

**Leverage and Distress in Private Equity Buyouts: Governance, Value Creation, and Restructuring Mechanisms**

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**Abstract**

**Background:** Leveraged buyouts (LBOs) and private equity transactions transform corporate capital structures through high leverage and active governance. These changes carry complex implications for value creation, financial distress, bankruptcy risk, and long-term firm performance. Building on foundational empirical and theoretical work in corporate distress, bankruptcy prediction, and private equity governance, this paper synthesizes extant evidence and develops a cohesive interpretive framework that connects leverage choice, covenant design, governance interventions, and post-acquisition outcomes.

**Objective:** To provide an integrated, theory-rich, and empirically grounded account of how private equity-sponsored buyouts use leverage and governance to create value, why some leveraged firms experience distress or reverse buyouts, and how bankruptcy institutions and debt composition mediate outcomes. The paper examines mechanisms of value creation and destruction, highlights measurement and methodological challenges in distress prediction, and outlines implications for practitioners, policymakers, and future research.

**Methods:** This research assembles and critically examines the literature on buyout leverage, distress costs, bankruptcy venue choice, bankruptcy prediction models, and reverse leveraged buyouts. It synthesizes cross-paper evidence into a descriptive, text-based methodological account that emphasizes comparative statics, natural experiments, and quasi-experimental approaches apparent in the literature. The analysis focuses on triangulating results from corporate finance, law & economics, and empirical accounting studies to build a nuanced narrative rather than produce new quantitative estimates.

**Results:** Evidence indicates that private equity value creation frequently stems from operational improvements, governance restructuring, and incentive alignment, while leverage amplifies returns but increases vulnerability to shocks (Axelson et al., 2009; Cumming et al., 2007). Financial distress imposes costs that are both economic and pecuniary; however, the literature finds that measurable direct bankruptcy costs are often lower than anticipated, with consequences concentrated through lost sales, managerial distraction, and renegotiation frictions (Andrade & Kaplan, 1998; Asquith, Gertner, & Scharfstein, 1994). Debt composition and contract features — including payment-in-kind (PIK) instruments — affect bankruptcy thresholds and renegotiation outcomes (Carey & Gordy, 2009; Shounik, 2025). Reverse leveraged buyouts and post-buyout exits provide informative variation: some buyouts underperform and return to public markets, revealing selection and timing issues in buyout pricing (Cao & Lerner, 2009). Bankruptcy venue choices and legal environments systematically influence restructuring strategies and creditor-debtor power (Ayotte & Skeel, 2004). Bankruptcy prediction models like Altman's Z-score remain useful but face classification errors and require recalibration in modern leveraged contexts (Altman, 1968; Altman, 2002; Begley, Ming, & Watts, 1996).

**Conclusions:** A nuanced synthesis suggests that the interplay of leverage, governance, and legal institutions determines the net welfare effects of LBOs. Policy and practice should emphasize transparency in debt composition, improved monitoring of covenant structures, and governance practices that preserve long-term investment while allowing efficient renegotiation. Future research must pursue richer causal identification — leveraging administrative legal data, granular loan-level contract information, and longitudinal operating metrics — to map heterogeneity in outcomes across industries, macroeconomic cycles, and institutional

settings.

**Keywords:** leveraged buyouts, private equity, corporate distress, bankruptcy prediction, governance, leverage, PIK financing

## INTRODUCTION

The last half-century of corporate finance scholarship has converged on a core puzzle: how does the interaction between capital structure and governance determine firm value, and what are the pathways through which leverage can both create and destroy shareholder and societal value? This puzzle is particularly acute in the context of leveraged buyouts (LBOs) and private equity, where acquirers intentionally load firms with debt while simultaneously restructuring governance and incentives. The distinctive features of private equity transactions — high financial leverage, concentrated ownership, performance-oriented incentives, and active governance — demand an integrated understanding that bridges classical capital-structure theories, bankruptcy studies, and corporate governance research. Foundational works by Altman (1968, 2002) on bankruptcy prediction, empirical examinations of distress by Asquith, Gertner, and Scharfstein (1994), and detailed analyses of the costs of distress in leveraged transactions by Andrade and Kaplan (1998) provide critical building blocks for such an integrated account. Contemporary private equity-focused studies — including analyses of buyout leverage, governance effects, and reverse buyouts (Axelson et al., 2009; Cao & Lerner, 2009; Cumming, Siegel, & Wright, 2007) — elaborate mechanisms through which buyer choices and contract design affect post-acquisition performance.

The objective of this article is to offer a comprehensive, publication-ready synthesis that explains the theoretical mechanisms connecting leverage, governance, and distress; critically evaluates empirical strategies and findings in the literature; and identifies substantive gaps and directions for future research. Rather than merely summarizing studies, the article explicates in detail the theoretical implications of empirical regularities, spells out competing interpretations, and explicates countervailing risks and institutional contingencies.

Several motivating observations drive the analysis. First, private equity buyouts commonly rely on debt to finance acquisitions, which magnifies both upside and downside risks for investors and stakeholders (Axelson et al., 2009). Second, the costs of distress — ranging from direct bankruptcy expenses to indirect effects such as foregone growth opportunities and managerial distraction — are unevenly measured and often misunderstood (Andrade & Kaplan, 1998; Carey & Gordy, 2009). Third, bankruptcy law, venue choice, and debt contract design materially shape whether distressed firms reorganize successfully, liquidate, or exit via reverse buyouts or other routes (Ayotte & Skeel, 2004; Cao & Lerner, 2009). Fourth, predictive models of bankruptcy (e.g., Altman's Z-score) have enduring practical relevance but require recalibration in environments with complex financial instruments and sponsor-backed structures (Altman, 1968; Altman, 2002; Begley, Ming, & Watts, 1996). Finally, the diffusion of novel financing instruments such as payment-in-kind (PIK) amendments and other covenant innovations raises empirical questions about runway extension, value preservation, and long-run capital structure outcomes (Shounik, 2025).

This introduction establishes the central problems, motivates the need for integrated analysis, and outlines the paper's approach. The subsequent sections are structured to follow a research manuscript logic: after a detailed methodological discussion of how the literature identifies causal effects and measures the phenomena of interest, the article offers an expansive descriptive synthesis of findings (Results), followed by a deep interpretive section (Discussion) that parses mechanisms, limitations, and future directions. The article concludes with policy-relevant recommendations and a consolidated reference list.

## METHODOLOGY

This paper adopts a narrative-synthesis methodology that systematically integrates theoretical constructs and empirical findings from the provided references. The methodological stance is deliberately descriptive and analytic rather than computational: rather than running new regressions, the paper reconstructs the inferential logic and identification strategies deployed in the cited studies, evaluates their strengths and limitations, and synthesizes their contributions into a coherent conceptual framework. The methodological choices are guided by three priorities: fidelity to the cited literature, theoretical clarity, and constructive critique of empirical approaches.

First, fidelity to the cited literature: every major factual assertion in this manuscript is grounded in one or more of the works listed in the References. When empirical results are described, the original authors' methodological approach — including sample construction, identification strategy, and controls — is explicitly noted and examined for inferential validity. This approach ensures the analysis remains "strictly based" on the provided references, as requested.

Second, theoretical clarity: the paper translates empirical regularities into formal economic intuition using comparative-statics reasoning and governance theory. For example, when a study documents superior operating performance after buyouts, the narrative elaborates on plausible channels — incentive realignment, managerial turnover, cost rationalization, and strategic refocusing — and evaluates the degree to which empirical strategies can distinguish among them (Axelson et al., 2009; Cumming et al., 2007).

Third, constructive critique: the paper systematically reviews identification challenges present in the literature, including selection bias (e.g., which firms are targeted for buyouts), survivorship bias, measurement error in distress proxies, and legal-institutional heterogeneity (Ayotte & Skeel, 2004; Begley et al., 1996). Where appropriate, the manuscript highlights quasi-experimental designs and natural experiments as stronger evidence: e.g., analyses exploiting exogenous changes in legal rules, regulatory shocks, or sudden macroeconomic downturns provide clearer causal leverage than cross-sectional comparisons alone.

Literature synthesis proceeds by thematic clustering: governance and value creation; the nature and costs of distress; debt composition and contract features; bankruptcy institutions and venue choice; and exit dynamics including reverse buyouts. For each cluster, the paper reconstructs the main empirical findings and their methodological underpinnings, then assesses alternative mechanisms and counter-arguments. Particular attention is paid to how studies measure distress (e.g., bankruptcy filings vs. financial ratio thresholds), how they measure governance outcomes (e.g., operating performance, investment, employment), and how they address endogeneity.

Because the paper refrains from numerical re-estimation, it emphasizes qualitative comparisons across studies and discusses how different methodologies lead to different substantive conclusions. For example, event-study approaches that measure operating performance pre- and post-buyout provide high internal validity for measuring immediate changes but may not capture long-run growth effects; regression-based cross-sectional studies may offer broader generalizability but require careful control for selection into buyouts. The paper details these trade-offs and offers recommendations for improved empirical designs.

Throughout the methodological exposition, the article draws explicit lessons about data needs — including granular loan-level contract data, creditor identity, legal filings, and time-series operating metrics — and suggests how future studies could combine administrative legal records with financial statement data to produce sharper causal insights.

## **RESULTS**

The empirical and theoretical literature, read collectively, yields a set of consistent patterns and also reveals meaningful heterogeneity. This section describes the key empirical regularities — and competing interpretations — in rich detail, grouping results into thematic subsections.

### **Private Equity Governance and Value Creation**

Private equity transactions often generate measurable changes in operating performance, capital structure, and corporate governance that are consistent with active ownership and incentive realignment (Cumming, Siegel, & Wright, 2007). Empirical studies document that sponsor-led buyouts typically bring concentrated ownership and stronger monitoring, which may reduce agency frictions associated with diffuse public ownership. Concentrated ownership allows sponsors to implement rapid managerial changes, reorganize operations, and realign executive incentives with longer-term performance targets. These mechanisms are central to contemporary theories of private equity value creation, which posit that governance improvements — not only financial engineering — account for a substantial share of the observed returns (Axelson et al., 2009; Cumming et al., 2007).

However, isolating the contributions of governance from changes in capital structure requires careful empirical design. Buyouts are not random: acquirers typically select targets with characteristics that make them amenable to operational improvement or financial restructuring. This selection effect complicates any naive comparison between buyout and non-buyout firms. The literature addresses this concern using matching procedures, difference-in-differences designs, and careful pre-treatment balance checks; nonetheless, residual selection remains a potential confounder. When studies account for selection, the estimated governance effect often persists, suggesting a causal role for sponsor interventions, but the magnitude of the effect is sensitive to methodological choices (Cumming et al., 2007; Axelson et al., 2009).

### **Leverage: Determinants and Consequences**

Leverage is a defining characteristic of LBOs. The typical private equity model uses significant debt to finance acquisitions, which leverages returns to equity holders when firms perform well but heightens bankruptcy risk under negative shocks. Why do buyouts use leverage? One line of reasoning emphasizes tax shields and reduced agency costs of free cash flow: debt forces discipline by requiring periodic interest and principal payments, thereby limiting managerial discretion and reducing wasteful investment (Jensen-style arguments). Another perspective focuses on financing constraints and intermediary arbitrage: private equity sponsors can extract favorable debt terms due to reputational capital and relationships with lenders (Axelson et al., 2009; Axelson et al., 2010).

Empirically, Axelson et al. find that buyouts are deliberately leveraged to exploit debt benefits while relying on operational improvements to service debt. The literature emphasizes that the optimal leverage level reflects a trade-off between tax and agency benefits of debt and expected bankruptcy costs. Determinants of leverage in buyouts include target cash flows, asset tangibility (which affects collateral value), sponsor experience, market conditions, and lender competition (Axelson et al., 2009; Axelson et al., forthcoming). Importantly, leverage choices are endogenous and co-determined with purchase price and sponsor strategy: sponsors may "borrow cheap, buy high" in competitive markets, which creates risks if purchase prices exceed intrinsic values (Axelson et al., forthcoming).

### **Costs of Financial Distress**

The costs associated with financial distress are multifaceted. Andrade and Kaplan (1998) document that "financial (not economic) distress" in highly leveraged transactions that later became distressed is associated

with substantial disruptions to operating performance. Their analysis emphasizes that distress costs are not purely accounting constructs but manifest in reduced investment, lost sales due to customer concerns, and supplier constraints. Asquith, Gertner, and Scharfstein (1994) provide complementary evidence by examining junk-bond issuers; they find that asset sales, covenant violations, and renegotiations are central features of the anatomy of financial distress.

One critical insight is that the direct, administrative costs of bankruptcy (e.g., legal and professional fees) are often smaller than the indirect, economic costs such as lost intangible capital, impaired customer relationships, and the interruption of growth investments (Andrade & Kaplan, 1998). The distinction matters for both lenders and policymakers: if indirect costs dominate, then restructuring strategies that preserve firm-specific assets and customer relationships (rather than immediate liquidation) are socially and privately preferable. Yet, the magnitude of these indirect costs varies across industries and firm types, and their estimation is inherently challenging because they involve counterfactual trajectories of forgone growth.

Carey and Gordy (2009) contribute to this discussion by showing how debt composition influences bankruptcy thresholds. When firms rely heavily on debt forms that are less easily renegotiated, the threshold for bankruptcy may be lower, meaning firms enter formal restructuring earlier. Conversely, flexible financing arrangements that permit renegotiation can avert costly bankruptcy filings but may also extend the time in a distressed state, with ambiguous welfare implications. The interplay between debt form and bankruptcy timing underscores the centrality of contract design in mediating distress costs.

### **Bankruptcy Venue Choice and Legal Institutions**

Bankruptcy laws and venue choices shape restructuring outcomes. Ayotte and Skeel (2004) empirically investigate why distressed companies often choose Delaware as the venue for bankruptcy filings. Their analysis reveals that legal institutions matter: forum shopping is motivated by perceived advantages in case law, judge expertise, and procedural efficiencies that may favor certain restructuring strategies. Venue choice affects bargaining leverage between creditors and debtors, the speed of reorganizations, and the stringency of creditor protections. Thus, the legal environment is not merely a backdrop but an active determinant of restructuring form and content.

These jurisdictional effects create heterogeneity in outcomes across firms and over time. A jurisdiction with more debtor-friendly procedures may facilitate reorganization that preserves going-concern value, whereas a creditor-friendly venue may accelerate creditor remedies, potentially leading to liquidation in cases where reorganization could have succeeded. Empirically, decomposing legal-institutional effects requires data on filings, judge assignments, case outcomes, and firm performance — a data-rich agenda that remains only partially realized in the literature.

### **Reverse Leveraged Buyouts and Exit Dynamics**

Not all buyouts yield sustained private ownership followed by value-enhancing exits. Cao and Lerner (2009) analyze the performance of reverse leveraged buyouts (R-LBOs) — transactions in which firms previously taken private by sponsors return to public markets and subsequently experience performance reversals. R-LBOs illuminate selection dynamics: sponsors may take firms private when they forecast operational improvements or when market valuations are depressed, but mispricing and timing errors can result in disappointing public re-listings. Cao and Lerner's evidence suggests that reverse buyouts frequently reflect overoptimistic valuations at exit or operational underperformance, underscoring that buyouts are not uniformly successful and that selection and timing are crucial.

Shounik (2025) offers contemporary evidence on a specific contractual mechanism — payment-in-kind (PIK) amendments — that are used to extend runway for distressed sponsor-backed LBOs. Using a difference-in-differences design over 2020–2025, Shounik shows that PIK amendments have heterogeneous effects: in some cases, they extend survival and facilitate restructurings without eroding value, while in others they lead to dilution and worse capital-structure outcomes. This nuanced finding highlights that contractual flexibility can be a double-edged sword: useful for temporary liquidity relief but potentially harmful if it delays necessary balance-sheet corrections.

### **Bankruptcy Prediction and Distress Classification**

Altman's Z-score (1968) remains a seminal contribution to bankruptcy prediction, providing parsimonious financial-ratio-based diagnostics that practitioners and academics still consult (Altman, 1968). Yet subsequent work (Begley, Ming, & Watts, 1996) documents classification errors and cautions against uncritical application. Altman himself (2002) revisited prediction models in the context of Basel II and changes in macro-financial volatility, arguing that predictive frameworks must adapt to new regulatory and economic conditions. The central methodological challenge is that bankruptcy filings are rare events and are subject to both measurement error (e.g., not all distressed firms file immediately) and censoring (e.g., some reorganize out-of-court).

Modern private equity contexts exacerbate these challenges: sponsor-backed firms may use out-of-court renegotiations, PIK instruments, or other contractual provisions that obfuscate straightforward distress signals. As such, bankruptcy prediction in the buyout domain requires models that incorporate richer contract-level features, sponsor identity, and legal-institutional variables. Despite these complexities, ratio-based diagnostics provide valuable screening tools, especially when combined with qualitative and contract-level data.

### **Synthesis of Results: Common Patterns and Heterogeneity**

Across the literature, several consistent themes emerge. First, private equity can promote value creation via governance interventions and operational improvements; second, leverage amplifies returns but increases downside risk, and its optimal level depends on firm-specific and market conditions; third, the costs of distress are substantial but mediated by debt composition and legal institutions; fourth, bankruptcy and venue choice systematically affect outcomes; and fifth, contract innovations such as PIK financing produce context-dependent effects that require careful empirical evaluation.

Yet heterogeneity is pervasive. The magnitude and direction of effects vary by industry, asset tangibility, sponsor skill, macroeconomic environment, and debt contract design. Methodological heterogeneity (e.g., different identification strategies, sample periods, and outcome measures) further complicates synthesis. Nonetheless, the coherence of core mechanisms — governance realignment, leverage amplification, and legal-contractual mediation — provides a robust conceptual foundation for understanding the interplay of private equity and distress.

## **DISCUSSION**

The preceding synthesis yields substantive implications for theory, practice, and policy. This Discussion unpacks these implications in depth, addresses key limitations in the evidence, and outlines an agenda for future research.

### **Mechanisms of Value Creation — A Closer Look**

Understanding how private equity creates value requires disentangling overlapping mechanisms: capital-structure reconfiguration, managerial incentives, board composition, strategic refocusing, and cost management. Theory suggests that leverage disciplines managers by reducing free cash flow and forcing the prioritization of cash-generating projects (Jensen-style agency arguments). Empirical work corroborates that buyouts often lead to reduced slack and more focused investment policies (Cumming et al., 2007). However, governance effects may be more pervasive: sponsors typically replace or supplement management teams, alter incentive compensation, and implement oversight processes that monitor performance more closely. These governance interventions can be as important as — or more important than — financial engineering in delivering improved profitability.

Operational restructuring often accompanies governance changes. Sponsors may streamline operations, divest non-core assets, renegotiate supplier and customer contracts, and implement performance benchmarks. These actions can produce immediate improvements in operating margins and cash generation, enabling higher debt service capacity. Yet, such restructuring may also involve layoffs, reduced R&D, or deferred capital expenditures, creating potential long-term costs. The literature documents both positive and negative long-run effects, depending on the balance between short-term cash extraction and sustained investment for growth (Axelson et al., 2009; Cumming et al., 2007). Counter-arguments emphasize that governance-imposed austerity can destroy firm-specific human capital and long-term innovation capacity, a concern that empirical studies must carefully evaluate with long-horizon outcomes.

### **Leverage: Optimality, Timing, and Lender Dynamics**

Leverage is a strategic variable jointly chosen with purchase price and sponsor strategy. When debt markets are competitive and lenders have an appetite for yield, sponsors can "borrow cheap," but this may lead to paying higher purchase prices (Axelson et al., forthcoming). Thus, leverage interacts with market timing: sponsors may inadvertently overpay in frothy markets, increasing bankruptcy risk if subsequent performance fails to meet optimistic forecasts. Conversely, in tighter credit markets, buyers may opt for lower leverage and accept greater equity contributions, changing the risk-return profile of deals.

The identity and incentives of lenders matter. Relationship lenders or institutional investors that provide covenant-lite loans may enable riskier capital structures. Conversely, banks with monitoring incentives can impose stricter covenants that limit downside risk but may also constrain operational flexibility. Debt composition matters: secured bank debt, high-yield bonds, and PIK instruments have distinct renegotiation characteristics. Preferential treatment of certain lenders in insolvency (e.g., secured creditors) affects bargaining outcomes in distress. Carey and Gordy (2009) emphasize that debt composition shapes bankruptcy thresholds; thus, both sponsors and regulators must consider not just aggregate leverage but its contractual form.

### **Costs of Distress: Direct, Indirect, and Distributional Dimensions**

A rich picture of distress costs emerges from the literature. Direct bankruptcy costs — such as legal and professional fees — are measurable yet often modest relative to firm value. Indirect costs — such as lost sales, strained supplier relations, and foregone growth opportunities — are more consequential but harder to quantify. The distribution of distress costs across stakeholders is non-uniform: creditors, employees, suppliers, and local communities may experience differing welfare effects. High leverage can concentrate downside losses on equity holders but spread indirect costs across employees and suppliers, raising normative questions about social welfare.

Moreover, the timing and form of restructuring have distributional consequences. Early, negotiated out-of-court restructurings may preserve going-concern value and protect jobs, whereas protracted formal bankruptcy proceedings can inflict greater collateral damage. Legal institutions and creditor coordination play central roles in shaping these pathways (Ayotte & Skeel, 2004). Policymakers and regulators should evaluate whether existing insolvency frameworks adequately balance creditor enforcement with the preservation of firm-specific assets.

### **Bankruptcy Prediction: Practical Use and Limitations**

Bankruptcy prediction models like Altman's Z-score remain valuable screening tools but must be applied with caution. The introduction of complex debt instruments and sponsor behavior — including out-of-court workouts — weakens the predictive power of simple ratio-based models. Begley et al. (1996) document classification errors in earlier models, and Altman (2002) emphasizes the need for recalibration in contemporary regulatory contexts. Practitioners should use ratio models as one component in a broader diagnostic toolkit that includes contract-level analysis, supplier and customer signals, and sponsor histories.

### **Policy and Regulatory Implications**

The literature implies several concrete policy recommendations. First, transparency in debt contracts and disclosure of debt composition would improve market discipline and allow better risk assessment by creditors and regulators. Second, insolvency frameworks should facilitate rapid, value-preserving restructurings while protecting creditor rights, requiring careful calibration to local institutional contexts. Third, regulators should monitor systemic risk accumulation in credit markets, particularly when covenant-lite instruments and PIK financing proliferate, as these instruments can delay recognition of distress and amplify systemic vulnerabilities (Shounik, 2025).

### **Limitations of the Existing Literature**

Despite significant advances, the literature exhibits limitations that constrain definitive conclusions. Measurement issues — particularly in capturing indirect distress costs and sponsor interventions — remain pervasive. Selection bias in buyout targeting challenges causal inference about governance effects. Data limitations hinder analyses of contract-level features and legal proceedings; many studies rely on hand-collected samples or proprietary databases, limiting replicability and generalizability. Heterogeneity across industries and macroeconomic cycles suggests that single-sample studies may not capture the full spectrum of outcomes.

### **Future Research Directions**

To advance the field, several research avenues merit attention. First, linking loan-level contract data with legal filings and longitudinal operating metrics would permit more precise causal identification of how debt design affects restructuring and outcomes. Second, exploiting exogenous legal or policy changes (e.g., reforms in insolvency law) can yield quasi-experimental variation for inference about institutional effects. Third, expanding analyses of sponsor heterogeneity — distinguishing between skilled and less-skilled sponsors — will shed light on the role of managerial expertise and experience in buyout outcomes. Fourth, research should analyze long-term innovation and investment effects of buyouts, moving beyond short-term operating metrics to capture dynamic growth paths.

## **CONCLUSION**

The synthesis presented here argues that private equity and leveraged buyouts cannot be understood solely through the lens of capital structure or governance in isolation. Rather, they are best conceptualized as joint exercises in financial engineering, active governance, and legal-contractual negotiation. Leverage magnifies both the potential rewards of improved governance and the real costs of financial distress. Debt composition, legal institutions, venue choices, and sponsor strategies co-determine whether distressed firms successfully reorganize or undergo value-destroying liquidations.

Policy and practice should aim to preserve the constructive aspects of private equity — such as governance improvements and operational revitalization — while mitigating the risks posed by excessive leverage and opaque contractual arrangements. Future research must combine richer datasets and rigorous causal designs to unpack heterogeneity in outcomes and to generate actionable insights for market participants and regulators. The empirical canon assembled in this article provides a robust starting point; the remaining task for scholars is to refine causal inference and expand the evidence base to guide better decisions in the design and regulation of leveraged transactions.

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