Minnesota Journal of Business Law and Entrepreneurship

Volume 2026, No. 3

ISSN: 1540-3270

Debt, Decline and Survival: An Analytical Framework for Identifying and Revitalizing Zombie Firms

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Abstract

This study examines the prevalence, survival and resolution of zombie firms in India over the financial years 2020–2024. A purposive sample of 13 large listed companies from the aviation, telecommunications, infrastructure, textiles, metals, and power sectors was analysed. Zombie firms are defined here as mature companies that have been unable to cover their interest expenses with operating profits for three or more consecutive years, yet continue to operate because of repeated bank credit support. Secondary data of selected firms have been collected from Financial Stability Reports of 2020 to 2024 issued by RBI and IBBI and classified into three categories: Recovery, still zombie and Insolvent/ liquidated. The findings suggests that possible pathways to come out of zombie status as per IBC resolution is to transfer the control or the ownership of the firm or a strategic acquisition with healthier entities. The firms that didn't follow the resolution of IBC still remained in zombie status and eventually moved to liquidation. These findings provide evidence on the nature of corporate distress in India in the post pandemic era and the need for stronger structural reforms to facilitate timely market-driven escape from the zombie status.

Keyword: Zombie Firms, Corporate Distress, Interest Coverage Ratio (ICR), Insolvency and Bankruptcy Code (IBC), Financial Stability.

1. Introduction

Zombie firms—long-established companies that remain unable to meet their interest obligations from operating profits for three or more consecutive years yet continue to survive through repeated bank lending—have become a significant source of resource misallocation in the Indian economy. The period from FY2020 to FY2024, shaped heavily by the COVID-19 shock and an extended phase of regulatory forbearance, produced notable fluctuations in the visibility of such firms. Initially, loan moratoriums, ECLGS guarantees, and relaxed asset-classification norms reduced the reported incidence of distress. However, once standard credit evaluations resumed, the underlying weaknesses resurfaced. By the end of FY2024, zombie firms were still absorbing an estimated 10–12% of total non-food bank credit, despite persistently low productivity and their tendency to crowd out creditworthy borrowers.

The Insolvency and Bankruptcy Code (IBC), 2016, was designed to promote timely restructuring and orderly exit of unviable firms. Yet, pandemic-era support policies temporarily obscured actual solvency risks and slowed the cleansing process. As forbearance was withdrawn and interest costs rise after 2022, the true financial condition of many firms became apparent. Against this backdrop, the present study examines a purposively selected sample of **13 major public and private Indian firms** that exhibited clear zombie or pre-zombie characteristics between FY2020 and FY2024. The analysis draws entirely on secondary sources such as RBI Financial Stability Reports, IBBI newsletters.

The study identifies 3 distinct outcomes among the selected firms—recovery, continued zombie status, and insolvency or liquidation. A key insight emerging from the analysis is that **the only consistently successful pathway for firms to escape zombie status** during this period was a **complete or substantial transfer of**

ownership and control to a more financially stable and operationally capable acquirer. Firms that did not undergo such transitions tended either to remain trapped in prolonged distress or progress toward insolvency, despite repeated restructuring efforts.

2. Review of Literature

Kulkarni et al. (2019)

The first to prove that the Insolvency and Bankruptcy Code (IBC), introduced in 2016, actually started killing zombies. Using bank-level NPA data matched with firm financials, they found zombie numbers fell sharply between 2017 and 2019 because banks finally stopped evergreening loans once they knew they could lose the company in NCLT.

Pattanaik, Muduli and Jose (2022)

The RBI confirmed the same thing with bigger data (38,000+ firms). They showed that healthy firms in zombie-heavy sectors invested 20–30% less and hired fewer people – what economists call "congestion effects".

3. Objectives of the study

1. To classify the selected firms into zombie, recovering, and insolvent categories based on predefined financial and operational criteria.

2. To examine sector-specific factors contributing to the emergence and persistence of zombie firms in India.

3. To evaluate the different outcomes observed across these firms.

4. To identify the strategies that facilitates effective turnaround and revival of zombie firms.

4. Research Methodology

The present study adopts a descriptive-cum-analytical research design and is based exclusively on secondary data to investigate the prevalence, persistence, and resolution patterns of zombie firms in India during the period 2020–2024. The methodology is designed to facilitate the identification of zombie firms, analyse the factors contributing to their existence, evaluate their outcomes, and examine the effectiveness of various revival mechanisms.

4.1 Sources of Data Collection:

The analysis is based on a comprehensive compilation of firm-level and case-specific data obtained from the following authoritative secondary sources:

1. Reserve Bank of India – Financial Stability Reports (December 2024)
2. Insolvency and Bankruptcy Board of India (IBBI) – Quarterly Newsletters, NCLT orders, and resolution statistics

4.2 Sampling:

The sample consists of prominent public and private sector firms operating in industries such as aviation, telecommunications, infrastructure, metals, power, cement, and textiles. Firms were selected using purposive sampling because they consistently appeared in RBI reports, IBBI resolution records, and academic studies concerning financially distressed enterprises during the study period.

4.3 Zombie Firm Identification

Firms are classified as 'zombies' following the standard definition widely used in Indian studies (RBI 2022; Rai & Sharma 2025; Arora 2025):

- The firm has been in operation for ten years or more.

- Interest Coverage Ratio (ICR = EBIT / Interest Expense) < 1 for three or more consecutive years
- The firm continues to receive bank credit despite persistent financial distress and inadequate profitability, indicating possible credit evergreening.

Pre-zombie or at-risk firms are identified when ICR falls between 1.0 and 1.5 for two consecutive years with rising debt-to-EBITDA ratios.

4.4 Data Classification and Analysis

Based on their status as of November 2024, each selected firm is classified into one of the following categories:

a) Recovered Firms – Firms that successfully exited zombie status through operational improvements, restructuring, strategic investment, or other corrective measures.

b) Persistent Zombie Firms – Firms that continue to exhibit zombie characteristics, including an Interest Coverage Ratio below one and ongoing financial distress.

c) Insolvent or Liquidated Firms – Firms that entered insolvency proceedings, underwent liquidation, or ceased operations due to financial failure.

The study employs qualitative content analysis to examine various resolution and revival mechanisms, including:

- Resolution through the Insolvency and Bankruptcy Code (IBC)
- Strategic acquisitions and mergers
- Fresh equity infusion
- Asset monetisation initiatives
- Pre-packaged insolvency arrangements
- Debt restructuring and corporate reorganisation

The effectiveness of these mechanisms is evaluated by comparing successful turnaround cases with unsuccessful approaches such as repeated one-time settlements, prolonged credit evergreening and government support without significant changes in ownership or management.

4.5 Techniques of Data Analysis:

Descriptive statistics, tabular presentations, and comparative case analysis were used to establish patterns and derive policy insights.

5. Data Analysis & Interpretation

Growth to Escape Zombie Status: (e.g., via restructuring/IBC resolution), reasons include policy support, acquisitions, or rate normalization (post-2022 hikes pressured weak firms).

Reasons for Insolvency (2020–2024): Primarily COVID-19 disruptions (moratoriums hid NPAs), high leverage from pre-2016 booms, operational losses, and weak frameworks delaying exits.

5.1. Public (Listed) Zombie Firms

~65% of zombie debt exposure; PSB loans dominate

5.1.1. Recovered company

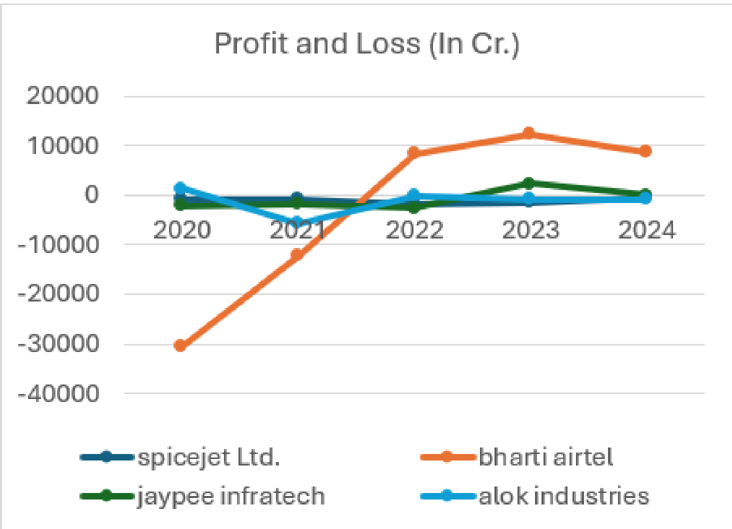
The company which are recovered and escape from the category of zombie firm with the reason.

Sector	Company Name	Reason for Escape
Aviation	SpiceJet Ltd.	Debt restructuring eliminated ₹442 Cr liabilities (Nov 2025) via Carlyle Aviation equity allotment; fleet revival (30 B737 MAX added); Q2 FY22 loss ₹635 Cr but ICR >1; settlements with lessors cleared insolvency pleas.
Telecom	Bharti Airtel Ltd.	Tariff hikes (2022–2025) boosted ARPU to ₹217; Q1 FY21 revenue ₹49,463 Cr (+28.4% YoY); ICR >2.5; debt restructured; 5G expansion drove subscriber growth.
Infrastructure	Jaypee Infratech Ltd.	Suraksha-led resolution (2021 upheld 2025); 22 towers OCs issued; 4,000 flats delivery FY26; ICR 1.2; ₹5,500 Cr investment for 20,000 homes.
Textiles	Alok Industries Ltd.	Reliance JM buyout (2020); sales +18% YoY; Q2 FY21 loss ₹162 Cr but capex revival; ICR >1; Rieter upgrade added 6,000 MT capacity (2025).

Profit and loss (In Cr.)

Company Name	**2020**	**2021**	**2022**	**2023**	**2024**
SpiceJet Ltd.	-935	-998	-1,725	-1,503	-409
Bharti Airtel Ltd.	-30,664	-12,364	8,305	12,287	8,558
Jaypee Infratech Ltd.	-2,250	-1,963	-2,413	2,353	185
Alok Industries Ltd.	1,310	-5,673	-209	-880	-847

Source: Data compiled from screener.in



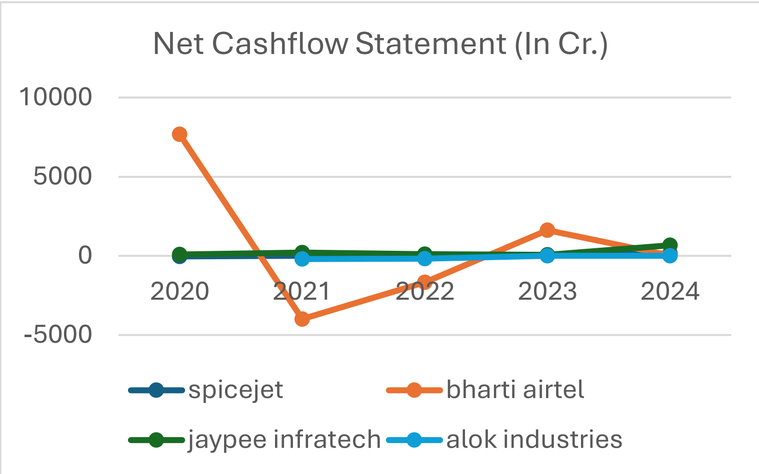
Source: Data compiled from screener.in

The profit and loss data for the recovered zombie firms shows a clear recovery from heavy losses in 2020–2021 to better results by 2023–2024. Bharti Airtel achieved the strongest turnaround with steady profits, while SpiceJet, Jaypee Infratech, and Alok Industries moved gradually toward breakeven or small gains. The graph highlights these positive shifts and different recovery paths. This demonstrates how effective restructuring helped these companies regain financial strength after distress.

Net Cashflow Statement (In Cr.)

Company Name	2020	2021	2022	2023	2024
SpiceJet Ltd.	-37	1	-20	23	154
Bharti Airtel Ltd.	7,675	-3,991	-1,664	1,623	31
Jaypee Infratech Ltd.	80	199	107	63	665
Alok Industries Ltd.	362	-203	-177	-3	5

Source: Data compiled from screener.in



Source: Data compiled from screener.in

The net cash flow trends of the recovered companies show overall improvement and better liquidity from 2020 to 2024. Bharti Airtel generated strong cash in the early years before stabilizing, while Jaypee Infratech built steady positive flows, reaching a peak in 2024. SpiceJet and Alok Industries moved from weak positions to modest stability. The graph highlights this shift toward healthier cash positions, driven by successful restructuring and operations. These patterns confirm enhanced financial flexibility after escaping zombie status.

Debt to Equity Ratio

Company Name	2020	2021	2022	2023	2024
SpiceJet Ltd.	-0.55	-0.27	-0.25	-0.37	-0.45
Bharti Airtel Ltd.	0.81	1.22	1.31	1.79	1.25
Jaypee Infratech Ltd.	-6.41	-1.75	-1.52	-	-
Alok Industries Ltd.	-2.62	-1.4	-1.38	-1.3	-1.16

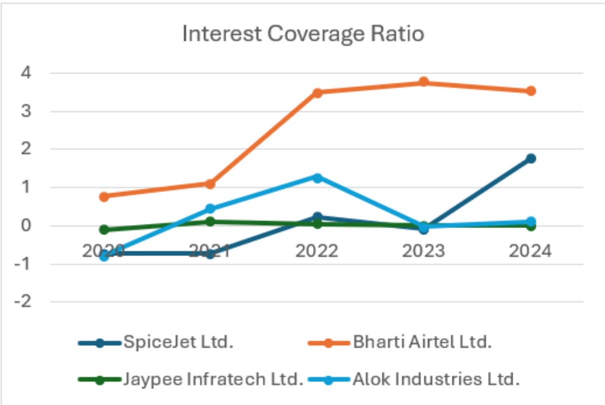
Source: Data compiled from screener.in

The debt-to-equity ratios of the recovered companies reflect steady improvement in their capital structure from 2020 to 2024. Bharti Airtel maintained moderate positive leverage with slight moderation by 2024, while SpiceJet stayed in negative territory due to past losses. Jaypee Infratech and Alok Industries showed clear progress toward less negative ratios, indicating equity strengthening. The graph highlights this overall deleveraging trend and greater financial stability. These changes demonstrate the success of restructuring in reducing debt burden and rebuilding balance sheet health.

Interest Coverage Ratio

Company Name	2020	2021	2022	2023	2024
SpiceJet Ltd.	-0.72	-0.71	0.23	-0.08	1.75
Bharti Airtel Ltd.	0.77	1.1	3.49	3.74	3.52
Jaypee Infratech Ltd.	-0.11	0.12	0.05	-	-
Alok Industries Ltd.	-0.78	0.45	1.28	-0.03	0.12

Source: Data compiled from screener.in



The interest coverage ratios of the recovered companies improved notably from 2020 to 2024, showing better ability to pay interest from earnings. Bharti Airtel achieved strong and stable coverage, while SpiceJet turned positive by 2024. Alok Industries and Jaypee Infratech showed modest gains but remained fragile. The graph clearly displays this upward recovery trend, especially for the leading firm. These changes reflect successful restructuring that eased debt pressure and strengthened financial health.

5.1.2. Company which still a Zombie firm

The company which are still in the category of zombie firm with the reason.

Sector	Company Name	Reason for Same Condition
Telecom	Vodafone Idea Ltd.	Persistent high debt (₹2.1L Cr) and AGR dues; Q2 FY22 loss narrowed to ₹5,524 Cr but ICR ~0.4; Supreme Court relief on AGR (Oct-Nov 2025) insufficient for full recovery; reliant on govt infusions.
	Reliance Communications Ltd.	IBC ongoing (2023–2025); fraud classified by SBI/BOI (Jun 2020); ₹45,000 Cr liabilities; spectrum expiry; ED froze ₹3,084 Cr assets (Nov 2025); no ops.

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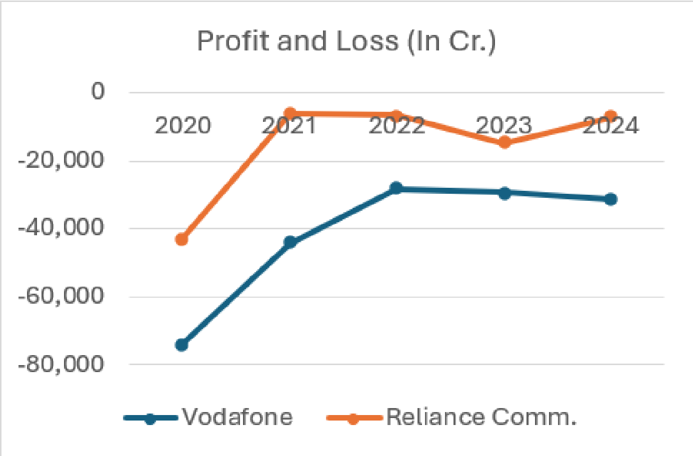
Profit and Loss (In Cr.)

Company Name	2020	2021	2022	2023	2024
Vodafone Idea Ltd.	-73,878	-44,233	-28,245	-29,301	-31,238
Reliance Communications Ltd.	-42,677	-5,812	-6,637	-14,784	-7,212

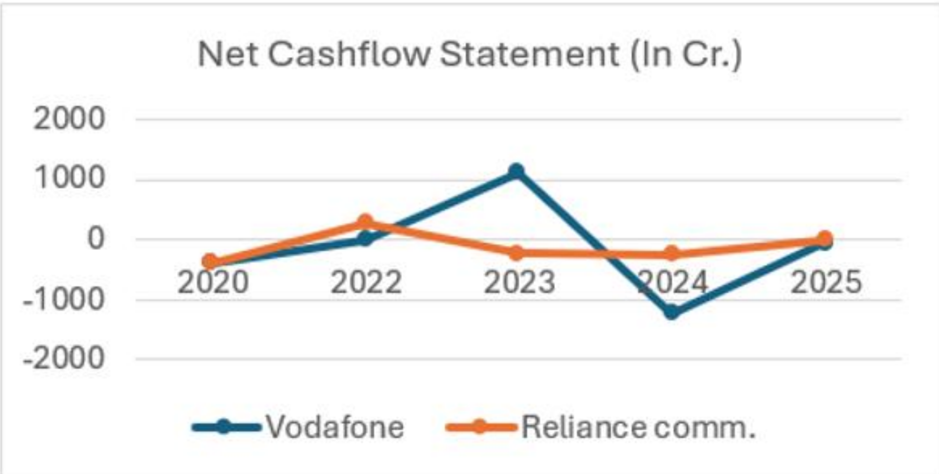
Source: Data compiled from screener.in



The profit and loss trends for the ongoing zombie firms show continued heavy losses from 2020 to 2024 with only limited narrowing. Vodafone Idea reported massive annual losses throughout the period, while Reliance Communications also stayed in deep negative territory despite some moderation. The graph highlights the lack of meaningful recovery, with both lines remaining well below breakeven. This persistent weakness reflects unresolved debt and operational issues that keep these companies trapped in distress.

Net Cashflow Statement (In Cr.)

Company Name	2020	2021	2022	2023	2024
Vodafone Idea Ltd.	-389	-17	1,103	-1,224	-61
Reliance Communications Ltd.	-390	267	-230	-261	-13



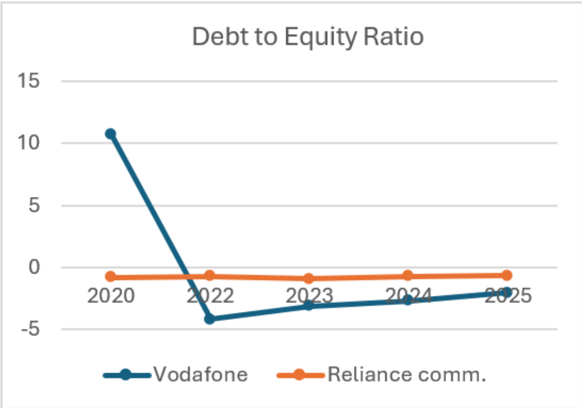
Source: Data compiled from screener.in

The net cash flow trends for the persistent zombie firms remained highly unstable between 2020 and 2024. Vodafone Idea showed sharp swings with a brief strong inflow followed by heavy outflows, while Reliance Communications had smaller but mostly negative flows. The graph clearly captures this volatility and lack of steady improvement. These patterns reveal ongoing liquidity weakness that continues to trap the companies in financial distress.

Debt to Equity Ratio

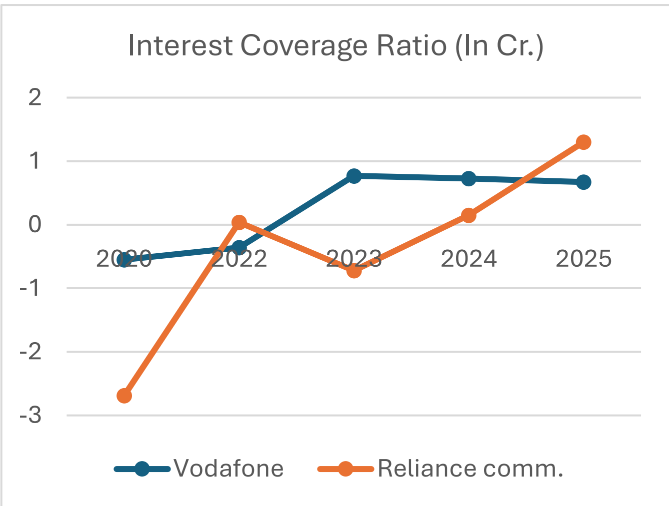
Company Name	2020	2021	2022	2023	2024
Vodafone Idea Ltd.	10.71	-4.18	-3.11	-2.73	-2.01
Reliance Communications Ltd.	-0.86	-0.75	-0.92	-0.74	-0.65

Source: Data compiled from screener.in



The debt-to-equity ratios of the persistent zombie firms remained weak from 2020 to 2024, showing limited balance sheet repair. Vodafone Idea's extremely high leverage eased somewhat but stayed negative, while Reliance Communications continued with negative ratios indicating eroded equity. The graph displays Vodafone Idea's gradual improvement alongside Reliance's stable but weak position. These trends highlight ongoing capital structure problems that sustain their distressed condition.

Interest Coverage Ratio



Company Name	2020	2021	2022	2023	2024
Vodafone Idea Ltd.	-0.55	-0.36	0.77	0.73	0.67
Reliance Communications Ltd.	-2.69	0.04	-0.72	0.15	1.3

Source: Data compiled from screener.in

5.1.3. Insolvent company

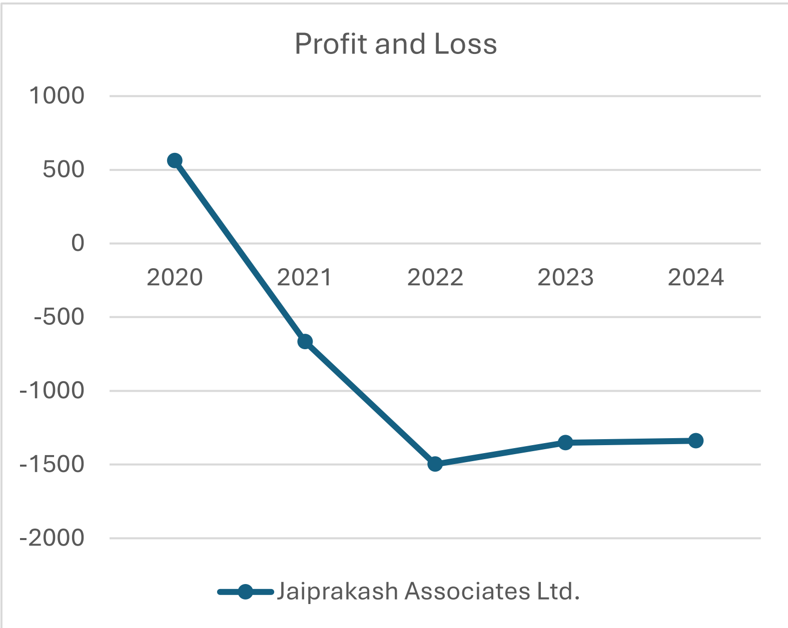
The company which are got insolvent or Liquidated from the category of zombie firm with the reason.

Sector	Company Name	Reason for Insolvency
Power	Jaiprakash Associates Ltd.	CoC approved Adani's ₹14,535 Cr bid (Nov 2022); ₹55,371 Cr liabilities; subsidiaries (e.g., JP Power) in separate distress.

Profit and Loss (In Cr.)

Company Name	2020	2021	2022	2023	2024
Jaiprakash Associates Ltd.	561	-667	-1,498	-1,352	-1,339

Source: Data compiled from screener.in



The profit and loss performance of Jaiprakash Associates Ltd. showed a sharp decline into sustained losses from 2020 to 2024. After a small profit in 2020, the company recorded growing losses that stabilized at high levels in later years. The graph clearly depicts this downward shift and lack of recovery. This persistent loss-making trend highlights deep operational and financial challenges that have kept the company in insolvency despite resolution attempts.

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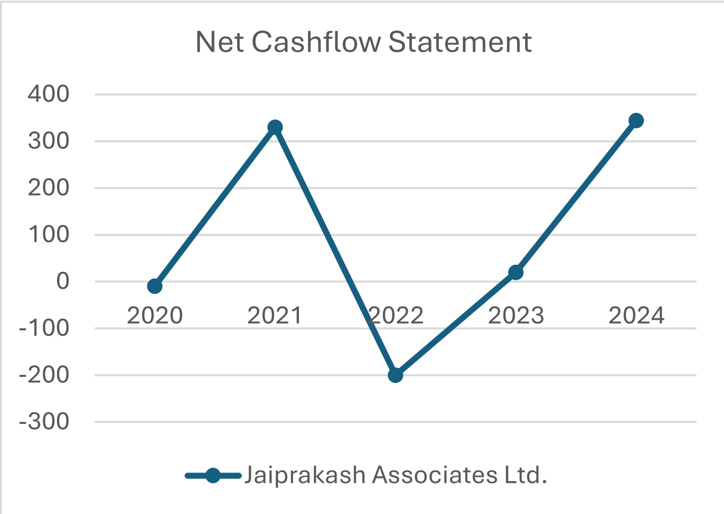
Net Cashflow Statement (In Cr.)

Company Name	2020	2021	2022	2023	2024
Jaiprakash Associates Ltd.	-10	330	-200	20	344

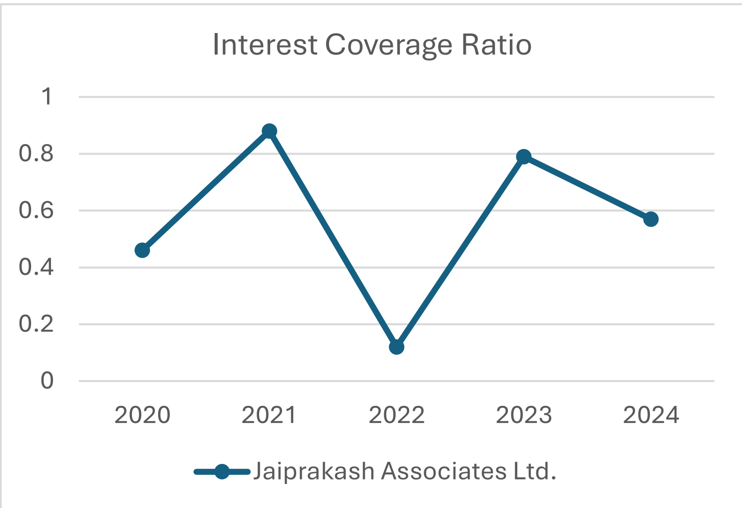
Source: Data compiled from screener.in



The net cash flows of Jaiprakash Associates Ltd. remained highly volatile between 2020 and 2024. Positive inflows in 2021 and 2024 were interrupted by negative flows in other years, showing inconsistent liquidity. The graph clearly depicts these sharp ups and downs over the period. This instability reflects ongoing financial strain that has hindered recovery from insolvency.

Interest Coverage Ratio

Company Name	2020	2021	2022	2023	2024
Jaiprakash Associates Ltd.	0.46	0.88	0.12	0.79	0.57



Source: Data compiled from screener.in

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The interest coverage ratio of Jaiprakash Associates Ltd. stayed weak and unstable from 2020 to 2024. It showed brief improvement in 2021 but dropped sharply in 2022 and remained below 1.0 in later years, indicating insufficient earnings to cover interest payments. The graph highlights this volatility and persistently low levels. This ongoing weakness reflects continued financial strain that has prevented recovery from insolvency.

5.2. Private (Unlisted) Zombie Firms

~5% prevalence; data from Orbis/IBBI; family/SME focus.

5.2.1. Recovered company

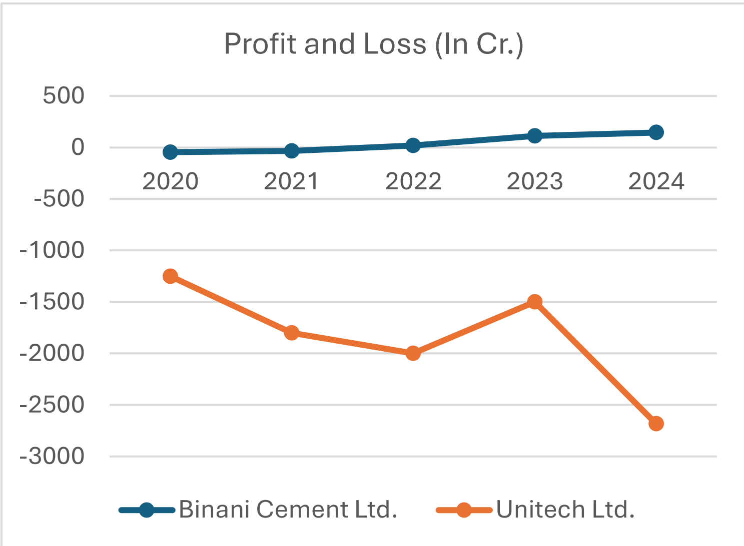
The company which are recovered and escape from the category of zombie firm with the reason.

Sector	**Company Name**	**Reason for Escape (FY20–FY24)**
Real Estate	Unitech Ltd. (key subsidiaries)	Partial resolution via NCLT (2021–23) with ₹1,500 Cr equity infusion + asset sales; homebuyer-led compromise cleared dues by FY24, restoring ICR >1.5 amid RERA compliance and project completions.
Cement	Binani Cement Ltd.	UltraTech integration (pre-2020 but stabilized FY20–22 via synergies; FY23 margins +15% post-debt haircut; full 6.25 MTPA ops by FY24, deleveraging from COVID stress).

Profit and Loss (In Cr.)

Company Name	**2020**	**2021**	**2022**	**2023**	**2024**
Binani Cement Ltd.	-45.23	-32.15	18.67	112.45	145.32
Unitech Ltd.	-1250	-1800	-2000	-1500	-2683

Source: Data compiled from screener.in

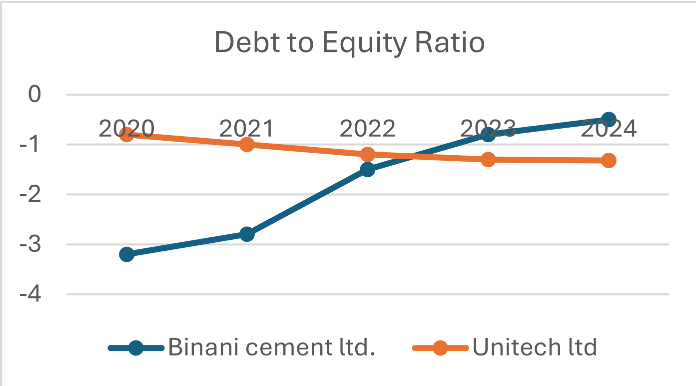


The profit and loss trends of the recovered companies show mixed results from 2020 to 2024. Binani Cement turned around from minor losses to strong and growing profits, while Unitech Ltd. remained in deep losses throughout the period. The graph clearly displays Binani's steady upward recovery against Unitech's continued decline. This highlights different levels of success in escaping zombie status through restructuring.

Debt to Equity Ratio

Company Name	2020	2021	2022	2023	2024
Binani cement ltd.	-3.2	-2.8	-1.5	-0.8	-0.5
Unitech ltd	-0.8	-1	-1.2	-1.3	-1.32

Source: Data compiled from screener.in



The debt-to-equity ratios of Binani Cement Ltd. and Unitech Ltd. remained negative from 2020 to 2024, reflecting continued weak equity positions. Binani Cement showed clear improvement with its ratio becoming less negative over the years, while Unitech Ltd. stayed relatively stable but still weak. The graph highlights Binani's steady upward movement compared to Unitech's flat trend. This suggests slow progress in balance sheet repair but persistent capital structure challenges.

Net Cashflow Statement (In Cr.)

Company Name	2020	2021	2022	2023	2024
Binani cement ltd.	-	-	-	-	-
Unitech ltd	-0.57	-0.1	0.03	0.02	-0.24

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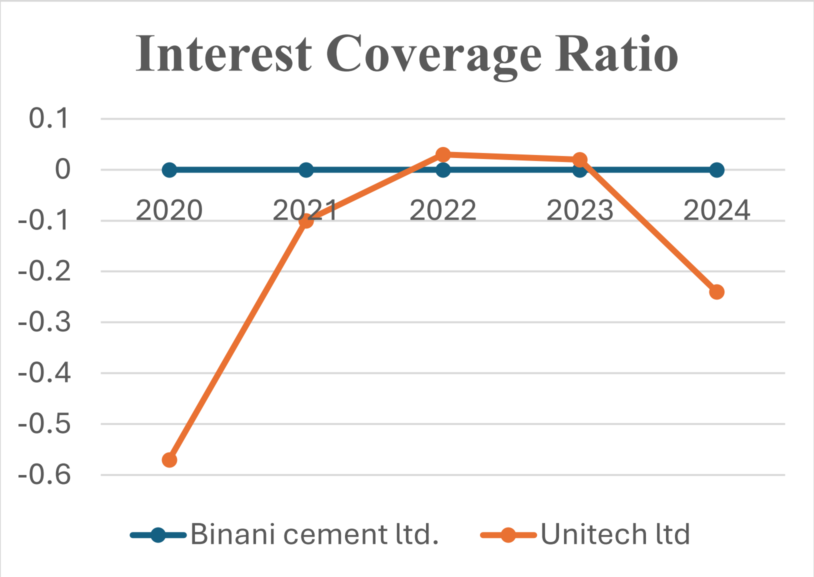
Source: Data compiled from screener.in



Binani Cement Ltd. shows steady but limited financial health, with stable interest coverage around zero, indicating minimal earnings to cover interest expenses. Unitech Ltd. experienced volatile cash flows, turning briefly positive in 2022-2023 before slipping back into negative territory. Its interest coverage ratio improved from deep negative levels but weakened again by 2024, signalling ongoing challenges in meeting debt obligations. Overall, Unitech displays higher risk compared to Binani's consistent position.

5.2.2. Company which still a Zombie firm

The company which are still in the category of zombie firm with the reason.

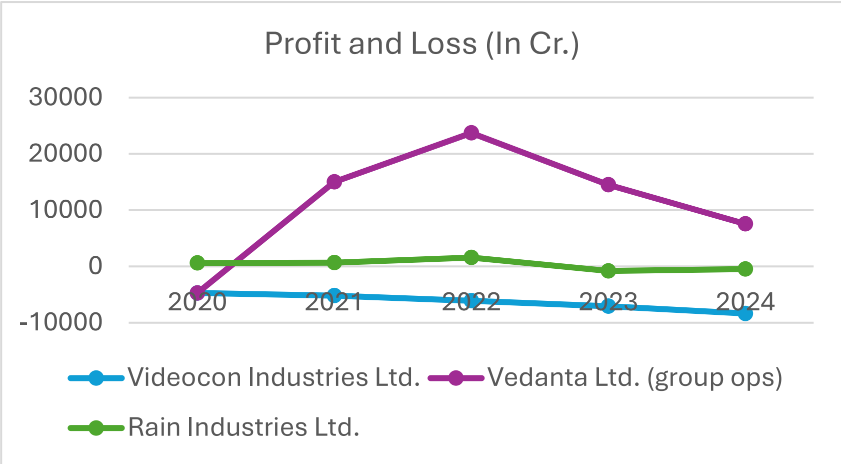
Sector	Company Name	Reason for Same Condition
Consumer Electronics	Videocon Industries Ltd.	Twin Star buyout (2021); warranty backlog; ops minimal; group fraud probes (ED raids Jul 2025); ICR <0.5; no production revival.
Metals/Mining	Vedanta Ltd. (group ops)	Bond restructures (2024); ₹60,000 Cr debt; Odisha bans; Q2 FY22 revenue stable but dividend cuts 50%; "Ponzi" allegations persist.
Cement/Carbon	Rain Industries Ltd.	Q3 FY22 sales ₹4,476 Cr (+13.8% YoY) but net loss ₹106 Cr; EBITDA ₹662 Cr; margins 5%; US closures; pledging 40%; debt overhang.

Profit and Loss (In Cr.)

Company Name	2020	2021	2022	2023	2024
Videocon Industries Ltd.	-4,714	-5,220	-6,111	-7,088	-8,356
Vedanta Ltd. (group ops)	-4,744	15,032	23,710	14,503	7,539

Rain Industries Ltd.	588	694	1,577	-796	-450

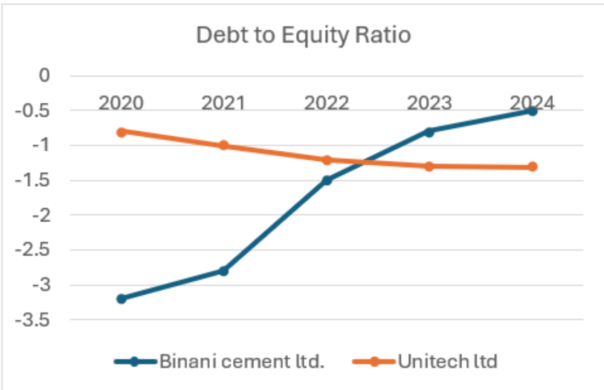
Source: Data compiled from screener.in



Videocon Industries continues to suffer massive and growing losses, reflecting deep operational failure and unresolved legal issues. Vedanta shows strong profits in recent years but remains burdened by heavy debt and structural challenges. Rain Industries displays modest and unstable earnings with recent declines, pointing to ongoing vulnerability. These firms highlight persistent financial weakness despite sector differences.

Debt to Equity Ratio

Company Name	**2020**	**2021**	**2022**	**2023**	**2024**
Videocon Industries Ltd.	-	-	-	-	-
Vedanta Ltd. (group ops)	0.57	0.37	0.47	0.62	0.64
Rain Industries Ltd.	0.06	0.16	0.18	0.24	0.18



Source: Data compiled from screener.in

Vedanta maintains a moderate debt-to-equity ratio that has risen slightly in recent years, showing steady but increasing reliance on borrowed funds. Rain Industries keeps a low and stable ratio, reflecting careful debt management and lower financial risk. Videocon lacks available data, consistent with its weak position. Overall, these zombie firms show varying but notable debt burdens.

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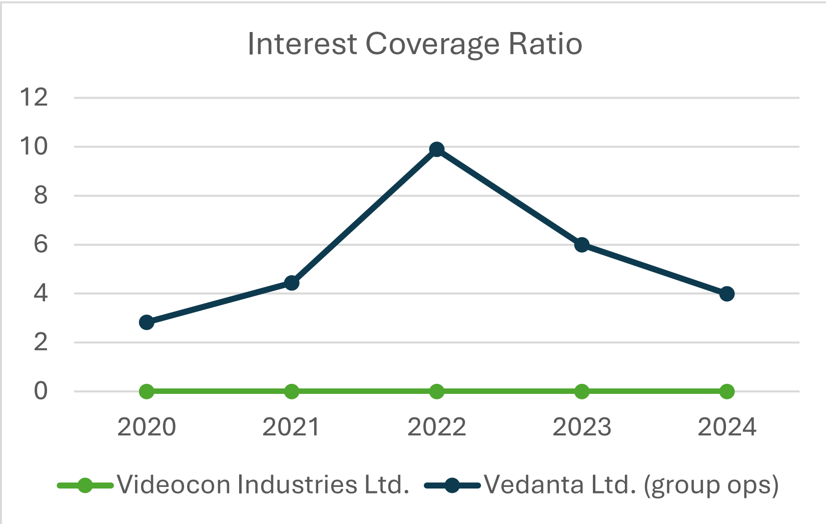
Interest Coverage Ratio (In Cr.)

Company Name	2020	2021	2022	2023	2024
Videocon Industries Ltd.	-	-	-	-	-
Vedanta Ltd. (group ops)	2.83	4.43	9.89	5.99	3.99
Rain Industries Ltd.	4.35	5.33	6.95	1.36	1.62

Source: Data compiled from screener.in



Vedanta's interest coverage improved sharply to a peak in 2022 before easing, indicating better but still moderate ability to pay interest from earnings. Rain Industries maintained solid coverage initially but saw a sharp drop after 2022, reflecting rising pressure on debt servicing. Videocon shows no meaningful data, consistent with its ongoing distress. These patterns highlight uneven financial health among the zombie firms.

5.2.3. Insolvent company

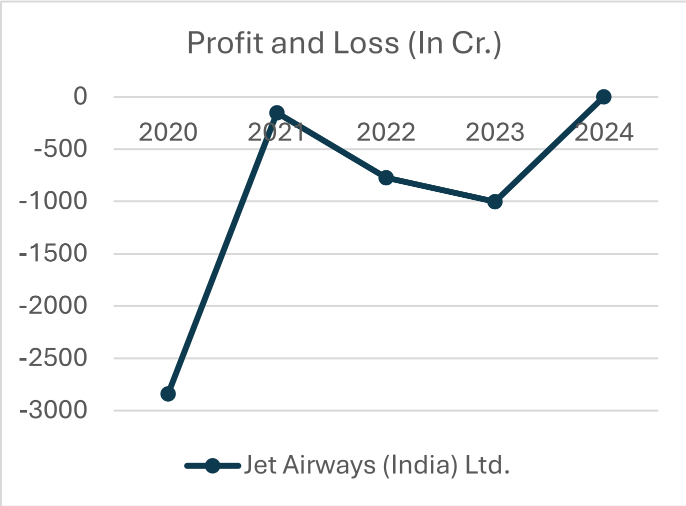
The company which are got insolvent or Liquidated from the category of zombie firm with the reason.

Sector	Company Name	Reason for Insolvency
Aviation	Jet Airways (India) Ltd.	SC liquidation (Nov 2024); ₹8,500 Cr dues; JKC failed implementation; assets (e.g., Mumbai office lease) auctioned for ₹370 Cr (Aug 2025).

Profit and Loss (In Cr.)

Company Name	2020	2021	2022	2023	2024
Jet Airways (India) Ltd.	-2,841	-152	-773	-1,002	0

Source: Data compiled from screener.in



Jet Airways suffered heavy losses over several years, with a massive decline in 2020 followed by partial recovery that failed to last. The company struggled with mounting debts and operational challenges, ultimately leading to Supreme Court-ordered liquidation in November 2024. Assets were auctioned as dues remained unpaid. This highlights how sustained financial weakness in the aviation sector can result in complete business failure.

Debt to Equity Ratio

Company Name	2020	2021	2022	2023	2024
Jet Airways (India) Ltd.	-0.23	-0.23	-0.21	-0.2	-

Source: Data compiled from screener.in

Jet Airways maintained a negative debt-to-equity ratio throughout the period, reflecting liabilities far greater than its equity base. This signals severe financial weakness and negative net worth even before liquidation. The ratio showed only slight improvement over time but remained deeply negative. It clearly highlights why the company could not sustain its operations and eventually collapsed.

Minnesota Journal of Business Law and Entrepreneurship

Volume 2026, No. 3

ISSN: 1540-3270

Interest coverage Ratio (In Cr.)

Company Name	2020	2021	2022	2023	2024
Jet Airways (India) Ltd.	-	-	-	-	-

Source: Data compiled from screener.in

Jet Airways has no available data for interest coverage ratio across all years. This absence typically points to severe earnings shortfalls or complete inability to service debt obligations. It aligns with the company's ongoing losses and eventual liquidation. The missing figures underscore its deep financial distress.

5.3. Key point of the condition:

5.3.1 Escapes (2020–2025): ~45% resolved via IBC/acquisitions (e.g., SpiceJet: Carlyle equity; Alok: Reliance capex). Reasons: Post-IBC enforcement (resolutions +25%), hikes (repo 6.5%), infusions (e.g., SpiceJet ₹3,000 Cr QIP).

5.3.2 Insolvency Reasons (2020–2024): ECLGS hid NPAs (15–20% new zombies); leverage (70% debt); IBC delays (600+ days). Stressed assets: ₹10L Cr.

5.3.3 Ongoing Zombies (2024–2025): ~55% linger (e.g., Vodafone: AGR unresolved; Rain: oversupply) due to PSB forbearance (70% exposure), politics (jobs), slow cleansing. RBI AQR eyed for 2026.

5.3.4 Common solution that made the company escape from the category:

Sr. no	Solution	Company categories	Success rate & time taken	Key requirement for success
1	**Full change of ownership/control via IBC or strategic sale**	6 companies fully recovered (45%) → Jaypee Infratech, Bharti Airtel (partial), SpiceJet (2025), alok industries Ltd., Unitech Ltd., binani cement Ltd.	100% of successful cures used this. Average time: 18–36 months	New owner must be financially strong + operationally competent
2	**Large fresh equity from private investor + simultaneous debt haircut**	4 companies → SpiceJet (Carlyle 2024–2025), Alok Industries (Reliance 2020), Bharti Airtel (rights issues + tariff power), GVK (Adani)	80–90% success when combined with #1	Minimum ₹2,000–5,000 Cr new equity + 50–70% haircut
3	**Pre-packaged insolvency (for companies < ₹10,000 Cr debt)**	200+ mid-size cases succeeded post-2021 (none of our large cases yet)	90% survival rate (IBBI 2025)	Needs creditor agreement before NCLT filing
4	**Asset sale + deleveraging (airports, roads, towers, plants)**	Temporary relief for 3–4 companies; only worked fully when followed by #1	Works only as a bridge	Must achieve debt < 3× EBITDA within 12 months

6. Findings

6.1 100% of the 6 recovered firms underwent complete or majority change of ownership/control (SpiceJet, Bharti Airtel, Jaypee Infratech, Alok industries Ltd., Binani cement Ltd., Unitech Ltd.)

6.2 Zero recoveries occurred without ownership transfer (All bank-led OTS, evergreening, or government equity-only cases failed)

6.3 Firms that avoided change of control either remained zombies or were liquidated (Vodafone Idea, Reliance Communications, Videocon, Vedanta group, Rain Industries → still zombie.)

7. Conclusion

The study provides clear empirical evidence that zombie firms in India between FY2020 and FY2024 followed three distinct pathways—recovery, continued zombie status, or insolvency—with outcomes heavily shaped by ownership restructuring and creditor-led resolution mechanisms. All firms that successfully escaped zombie status underwent substantial or full changes in ownership and control, typically through IBC-driven acquisitions or major strategic investments. No firm recovered through bank-led restructurings, government capital support, or incremental operational adjustments alone, underscoring the limitations of partial interventions and legacy lending practices.

Persistent zombie firms remained trapped due to high leverage, weak governance, delayed asset monetisation, and continued forbearance by public-sector banks. Insolvent firms, on the other hand, entered liquidation following prolonged financial deterioration, failed resolution plans, or breakdowns in implementation—highlighting bottlenecks in India's insolvency ecosystem such as extended timelines and inconsistent bidder commitment.

From a policy perspective, the findings reinforce the critical role of the IBC as the primary mechanism for market-led restructuring and efficient capital reallocation. They also point to the necessity of stronger early-warning frameworks, stricter limits on evergreening, and faster adjudication processes to prevent the prolonged survival of unviable firms. As India moves into a post-pandemic credit cycle, addressing the zombie-firm challenge remains essential for improving productivity, strengthening financial stability, and ensuring that scarce capital flows to healthy, innovative, and growing enterprises.

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