutions - Stronger NCLTs - Digital monitoring - Lender discipline	2025 Finance Budget further enhanced NCLT/IBBI resources Digital case tracking, centralised databases and regulatory automation adopted in 2024-25

Source: IBBI Report (2025), Compiled by Authors (2026)

IBC and Zombie Borrowings

To empirically estimate the impact of IBC on the firm zombification, average borrowing, and debt cost of Indian zombie firms, the following hypotheses have been formulated.

H3: Firm zombification has experienced a decrease in the post-IBC period

H4: Zombie firms enjoy restricted access to credit in the post-IBC period

H5: Zombie firms enjoy a higher cost of borrowing in the post-IBC period

Table 4: Role of Insolvency and Bankruptcy Code (IBC) on Zombie Borrowings

	Pre-IBC	Post-IBC	Mean Difference (T-test)
Firm Zombification	0.0027	0.0061	0.0034**
Zombie Borrowing	0.8031	0.9308	0.1277**
Cost of Zombie Borrowing	0.0844	0.0786	-0.0058**

Source: Authors' Computations using Stata 17 (2026)

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.

Table 4 exhibits the mean of the variables as mentioned above in pre- and post-IBC, along with their difference (T-test). The first row indicates an increase in the firm zombification after the implementation of the IBC (as shown by a positive and significant value of 0.0034). This indicates that IBC has suddenly exposed financially distressed firms, which earlier used to survive based on bank forbearance or informal restructuring. This may include large corporate defaults, which are predominantly observed in sectors like steel, power, infrastructure, and so on (hence, rejecting hypothesis H3). However, zombie firms, in the post-IBC period, have gained greater access to credit (by an average leverage of 0.1277) at an average lower interest of 0.58%. We can argue that IBC leads to a greater flow of money to marginalised or zombie firms for their survival, based on the government's policy-backed credit support. Therefore, the results reject both hypotheses H4 and H5.

“While the IBC has the potential to tackle this zombification issue through strict resolution timelines and enhanced institutional capacity, its success hinges on normalizing liquidation when needed, penalizing zombie lending, and ensuring that resolution plans genuinely restore business viability.”

As Figure 1 suggests, the study also investigates whether the COVID pandemic leaves any impact on zombie borrowing and associated costs.

Table 5: Role of the COVID-19 Pandemic on Zombie Borrowings

	Before Covid	After Covid	Mean Difference (T-test)
Firm Zombification	0.0039	0.0065	0.0026**
Zombie Borrowing	0.8692	0.8844	0.0152**
Cost of Zombie Borrowing	0.0754	0.0915	0.0161*

Source: Authors' Computations using Stata 17 (2026)

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels.



Table 5 also shows a similar upward trend for average firm zombification and zombie borrowing (leverage) in the post-COVID period. The massive economic disturbance triggered by the COVID-19 pandemic, along with nationwide lockdowns and a steep drop in demand, forced many distressed firms into financial trouble, which in turn increased the number of zombie firms. To tackle this, Indian policymakers and financial institutions introduced supportive measures like loan moratoriums, Emergency Credit Line Guarantee Schemes (ECLGS), and liquidity infusions to help businesses survive during this turmoil. These countercyclical measures allowed even the financially weaker firms to continue borrowing or even increase their loans, leading to a rise in zombie borrowing after COVID. However, unlike the post-IBC period, where borrowing costs for zombie firms went down, the post-COVID landscape saw a surge. This shift can be attributed to lenders becoming more risk-averse, growing worries about asset quality, and tighter liquidity conditions following the pandemic. While Indian banks extended credit through government-backed schemes, they also started pricing loans more carefully to reflect the declining financial health and increased default risks of zombie firms. Additionally,

global inflationary pressures and rising interest rates in post-pandemic periods saw a persistence in rising firm zombification and borrowing. So, while both the IBC and COVID-19 periods experienced a rise in zombification and subsequent borrowing, the paths of borrowing costs diverged due to differences in the economic climate, policy priorities, and how lenders perceive risk.

Conclusive Opinion and Scope for Further Research

The study finds a substantial persistence in firm zombification in India, and its continued credit access despite IBC reform underscores the structural weakness in the credit markets. The evidence exhibits a limited impact of IBC on curbing firm zombification. These may include several procedural lopsidedness on the part of lenders and regulators. The COVID-19 pandemic has further exacerbated the situation through several government (countercyclical) policies to tackle the economic downturn. Although these measures are inevitable for macroeconomic stability, they inadvertently enabled these distressed firms to access more credit. Therefore, the empirical results find slow but steady effectiveness of IBC reform, highlighting a balance between

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systemic liquidity and inefficiency in credit allocation during the crisis. Hence, strengthening creditors' rights and eliminating inefficiencies in IBC will be essential for firm viability and credit allocation towards productive enterprises, unlike firm zombification. Future research may delve into the IBC's heterogeneous impact analysis across sectors, industries, or ownership structures.

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