Senior Lender Monitoring and Bankruptcy Inefficiency *

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Abstract

How do banks adapt their monitoring behaviors as firms approach bankruptcy? Using a hand-collected dataset of bankruptcy filings and SEC filings, I find that, contrary to expectations, most firms do not experience stricter monitoring by senior lenders. Instead, banks shift toward more specific or conditional covenants, such as springing covenants, that activate under certain conditions. This shift is primarily driven by the firm's liquidation value, as banks are more likely to relax monitoring when their claims are fully collateralized. These changes reduce monitoring costs for senior creditors but lead to lower recovery rates for junior creditors and increased inter-creditor conflicts. The shift in monitoring strategy also impedes creditor coordination and increases inefficiencies in the bankruptcy process. This paper highlights how changes in senior lender behavior, driven by liquidation value, significantly impact bankruptcy outcomes.

Keywords: Bank Monitoring; Debt Covenants; Bankruptcy; Collateral

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1. Introduction

Despite a growing body of literature on corporate debt covenants, much of the research has focused on debt covenants at the time of issuance. There is limited understanding of how banks and firms adjust these covenants within and across loans in response to changing financial conditions, particularly as the firms go through financial distress and approach bankruptcy. For firms experiencing financial difficulty, the ability of the bank to actively monitor, manage and modify debt covenants, has important implications in shaping recovery outcomes and the efficiency of bankruptcy processes. This paper seeks to fill this gap by examining how senior lenders—particularly banks—adjust the structure of debt covenants as firms approach bankruptcy, and its implication on bankruptcy outcomes for the ex-post bankrupt firms.

The empirical analysis is structured in four parts. First, I present new evidence that banks do not always respond to financial distress by tightening control through more stringent monitoring. Contrary to conventional expectations, I demonstrate that banks sometimes adjust the composition of debt covenants, shifting away from the common covenants (debt ratio and interest coverage ratio covenants), towards more specific types of covenants that do not directly relate to debt or interest terms. These covenants focus on financial measures such as cash flow, collateral value, and liquidity, rather than debt levels. As a result, banks can maintain targeted monitoring of the firm without resorting to more resource-intensive forms of oversight. Also on the intensive margin, banks do not always tighten covenant values in response to financial distress or covenant violations, but rather do the opposite.

In addition to these adjustments, I observe a marked increase in the adoption of springing covenants, which are activated only when a firm's credit availability falls below a predefined threshold, often measured net of cash. These covenants enable banks to reduce their monitoring costs by intervening only when the firm's financial condition triggers the covenant. At the same time, springing covenants protect banks from excessive losses, as they impose an upper limit on bank's exposure. The adoption of these covenants provides a more flexible,

cost-effective monitoring strategy that balances the need for control with the desire to avoid the high costs associated with continuous oversight.

This shift in monitoring strategy corresponds to a significant reduction in covenant violations and renegotiations, suggesting that banks no longer view covenants solely as tripwires for intervention. Instead, the move towards more specific covenants, springing covenants, and looser thresholds could indicate that banks are adopting a more flexible approach to managing distressed firms. These findings offer a challenge to the traditional view that covenant violations and renegotiation are necessary for banks to exert control, showing that similar outcomes on recovery can be achieved with less direct involvement, thus potentially reducing the costs associated with active intervention. This evolving strategy may reflect broader changes in the monitoring process, with banks adapting to financial distress using more cost-effective and flexible tools. Additionally, this trend aligns with the increasing prevalence of covenant-lite loans, which offer fewer or less stringent monitoring requirements.

The second part of the analysis investigates the relationship between the changes in covenant composition and recovery rates for different classes of creditors. I find that the shift towards specific and springing covenants is associated with broadly the same recovery rates for senior creditors. However, the adoption of these types of covenants has an adverse effect on junior and unsecured creditors, who experience significantly lower recovery rates. This result underscores the spillover effect that senior lenders impose on others: they may secure their own recovery prospects while maintaining effective monitoring through more specific and cost-effective covenants, but junior creditors, who free-ride and rely on broader oversight and transparency, are increasingly disadvantaged as a result. Notably, I observe a significant reduction in the recovery rates for junior creditors in firms that adopt springing covenants. This suggests that these covenants, which limit lender intervention until financial conditions worsen, may reduce junior creditors' ability to anticipate distress or actively participate in recovery efforts.

The third part of the analysis examines how the changes in banks' monitoring strategies

impact the overall efficiency of the bankruptcy process. In particular, I observe that firms without covenants limiting the firm's debt level, or firms with springing covenants, tend to engage in more fire sales (referred to as Section 363 sales, to be explained below) and experience a higher number of creditor objections during bankruptcy proceedings. These objections often stem from concerns over the fairness of the recovery distribution, as junior creditors feel excluded from the decision-making process due to the concentrated control held by senior creditors. The increase in objections and the overall delay in the bankruptcy process suggest that while the new covenant structures may benefit senior creditors in the short term, they also contribute to broader inefficiencies in the bankruptcy process, raising costs for all parties involved.

Finally, the paper investigates the mechanisms driving the changes in banks' monitoring behaviors. I demonstrate that the shift away from traditional covenants, coupled with the increased adoption of springing covenants, is primarily driven by the trade-off between the costs and benefits of monitoring. Specifically, I find that the behavior of senior lenders is influenced by the firm's liquidation value. When a firm's liquidation value exceeds the outstanding debt owed to senior lenders, the need for close monitoring diminishes, as senior lenders are effectively overcollateralized. As long as the liquidation value exceeds the senior lender's debt, maintaining or increasing the level of monitoring offers little additional benefit. As firms approach financial distress, the likelihood of covenant violations increases, and the costs of renegotiation and maintaining the same level of oversight rise. I show that banks with full collateralization are more likely to prioritize monitoring strategies that minimize oversight costs, such as adopting springing covenants, which limit intervention to periods of acute distress. This approach allows banks to balance sufficient control over the firm with avoiding the high costs associated with continuous monitoring, ultimately providing a more cost-effective method for managing distressed firms.

Notably, this paper focuses on ex-post bankrupt firms to examine the implications of banks' monitoring strategies on bankruptcy outcomes. Specifically, I investigate how banks'

adjustments to covenant structures influence both the recovery process and the efficiency of bankruptcy proceedings. While an important question remains regarding whether changes in banks' monitoring behavior contribute to differential selection into bankruptcy—particularly in light of the literature on banks' influence over bankruptcy timing (Carey and Gordy, 2021)—I leave this question for future research. My findings provide robust evidence that banks adjust their behaviors in response to financial distress in ways that do not always involve tightening control, thereby opening avenues for future research on a variety of implications. These include, but are not limited to, banks' incentives to engage in different levels of monitoring and the interplay between monitoring behavior in financial distress and the selection process into bankruptcy.

My paper is closely related to covenant and renegotiation literature. Previous research demonstrates that violations frequently lead to significant control over firm behavior. (Chava and Roberts, 2008; Nini et al., 2009, 2012; Falato and Liang, 2016) Banks also actively exert creditor rights without violation through renegotiation. (Denis and Wang, 2014; Roberts, 2015) I provide new evidence that banks might not always respond to financial distress by tightening control through more stringent monitoring. I show that the composition of the covenant changes such that more collateral and liquidity covenants are favored, giving lenders greater security and faster access to cash in times of trouble. In addition, there is an increase in the adoption of springing covenants that are only activated when availability [1] is below a certain threshold, sometimes net of cash, as a way to reduce monitoring costs but ensure an upper limit on the possible loss at the same time. This shift in monitoring strategy leads to fewer covenant violations, suggesting that banks may not always view covenants as tripwires to actively trigger intervention. closely to our paper is Carey and Gordy (2021), who shows that banks determine the asset threshold under which is firm is forced to file bankruptcy. My findings extend this literature by highlighting how banks' preemptive adjustments to covenant composition and monitoring strategies influence the

[1] Defined as the maximum amount of credit a borrower can access under a loan agreement at a given point in time

broader restructuring outcomes for firms.

This paper also speaks to the role of collateral in monitoring incentives. A growing number of papers investigate the role of collateral and covenants from the firm's perspective in achieving efficient financing and investment (Donaldson et al., 2019; Badoer et al., 2020). I show that the tradeoff between covenants and collateral becomes even more acute as firms approach financial distress, providing stronger incentives for banks to prioritize collateral over covenant enforcement. This intuition is supported by several studies, which have pointed out that contractual governance, such as covenants, is only valuable under certain circumstances. For example, a fully collateralized lender has little or no incentive to monitor and detect financial distress through covenants, as quick recovery through asset liquidation is a viable alternative (Rajan and Winton, 1995; Ivashina and Vallee, 2020).

Finally, this paper contributes to the literature on the influence of senior lenders in the bankruptcy process. While much debate surrounds the role of bankruptcy sponsors—such as private equity firms or activist investors—there is broad agreement that senior secured creditors play a crucial role in shaping Chapter 11 outcomes. These creditors often control the timing of bankruptcy filings and significantly influence the restructuring process (Hotchkiss et al., 2023). This paper extends existing research by demonstrating how senior lenders exercise control through pre-bankruptcy monitoring mechanisms. Specifically, I show that changes in covenant composition, such as the adoption of collateral and liquidity covenants or springing provisions, enable senior lenders to influence the course of bankruptcy proceedings before formal filings even occur. These pre-bankruptcy practices have important implications not only for the restructuring process but also for the recovery outcomes of both senior and junior creditors. By highlighting the impact of monitoring strategies employed by senior lenders, this paper underscores how they can shape the trajectory of financial distress and ultimately influence the distribution of value in bankruptcy.

The remainder of the paper is organized as follows. Section 2 provides an overview of the data and presents summary statistics. Section 3 examines changes in banks' monitoring

behaviors. Section 4 investigates the impact of these monitoring behaviors on bankruptcy outcomes. Section 5 outlines the conceptual framework and provides evidence on the collateral mechanisms driving the changes in banks' monitoring strategies. Section 6 concludes.

2. Data and Summary Statistics

I analyze a sample of Chapter 11 filings by large, public, non-financial U.S. firms from 2007 to 2022. The initial sample is drawn from the UCLA-LoPucki Bankruptcy Research Database (BRD), which includes all U.S. public firms with assets exceeding $100 million (measured in constant 1980 dollars), comprising 448 cases. I exclude financial firms (SIC codes 6000-6999), dismissed cases, and unresolved cases, resulting in a sample of 362 firms.

To focus on the implications of banks' monitoring behavior, I exclude cases where the firm's SEC filings are incomplete up to the bankruptcy date and where no bank debt is reported as outstanding within one year prior to the bankruptcy filing. Finally, the central focus of this paper is on the role of bank monitoring. While a few cases in the sample involve senior lenders that are bondholders, in most cases, monitoring is diffuse, and renegotiation does not play a central role in public debt. In contrast, banks, as senior lenders, are in a unique position to engage in active monitoring and renegotiation due to their concentrated claims and ability to enforce covenants. This gives them a critical role in mitigating agency problems and responding to early signs of borrower distress (Diamond, 1984; Boot and Thakor, 1997; Gorton and Winton, 2003). These two restrictions further reduce the sample to 290 firms.

2.1 Bankruptcy data

Using the UCLA-LoPucki Bankruptcy Research Database, I compile a comprehensive dataset on key bankruptcy characteristics for each firm. This includes the duration of each case, measured from the filing date to the confirmation date, whether the filing was prepackaged or

pre-negotiated, and whether the firm underwent a complete sale of its assets through Section 363 sales. In addition, I supplement this data with information sourced from Bloomberg Law and the Public Access to Court Electronic Records (PACER). These sources provide access to reorganization and liquidation plans, disclosure statements, and the full set of documents filed within each court docket. This multi-source approach facilitates the identification of two critical bankruptcy outcomes for each case.

First, I determine the recovery rate for each debt instrument using the disclosure statements and reorganization plans. For each debt instrument, I collect data on the estimated outstanding amount, the type and nature of the debt (including lender type and priority), and the recovery rate (i.e., the share of the outstanding amount repaid at the resolution of bankruptcy). See Appendix A for detailed discussion of the recovery rate. This approach allows me to distinguish recovery rates for secured versus unsecured lenders and to identify outcomes for first-lien lenders, who hold the highest priority in claims, compared to junior lenders (such as second- and third-lien lenders) with subordinated claims.

Second, I analyze the role and implications of asset sales conducted under Section 363 of the U.S. Bankruptcy Code. Section 363 allows debtors to sell assets outside the ordinary course of business, often on an expedited timeline and free of existing liens and encumbrances, subject to court approval. A critical aspect of 363 sales is that senior creditors can execute these transactions without requiring the approval of other creditors, bypassing traditional voting mechanisms used in reorganization plans. This autonomy can lead to what is commonly referred to as a "liquidation bias," where the focus shifts toward asset sales rather than restructuring the firm as a going concern. While this may maximize recoveries for secured creditors in the short term, it can reduce the potential value that might have been realized through reorganization, adversely affecting junior and unsecured creditors. By examining the prevalence of 363 sales, this study provides insights into how these transactions impact creditor recoveries and broader bankruptcy outcomes, highlighting the potential for conflicts between creditor classes under this framework.

Lastly, I investigate objections to Debtor-in-Possession (DIP) financing, a form of credit extended to firms during bankruptcy to support their operations. DIP financing is predominantly provided by prepetition secured lenders, who leverage their informational advantages and access to collateral, particularly when unencumbered assets are scarce (Eckbo et al., 2023). Stakeholders, including unsecured creditors and other parties, may file objections to proposed DIP financing during court hearings if they find the terms—such as milestones, creditor controls, or protections afforded to the DIP lenders—to be excessive or overly restrictive. Following Eckbo et al. (2023), I systematically collect data on all objections to DIP financing from court dockets. These objections serve as proxies for the level of resistance faced by senior lenders from various stakeholders. The analysis documents the types of stakeholders filing objections and the frequency of these objections across cases, providing insights into the dynamics of power and negotiation in bankruptcy proceedings.

2.2 Loan path and covenant

This section examines the evolution of loan agreements and covenant structures, focusing on banks' monitoring behaviors leading up to bankruptcy. Using Securities and Exchange Commission (SEC) filings—10-K, 10-Q, and 8-K—I document all loans exceeding $10 million that were outstanding up to 20 quarters before the bankruptcy date. For each loan, I identify origination, renegotiation, and termination events. The SEC mandates firms to disclose key information about debt agreements, liquidity sources, long-term debt schedules, and material changes to debt instruments (Sufi, 2009; **?**). This regulatory requirement enables the collection of comprehensive data on bank loans and the material changes made to them within five years preceding each bankruptcy case, providing insights into how pre-bankruptcy monitoring behaviors influence bankruptcy outcomes.

Following Roberts (2015), loan paths are characterized by a sequence of events: origination, renegotiation, amendments, waivers, and eventual termination. Amendments include both modifications and "amended and restated" agreements. Rollovers, wherein loans are

replaced by the same lenders, are treated as new loan paths rather than amendments. For each loan, I collect critical details, including loan amount, interest rate, maturity date, and, importantly, financial covenants.

As highlighted by Ivashina and Vallee (2020); Berlin et al. (2020), the coverage and quality of financial covenant data in widely used datasets such as Dealscan have significantly declined over time. Confirming this, I also find that a significant share of the covenant data is missing at origination, reflecting a substantial gap in existing resources. This underscores the necessity of constructing a hand-collected dataset through corporate filings to ensure the accuracy and completeness required for an accurate analysis. Furthermore, most existing studies focus solely on financial covenants at the point of origination. However, my data reveals substantial changes in both the types and thresholds of covenants over the five years leading up to bankruptcy. These dynamic adjustments, illustrated in 1, highlight the evolving nature of loan agreements, which cannot be captured without longitudinal tracking of covenant modifications. Neglecting these changes risks overlooking critical insights into how financial covenants are strategically amended in response to borrowers' financial trajectories and the broader economic environment.

Building and expanding on Denis and Wang (2014), the financial covenants are classified as debt ratio covenants (maximum debt/EBITDA ratio, maximum debt-to-capital, maximum debt-to-net worth, and maximum debt-to-tangible net worth), coverage ratio covenants (minimum interest coverage ratio, minimum fixed charge coverage ratio, and minimum debt service coverage ratio), secured debt ratio (maximum secured debt/EBITDA ratio, maximum first lien debt/EBITDA ratio), collateral-related ratio (minimum collateral coverage ratio, minimum asset coverage ratio, maximum loan-to-value ratio), cash flow only covenants (minimum EBITDA and minimum net income), liquidity covenants (minimum current ratio, minimum quick ratio, and other liquidity ratios) and lastly springing covenant, which only comes into effect once the loan is drawn beyond a certain level.

Springing covenants are designed to act as safety mechanisms that tighten financial over-

sight only when a firm's financial position becomes more constrained. Typically tied to measures such as borrowing availability under a credit line or liquidity metrics, springing covenants can take various forms but most commonly involve fixed charge coverage ratios (e.g., a minimum fixed charge coverage ratio is triggered once availability falls below a predetermined percentage of the total credit line). These covenants enable lenders to impose stricter financial controls in times of distress, safeguarding their position while offering flexibility to borrowers during stable periods. The evolution of springing covenants is closely linked to the rise of covenant-lite loan structures, which lack traditional maintenance covenants. In such arrangements, springing covenants often serve as a compromise, offering conditional financial oversight that becomes operative under certain conditions, such as when the utilization of a revolving credit facility exceeds a predetermined level. This approach balances the borrower's desire for flexibility with the lender's need for risk mitigation. (Gottlieb, 2018)

For each loan, I collect comprehensive data on threshold schedules, identifying whether they are static or dynamic, as determined at origination and updated during subsequent renegotiations. This data includes precise threshold values for each quarter, allowing for an in-depth longitudinal analysis of covenant evolution. By tracking these threshold values over time, I am able to capture how covenant terms adapt dynamically to changing financial conditions. Initially, covenants often become stricter, reflecting the provisions embedded in the original loan agreements aimed at mitigating lender risk. However, these terms may later be adjusted to accommodate the borrower's evolving financial realities or shifts in market conditions, particularly during renegotiations.

Appendix A contains additional details of the data collection method for both bankruptcy and loan path data.

2.3 Summary statistics

The resulting sample comprises 887 loans across 290 firms. Table 1 presents summary statistics for this sample. Panel A reports the bankruptcy characteristics and outcomes, providing insights into key financial metrics such as assets, liabilities, sales, and employees. These are complemented by bankruptcy-related variables, including recovery rates for secured and unsecured creditors, which shed light on creditor outcomes during the bankruptcy process. Panel B presents the loan characteristics, which include the number of loans, loan terminations, amendments, and covenant adjustments over the five years preceding bankruptcy. The statistics reported in Panel B encompass mean, standard deviation, minimum, 25th percentile, median, 75th percentile, and maximum values for each variable, offering a comprehensive view of the loan characteristics within the sample.

In terms of loan activity, firms in the sample, on average, hold two loans during the five years leading up to bankruptcy. These firms experience a substantial number of loan amendments, with an average of 6.8 amendments across all loans, translating into 2.4 amendments per loan. More than half of the firms undergo a relaxation of their financial covenants, with an average of 1.15 instances of covenant relaxation per firm. Additionally, firms also encounter the removal and addition of covenants during this period, indicating a dynamic process of loan renegotiations and adjustments in response to changing financial conditions. These findings underscore the extent to which firms in distress modify their debt agreements in the lead-up to the bankruptcy, and allow us to examine the role of loan renegotiations in shaping the bankruptcy process.

3. Empirical Analysis

3.1 How do monitoring behaviors change?

3.1.1 Types of covenants

Debt ratio covenants and coverage ratio covenants are among the most prevalent covenants included in loans with covenant provisions (Bräuning et al., 2022; Griffin et al., 2019). These covenants typically set limits on a firm's total debt relative to cash flow or balance sheet items, or on interest payments relative to total debt obligations. By regulating a firm's overall indebtedness, these covenants play a critical role in mitigating excessive borrowing and risk-taking, thereby safeguarding the financial stability of the firm and protecting the interests of all stakeholders.

I refer to these provisions as "general debt covenants" because they target the firm's aggregate debt exposure, offering broad, non-specific monitoring benefits. These covenants provide valuable information not only to the credit lenders but also to other stakeholders, such as equity holders and bondholders, who often free-ride on banks' monitoring efforts. This generality makes these covenants particularly effective in addressing systemic risks associated with high leverage and unsustainable debt structures.

In contrast, other types of covenants—such as secured debt ratios, collateral requirements, liquidity minimums, cash flow minimums, net worth, and springing covenants—are more narrowly tailored and address specific dimensions of a firm's financial health. For convenience, I group these under the term "specific covenants." These provisions emphasize monitoring cash flow, liquidity, net worth, the proportion of collateralized loans, and the value of collateral relative to outstanding loans. Unlike general debt covenants, these covenants allow firms greater flexibility in varying their overall debt levels and interest payments, provided that key financial metrics—such as liquidity, cash flow, or collateral values—remain within contractually specified thresholds.

For example, secured debt covenants offer a more focused and lender-specific form of

monitoring. These covenants limit the proportion of secured debt relative to cash flow or other financial metrics, ensuring that lenders maintain a clear claim on valuable collateral while limiting the firm's ability to encumber additional assets. Unlike general covenants, secured debt covenants provide less informational spillover to other stakeholders, as they pertain specifically to the collateral securing the loan rather than the firm's overall financial position. Likewise, minimum EBITDA covenant only requires that a borrower maintain a specified level of earnings before interest, taxes, depreciation, and amortization. This covenant focuses solely on the firm's income-generating capacity, rather than its leverage or overall debt structure, and ensures that the borrower generates sufficient cash flow to cover operating expenses and debt obligations. While this provision offers lenders a clear and direct measure of the firm's operational health, it provides limited insights into broader financial risks, such as overleveraging, that might concern other stakeholders. By emphasizing the borrower's ability to produce cash flow, minimum EBITDA covenants allow lenders to monitor repayment capacity without imposing direct restrictions on overall indebtedness.

Among specific covenants, springing covenants represent a highly targeted and conditional approach to lender monitoring. Unlike covenants that remain active at all times, springing covenants are designed to activate only when specific financial thresholds are breached, mostly when availability under a credit line falls below a predetermined level or when a borrower's liquidity deteriorates significantly. This contingent nature allows lenders to tailor their oversight to periods of elevated financial risk, minimizing the need for active enforcement at all times. A springing covenant might take the form of any financial requirements but the most common one is the minimum fixed charge coverage ratio. The strategic design of springing covenants underscores their role as an efficient and responsive monitoring mechanism. By focusing lender attention and resources on key moments of high exposure form the lender's side, the lenders can reduces the costs associated with continuous monitoring and ensures that lender interventions remain both targeted and situationally appropriate. However, critics may view springing covenants as potentially too lenient, akin

to covenant-lite structures. Their conditional nature means they do not provide continuous oversight, potentially allowing risks to accumulate before triggering corrective action.

Specific covenants benefit lenders by concentrating monitoring efforts on specific, measurable aspects of the borrower's financial health, such as the value of pledged assets or cash flow conditions. This specificity enhances the lender's ability to manage risks that are directly tied to their exposure, while simultaneously reducing monitoring costs by narrowing the scope of oversight to a smaller set of relevant metrics. As a result, specific covenants, such as secured debt ratios or minimum EBITDA requirements, represent a trade-off: they provide lenders with precise, actionable information tailored to their priorities but limit the broader transparency and signaling benefits typically associated with general covenants. General covenants, by contrast, serve as broader safeguards that address systemic risks related to the borrower's overall indebtedness and financial health. By targeting aggregate metrics such as total debt-to-EBITDA or interest coverage ratios, these covenants provide valuable information to all stakeholders, fostering transparency and collective accountability. This broader focus often leads to informational spillovers, benefiting parties who free-ride on the monitoring efforts of lenders.

Different types of covenants have profound implications for lender-borrower dynamics, as the choice and calibration of covenant types influence the extent and nature of lender interventions, the distribution of information among stakeholders, and the borrower's operational flexibility.

Figure 1 examines the dynamics of covenant numbers and composition imposed on firms during the 20 quarters leading up to bankruptcy. In this analysis, duplicate covenants within the same category are counted only once. Panel A reports the total number of covenant types per firm over time, revealing a modest downward trend. While the total number of covenants declines slightly from 1.8 at the start of the sample period to 1.7 by the quarter of bankruptcy, the change is not dramatic. This suggests that lenders continue to impose multiple covenants as part of their monitoring efforts, even as firms approach financial distress.

Panel B, on the other hand, highlights significant changes in the composition of covenant types over the same period. General debt covenants, including debt ratio and coverage ratio covenants, initially dominate, covering 70% of firms at the start of the sample period. However, their prevalence decreases sharply to 40% by the quarter of bankruptcy. Conversely, the use of other covenants—such as liquidity, cash flow, collateral requirements, and springing covenants—increases substantially. This shift reflects a notable reorientation of lender monitoring priorities, with increasing emphasis on the targeted financial metrics.

Figure 2 provides a more granular breakdown of these trends. Panel A illustrates the decline in the two key types of general debt covenants: debt ratio covenants and coverage ratio covenants. Meanwhile, Panel B shows the growth in specific covenants, particularly liquidity, cash flow, and springing covenants, as firms approach bankruptcy. These trends underscore how covenant structures evolve dynamically, with lenders increasingly focusing on more precise financial conditions as distress becomes imminent.

The shift in covenant composition suggests a strategic pivot in lender monitoring behavior. General debt covenants, while offering broad oversight and informational benefits to external stakeholders, are being replaced by specific covenants that prioritize lender protections and address idiosyncratic risks. For instance, liquidity covenants ensure that firms maintain a minimum level of liquid assets, while springing covenants activate only under conditions of heightened financial stress, enabling lenders to allocate monitoring resources more efficiently.

While this shift benefits senior lenders by strengthening their control over specific key financial metrics, it carries broader implications for other market participants. Traditionally, general debt covenants provided valuable informational spillovers to equity holders, bondholders, and external stakeholders, facilitating their assessment of a firm's overall financial health. The transition to more specific covenants, however, limits the availability of such information, potentially impairing stakeholders' ability to evaluate firm stability and make informed decisions. This reduction in transparency could contribute to inefficiencies in

capital allocation and increase uncertainty regarding the financial health of distressed firms.

3.2 The implication for bankruptcy outcomes

Finally, to investigate the role of covenant composition in bankruptcy outcomes, I classify firms into four distinct groups based on the presence and evolution of their general debt covenants: Never, Shift-None, Shift-Other, and Shift-Spring. This classification captures the varying trajectories firms take with respect to their reliance on general covenants and their transition toward more specific covenants, enabling a nuanced analysis of how these shifts impact recovery outcomes.

The Never group comprises firms that never employed general covenants throughout the 20 quarters leading up to bankruptcy. These firms rely exclusively on other, more narrowly tailored covenants. By contrast, the Shift-None group represents firms that had general covenants at some point during the sample period but no longer had such provisions in place by the time of bankruptcy. This group allows us to examine whether the removal of general covenants, without transitioning to specific alternatives, has any implications for recovery outcomes.

The final two groups capture firms that shifted away from general debt covenants toward more focused monitoring mechanisms. The Shift-Other group includes firms that replaced general covenants with specific covenants, such as secured debt, liquidity, or collateral requirements. These firms prioritized targeted financial metrics over broader leverage-based measures. Meanwhile, the Shift-Spring group represents firms that transitioned to springing covenants, which activate only under specific financial distress conditions. This group reflects the most conditional and adaptive approach to covenant design, where lender intervention is contingent on the borrower's financial deterioration.

This classification is critical for understanding how the presence or absence of general debt covenants—and the shift toward more specific alternatives—affects firms during bankruptcy. General covenants provide broad oversight and informational benefits to stakeholders, while

specific covenants focus narrowly on lender protections. By examining firms that shift away from general covenants, this analysis sheds light on whether the move toward targeted covenants improves recovery rates for creditors or whether the lack of broader financial oversight adversely affects bankruptcy outcomes.

Table 2 estimated recovery rates for creditors across four firm classifications defined above: Never, Shift-Spring, Shift-None, and Shift-Other. The recovery rate, defined as the proportion of outstanding debt repaid at bankruptcy resolution, is analyzed separately for total, secured, junior, and unsecured creditors. Junior creditors include any junior secured creditors and unsecured creditors to capture the recovery rate for creditors junior than the first lien creditors.

For total recovery rates, none of the classifications exhibit substantial deviations, suggesting limited aggregate effects of covenant shifts on overall creditor recoveries. However, distinct patterns emerge across creditor types. Firms in the Never group, which never adopted general covenants, experience notably lower recovery rates for junior and unsecured creditors, with reductions of 9.227 percentage points and 12.013 percentage points, respectively. Similarly, firms in the Shift-Spring group, which transitioned from general to springing covenants, show significantly reduced recoveries for junior creditors by 14.939 percentage points and unsecured creditors by 11.476 percentage points. Conversely, the Shift-None and Shift-Other groups show no meaningful impact on recovery rates across any creditor category.

These results highlight the critical role of covenant composition in shaping creditor outcomes during bankruptcy. The absence of general covenants (as seen in the Never group) or their replacement with conditional mechanisms like springing covenants (as seen in the Shift-Spring group) appears to disproportionately harm junior and unsecured creditors. This suggests that the move away from broad financial oversight may prioritize the interests of secured creditors while leaving subordinate creditors more vulnerable, emphasizing the trade-offs inherent in covenant design.

Table 3 examines the relationship between covenant classifications and three key outcomes

during bankruptcy: the likelihood of a 363 sale, the presence of objections to the DIP financing, and the number of objecting parties to the DIP financing. The results provide insights into how the evolution of covenant structures influences the bankruptcy process and creditor dynamics.

In column 1, the dependent variable is an indicator for whether the bankruptcy involved a 363 sale. Firms in the Never group are significantly more likely to undergo a 363 sale, with a coefficient of 0.177, indicating an increase of 17.7 percentage points relative to the baseline. This suggests that firms without general covenants may experience higher pressure for rapid asset sales, potentially due to a lack of broader financial oversight. In contrast, the other covenant groups—Shift-Spring, Shift-None, and Shift-Other—do not show significant effects, indicating that the transition away from general covenants alone does not consistently drive the likelihood of 363 sales.

Columns 2 and 3 shift focus to creditor objections. Column 2 reveals that both the Never and Shift-Spring groups are significantly more likely to face objections during bankruptcy, with coefficients of 0.161 and 0.238, respectively. This suggests that the absence of general covenants (in the Never group) or their replacement with springing covenants (in the Shift-Spring group) may increase creditor concerns, potentially due to perceived gaps in financial monitoring or enforcement. Similarly, column 3 indicates that the number of distinct objecting parties is significantly higher for the Never and Shift-Spring groups, with coefficients of 0.194 and 0.374, respectively. These results highlight the potential for increased creditor dissatisfaction and disputes when general covenants are not present or are replaced with more conditional mechanisms like springing covenants.

Firms in the Never and Shift-Spring groups are more likely to undergo rapid asset sales through 363 sales, which may contribute to the observed lower recovery rates for junior and unsecured creditors in these groups. Additionally, these firms face heightened scrutiny and opposition from other creditors, as evidenced by the increased likelihood of objections and the higher number of objecting parties when DIP financing is offered. This suggests that

the absence of general covenants or their replacement with springing covenants may create challenges in balancing creditor interests during the bankruptcy process. Specifically, these covenant structures appear to prioritize the interests of senior creditors while amplifying coordination challenges among junior and unsecured stakeholders.

These findings highlight the relationship between covenant structure and bankruptcy outcomes, with implications for both firm recovery strategies and creditor coordination. The move away from general covenants toward more focused or conditional mechanisms, such as springing covenants, may shape creditor dynamics in ways that favor senior creditors but exacerbate disputes and reduce recoveries for subordinated creditors.

3.3 Changes in creditor right

The results presented earlier suggest that covenant structure and shifts have significant implications for bankruptcy outcomes, particularly for recovery rates across creditor classes. What do these results on bankruptcy outcomes reveal about the use of creditor rights? The findings suggest that senior secured creditors, who play a pivotal role in structuring loan agreements, may be increasingly less willing to exercise their creditor rights. By either omitting general covenants altogether or shifting toward more focused alternatives such as springing covenants, these creditors do not appear to prioritize traditional mechanisms of financial oversight. This raises an important question: have senior creditors, through these shifts in covenant design, effectively chosen to relinquish some of their ability to detect distress and intervene early in borrowers' financial trajectories? To address this, I explore how the structure and use of covenants impact creditors' willingness to enforce rights, particularly through covenant violations and renegotiations—key tools for creditor intervention.

Creditor rights, established through debt covenants, are mechanisms designed to safeguard lender interests by allowing creditors to intervene when a borrower's financial health deteriorates. Covenant violations act as a "trip wire," transferring control rights to creditors and enabling them to impose stricter contractual restrictions, limit credit access, or

renegotiate loan terms. These violations allow creditors to influence borrower behavior and financial policies, often leading to amendments that tighten covenants or demand additional concessions. Renegotiations, in turn, provide creditors with the flexibility to adjust loan terms dynamically based on borrower performance, serving as a state-contingent tool for exercising control.

Table 4 analyzes the likelihood of covenant violations and the frequency of amendments across the four covenant classification groups, providing insights into creditor behavior and willingness to enforce creditor rights. Column (1) reports the likelihood of a covenant violation within one year, while column (2) captures the number of amendments to the loan agreement within two years.

In column (1), firms in the Never, Shift-Spring, and Shift-None groups exhibit significantly lower probabilities of covenant violations compared to the baseline group, with coefficients of -0.374, -0.259, and -0.350, respectively. This suggests that these groups, which either lack general covenants or have transitioned away from them, are less likely to experience technical defaults that could trigger creditor intervention. The diminished likelihood of violations may reflect creditors' reduced reliance on broad financial covenants to monitor borrower performance or signal financial distress. Conversely, firms in the Shift-Other group, which replaced general covenants with other specific covenants, show no significant difference in violation likelihood compared to the baseline, suggesting that targeted covenants in this group may still act as effective triggers for monitoring and intervention.

Column (2) examines the frequency of amendments within two years. Firms in the Never and Shift-Spring groups exhibit significantly fewer amendments, with coefficients of -0.965 and -1.295, respectively. This indicates that creditors in these groups may be less inclined to renegotiate loan terms, even when borrowers' financial conditions deteriorate. Firms in the Shift-None group also exhibit fewer amendments (-0.350), reinforcing the pattern of reduced lender intervention in groups that move away from general covenants. In contrast, firms in the Shift-Other group experience a significantly higher frequency of amendments (0.826),

suggesting that creditors in this group remain actively engaged in renegotiating loan terms, likely using specific covenants as a basis for negotiation.

Taken together, the evidence indicates that firms shifting away from general covenants are less likely to experience covenant violations or amendments. Specifically, creditors may be less inclined to monitor these firms closely or invoke their rights when financial metrics deteriorate. For instance, the Never and Shift-Spring groups, which lack or transition away from general covenants, exhibit significantly lower probabilities of covenant violations and amendments. This reduced intervention suggests that creditors, by adopting narrowly focused or conditional covenant structures, may deprioritize the proactive use of control rights. Instead, they rely on more reactive mechanisms that activate only under severe financial distress, potentially delaying corrective action.

This shift in creditor behavior—away from the use of covenant violations and renegotiations as early intervention tools—aligns with the observed decline in recovery rates for junior and unsecured creditors. By foregoing opportunities to assert control during the early stages of distress, creditors may lose the ability to steer borrower behavior or negotiate favorable terms. This reluctance to enforce creditor rights early could exacerbate financial distress, ultimately influencing both the process and outcomes of bankruptcy. These findings highlight a critical trade-off: while specific covenants and reactive mechanisms like springing covenants may reduce monitoring costs, they also limit creditors' ability to detect distress and act preemptively, with implications for broader creditor coordination and recovery dynamics.

3.4 Change in covenant thresholds

Thus far, the analysis has focused on the composition of covenants and their implications for creditor behavior and bankruptcy outcomes. However, the value of covenants—specifically how covenant thresholds evolve over the lifecycle of a loan—also plays a crucial role in shaping creditor monitoring and borrower behavior. Comparing firms with different covenant structures or covenant shifts presents significant challenges due to heterogeneity in firm

characteristics and covenant types. To address this, I restrict the analysis to firms that consistently maintained general debt covenants throughout the pre-bankruptcy period ("Always Group") and examine changes in covenant thresholds over time within these firms.

The relaxation or tightening of covenants reflects creditors' willingness to enforce monitoring and control rights. A covenant's value at origination represents the lender's initial expectations of financial health, while its value at bankruptcy reflects how those expectations adapt to the borrower's evolving financial position. For instance, a tightening of covenants may indicate heightened creditor intervention as the borrower approaches distress, while a relaxation suggests a shift in bargaining power toward the borrower or reduced monitoring incentives. Understanding how these values change over time provides deeper insight into how creditors dynamically adjust their behavior and the extent to which covenant design facilitates lender-borrower negotiations.

To quantify changes in covenant thresholds, I calculate the average percentage change across six key covenants (e.g., debt ratio, coverage ratio) for each firm. The percentage change is defined as:

To quantify changes in covenant thresholds, I calculate the average percentage change across six key covenants (e.g., debt ratio, coverage ratio) for each firm. The percentage change is defined as:

$$\% \text{ Change in Covenants} = \frac{1}{6} \sum_{i=1}^{6} \frac{\text{value}_i^{bk} - \text{value}_i^{orig}}{\text{value}_i^{orig}} \tag{1}$$

where value_i^{bk} represents the covenant threshold at bankruptcy and value_i^{orig} represents the threshold at origination for the i-th covenant. Positive values indicate a relaxation of covenant thresholds, while negative values suggest tightening.

Firms in the "Always Group" are then grouped into terciles based on their average percentage change in covenant thresholds. This classification allows for an investigation of how the degree of covenant relaxation or tightening correlates with creditor behavior, borrower performance, and bankruptcy outcomes within a relatively homogeneous set of

firms. By isolating these within-firm changes, I address potential confounding effects arising from differences in initial covenant structures, firm characteristics, or lender priorities across groups.

The histogram in Figure 3 presents the distribution of the percentage change in covenant thresholds for firms in the "Always Group," calculated using Equation (1). The distribution is centered around zero, indicating that, for most firms, covenant thresholds experience no or relatively small changes between origination and bankruptcy. However, the graph also reveals substantial variation across firms. While many firms show only modest tightening or relaxation of covenant thresholds, a non-trivial number exhibit significant relaxation (positive values) or tightening (negative values).

Table 5 examines recovery rates for creditors within the "Always Group," focusing on how the degree of covenant relaxation correlates with creditor outcomes. Firms are divided into terciles based on the percentage change in covenant thresholds, with the first tercile (the omitted group) representing firms with the least relaxed or most tightened covenants. The second and third terciles represent firms with progressively more relaxed covenants. The results reveal a consistent pattern: firms in the second and third terciles experience significantly lower recovery rates for junior and unsecured creditors compared to the first tercile. Specifically, recovery rates for unsecured creditors decline by 11.965 percentage points in the second tercile and 15.890 percentage points in the third tercile. Similarly, junior creditor recovery rates fall by 13.975 and 15.256 percentage points in these groups, respectively. In contrast, the recovery rates for secured creditors remain statistically unaffected across terciles, suggesting that covenant relaxation does not materially impact creditors with priority claims.

These findings confirm the earlier result that senior creditors remain unaffected by covenant relaxation, likely explaining their diminished interest in maintaining general covenants or actively monitoring covenant compliance. As their recovery rates are secured by collateral, senior creditors face little incentive to exert creditor rights through tighter covenants

or proactive enforcement, particularly when these rights primarily serve to protect junior and unsecured creditors. This lack of enforcement and intervention helps to explain the adverse outcomes for subordinate creditors, who are more reliant on creditor monitoring and comprehensive covenant structures to safeguard their claims during financial distress.

The findings reveal a consistent pattern: the structure and value of debt covenants play a critical role in shaping creditor outcomes during bankruptcy. Firms that shift away from general covenants or experience significant covenant relaxation see notably worse recovery rates for junior and unsecured creditors, while recovery rates for secured creditors remain unaffected. This asymmetry reflects the rational behavior of senior lenders, whose claims are sufficiently protected by collateral and repayment priority. The analysis of covenant threshold changes within the "Always Group" further highlights that greater covenant relaxation correlates with diminished recoveries for junior creditors, suggesting that looser covenants reduce creditor intervention and oversight in the lead-up to bankruptcy.

Senior lenders, acting within their contractual rights, prioritize efficient monitoring efforts and the preservation of their secured positions. By shifting away from general covenants, they retract the implicit benefit of broad financial oversight that subordinated creditors previously relied upon as a form of free-riding. This shift leaves junior and unsecured creditors more exposed to financial distress, as their recoveries are more dependent on comprehensive monitoring and early intervention. While this behavior aligns with the senior lenders' primary objective of minimizing costs and securing their claims, it underscores the challenges faced by subordinated creditors in a system where they lack the ability to influence covenant design or enforce earlier intervention.

4. Mechanism

4.1 Incentive to monitor

The behavior of senior lenders plays a pivotal role in shaping bankruptcy outcomes. The prior sections have documented the adverse consequences of reduced monitoring—lower recovery rates for junior creditors and heightened inefficiencies during bankruptcy. However, an important question remains: why would senior lenders alter their monitoring behavior in the first place?

At the heart of this question is the interplay between liquidation value and lender incentives. Senior lenders are primarily concerned with protecting their claims, and the degree of collateralization offered by a firm's assets directly influences their willingness to incur monitoring costs. When liquidation value exceeds outstanding debt, senior lenders are effectively overcollateralized, ensuring that their claims are secure even in a worst-case scenario. Under such circumstances, the marginal benefit of monitoring diminishes, as their recoveries are guaranteed regardless of the firm's performance. Conversely, when the liquidation value is close to or below the level of outstanding debt, the risk of loss increases, and monitoring becomes an essential tool for mitigating risk. In these situations, senior lenders are more likely to actively oversee the borrower to safeguard their claims. These dynamics underscore the pivotal role of liquidation value relative to the debt outstanding as a determinant of lender behavior, influencing the trade-offs they face between monitoring costs and expected recoveries.

In this section, I test the hypothesis that senior lenders are less likely to monitor actively when they are well-protected by a high liquidation value relative to outstanding debt. By examining this relationship, I aim to shed light on how differences in asset collateralization influence lender oversight behavior close to firm bankruptcy.

Data source: Liquidation analysis To explore this mechanism, I rely on liquidation analyses filed by firms during bankruptcy proceedings. These analyses are mandated under U.S.

bankruptcy law, specifically as part of Chapter 11 filings, to satisfy the "best interest of creditors" test outlined in Section 1129(a)(7) of the Bankruptcy Code. A liquidation analysis provides a detailed projection of recoveries under a hypothetical Chapter 7 liquidation scenario. It estimates the recoverable values of various asset classes—such as cash, inventory, receivables, property, and equipment—while accounting for liquidation-related costs, including administrative fees, trustee expenses, and legal costs.

Liquidation value and going concern value are two distinct measures of a firm's worth, reflecting different financial scenarios. Liquidation value represents the net proceeds from selling a firm's assets piecemeal in a forced-sale context, often at heavily discounted prices due to urgency and a limited pool of buyers. In contrast, going concern value reflects the worth of a firm as an ongoing entity, incorporating operational synergies and the value of intangible assets such as brand equity and customer relationships, which are typically lost in liquidation.

The distinction between these two values is critical. Liquidation value serves as the minimum recovery amount that creditors, particularly secured lenders, can expect in bankruptcy, providing a "floor" for their claims. The relationship between liquidation value and the first-lien lender's outstanding debt is particularly important. When liquidation value exceeds outstanding debt, senior lenders are effectively overcollateralized, ensuring full recovery even in the worst-case scenario. This security reduces their incentive to actively monitor the borrower, as their recoveries are guaranteed irrespective of the firm's operational performance and thus their monitoring.

Conversely, when liquidation value is close to or below the amount of outstanding debt, senior lenders face a heightened risk of losses. In these cases, monitoring becomes a critical tool for mitigating risk and protecting their claims. Although the going concern value of a firm—the value assuming continued operations—may exceed liquidation value, its realization depends on the uncertain success of Chapter 11 proceedings and the firm's ability to avoid liquidation. As a result, senior lenders, particularly risk-averse ones, may prioritize

liquidation value as a more reliable benchmark for recovery. This trade-off underscores the pivotal role of liquidation value in shaping lender behavior, even when the going concern value suggests a more optimistic outcome.

For this study, I manually collected data from liquidation analyses across a sample of bankrupt firms. These analyses capture key variables such as the liquidation value of different asset classes, total liquidation value, and net proceeds to secured lenders after deducting Chapter 7 liquidation costs. An example of such an analysis is presented in the Appendix. This dataset forms the empirical foundation for testing whether senior lenders adjust their monitoring behavior based on the level of protection afforded by liquidation value.

To test how liquidation value influences senior lenders' monitoring behavior, I construct two measures capturing the degree of protection provided by collateral. The first is a binary indicator, $\text{Liquidation}_i^{\text{Dummy}}$, which equals 1 if the firm's liquidation value exceeds its outstanding first-lien debt and 0 otherwise:

$$\text{Liquidation}_i^{\text{Dummy}} = \begin{cases} 1 & \text{if Liquidation Value}_i > \text{Outstanding Debt}_i, \\ 0 & \text{otherwise.} \end{cases}$$

This binary measure identifies whether lenders are overcollateralized. The second measure, $\log(\text{Ratio})_i$, captures the relative degree of collateralization and is defined as:

$$\log(\text{Ratio})_i = \log\left(\frac{\text{Liquidation Value}_i}{\text{Outstanding Debt}_i}\right).$$

A higher $\log(\text{Ratio})_i$ implies greater protection, while lower or negative values indicate higher risk for lenders. The log ratio provides a continuous measure of collateral intensity.

4.2 Liquidation value and Bank monitoring behavior

The regression results in 6 examine how liquidation value influences senior lenders' monitoring behavior through changes in covenant structures. The dependent variables reflect four

distinct outcomes: *Always*, indicating firms that consistently maintained general covenants; *Shifter*, referring to firms that modified covenant types during financial distress; *Never*, identifying firms that did not adopt general covenants; and *Shift-Spring*, representing firms that transitioned to springing covenants. The two independent variables of interest are Liquidation > Outstanding, a binary variable indicating whether liquidation value exceeds first-lien debt, and log(Liquidation/Outstanding), a continuous measure of the degree of collateralization.

When liquidation value exceeds outstanding debt (Liquidation > Outstanding), the odds of a firm consistently maintaining general covenants (Always Group) decrease by approximately 43.1%. In contrast, the odds of shifting covenant structures in response to financial distress (Shifter Group)nearly double. These findings suggest that when senior lenders are overcollateralized, their incentives to impose continuous, stringent monitoring diminish. Instead, lenders appear more willing to adjust covenants reactively to evolving borrower risks, given that their recoveries are assured even in adverse scenarios.

The results are further refined when using log(Liquidation/Outstanding) as the independent variable, which provides a continuous measure of collateralization. A one-unit increase in the log ratio reduces the odds of consistently maintaining general covenants (Always Group) by approximately 12.8%. At the same time, the odds of adopting springing covenants (Shift-Spring Group) increase by approximately 46.1%. These results highlight that as the degree of collateralization rises, senior lenders tend to shift away from intensive monitoring mechanisms like general covenants, favoring more cost-efficient alternatives such as springing covenants. Notably, the lack of significant effects for Shifter and Never outcomes in the continuous measure suggests that the influence of collateralization is concentrated on firms' reduced commitment to general covenants and the adoption of conditional covenant mechanisms.

In summary, the results support the hypothesis that higher liquidation value reduces the need for active monitoring by senior lenders. Overcollateralization allows lenders to

minimize monitoring costs without jeopardizing their recovery, leading to a more selective and flexible approach to oversight. This shift toward springing covenants aligns with the notion that senior lenders, when overcollateralized, do not need to engage in continuous monitoring, as it does not impact their recovery prospects. However, this reduction in monitoring has important implications for junior creditors, who may face reduced recoveries as a result. These dynamics underscore the significant role of liquidation value in shaping lender behavior and its broader implications for financial contract structures in distress.

5. Conclusion

This paper analyzes the evolution of corporate debt covenants during financial distress and their implications for bankruptcy outcomes, focusing on both creditor recovery and the broader inefficiencies that emerge during the bankruptcy process. We find that the shift in covenant structures—specifically the move from broad general debt covenants to more narrowly focused covenants—affects both the distribution of recovery values and the efficiency of bankruptcy proceedings.

As firms approach bankruptcy, senior creditors increasingly shift towards more specific or passive type of covenants. While these changes reduce the monitoring costs for senior creditors, they also introduce inefficiencies into the bankruptcy process. Although senior creditors are still well protected by the collateral value and the absolute priority rule, the move away from broader oversight results in lower recovery rates for junior creditors. The replacement of general debt covenants—historically providing wider financial oversight—with more targeted covenants diminishes the amount of information and transparency, making it more challenging for junior creditors to assess the firm's financial condition. This lack of visibility hinders their ability to engage in recovery efforts, ultimately reducing their chances of securing value during bankruptcy.

These changes also contribute to inefficiencies within the bankruptcy process. The shift

toward more specific covenants potentially limits the availability of information to other stakeholders, complicating efforts to coordinate creditor actions. We observe an increase in objections to debtor-in-possession financing, as creditors express concerns over the expanding influence of senior creditors. The rise in both the frequency of objections and the number of parties filing them suggests that replacing general covenants with more targeted or springing covenants heightens contention during the bankruptcy process. However, it is important to note that this study does not claim causality. It is possible that lenders who loosen their monitoring behavior and adopt more specific covenants may also be more aggressive in offering expensive debtor-in-possession (DIP) loans.

Another key insight from this study is the role of liquidation value in shaping creditor behavior. When liquidation value exceeds outstanding debt, senior creditors are more likely to scale back their monitoring efforts, as their claims are effectively secured even in the worst-case scenario. The shift toward springing covenants, which activate only under certain conditions, reflects this reduced need for active oversight. This supports the intuition found in previous research that fully collateralized lenders have less incentive to monitor \citep{rajan1995covenants, ivashina2020weak}. However, what remains underexplored is the broader impact on other market participants who have traditionally relied on the close monitoring provided by senior lenders. I believe this paper provides some of the first evidence on the impact of reduced bank monitoring on these other stakeholders.

In conclusion, this paper highlights the impact of covenant design on both the recovery of creditors and the efficiency of the bankruptcy process. While senior creditors benefit from reduced monitoring costs, the shift toward more specific and conditional covenants leads to lower recoveries for junior creditors and greater inefficiencies in bankruptcy.

This paper highlights the evolving nature of debt covenants and their impact on bankruptcy outcomes, demonstrating how changes in monitoring behavior and covenant design play a pivotal role in shaping recovery rates and inefficiencies throughout the bankruptcy process. While this study provides a valuable first step in understanding these dynamics, it also

raises important questions about the broader implications of monitoring adjustments over time. Specifically, future research should examine how monitoring and covenant structures evolve as a firm's financial condition changes, and how these adjustments influence both out-of-court and in-court bankruptcy outcomes. Understanding the mechanisms behind these changes and their long-term effects on creditor behavior and restructuring efficiency could offer valuable insights into debt contract design, helping to mitigate inefficiencies and improve outcomes for all stakeholders in distressed situations. Additionally, while this paper identifies liquidation value as a key determinant of lender behavior, further investigation is needed to untangle the precise factors driving these changes and to gain a deeper understanding of their role in a firm's restructuring process.

Finally, this paper suggests that the reduction in monitoring by senior lenders, aligning with the trend towards covenant-light loans, may create unintended spillover effects on junior creditors. While senior lenders may achieve the same level of recovery rates through more specific and passive covenants, the broader financial system's efficiency may still be compromised. The diminished oversight results in greater risks for junior creditors, who face lower recovery rates and reduced ability to engage in the bankruptcy process. These findings highlight the need for further research into the systemic implications of these shifts in covenant structures, particularly with respect to their broader effects on financial stability and the functioning of distressed debt markets.

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Figures

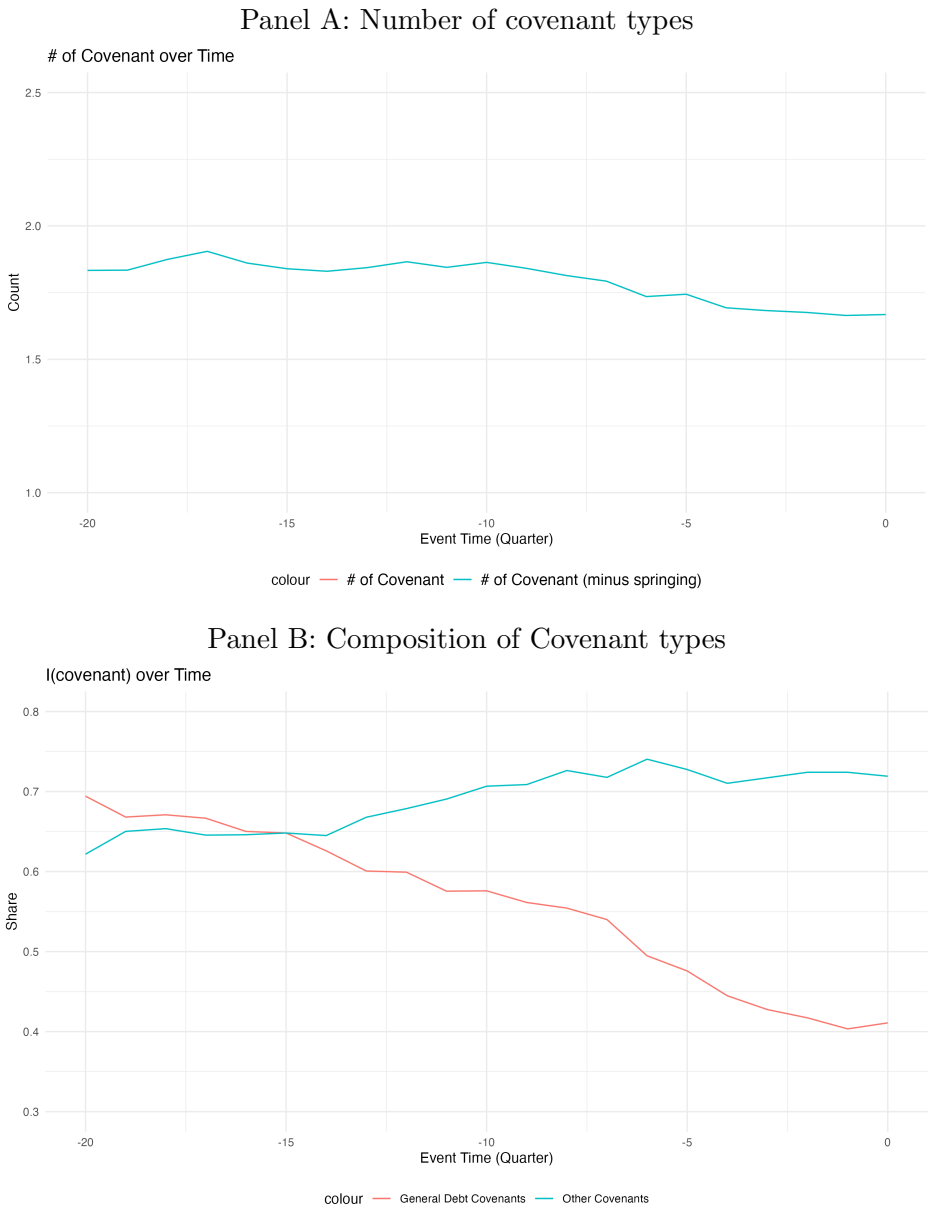
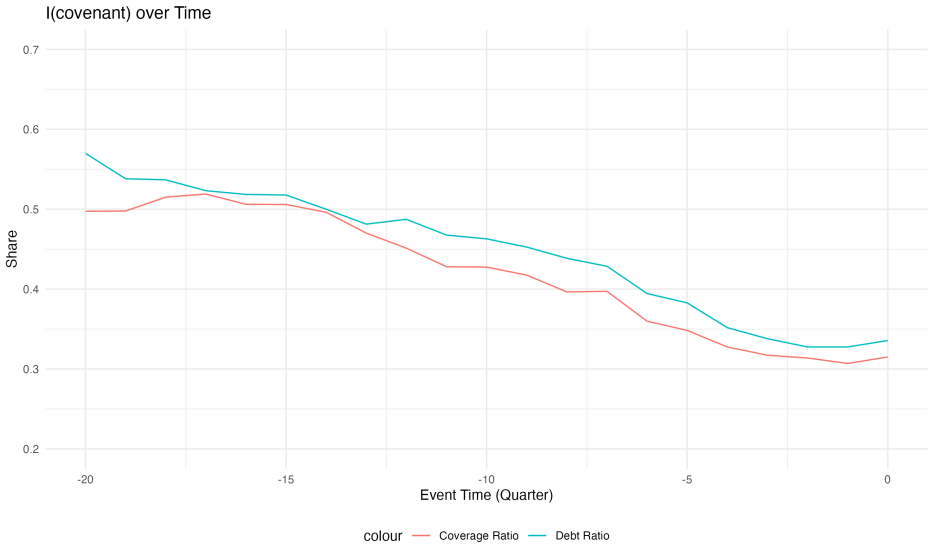


Figure 1: Covenant Number and Composition over Event Time

The upper panel for this figure reports the average number of covenant types 20 quarters before the bankruptcy. The lower panel displays the share of firms with general debt covenants and other covenants, respectively.

Panel A: Breakdown of General Debt Covenants



Panel B: Breakdown of Other Covenants

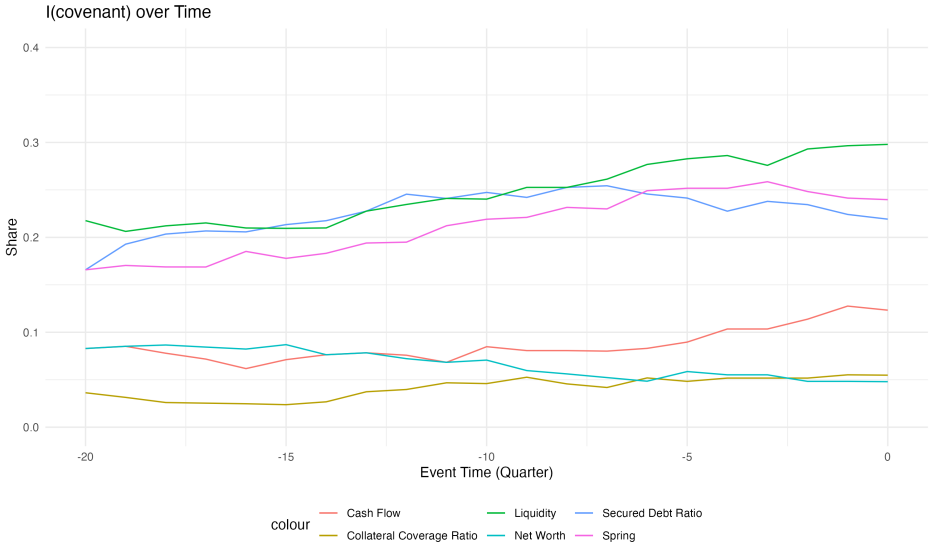


Figure 2: Covenant Number and Composition over Event Time

The upper panel for this figure reports the share of firms with general debt covenants (debt ratio and coverage ratio covenants). The lower panel reports the share of firms with other covenants (secured debt ratio, collateral, liquidity, cash flow, net worth, and springing covenants).

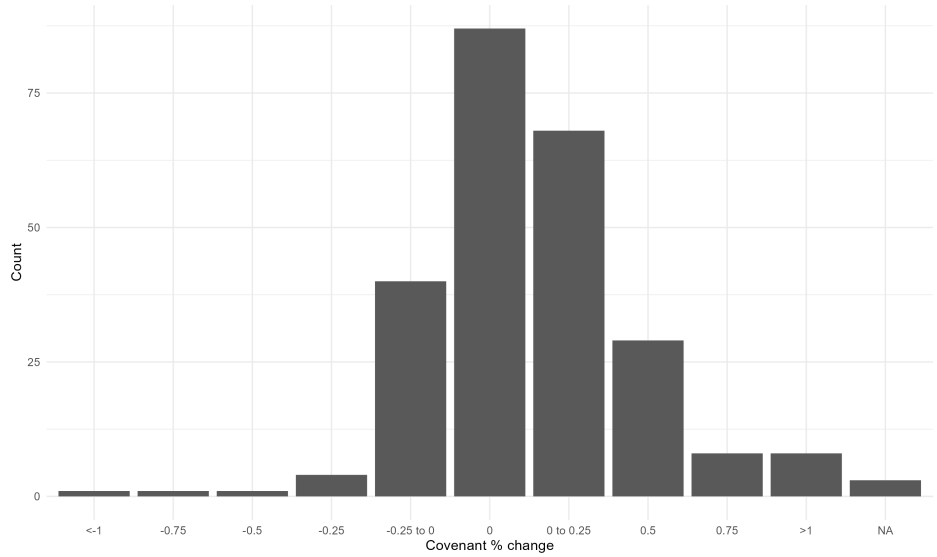


Figure 3: Distribution of Covenant Threshold Changes in the Always Group

The histogram illustrates the distribution of the percentage change in covenant thresholds for firms in the "Always Group," defined as those that consistently maintained general covenants throughout the pre-bankruptcy period. The percentage change is calculated as the average relative change in covenant thresholds from origination to bankruptcy across six key covenants, using the formula shown in Equation (1). Positive values indicate a relaxation of covenant thresholds, while negative values represent tightening.

Tables

Table 1: Descriptive Statistics for Bankruptcy and Loan Characteristics

This table presents summary statistics for the sample firms. Panel A reports bankruptcy characteristics and outcomes, including financial data from the last fiscal year prior to bankruptcy filing. Assets, Liabilities, and Sales represent the book values of assets, liabilities, and net revenue (sales), respectively, measured in millions of dollars. Employees refers to the total number of employees before bankruptcy. ROA is the return on assets, calculated as EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) scaled by total assets. Leverage is the ratio of total liabilities to total assets. Delaware and NYSD are indicator variables for bankruptcy filings in the District of Delaware and the Southern District of New York, respectively. $D_{secured}$, $D_{firstlien}$, and $D_{unsecured}$ represent the face values of secured, first-lien, and unsecured debts. Prepackaged Filing indicates whether the bankruptcy case was prepackaged. Months in Bankruptcy measures the time from filing to plan confirmation. Recovery Rates are reported for secured, unsecured, and junior creditors, reflecting the fraction of debt recovered during bankruptcy. Panel B presents loan-related characteristics, including the number of loans, terminations, amendments, and loan modifications such as covenant relaxations, waivers, removals, and new covenants. Summary statistics include mean, standard deviation, minimum, and percentiles. Our sample consists of bankruptcy cases filed by large, non-financial U.S. firms from 2007 to 2021.

Panel A: Bankruptcy Characteristics and Outcomes

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
Assets ($m)	543.900	209.827	212	379.8	484	691	990
Liabilities ($m)	500.827	208.285	110	364	493	614	996
Sales ($m)	466.339	250.767	2	279	452	674	981
Employees	381.847	275.370	1	121	323	570	997
ROA	0.031	0.202	−0.971	−0.018	0.051	0.111	0.628
Leverage	0.969	0.384	0.275	0.722	0.904	1.118	2.690
Delaware	0.441	0.497	0	0	0	1	1
NYSD	0.214	0.411	0	0	0	0	1
$D_{secured}(\$m)$	1,058.473	1,850.378	12	207	456	1,085	13,825
$D_{firstlien}(\$m)$	764.555	1,371.236	12	142	310	844	12,700
$D_{unsecured}(\$m)$	1,072.510	1,846.683	0	204.5	452	1,110.5	12,195
Prepackaged Filing	0.200	0.401	0	0	0	0	1
Months in Bankruptcy	8.537	8.863	0.700	3.200	6.500	11.300	89.700
Recovery (Total)	58.878	25.858	0.099	40.220	56.410	77.830	100.000
Recovery (First lien)	89.152	20.545	7.500	87.663	100.000	100.000	100.000
Recovery (Secured)	80.556	25.503	5.483	60.602	99.497	100.000	100.000
Recovery (Unsecured)	23.665	26.347	0.000	2.500	12.060	38.450	100.000
Recovery (Junior)	28.146	27.442	0.000	3.881	18.880	45.000	100.000

Panel B: Loan Characteristics

Statistic	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
# loan	2.095	1.192	1	1	2	3	9
# terminate	0.652	0.838	0	0	0	1	4
# amend	6.774	5.058	0	3	6	9	37
# amend per loan	2.434	1.879	0.000	1.000	2.000	3.500	9.500
# relax	1.932	2.325	0	0	1	3	20
# waiver	1.145	2.041	0	0	0	1	14
# removal	0.588	0.823	0	0	0	1	4
# new	0.666	0.924	0	0	0	1	5

Table 2: Recovery Rate by Creditor

The dependent variable is the recovery rate, defined as the proportion of the outstanding debt repaid to creditors at the resolution of bankruptcy. Recovery rates are reported separately for total, secured, junior, and unsecured creditors. The table categorizes firms into four groups based on their covenant trajectory: Never (firms that never employed general covenants), Shift-Spring (firms that transitioned from general covenants to springing covenants), Shift-None (firms that removed general covenants without replacing them), and Shift-Other (firms that replaced general covenants with specific covenants such as secured debt, liquidity, or collateral-related provisions). Standard errors are reported in parentheses. All regressions include year fixed effects. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	Total	Secured	Junior	Unsecured
Never	1.121	−1.500	−9.227*	−12.013**
	(4.007)	(3.895)	(5.066)	(5.250)
Shift-Spring	−6.035	8.059	−14.939**	−11.476*
	(5.539)	(5.382)	(6.308)	(6.551)
Shift-None	3.017	6.658	−6.223	6.470
	(6.260)	(6.465)	(7.540)	(8.701)
Shift-Other	−6.176	1.818	−1.756	−4.072
	(4.488)	(4.334)	(5.078)	(5.241)
Constant	80.923***	86.601***	58.619***	58.783***
	(9.993)	(9.716)	(13.862)	(15.322)
Year Fixed Effects	Yes	Yes	Yes	Yes
N	281	279	229	197
Adjusted R^2	0.036	0.062	0.026	0.020

Table 3: Bankruptcy Outcome by Covenant Structure

The dependent variables in the regressions are: (1) an indicator for whether the bankruptcy involved a 363 sale (column 1), (2) an indicator for whether there was at least one objection to the bankruptcy process (column 2), and (3) the number of distinct parties filing objections (column 3). Firms are classified into four groups: Never (firms that never adopted general covenants), Shift-Spring (firms that transitioned from general covenants to springing covenants), Shift-None (firms that removed general covenants without replacement), and Shift-Other (firms that replaced general covenants with specific covenants, such as secured debt or liquidity requirements). Standard errors are reported in parentheses. Year fixed effects are included in all regressions. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	363 sale	I(objection)	(objecting parties)
Never	0.177***	0.161**	0.194*
	(0.065)	(0.078)	(0.113)
Shift-Spring	0.070	0.238**	0.374**
	(0.088)	(0.108)	(0.156)
Shift-None	0.103	0.028	0.028
	(0.102)	(0.125)	(0.180)
Shift-Other	0.060	0.027	0.049
	(0.075)	(0.091)	(0.132)
Constant	0.210	0.641***	0.751***
	(0.163)	(0.196)	(0.282)
Year Fixed Effects	Yes	Yes	Yes
N	290	279	279
Adjusted R^2	0.012	0.012	−0.0003

Table 4: Covenant Violations and Amendments by Covenant Structure

The dependent variable in column (1) is an indicator for whether a firm violates a covenant within one year. The dependent variable in column (2) is the number of amendments to the loan agreement within two years. Firms are classified into four groups: Never (firms that never adopted general covenants), Shift-Spring (firms that transitioned from general covenants to springing covenants), Shift-None (firms that removed general covenants without replacement), and Shift-Other (firms that replaced general covenants with specific covenants, such as secured debt, liquidity, or collateral-related provisions). Standard errors are reported in parentheses. Year fixed effects are included in all regressions. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	I(violation)	Amendment
Never	-0.374^{***}	-0.965^{**}
	(0.072)	(0.396)
Shift-Spring	-0.259^{**}	-1.295^{**}
	(0.100)	(0.550)
Shift-None	-0.350^{***}	0.025
	(0.113)	(0.602)
Shift-Other	-0.043	0.826^{*}
	(0.080)	(0.423)
Constant	0.635^{***}	2.293^{**}
	(0.181)	(0.888)
Year Fixed Effects	Yes	Yes
N	290	238
Adjusted R^2	0.083	0.091

Table 5

The dependent variable in this table is the recovery rate, defined as the proportion of outstanding debt repaid to creditors at the resolution of bankruptcy. The table reports recovery rates for total creditors, secured creditors, junior creditors, and unsecured creditors within the "Always Group," which consists of firms that consistently maintained general covenants throughout the sample period. Firms are categorized into terciles based on the average percentage change in their covenant thresholds, as defined by Equation (1). Standard errors are reported in parentheses. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	Total	Secured	Junior	Unsecured
2nd tercile	-10.468^{*}	-2.103	-13.975^{*}	-11.965
	(5.637)	(6.067)	(7.227)	(7.675)
Shift-3rd tercile	-3.390	0.623	-15.256^{**}	-15.890^{**}
	(5.787)	(6.229)	(7.576)	(7.813)
Constant	66.221^{***}	80.802^{***}	42.832^{***}	37.475^{***}
	(4.092)	(4.405)	(5.552)	(5.579)
N	109	109	90	79
Adjusted R^2	0.015	-0.017	0.033	0.031

Table 6: Impact of Liquidation Value on Covenant Shifts

This table presents Logit regression analyzing the relationship between liquidation value and covenant shifts. The dependent variables represent four distinct covenant outcomes at bankruptcy resolution: *Always* indicates firms that consistently maintained general covenants throughout the sample period, *Shifter* denotes firms that shifted covenant types in response to financial distress, *Never* refers to firms that did not adopt general covenants at any point, and *Shift-Spring* identifies firms that transitioned to springing covenants.
Panel A includes regressions where the key independent variable is *Liquidation > Outstanding*, a binary indicator equal to 1 if the firm's liquidation value exceeds its outstanding first lien debt. Panel B replaces this with *Log(Liquidation/Outstanding)*, a continuous measure of the liquidation value relative to the outstanding first lien debt. Standard errors are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Liquidation > Outstanding

	Always	Shifter	Never	Shift-Spring
Liquidation > Outstanding	-0.564^{*}	0.690^{**}	-0.088	0.668
	(0.297)	(0.311)	(0.350)	(0.482)
Constant	-1.183	0.142	-1.352	-1.686
	(1.128)	(0.932)	(1.126)	(1.153)
N	232	232	232	232
Log Likelihood	-145.095	-130.654	-113.386	-66.031
Akaike Inf. Crit.	324.190	295.308	260.773	166.061

Panel B: Log(Liquidation/Outstanding)

	Always	Shifter	Never	Shift-Spring
Log(Liquidation/Outstanding)	-0.137^{*}	0.133	0.042	0.379^{**}
	(0.074)	(0.087)	(0.079)	(0.167)
Constant	-1.404	0.416	-1.385	-1.449
	(1.121)	(0.917)	(1.118)	(1.146)
N	232	232	232	232
Log Likelihood	-145.046	-131.819	-113.270	-63.811
Akaike Inf. Crit.	324.092	297.639	260.540	161.623

Appendix A: Additional details on data

A1. Recoverty rates

Recovery rates are reported in a firm's reorganization or liquidation plan, which must be confirmed by the bankruptcy court. These plans provide detailed information on how each class of claims is treated, particularly whether the claims are impaired or unimpaired. The recovery rate is determined based on the compensation received by each creditor class, which may include cash, new debt, new equity, or a combination of these securities.

For an unimpaired claim, the creditor receives full repayment, resulting in a 100% recovery rate. In contrast, an impaired claim is compensated at less than the full face value. The compensation for impaired claims typically involves a mix of cash, new debt, or equity, depending on the firm's financial situation and the valuation of its assets. The firm's valuation, typically derived from a court-approved enterprise valuation, forms the basis for calculating the expected recovery.

In most Chapter 11 cases, firms operate as a going concern, meaning they continue business operations under reorganization. Recovery rates for going concern firms are based on the expected value of the firm's assets if it continues operations, as determined by the bankruptcy plan. However, if the firm is liquidated within Chapter 11, the recovery rate is based on the liquidation value of the firm's assets, which are sold off to satisfy creditor claims.

To calculate the actual recovery rate, we use the total value of the compensation received by each class of creditors, which may consist of cash, new debt, and new equity. For new equity, the value is determined based on the closing price on the first trading day after the firm emerges from bankruptcy, if available. In cases where the equity is not publicly traded, we use the estimated value provided in the reorganization or liquidation plan. The actual recovery is then expressed as the proportion of the creditor's claim that is satisfied, based on the total value received relative to the original claim amount.

A2. Loan path data

The loan path data is sourced from SEC filings, primarily 10-K, 10-Q, and 8-K reports, covering loans with original amounts exceeding $10 million, tracked up to 20 quarters prior to bankruptcy. This dataset includes information on the origination, renegotiation, amendments, waivers, and terminations of each loan. The key variables include loan amount, interest rate, maturity date, and the specific financial covenants associated with each loan.

For each loan, significant events such as renegotiations or amendments are recorded, providing a timeline of changes in loan terms and covenant structure. These changes, which may include adjustments to financial covenants, interest rates, or maturity dates, are critical in understanding how debt structures evolve in response to financial distress. Loans that are refinanced or rolled over are treated as new loan paths, rather than amendments, to accurately capture the modification of loan terms.

A3. Liquidation data

Section 1129(a)(7) of the Bankruptcy Code, often referred to as the "best interest of creditors test," stipulates that a Chapter 11 bankruptcy plan must ensure that even dissenting creditors receive at least as much under the plan as they would in a Chapter 7 liquidation proceeding. This test plays a pivotal role in the reorganization process, as it ensures that creditors are not worse off under a reorganization plan than they would be in the event of a liquidation. The calculation of the liquidation value is critical in determining whether a Chapter 11 plan meets this requirement, as it forms the baseline for creditor recoveries.

To assess the liquidation value of a firm, data is collected from liquidation analyses filed by the firm during bankruptcy proceedings. These analyses provide detailed projections of recoveries from asset sales in a Chapter 7 liquidation scenario, accounting for factors such as liquidation-related costs, trustee expenses, and legal fees. The liquidation value is typically determined by estimating the net proceeds from selling the firm's assets piecemeal, often at discounted prices due to the urgency of liquidation and limited buyer pool. The data

collected from these liquidation analyses is then used to calculate potential recovery rates for creditors, comparing them to those in the firm's Chapter 11 reorganization plan to ensure compliance with the "best interest of creditors" test.

The liquidation data also includes the breakdown of recovery rates across different creditor classes, which are crucial for understanding the distribution of value in a liquidation versus a reorganization. This allows for a comparison between the expected outcomes in both processes, providing a clearer picture of how firms' assets are allocated during bankruptcy. Furthermore, the liquidation data helps to highlight how secured creditors' claims are prioritized and the impact of collateralization on the overall recovery for unsecured creditors.

	Net Book Value as of December 31, 2006			Estimated Recovery %		Estimated Recovery $		
	Consolidated	Adjustments to Exclude Non-Debtors(1)	Debtors	Lower	Higher	Lower	Higher	Notes
		(in millions)				(in millions)		
Assets								
Current assets:								
Cash and cash equivalents	$ 25.9	$ (2.9)	$ 23.0	97%	97%	$ 22.3	$ 22.3	2
Trade accounts receivables, net	41.3	(5.9)	35.4	50%	75%	17.7	26.6	3
Other current assets	9.9	(0.4)	9.5	0%	0%	—	—	4
Total current assets	77.1	(9.2)	67.9			40.0	48.9	
Property and equipment, net:								
Vehicles	2.4	—	2.4	67%	94%	1.6	2.3	5
Land, building and leasehold improvements	13.9	(2.7)	11.2	37%	53%	4.1	5.9	6
Computer and office equipment	17.6	(3.8)	13.8	10%	20%	1.4	2.8	7
Diagnostic and related equipment	112.7	(9.9)	102.8	36%	61%	37.0	62.7	8
Equipment and vehicles under capital leases	15.4	(2.9)	12.5	48%	81%	6.0	10.1	9
Property and equipment, net	162.0	(19.3)	142.7			50.1	83.8	
Investments in unconsolidated partnerships	3.4	—	3.4	69%	95%	2.3	3.2	10
Investments in consolidated partnerships	—	21.9	21.9	17%	28%	3.7	6.1	11
Other assets	16.3	—	16.3	0%	0%	—	—	12
Goodwill and other intangible assets, net	95.7	(7.1)	88.6	0%	0%	—	—	13
Total assets	$354.5	$(13.7)	$340.8	28%	42%	$ 96.2	$142.0	

Figure: An Example of Liquidation Analysis