The Double-Edged Sword of Withdrawal Rights

Kenneth Ayotte*

U.C. Berkeley School of Law

March, 2015

Abstract

Baird and Casey (2013) discusses the use of subsidiary legal entities to create a path around bankruptcy’s automatic stay, giving a secured creditor a free right to withdraw collateral. In some cases, core assets of the firm are made separable from each other. This paper formally analyzes the trade-offs between allowing a secured creditor to freely withdraw a key asset, and a court-imposed stay of withdrawal. If a creditor with a withdrawal right is uninformed about the firm’s going-concern value in bankruptcy, inefficient bargaining outcomes can result. I find that debtors do not have the incentive to make the firm value-maximizing choice of the stay versus withdrawal, or an informed versus and uninformed withdrawal right, due to externalities the choice imposes on the other creditors.

A recurring theme in the model is that the firm’s capital structure is an important determinant of the efficiency or inefficiency of withdrawal rights, particularly when withdrawal rights creditors are uninformed. I show that firms are particularly prone to grant withdrawal rights inefficiently when withdrawal rights creditors lack recourse, as in a loan to a subsidiary. The model also provides some rules of thumb to guide application of a stay to non-debtor subsidiaries on a limited basis that targets the most inefficient withdrawals.

*Email: kayotte@law.berkeley.edu. Thanks to Douglas Baird, Tony Casey, Ezra Friedman, Jared Ellias, Alan Schwartz, David Skeel, Eric Talley, and workshop participants at the 2013 Law and Economics Theory conference, the Univ. of Chicago Creditors and Corporate Governance conference, and U.C. Berkeley law and economics seminar for helpful comments.
1 Introduction

The automatic stay is one of the fundamental features of corporate reorganization. When a bankruptcy petition is filed, most rights against a debtor are temporarily suspended. The stay is most commonly justified as a way of defeating an unsecured creditor run due to a common pool problem. But, in practice, the stay operates more broadly than just preventing unsecured creditor runs. A secured creditor’s right to seize and sell collateral is automatically stayed, even when the creditor is fully secured.1

The stay cannot be directly contracted around: attempts to waive the stay in loan contracts are not enforceable. But the stay is often contracted around indirectly. An important paper by Baird and Casey (2013) gives several examples suggesting that, in the modern firm, legal entity partitioning is used to create the same effective result. In some cases, the firm’s core assets are involved. The Los Angeles Dodgers placed each of the baseball team’s major assets (the team, the parking lot, and the stadium) in separate legal entities. While the baseball team entity filed for bankruptcy, a separate entity owning the team’s parking lot did not. Creditors of the parking lot entity were free to exercise their contractual rights as a result, notwithstanding the team entity’s bankruptcy case. The Dodgers case is not an isolated example: it has become common for firms with significant real estate exposure, such as retailers, nursing homes, and casinos, to separate their real estate into separate subsidiary entities that are separately financed (“OpCo-PropCo” structures).2

Baird and Casey (2013) argue that the ability to withdraw has ex-ante disciplinary benefits on management, and the observability of entity partitioning will likely lead to efficient creation of withdrawal rights. While this work and others explore the ex-ante benefits of secured creditor rights to seize collateral (Bolton and Scharfstein 1990, Hart and Moore 1994), the costs of these rights have not been fully developed. Doing so requires a theory explaining

11 U.S.C. 362(a)(4)

2 The PropCo subsidiaries typically lease the assets back to the OpCo, and the lease payments form the backing assets for CMBS or other debt securities. Toys R’ Us, Station Casinos, and Genesis Healthcare are recent examples. While I do not model leases between the subsidiary and the parent formally here, Ayotte and Gaon (2011) show that such leases are not a complete cure for inefficient liquidation/continuation problems when necessary assets are transferred to a subsidiary.
why a mandatory stay of secured creditors—a policy rarely questioned by practitioners and policy makers, yet not fully explained by bankruptcy theory—may be valuable in the first place. The increasing use of subsidiaries to hold firm-specific assets brings this issue to the forefront from a policy perspective.

In this paper, I analyze the ability of creditors to freely withdraw a key asset from the firm in default. The law and finance literatures show that the right to withdraw collateral in default can limit the costs of information asymmetries between borrowers and lenders (Bester 1985, Besanko and Thakor 1987), reduce the need for costly monitoring (Jackson and Kronman 1979, Triantis 1992), and thus lower the firm’s total cost of capital. This paper, by contrast, suggests that granting withdrawal rights to uninformed creditors can be a double-edged sword. Specifically, limited information about the debtor’s going concern value can cause bargaining imperfections that lead to inefficient bankruptcy outcomes when the creditor is permitted to withdraw collateral on demand.

In my model, debtors can mitigate these costs in two ways. First, they can choose to borrow from an informed lender instead of an uninformed one when they grant a withdrawal right (for example, borrowing from a relationship bank instead of a loan sold to a securitization vehicle). Informed debt carries a higher financing cost, but because the lender is knowledgeable about the firm’s going concern value, bargaining frictions in default are less severe. Second, they can choose to subject the lender to a stay of withdrawal if the firm defaults. The stay provides time for the lender to acquire information, but the lender’s protection is based on a judicial valuation of the collateral. Undervaluation of the collateral in reorganization can cause a bias toward the reorganization of inefficient firms.

I show that debtors, in general, do not have the incentive to make the creditor information decision or the withdrawal/stay decision in a way that maximizes overall firm value. Inefficiency occurs in the model because the firm’s financing choice affects the payoffs of

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3. As an example, Baird and Jackson (1984) argue in favor of a stay of secured creditors:

“Because of the costs repossession and subsequent repurchase may bring, it is consistent with the purposes of bankruptcy to substitute for a secured creditor’s actual substantive rights under nonbankruptcy law a requirement that the secured creditor accept the equivalent value of those rights.”

The contribution of this paper is to model these repossession costs and explain the stay’s mandatory nature: i.e., why it might be contracted around even when it is efficient.
the firm’s existing creditors in bankruptcy. The firm’s “other” creditors in my model are rational, in that they anticipate the firm’s subsequent behavior and price it into their loan contracts, but they are limited in their ability to police the debtor’s behavior after lending. Though the debtor ultimately bears the cost of its decisions in equilibrium, it does not internalize the effects on the firm’s earlier creditors when it borrows at a later date.

With respect to the informed/uninformed decision, borrowing from an informed creditor affects outcomes in two ways in bankruptcy: it can change the liquidation/reorganization decision, and it can change the distribution of the surplus conditional on the liquidation/reorganization outcome. I show that some of the gains from a better liquidation/reorganization decision accrue to the firm’s other creditors; because the borrower bears the full cost of the informed debt but does not capture all the benefits, this force biases the firm against using an informed withdrawal right. But I find it is also possible for firms to be biased toward informed debt, to the extent that it redistributes more of the surplus in bargaining away from the firm’s other creditors.

Firms also do not make the withdrawal versus stay decision efficiently, due to externalities imposed on the other creditors. Importantly, I find that the firm’s capital structure has an important effect on the efficiency of withdrawal rights. First, I find that the firm can avoid the negative consequences of an uninformed withdrawal right to the extent that they can offer a safer claim to the withdrawal rights creditor in bargaining. This becomes harder, for example, when the firm’s existing creditors are more fully protected, and hence there is less seniority to give away.

Second, if the early creditors stand to capture a sufficiently large share of the unsecured value of the firm (that is, the remaining value of the firm after the secured claims and withdrawal rights are paid), I find that the firm will always prefer an uninformed withdrawal right over subjecting the later creditor to the stay, whether or not a withdrawal right is efficient. The debtor seeks to minimize the interest rate on its new borrowing; and it can do so by committing a larger share of the bankruptcy payoff to the later creditor. Under a withdrawal right, the creditor always gets at least the value of his collateral in bargaining, whereas under a stay, the collateral may be undervalued by the bankruptcy process. The only way the debtor has incentive to subject the later lender to the stay is if the later creditor
(or the debtor) can capture enough of the unsecured value in bankruptcy to recoup the losses on the collateral.\(^4\)

One important case in which the unsecured value might go to the early creditors, rather than the later creditor, is when the later creditor does not have recourse to the firm’s assets, as when the later creditor lends to a subsidiary rather than to the parent. This result suggests a cost to using subsidiaries as a path around the automatic stay—the lack of recourse increases the firm’s tendency to grant withdrawal rights, irrespective of their efficiency consequences.

Because firms lack the proper incentive to make the withdrawal/stay decision, my analysis suggests a qualitative trade-off between a bankruptcy law that allows free contracting for withdrawal rights and a regime that enforces a mandatory stay. In the discussion that follows, I discuss the costs and benefits of withdrawal rights via subsidiaries (which generally are permissible\(^5\) under current law\(^6\)) versus contractual waivers of the stay (which generally are not). I also suggest ways that a stay might be made available on a limited basis against subsidiary withdrawals in a way that targets going-concern value preservation and limits the potential for judicial error.

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\(^4\)Secured creditors are entitled to adequate protection of their security interest during the case (11 U.S.C. 361, 362(d)(1)), which protects them against depreciation of the collateral during the case. They are also entitled to the value of the collateral in a cramdown plan of reorganization. 11 U.S.C. 1129(b)(2)(A).

\(^5\)A literal reading of the Bankruptcy Code would lead to this conclusion, since the stay applies only to actions against the debtor, which is the legal entity in bankruptcy. There are some cases, however, in which courts suggest the stay can be applied to actions against non-debtor subsidiaries. See Queenie, Ltd. v. Nygard Intl., 321 F.3d 282 (2d Cir. 2003), In re Residential Capital, LLC, (2d Cir. 2013)

\(^6\)To create a right to withdraw an asset when a parent defaults, the parent would need to create a subsidiary and transfer the asset to it. The creditor could take a security interest in the asset, and the debt contract could condition a default on a default or bankruptcy of the parent. The subsidiary would also likely need to be structured so that the parent could not bring it into bankruptcy; they could do this by putting creditor-friendly directors on the board. To see examples where courts undermined these attempts, see Baird and Casey (2013).
2 Related Literature

There is a large literature on the ex-ante benefits of secured credit, which allows the creditor to withdraw collateral in default. One branch focuses on preventing moral hazard, such as the diversion of cash flows (Bolton and Scharfstein 1990; Hart and Moore 2004). Secured debt can limit other moral hazard problems such as asset substitution and overinvestment in a way that limits monitoring costs associated with covenants in unsecured debt (Jackson and Kronman 1979, Triantis 1992). A second branch focuses on adverse selection. Collateral serves as a signal, thus limiting the need for creditors to be fully informed about firm value (Bester 1985, Besanko and Thakor 1987). This paper is most related to the second branch, as it demonstrates a cost to allowing a withdrawal right when creditors are not fully informed about firm value.

This paper adds to a literature that analyzes mandatory rules in bankruptcy. In the corporate context, mandatory rules are challenging to justify, as they may disturb efficient contractual bargains (Che and Schwartz 1999). Mandatory rules have been justified in environments where multiple creditors contract sequentially with the debtor, giving rise to potential externalities. Externalities are imposed on early creditors by later creditors to the extent that covenants cannot prevent subsequent dilutive contracts (Longhofer and Peters 2004) or imposed on late creditors by early creditors when information about existing rights is costly to verify (Ayotte and Bolton 2011). This paper’s approach is similar to Longhofer and Peters (2004). It adds to it by analyzing a specific bankruptcy institution (the stay of secured creditors and the structured bargaining in the U.S. Bankruptcy Code) and contrasting it against the alternative of free withdrawal.

My model bears resemblance to the normative debate about whether secured credit should receive full priority with respect to their collateral (Bebchuk and Fried 1996, Schwartz 1996). Different from this literature, which analyzes whether the substantive value of a secured creditor’s collateral should be respected, I analyze how the choice of procedure (a mandatory stay and structured bargaining, or free withdrawal) affects efficiency. The trade-offs are also different, as I focus on information acquisition and its effect on the efficiency of the
continuation/liquidation decision in bankruptcy, which is largely missing from that debate.\footnote{The case for a mandatory stay is likely stronger than the case for weakening a secured creditors’ substantive rights. First, the ex-ante benefits of secured debt (such as preventing debtor moral hazard) generally rely on protecting the substantive value of the creditors’ claim, not the procedural right. Second, early creditors can protect themselves against inefficient subsequent security interests by taking a security interest themselves (Schwartz 1996). The same is not true for withdrawal in this model: early creditors are secured by all assets available at the initial date. An inefficient withdrawal right reduces the value of the early creditors’ deficiency claim, which is harder to defend against redistribution.}

In contrasting the stay and free withdrawal, my model also relates to the bankruptcy literature that addresses the inherent tension between holdup and cramdown (Adler 2012). Different from Adler (2012), I allow for endogenous information generation by creditors ex-ante and consider its effects on bargaining ex-post. This paper also relates to the maturity rat race in Brunnermeier and Oehmke (2013). In their model, short maturity is similar to a withdrawal right in my model; they show that maturity can be too short due to creditor externalities. Their paper does not model or discuss bankruptcy law, however.

Previous literature suggests several benefits of creating separate subsidiaries and free withdrawal rights. Giving lenders a claim that is targeted only to a particular asset, via a separate legal entity, limits problems of moral hazard and adverse selection by borrowers (Hill 1996, Iacobucci and Winter 2005, Ayotte and Gaon 2011). Creditors secured by collateral of a known value with free withdrawal rights can focus their monitoring efforts on their collateral; they need not be as concerned about the debtor’s other assets, liabilities, and operations.

## 3 Model Setup

### 3.0.1 Timeline

Consider a model that takes place over 5 relevant dates, 1, 2, 3a, 3b, and 4. At date 1, an owner/equity holder (E) starts a firm by issuing debt to a creditor (P1) to finance the purchase of asset A. At date 2, the owner needs continuation financing \( i_2 \) to finance a new asset B. The financing must be provided by a new creditor (P2). At date 3, success or default is revealed. In the default state, a bankruptcy procedure begins at date 3a, and the
firm must decide to continue or liquidate. If the firm continues, it operates in bankruptcy until date 3b. At date 3b it may either liquidate or reorganize. If it reorganizes, securities in the ongoing firm are distributed. The value of these securities is realized when a final cash flow occurs at date 4.

3.0.2 States of the World

At date 3a, the firm will realize either success or default. Success occurs with probability $p$. If success occurs, the firm will produce a large cash flow $X_3$ at date 3a, sufficient to pay off all creditors in full and leave a surplus for the owner. If default occurs, with probability $(1 - p)$, the expected value of the firm will not be sufficient to pay all creditors in full, so creditors will bear losses. The continuation/liquidation decision will affect the recoveries of E, P1 and P2. Importantly, assets A and B are assumed to be essential for the firm to continue.

In default, one of three possible states (high, medium and low) is realized at date 3a, representing the reorganization value of the firm. Conditional on default, state $j \in \{h, m, l\}$ occurs with probability $p_j$, so $p_h + p_m + p_l = 1$. The liquidation value of the firm as of date 3a is $L_3 = \alpha_3 + \beta_3$, where $\alpha_3(\beta_3)$ is the liquidation value of asset A (B) at date 3. I assume the liquidation and reorganization values do not change between 3a and 3b.

If continuation is chosen at date 3a, the firm operates in bankruptcy until date 3b, at which point it must choose to reorganize or liquidate. If it reorganizes at 3b, it will either recover or fail by date 4. Failure produces $L_4 = \alpha_4 + \beta_4$, and I assume that collateral deteriorates from continuation to failure: $\alpha_4 < \alpha_3, \beta_4 < \beta_3$. Recovery produces $X_4 > L_4$. The states are represented by the probability of recovery. Let $\pi_j$ represent the probability of recovery in state $j$. The reorganization value of the firm at date 3 in state $j$, then, is

\[ L_3 = \alpha_3 + \beta_3, \]

\[ X_3 = \text{large cash flow at date 3a}, \]

\[ L_4 = \alpha_4 + \beta_4, \]

\[ X_4 = \text{recovery produces at date 3b}, \]

\[ \pi_j = \text{probability of recovery in state } j. \]

\[ \text{The separate dates 3a and 3b are in the model to make clear that there is no inconsistency in assuming that a creditor with a withdrawal right can be uninformed when it bargains with E, while a stayed creditor can convince a judge of the value of its claim and collateral (albeit imperfectly). The key to the difference is that the stayed creditor has more time to learn about the firm and convince the judge than the creditor exercising the withdrawal right, who bargains with E at the outset of the case.} \]

\[ \text{I assume the bargaining at date 3a is exogenous in this model. This could be endogenized if E has a cost of effort or time, and could be held up by P2 if bargaining were postponed until 3b.} \]
$C_j = \pi_j X_4 + (1 - \pi_j)L_4$. I assume that continuation is efficient in the high and medium states but not the low state: $C_h > C_m > L_3 > C_l$. For convenience, let $\bar{\pi}$ denote the ex-ante expected probability of recovery if all types continue: $\bar{\pi} = p_h \pi_h + p_m \pi_m + p_l \pi_l$. The timeline and project payoffs are represented in Figure 1.

### 3.0.3 Creditors and Contracts

Though represented here as a single actor, P1 is intended to represent the general body of a firm’s creditors, who are both secured in part and unsecured in part. I assume that P1 has a debt claim, secured by asset A, that comes due no earlier than date 3a. P1 is subject to the stay in bankruptcy. P1 will not be part of the bankruptcy bargain, but the value of P1’s claim will be affected by the negotiations between E and P2.

In borrowing from P2 at date 2, the owner has two choices of creditor rights (free withdrawal and stay). If withdrawal rights are chosen, E must also choose whether to borrow from an informed or an uninformed lender. An informed lender has full knowledge of the state of the world by date 3a, including the firm’s continuation value in default. An uninformed lender knows only the liquidation value of its collateral. As a concrete example, an informed lender could be a relationship bank. An uninformed lender is an asset-based lender such as mortgage lenders, purchasers of commercial mortgage-backed securities, or equipment vendors. These lenders may have knowledge of the collateral’s value, but only
minimal knowledge of the debtor’s business.

Both types of lenders operate in a competitive market, but because an informed lender must acquire information that an uninformed lender does not, I assume that informed lending is more costly to provide. In exchange for lending \( i_2 \), and uninformed lender requires only a claim with expected value of \( i_2 \). But an informed lender requires \( \theta i_2 \), where \( \theta > 1 \).

## 3.1 Payoffs and Bargaining in Bankruptcy

In this subsection, I describe the bargaining process and the parties’ ultimate payoffs. This depends on whether creditors are subject to the stay or have a withdrawal right.

### 3.1.1 Creditor with Withdrawal Right

If P2 is given a withdrawal right in default, he has the right to withdraw asset A at date 3a and cause liquidation. P2 may prefer to bargain with E, who acts on behalf of the firm.

I assume the following bargaining takes place at date 3a in default: nature chooses either P2 or E to make a take-it-or-leave-it offer to the other. E and P2 are each chosen with probability \( \frac{1}{2} \). Importantly (and realistically), because the firm is in financial distress, I assume that the players are liquidity-constrained when they bargain; thus, they can offer only a stake in the ongoing firm as currency. A player can either choose to make an offer of a state-contingent payoff in continuation or propose liquidation. Let \( \{t_h, t_l\} \) denote P2’s payoff in the proposed offer, where \( t_h \leq X, t_l \leq L \). Alternatively, the offeror can propose liquidation, which causes liquidation to occur automatically. If a continuation offer is refused by the offeree, then liquidation also occurs.

### 3.1.2 Creditor Subject to the Stay

In my model, the secured creditors P1 and P2 are undersecured; that is, their claim exceeds the value of their collateral. Under bankruptcy law, an undersecured creditor’s claim is divided into a secured claim equal to the value of her collateral, and an unsecured claim to the extent of the deficiency (the difference between the claim and the collateral value)\(^9\).

\(^9\)11 U.S.C. 506(a)
If the debtor wishes to reorganize without the creditor’s consent and keep the collateral, the creditor is entitled to receive a new note, secured by the same collateral, and equal to the value of the collateral, to satisfy the secured claim. Unsecured claims are entitled to any remaining value in the company and are entitled to priority over the shareholders, but it is not uncommon for shareholders to bargain for some of the surplus value even if some creditors are not paid in full.

To model this legal structure for a creditor subject to the stay (P1, and P2 if the parties so choose), I assume the following: E will be able to keep the stayed creditor’s collateral until date 3b. E can also keep the asset and reorganize at 3b if it can provide the secured creditor with a secured claim equal to the collateral’s value, as determined by the judge. I allow for the possibility that secured creditors’ collateral is undervalued: a secured creditor with collateral worth $K_3$ at date 3 is entitled to a reorganization claim worth $\delta K_3$, $\delta \leq 1$. This could occur because of a judicial bias toward reorganization, and because undersecured creditors are not fully compensated for the lost time value of money in reorganization.\(^\text{10}\) Moreover, since the compensation must come in the form of new debt secured by the same asset, the realized date 4 payoff and the expected payoff at date 3 can be no lower than the value of the collateral in the failure state ($\delta K_3 \geq K_4$).

If there is any remaining value in the firm after any creditors with withdrawal rights and any secured claims receive their distributions, I assume this “unsecured value” is divided between the stayed creditors’ deficiency claims and E. If P2 has a withdrawal right, then P2 receives his entire payoff through his bargaining outcome at date 3a, and only P1 and E will share in the unsecured value\(^\text{11}\): $\mu_1^w + \mu_2^w = 1$. $\mu_1^w, \mu_2^w \geq 0$. If P2 is subject to the stay, then three parties share the unsecured value, and the fractions $\mu_1^s, \mu_2^s, \mu_e^s$ will denote the sharing, with $\mu_1^s, \mu_2^s, \mu_e^s \geq 0$ and $\mu_1^s + \mu_2^s + \mu_e^s = 1$. As between P1 and P2, $\mu_1^s$ is likely to be large

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\(^{10}\)Cite to Timbers here.

\(^{11}\)Assuming that P2 receives his entire payoff through the bargain at 3a and waives his deficiency claim, rather than keeping his deficiency claim, is without loss of generality. It has no effect on the real outcome under an informed P2. If P2 kept his deficiency claim, his equilibrium bargaining payoff would be simply reduced by the expected value of the claim. See Aghion and Tirole (1994). Under an uninformed P2, taking all payoffs through bargaining is preferable because P2’s payoff can be made state-contingent so as to limit the costs of asymmetric information.
relative to $\mu_2$ when P1’s unsecured deficiency claim is large relative to P2’s deficiency claim. In either case, $\mu_e > 0$ represents E’s ability to extract a deviation from priority toward equity holders.

### 3.1.3 E’s Incentives and Payoff

When E bargains with P2 at date 3a, I assume that E maximizes her own private payoff. If the firm continues until date 4, E receives her bargaining payoff as described above (a share $\mu_e$ of the unsecured value after withdrawal rights and secured claims are paid). Since E will only receive value in continuation, E weakly prefers it. I assume, however, that E will choose liquidation at 3a if E forsees that reorganization will not possible at date 3b. This may happen when P2 demands a stake that is too large to leave room to pay P1 his assessed collateral value.

### 3.2 Parameter assumptions

I make the following parameter assumptions:

Assumptions 1 and 2:

$$X_3 > F_{\text{max}}$$

$$C_h < F_{\text{min}}$$

where $F_{\text{max}}$ ($F_{\text{min}}$) is the total face value of debt to all creditors when default is as inefficient (efficient) as possible, and financing is as expensive (inexpensive) as possible:

$$pF_{\text{max}} + (1 - p)\left\{(p_h + p_m)L_3 + p_lC_l\right\} = i_1 + \theta i_2$$

$$pF_{\text{min}} + (1 - p)\left\{p_hC_h + p_mC_m + p_lL_3\right\} = i_1 + i_2$$

The first assumption ensures that if success occurs, there will always be value left over for the owner. The second assumption ensures that the firm is insolvent when it defaults at date 3a.

Assumption 3: It is always efficient to borrow at dates 1 and 2, no matter what choices are made in distress, and irrespective of whether financing is informed or uninformed:
\[ pX_3 + (1 - p)\{(p_h + p_m)L_3 + p_tC_t\} > i_1 + \theta i_2 \]
\[ (p_h + p_m)L_3 + p_tC_t > \theta i_2 + L_2 \]

This assumption rules out credit rationing at dates 1 and 2. By doing so, it merely cabins the potential inefficiencies that might occur in the model. Relaxing these assumptions would increase the number of cases to consider without affecting any of the qualitative insights.

### 3.2.1 The Maximization Problem

The essence of this problem is that \( E \) cannot commit to its financing choices at date 2 when it contracts at date 1. Hence, we state the objective by working backward from date 2. \( E \)'s objective at date 2 is to choose the creditor rights \( w = \{0, 1\} \), where 0=stay,1=free withdrawal), creditor information structure, if withdrawal right is chosen \( \eta = \{0, 1\} \), where 1=informed withdrawal and 0 otherwise) and debt repayment obligation \( F_2 \) to maximize her own expected payoff subject to the creditor’s participation constraint:

\[
\max_{\eta, w, F_2} p(X_3 - F_1 - F_2) + (1 - p)R_{e,w}^{\eta}
\]

subject to

\[
pF_2 + (1 - p)R_{p2}^{\eta,w} \geq \eta \theta i_2 + (1 - \eta)i_2
\]

The terms \( R_{e}^{\eta,w} \) and \( R_{p2}^{\eta,w} \) are \( E \) and \( P_2 \)'s expected payoffs in a default, respectively, which will depend on whether \( P_2 \) is informed, and whether \( P_2 \) has the right to withdraw. \( P_2 \)'s participation constraint will always bind in equilibrium, so we can substitute the constraint into the objective. Eliminating parameters that are fixed as of date 2, the date 2 problem is equivalent to maximizing the following:

\[
\max_{\eta, w}(1 - p)(R_{p2}^{\eta,w} + R_{e}^{\eta,w}) - \eta \theta i_2 - (1 - \eta)i_2,
\]

\( E \)'s objective as of date 2, then, is equivalent to maximizing the joint payoff of \( E \) and \( P_2 \) in default, less the cost of the funds raised from \( P_2 \).
The Date 1 problem

If we call the solution to this problem \( \{ \eta^*, w^*, F_2^* \} \), then E’s date 1 problem is to maximize

\[
\max_{F_1} p(X_3 - F_1 - F_2) + (1 - p)R_{\eta,w}^*(\eta^*, w^*, F_2^*)
\]

subject to

\[
pF_1 + (1 - p)R_{P1}(\eta^*, w^*, F_2^*) \geq i_1
\]

In our problem, \( F_1 \) does not affect \( F_2 \) or \( R_{P1}(\eta^*, w^*, F_2^*) \). Hence, the period one problem is simply to minimize \( F_1 \) subject to the lender’s participation constraint, which always binds. Solving using the binding participation constraint, we have \( F_1^* = \frac{i_1 - (1-p)R_{P1}(\eta^*, w^*, F_2^*)}{p} \). Previous literature justifying mandatory features of bankruptcy focus heavily on “maladjusting” creditors who do not anticipate or respond to the debtor’s subsequent actions (Warren and Westbrook 2005). It is worth emphasizing that the early creditors in this model are “fully adjusting”: they price all anticipated future actions and their expected recovery into their interest rate. These early creditors are only limited in their ability to police the debtor’s subsequent actions.

If we plug in the solutions to the date 1 and 2 maximization problems, the debtor’s date 1 utility is

\[
pX_3 + (1 - p)\{R_{P1}(\eta^*, w^*, F_2^*) + R_{P2}^{\eta,w} + R_{\eta,w}^*(\eta^*, w^*, F_2^*)\} - i_1 - \eta\theta i_2 - (1 - \eta)i_2
\]

Since \( R_{P1}(\eta, w, F_2) + R_{P2}^{\eta,w} + R_{\eta,w}^*(\eta^*, w^*, F_2^*) \) is the total bankruptcy payoff, it is clear that any inefficient outcomes in bankruptcy are fully borne by the debtor in equilibrium. Nevertheless, the debtor may not be able to eliminate inefficiencies, because it can not commit at date 1 to excluding redistributive terms in P2’s loan.

Having set up E’s problem, I will now examine the choice of an informed versus an uninformed withdrawal right.
4 Information Under Free Withdrawal Rights

To solve the model, I will work backward, starting from the date 3a bargaining game between P1 and P2 when P2 has the right to withdraw asset B in a default.

4.0.2 P2 is informed

When P2 is informed, the bargaining game between P2 and E is a game of complete information; i.e. both parties know the continuation and liquidation values of the firm. As a result, the date 3a bargain will maximize the joint surplus of E and P2.

First, suppose nature chooses E to make the offer. Since E receives 0 in any liquidation, E will prefer continuation unless it is infeasible. E will offer P2 his liquidation value \( \beta_3 \) in any continuation offer. P1 is also entitled to receive a secured claim of \( \delta \alpha_3 \) at date 3b. Thus, continuation will occur in state \( j \) if and only if \( C_j - \delta \alpha_3 - \beta_3 > 0 \).

This inequality can be rearranged to get

\[
(1 - \delta) \alpha_3 > L_3 - C_j
\]

The LHS of the expression can be thought of as a continuation subsidy, due to the ability to dilute P1’s collateral. The RHS is the efficiency gain from liquidation. The LHS always non-negative, and the RHS is negative when continuation is efficient. Hence, there is a bias toward continuation: efficient continuation will always occur in the high and medium states, but inefficient continuations may result in the low state.

If continuation occurs following E’s offer, E anticipates a net payoff of \( \mu^w_e (C_j - \delta \alpha_3 - \beta_3) > 0 \), P1 will receive \( \delta \alpha_3 + (1 - \mu^w_1) (C_j - \delta \alpha_3 - \beta_3) \), and P2 will receive \( \beta_3 \). Note that if continuation occurs in the low state, then P1 receives a total payoff less than liquidation value \( \alpha_3 \).

When nature chooses P2 to make the offer, the continuation/liquidation decision will be the same as when E makes the offer; only the distribution of surplus is affected. If P2 chooses continuation, he will make an offer that leaves only enough for P1 to receive his court-determined collateral value \( \delta \alpha_3 \). E will receive 0 in all states, and P2 will capture the remainder of the continuation value, \( C_j - \delta \alpha_3 \).
4.0.3 P2 is uninformed

Under incomplete information, the bargaining game is slightly more complicated and can result in inefficient continuation and liquidation.

When nature chooses the informed party (E) to make the offer, the offer can reveal information about the continuation value of the firm. I use Perfect Bayesian Equilibria (PBE) as the equilibrium concept: P2 must form a belief about the continuation value of the firm for every offer E might make, and this belief must be consistent with Bayes rule along the equilibrium path. It is well-known from the corporate finance literature that a high-state E prefers an equilibrium in which P2 is offered the least information-sensitive claim possible (Myers and Majluf 1984). That is, E will load P2’s payoff into the failure outcome to the maximum extent possible, to minimize the payoff difference between recovery and failure to P2. This occurs because in the high state, E will want to minimize the cross-subsidy associated with offering a stake in the firm whose value is unknown.

I focus on PBE that take this form. I assume that P2’s beliefs are as follows: any offer from E that is not a least informationally sensitive (LIS) claim (that is, does not minimize $t_h - t_l$, given E’s constraints) is viewed skeptically by P2: it is assumed to come from the low-state firm. The ability of E to offer an informationally-insensitive claim, however, is constrained by the need to pay P1’s secured claim, which is entitled to receive at least $\alpha_4$ in the failure state. This implies that $t_l \leq L_4 - \alpha_4 = \beta_4$.

When a LIS claim is offered, P2’s belief about the state is her prior belief, updated in a Bayesian way by assigning zero probability to states in which E would (weakly) prefer liquidation to continuation given the offer. More concretely, when P1 offers P2 an LIS claim, P2’s belief that the state is $j$ is $0$ if E weakly prefers liquidation to acceptance of the continuation offer in that state, and $\frac{p_j}{\Phi}$ otherwise, where $\Phi \leq 1$ is the sum of the probabilities of states in which E strictly prefers acceptance of the offer to liquidation.\(^{13}\)

It is clear that whenever E strictly prefers continuation in a given state, she prefers continuation in any

\(^{12}\)Formally, senior debt means that P2 is promised a fixed payment $F$ and receives a payoff $\min\{x, F\}$ where $x$ is the date 4 cash flow. In this context $t_l = t_h$ if $t_h < L_4$, and $t_l = L_4$ for any $t_h > L_4$.

\(^{13}\)As an example, if P1 would prefer acceptance of a given offer to liquidation in the good and medium state but not the low state, then P2’s belief that the state is {high, medium, low} is $\\{\frac{p_h}{p_h + p_m}, \frac{p_m}{p_h + p_m}, 0\}$. 
higher state as well.

This leads us to the following proposition, which shows that inefficient outcomes can occur under asymmetric information:

**Proposition 1** Suppose that E makes the offer to an uninformed P2, and P2’s beliefs are as described above.

- a) If \( \pi_l(X_4 - \frac{\beta_4}{\bar{\pi}}(1-\theta)\beta_4) + (1 - \pi_l)\alpha_4 < \delta\alpha_3 \), then the unique PBE involves efficient outcomes: in the medium and high states, E offers a LIS claim to P2, and P2 accepts. In the low state, E proposes liquidation.

- b) If \( \pi_l(X_4 - \frac{\beta_4}{\bar{\pi}}(1-\theta)\beta_4) + (1 - \pi_l)\alpha_4 > \delta\alpha_3 \), then the unique PBE is a pooling equilibrium with inefficient continuation in the low state. For all firm types, E makes a continuation offer \( t^* = \{\frac{\beta_4}{\bar{\pi}}(1-\theta)\beta_4, \beta_4\} \) and P2 accepts.

- c) When P2 is uninformed, there is a greater bias toward inefficient continuation than when P2 is informed.

All proofs are located in the appendix.

When the conditions in part (b) hold, a PBE with inefficient continuation may occur because the low state E may try to mimic the higher state E’s, and the higher state firms cross-subsidize the low state firm in continuation. P2 has rational expectations in equilibrium, and knows that E will make the continuation offer in all states. A high state or medium state E can not improve on this outcome, since any \( t_h < \frac{\beta_4}{\bar{\pi}}(1-\theta)\beta_4 \) will be rejected by P2 given P2’s beliefs. Since low state E’s prefer continuation to liquidation, then higher types also prefer it. Part (c) of Proposition 1 demonstrates that the effect of asymmetric information is to increase the excess continuation problem that exists under complete information when \( \delta < 1 \).

Examining the inequality in the proposition \( \pi_l(X_4 - \frac{\beta_4}{\bar{\pi}}(1-\theta)\beta_4) + (1 - \pi_l)\alpha_4 > \delta\alpha_3 \) suggests circumstances in which inefficiency is more of a concern. First, as \( \bar{\pi} \) increases, holding \( \pi_l \) constant, the LHS of the inequality increases. This suggests that the more severe the asymmetric information problem, the more severe is the bias toward continuation.

Second, inefficiency is more likely to result from bargaining with a withdrawal rights creditor when it is harder to give the withdrawal rights creditor a safe claim in bargaining.
To see this, suppose that $\alpha_4$ rises and $\beta_4$ falls, holding $L_4$ constant. This does not affect the efficiency/inefficiency of continuation in any state of the world, and it does not affect the continuation/liquidation decision under complete information—it simply guarantees P1 a safer claim in reorganization and exposes P2 to more risk. One possible reason P2 might bear more risk is that P2 holds collateral whose value is more subject to depreciation in a failure (that is, $\beta_3 - \beta_4$ is larger). Another possible cause is that the firm’s existing creditors “soak up” the existing collateral, leaving less seniority to offer to P2. Because the information sensitivity of P2’s payoff increases, it is easier to support an inefficient continuation equilibrium.

I have shown that inefficient continuation can occur when E makes the offer to an uninformed P2. Next, consider the case where nature appoints P2 to make the offer. In this case, inefficient liquidation can result:

**Proposition 2** Suppose P2 makes the offer to E. If $p_h \frac{(\pi_h - \pi_m)}{\pi_m} (\delta \alpha_3 - L_4) > p_m (C_m - \delta \alpha_3 - \beta_3)$, then inefficient liquidation occurs in the medium state.

Intuitively, in making a take-it-or-leave-it offer, P2 tries to capture as much of the surplus as possible. If $\delta \alpha_3 < L_4$, then P2 can acquire the entire surplus in the high and medium states by ensuring that P1 receives a risk-free debt claim on the firm that pays $\delta \alpha_3$, and keeping the remainder.$^{14}$ If this is not possible, then P2 faces a trade-off. Because of E’s information advantage, P2 must choose between capturing all the surplus in the high state and risking rejection of the offer in the medium state, or capturing all the surplus in the medium state and leaving E and P1 with positive surplus in the high state. When the inequality holds, the high state is sufficiently attractive that P2 prefers to risk liquidation in the medium state for a greater share of the high state payoff. When these conditions hold, P2’s payoff, state-by-state, is $\{C_h - \delta \alpha_3, \beta_3, \beta_3\}$.

By examining the inequality $p_h \frac{(\pi_h - \pi_m)}{\pi_m} (\delta \alpha_3 - L_4) > p_m (C_m - \delta \alpha_3 - \beta_3)$, we can see that inefficient liquidation is more likely when there is more uncertainty by P2 about the going-concern value, conditional on continuation being efficient (i.e. $\pi_h - \pi_m$ is higher). We

$^{14}$Strictly speaking, the offer would need to involve a small amount of risk for P1, so as to keep the low type from accepting, but this risk for P1 could be made arbitrarily small.

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can also see, similar to Proposition 1 above, that inefficient liquidation is more likely when 
P2 is forced to offer a more informationally sensitive claim to E. This happens when \( \delta \alpha_3 \) 
(P1’s required payoff) is large relative to \( L_4 \) (the maximum guarantee that can be offered in 
continuation). Thus, when the law protects existing secured creditors more strongly (higher 
\( \delta \)), the upside is less inefficient continuations, but there is a potential downside: the use of 
withdrawal rights by uninformed creditors is more likely to lead to inefficient liquidation.

4.1 The Date 2 Borrowing Game

With these results in hand, now we can return to the date 2 borrowing game. Conditional 
on giving P2 a withdrawal right, will E choose to borrow from an informed or an uninformed 
lender? Recall that at date 2, the objective of E is to maximize the joint expected payoff 
of E and P2 in default, net of financing costs. There are two ways that information can 
increase the joint payoff of E and P2. First, information can result in E and P2 bargaining 
to a more efficient outcome, thus increasing the total surplus from which E and P2 can share. 
Second, information can result in a greater ability of E and P2 to redistribute value from 
P1. The first motive is consistent with overall efficiency, but the second is not.

Bargaining with a more informed withdrawal rights creditor can result in more or less 
efficient outcomes. There are three possible cases in which an informed P2 can affect the 
liquidation/continuation decision: i) from an inefficient liquidation to an efficient continua-
tion in the medium state, ii) from an inefficient continuation to an efficient liquidation in 
the low state, and iii) from an efficient liquidation to an inefficient continuation in the low 
state.

In all three cases, the change in outcome can affect the payoff of P1; hence P2 and E 
do not fully internalize the efficiency consequences of the decision to acquire information. 
For example, consider case (ii). When E makes the offer, an informed P2 can prevent an 
inefficient continuation in the low state that would occur under an uninformed P2. But 
since this inefficient continuation occurs when E has the bargaining power, the benefits of 
eliminating the inefficiency accrue to the bankruptcy estate (i.e. the unsecured value shared 
by E and P1), not to P2. If \( \mu_{1w}^\omega > 0 \), then some of the unsecured value will be captured by 
P1. This reduces the incentive of E to issue informed debt at date 2.
The decision to borrow from an informed P2 can also have distributional effects, even when outcomes are not affected. For example, when an uninformed P2 makes the offer to E, he may leave surplus on the table in the high state in order to avoid risking liquidation in the medium state. An informed P2, by contrast, can capture the entire surplus.

The following proposition summarizes E’s incentive to borrow from an informed withdrawal rights creditor. I label E’s choice as biased if E’s objective at date 2 differs from the objective of a social planner who seeks to maximize the value of the firm. With this in mind, I can show that E’s decision about creditor information is, in general, biased.

**Proposition 3** Conditional on offering a withdrawal right, E’s objective regarding creditor information may be biased toward either informed or uninformed debt.

a) The following conditions are sufficient for bias toward informed debt: i) an informed P2 does not improve the efficiency of the liquidation/continuation decision in any state, and ii) P1’s collateral value is sufficiently large that it cannot receive a risk-free claim in reorganization: $\delta\alpha_3 > L_4$.

b) The following conditions are sufficient for bias toward uninformed debt: i) the liquidation/continuation decision is efficient under an informed P2, and ii) there are inefficient outcomes in the low and medium states under an uninformed P2.

c) The following conditions are sufficient for an unbiased decision on creditor information: i) $\delta = 1$ and ii) $\mu^w_1 = 0$.

Information acquisition is only efficient to the extent it enables a value-maximizing continuation/liquidation decision in some state of the world. But E may also have an incentive to borrow from an informed creditor because an informed creditor can take a larger share of the estate in bankruptcy. The prospect of redistributing bankruptcy value from P1 to P2 can reduce the interest rate on P2’s loan, which ultimately benefits E. Part (a) of the Proposition suggests that E has excess incentive to issue informed debt when an uninformed P2 is forced to leave surplus on the table in bargaining. This happens when P1’s secured claim is large enough that it cannot be given a risk-free claim in reorganization. If P2 chooses to capture the surplus in the medium state and ensure continuation in the high state, rents are left on the table in the high state that are partially captured by P1. An informed P2, by
contrast, can capture all the surplus value in both the high and the medium states.\footnote{There is also a second source of bias toward informed debt that can occur under the conditions in part (a). If P2 chooses to capture all the surplus in the medium state, and P1 can not be given a risk-free claim, then liquidation will necessarily occur in the low state. This gives P1 his liquidation value $\alpha_3$. An informed P2 might instead choose a state-contingent offer that results in inefficient continuation in the low state, whenever the gains from diluting P1’s claim from $\alpha_3$ to $\delta \alpha_3$ outweigh the efficiency losses from continuation in the low state.}

Part (b) of the Proposition gives an example of the opposite problem: E may have too little incentive to borrow from an informed P2, because part of the efficiency benefits of information accrue to P1. Proposition 1 illustrates that excess continuation may occur in the low state when P2 is uninformed. Since the costs of the inefficient continuation fall (at least partially) on P1, this implies that E and P2 have too little incentive to incur the costs of informed debt.

Part (c) suggests that one way to ensure an efficient decision is to ensure that P1’s claim is wholly unaffected by the decision. This is possible when $\delta = 1$ and $\mu_1^w = 0$—that is, when P1 is a fully secured creditor whose collateral is fully valued in reorganization.

In the next section, I consider an alternative to free withdrawal: a stay on withdrawal and structured bargaining, akin to the rights a secured creditor would have in bankruptcy.

\section{Withdrawal Versus the Stay}

\subsection{Informed Withdrawal Versus the Stay}

If P2 is also subject to the stay, the excess continuation problem caused by the undercompensation of secured creditors in continuation gets larger. Under the informed withdrawal right, as we saw above, E will continue if and only if $C_j - \beta_3 - \delta \alpha_3 > 0$. If P2 is stayed, E will continue if and only if $C_j - \delta \beta_3 - \delta \alpha_3 = C_j - \delta L_3 > 0$.

To start, consider the choice between applying the stay to P2 and withdrawal rights from an efficiency perspective. The comparison between an informed withdrawal right and the stay from an efficiency perspective is straightforward. The cost of the informed withdrawal right, relative to the stay, is the additional financing cost $(\theta - 1)\tau_2$. On the other hand, the
informed withdrawal right can lead to more efficient outcomes in default, because exercise of the right can prevent some inefficient continuations that would occur in the low state under the stay. Staying P2 provides an additional continuation subsidy of \((1 - \delta)\beta_3\), because P2’s collateral value can be diluted in continuation. Thus, either a stay or an informed withdrawal right may be efficient depending on the financing cost and the costs of excess continuation.

With the efficiency trade-offs in mind, the next Proposition compares E’s private incentive with the efficient decision as of date 2:

**Proposition 4** When faced with a choice of the stay or an informed withdrawal right, E’s date 2 financing decision may be biased toward the stay or toward informed withdrawal.

a) If P1’s share of the unsecured value under a stay \((\mu^s_1)\) is sufficiently close to 1, and the liquidation/continuation decision is not affected by the choice of financing, then E will be biased toward the informed withdrawal right.

b) If P1’s share of the unsecured value under a stay \((\mu^s_1)\) is sufficiently close to 0, and the liquidation/continuation decision would be affected by the choice of financing, then E will be biased toward a stay of P2.

From E’s perspective, an informed withdrawal right is a more costly form of financing, but it potentially conveys two advantages over the stay. First, when \(\mu^s_1\) is high, E and P2 expect to collect less from the unsecured value of the firm under the stay. A withdrawal right does a better job than the stay of protecting P2’s collateral value. (Recall that securing a larger payoff for P2 in default is beneficial for E, who captures this gain through a lower interest rate at date 2). Since this effect is purely redistributive rather than value-creating, this effect leads E to be biased toward the withdrawal right when \(\mu^s_1\) is sufficiently large.

Second, a withdrawal right allows for E to commit to avoiding inefficient continuation in the low state that is caused by the ability to dilute P2’s secured claim ex-post. When \(\mu^s_1\) is sufficiently low, P1 does worse in continuation than in liquidation—and, hence, P1 would share part of the gains from an efficient liquidation in the low state. Part (b) of the Proposition suggests that E does not have the full incentive to incur the costs of information, since E cannot capture all the benefits at date 2.
5.2 Uninformed Withdrawal Versus the Stay

The next comparison is between the stay and an uninformed withdrawal right. Under this comparison, the cost of financing is the same, but the potential inefficiencies are different. Under the stay, there is only potential for inefficient continuation in the low state. Under uninformed withdrawal, there is potential for both inefficient continuation in the low state and inefficient continuation in the medium state. The possibility of inefficient continuation, moreover, is caused by different factors than under the stay. Under the uninformed withdrawal right, inefficiency is caused by the combination of a) asymmetries of information between E and P2, and b) the firm’s capital structure, which affects the ability of the parties to control the costs of asymmetric information.

As is evident from Propositions 1 and 2, asymmetries of information are more severe when the going-concern value is more uncertain. The discussion following Proposition 1 reveals that inefficient continuation is more likely when \( \bar{\pi} \) is larger, holding \( \pi_l \) constant. If the average probability of success rises, then a low state E can more easily convince an uninformed P2 to accept a continuation offer. Similarly, as \( \pi_h \) rises, holding \( \pi_m \) constant, inefficient liquidation is more likely to occur in the medium state, as an uninformed P2 becomes more prone to risk liquidation to capture all the surplus in the high state. None of these forces affect outcomes under the stay.

While E’s choice is subtle, there is an important factor that steers E to choose withdrawal, irrespective of the efficiency consequences:

**Proposition 5** If P1’s share of the unsecured value under a stay (\( \mu_1^* \)) is sufficiently close to 1, E will always choose an uninformed withdrawal right over a stay, whether or not it is efficient.

Like Proposition 4, Proposition 5 suggests an important link between capital structure and withdrawal rights. One way to contrast withdrawal rights and the stay is that withdrawal rights do a better job protecting P2’s collateral value, while the stay does a better job protecting unsecured value. When P1 captures a large enough share of the unsecured value, E will focus more on protecting P2’s collateral, by giving P2 a withdrawal right.
One reason P1 might capture all the unsecured value is because P1’s unsecured claim is large relative to P2’s unsecured claim. Thus, withdrawal rights are most likely to be granted inefficiently when P2 is a small creditor relative to the overall creditor body. Another reason P2 might have a small claim to the unsecured value is because P2 is oversecured or slightly undersecured, so that its deficiency claim would be small.

A third reason P1 might be entitled to a large share of the reorganization surplus is that P2 has no recourse to the firm’s assets. This would occur if P2 lends to a subsidiary whose only asset is asset B. Thus, the Proposition suggests a downside to allowing withdrawal rights through subsidiaries in particular. Doing so increases the scope for E to grant a withdrawal right inefficiently, because the subsidiary structure necessarily leaves more of the unsecured value to the parent’s creditors.

6 Discussion

6.1 Contractual Alternatives to a Stay

The discussion suggests that the choice between free contracting for withdrawal rights and a mandatory stay is a nontrivial one. This happens because the contract between E and P2 creates externalities that can negatively affect early creditors (P1 in the model), to the detriment of overall efficiency. Early creditors will anticipate these inefficiencies and price them into their loan contracts, but this merely shifts the costs of inefficient use of assets onto the debtor. The debtor, then, will prefer a regime that allows for a commitment to efficient financing terms and efficient resolution of distress to the extent possible.

An important assumption underlying the analysis is that early creditors’ contracts are long-term and not contingent on E’s contract with P2. Thus, P1 can not prevent any contracting externalities between E and P2. A possible objection to this assumption is that E and P1 have an incentive to include covenants that prevent subsequent inefficient contracts between E and P2. In a complete contracting world, P1 would include a covenant that would create an event of default any time an inefficient withdrawal right is created in favor of P2. This would deter any inefficiency, and would obviate the need for a mandatory
stay since any permissible withdrawal right would be an efficient one.

To the extent that early lenders are comprised of lenders that actively monitor and can renegotiate with the debtor, covenants can be effective. Bank loan facilities to large corporate borrowers typically mention subsidiaries for the purposes of calculating liquidity and leverage ratios, and restrict activity between parent and subsidiaries. Some require the lender’s permission to create new subsidiaries. There are costs to this strategy, as covenants that require lender permission to create new subsidiaries are probably over-broad; but to the extent that renegotiation is flexible, the costs of overly broad covenants (the risk of acceleration and bankruptcy and inefficient outcomes) are less severe.

The strongest case against covenants preventing all inefficiency is the existence of creditors that are not active monitors. Examples of these types of lenders include trade creditors, lessors and other executory contract counterparties, asset-based lenders (such as mortgage lenders), tax and tort creditors, and public bondholders. These creditors rarely require covenants that are sufficiently detailed to prevent withdrawal rights through subsidiaries. Empirical evidence suggests that these creditors are an economically significant part of a firm’s capital structure\textsuperscript{16}. If a borrower wanted to include an inefficient withdrawal right, they would likely need to compensate their active monitors for any costs imposed on them, but they would not need to compensate inactive monitors.

\section*{6.2 Withdrawal Rights in Contracts Versus Subsidiaries}

Under current law, a withdrawal right created through a subsidiary is more likely to be enforceable than a withdrawal right created by contract in an ordinary loan agreement. My model describes a potential inefficiency that can result from free contracting for withdrawal rights, but does not distinguish between these two possible ways a withdrawal right might be created. In this section, I consider whether the normative case for enforcing withdrawal rights

\textsuperscript{16}Rajan and Zingales (1995) find that trade credit (as measured by accounts payable) are 22.7\% of the total liabilities of public firms. Ayotte (2014) finds that capital and operating leases constitute 12\% of assets and 21\% of financial liabilities for large Chapter 11 filers in the year before the filing.
through subsidiaries is stronger than the (hypothetical) case for enforcing a waiver of the stay in an ordinary secured credit contract.

The two mechanisms provide slightly different forms of public notice, but these differences are not substantial. In both a subsidiary withdrawal, and a hypothetical stay waiver, the law requires that the later creditor provide some form of public notice of its interest, which is only partially informative about the presence of a withdrawal right\textsuperscript{17}. That is, the public notice available in either mechanism would make an actively monitoring lender aware that the debtor \textit{may have} created a withdrawal right. The scope of that withdrawal right (whether the later lender has the right to freely withdraw, and the states of the world in which it is possible), however, would require knowledge of the specific details of the agreement between the later lender and the borrower. In the stay waiver case, the early creditor would need to observe the loan contract to observe the presence or absence of a stay waiver. In the case of subsidiary withdrawal, the loan must include a covenant that creates an event of default whenever the parent defaults. The subsidiary creditor’s ability to withdraw also depends upon the parent’s control over the subsidiary. If the parent controls the subsidiary, it could deny withdrawal by bringing the subsidiary into bankruptcy along with the parent. For early creditors to target and prevent only those transactions that create withdrawal rights, then, they must condition covenants on non-public information that the debtor must be willing to provide voluntarily.

With respect to the potential for better notice to control the inefficient withdrawal rights the model analyzes, it is not clear that permitting withdrawal through subsidiaries is preferable to contractual withdrawals. Moreover, Proposition 5 suggests that the absence of recourse to the firm, a common feature of subsidiaries, increases the temptation to use withdrawal rights inefficiently.

A more important distinction is that subsidiaries are useful, and in some ways necessary, for making businesses distinct and separable from each other. Hence, the synergy between assets A and B assumed in the model are less likely true when A and B are in separate legal

\textsuperscript{17}In the case of the typical secured loan, the creditor must make a notice filing that lists the debtor, creditor, and type of collateral. In the case of a subsidiary, the debtor must register the new entity, and any real property it owns will be publicly recorded.
entities. Hansmann and Kraakman (2000) argue that legal entities are essential to create asset partitioning, which allows creditors to focus their monitoring efforts on a particular group of assets. Ayotte and Hansmann (2013) argue that subsidiary entities are useful in creating bundles of contracts that can be freely transferred as bundles. Casey (2013) suggests that separate entities can be useful in confining the consequences of default. All of these theories predict that those assets/contracts with greater value as stand-alone projects will be more likely found in separate subsidiaries than inside a given legal entity. If it is difficult to identify whether a withdrawal right exists for efficiency reasons or redistributive reasons, it may be sensible to give greater deference to a withdrawal right through a subsidiary.

### 6.3 Comparative Statics and Principles

As Baird and Casey (2013) note, bankruptcy judges have occasionally limited the attempt to exercise withdrawal rights through subsidiaries in an ad-hoc fashion, without a consistent framework. Given the benefits of separate legal entities, it would be hard to argue that a stay should apply to all non-debtor subsidiaries, as it is for debtor entities. At the same time, the model suggests that allowing a per se exception to the stay for subsidiary withdrawals can be inefficient, and there may be scope to allow for judges to apply a stay selectively to prevent particularly inefficient outcomes. The model suggests some conditions for identifying more problematic withdrawal rights.

1. A withdrawal right is inefficient only to the extent that it redistributes value from early creditors who are not active monitors. Nothing in the model suggests a benefit to a mandatory stay if the other creditors lend after the withdrawal right, and with notice of it. The model also does not apply to early creditors, like banks, who are active monitors and can covenant against the use of inefficient withdrawal rights.

2. A withdrawal right is inefficient only if the asset has synergies with the rest of the firm. Thus, the model does not justify benefits to staying withdrawal rights to assets in a subsidiary that are not necessary to the reorganization of other entities in the group. Bankruptcy law might do this through language as in 362(d)(2): a judge can apply a subsidiary stay only if the asset is necessary to an effective reorganization of the debtor entity\(^{18}\). Judicial discretion

\(^{18}\) 362(d)(2) does not require the judge to lift the stay even if the property is unnecessary to an effective
could be further limited in the Bankruptcy Code by providing a safe harbor for withdrawal rights over the types of non-specific assets that are typical in securitization transactions, such as accounts receivable or other cash-like assets.

3. The model suggests that the parent’s capital structure, as well as the nature of the withdrawal rights claim, is important. A withdrawal right is more likely to be inefficient when there is greater potential for bargaining to fail. This can occur when it is more difficult to offer the withdrawal rights creditor a safe claim in bargaining. Two reasons this might occur are i) the withdrawal rights creditor holds riskier collateral that is more subject to losses if the firm fails, and ii) the firm has less additional available collateral to offer to the withdrawal rights creditor in bargaining.

4. Another important way capital structure matters is through recourse. When a creditor is less able to capture some of the reorganization value of the firm through a deficiency claim (because he is small relative to the general creditor body, or because his claim is non-recourse), the temptation to use a withdrawal right inefficiently increases.

7 Conclusion

This paper adds to an ongoing debate about the use of subsidiaries in bankruptcy, and how an optimal bankruptcy law should respond to their use. As Baird and Casey (2013) show, financing through subsidiaries can be different from ordinary financing methods because bankruptcy operates at the level of the legal entity. Hence, when a parent company files for bankruptcy but its subsidiary does not, subsidiary assets are not subject to the automatic stay.

To answer whether bankruptcy should respect such arrangements, I construct a model that generates conditions under which a mandatory stay can be optimal. Three elements are necessary to generate a tradeoff, whereby a mandatory automatic stay can add value: 1) sequential, incomplete contracts that allow later lenders to redistribute from earlier lenders, 2) ex-post bargaining frictions, and 3) the financing of a complementary asset that is nec-
reorganization of the debtor, if the debtor has "equity in the property". This requirement might be removed with respect to a subsidiary stay.
ecessary to the going-concern value of the firm. When these elements are present, borrowers have incentive to issue claims that give creditors free withdrawal rights even when these rights are inefficient.

One payoff from the model, then, is a set of normative rules of thumb to guide the application of a stay. When firms use subsidiaries to separate replaceable assets, like cash and receivables, or when subsidiaries are used to separate distinct businesses from each other, the case for respecting them is greater. Allowing debtors to use a stay might simply exacerbate ex-ante moral hazard and create ex-post inefficient continuation problems. But when a specific and necessary asset is separated via a subsidiary, staying withdrawal can prevent inefficient liquidations and, in turn, encourage the use of more informed debt, which reduces the probability of bargaining failure.

Another payoff from the model is the explicit identification of the assumptions required to justify the stay, which can be empirically tested. In particular, how much are financing patterns driven by the incentives to redistribute value from pre-existing debt? This is an important question for future empirical research.

8 References


Ayotte, K. 2014. An Empirical Investigation of Leases and Executory Contracts. Work-


Jackson, T.H. 1986. The Logic and Limits of Bankruptcy Law.

Appendix

Proof of Proposition 1:

First, note that an offer of anything except a LIS claim will never be optimal, since P2 adopts the most pessimistic beliefs upon a continuation offer other than senior debt. Thus, we can restrict consideration to LIS continuation offers and liquidation offers.

Part a): Suppose \( \pi_t(X_4 - \frac{\delta_4 - (1 - \pi_t)\alpha_4}{\pi_t}) + (1 - \pi_t)\alpha_4 < \delta_3 \). Let \( \pi' = \frac{p_m}{p_m + p_h} \pi_m + \frac{p_h}{p_m + p_h} \pi_h \), the updated probability of success if only the high types and medium types are included. The unique PBE involves the low type proposing liquidation, and the high and medium type P1s offering one of two possible offers: i) if \( \pi'(X_4 - \frac{\delta_3 - (1 - \pi_t)\alpha_4}{\pi_t}) + (1 - \pi')\beta_4 > \beta_3 \), an amount such that E is indifferent between making this offer and liquidation in the low state: \( t = \{X_4 - \frac{\delta_3 - (1 - \pi_t)\alpha_4}{\pi_t}, \beta_4\} \). ii) if the converse is true (if \( \pi'(X_4 - \frac{\delta_3 - (1 - \pi_t)\alpha_4}{\pi_t}) + (1 - \pi')\beta_4 < \beta_3 \)), an amount such that P2 is indifferent between acceptance and rejection, given that only the high and medium types make the offer: \( t = \{ \frac{\beta_4 - (1 - \pi')\beta_4}{\pi'}, \beta_4\} \).

Under (i), it is clear by the construction of \( t \) that an E in the low state weakly prefers liquidation, because there is insufficient value remaining to pay P1 her collateral value \( \delta_3 \). Since E is indifferent in the low state, continuation is strictly feasible in the medium and
high states, since a higher probability of success raises the value of P1’s promised payoff. The expected value to P2 of this offer under a belief $\pi'$ is $\pi' (X_4 - \frac{\delta \alpha_3 - (1-\pi_l) \alpha_4}{\pi_l} + (1 - \pi') \beta_4)$, which is greater than P2’s liquidation value $\beta_3$ by condition (i), so P2 accepts. The high and medium types can do no better than make this offer, since any offer of a lower $t_h$ will result in P2 adopting a belief $\tilde{\pi}$. Note that $\pi_l (X_4 - \frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l} + (1 - \pi_l) \alpha_4 < \delta \alpha_3$, a required condition in the proposition, can be rewritten as $\tilde{\pi} (X_4 - \frac{\delta \alpha_3 - (1-\pi_l) \alpha_4}{\pi_l} + (1 - \tilde{\pi}) \beta_4 < \beta_3$. This implies that any $t_h \leq X_4 - \frac{\delta \alpha_3 - (1-\pi_l) \alpha_4}{\pi_l}$ will be rejected by P2 under the belief $\tilde{\pi}$.

Under (ii), it is clear by construction that P2 weakly prefers acceptance of the offer. The condition $\pi' (X_4 - \frac{\delta \alpha_3 - (1-\pi_l) \alpha_4}{\pi_l} + (1 - \pi') \beta_4 < \beta_3$ can be rewritten as $\pi_l (X_4 - \frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l} + (1 - \pi_l) \alpha_4 < \delta \alpha_3$, implying that in the low state, E prefers liquidation to making the offer. The high and medium type P1s can do no better, since a lower $t_h$ would pay P2 less than $\beta_3$ in expectation for any belief less than or equal to $\pi'$. Hence, P2 would reject.

Part (b):

First, note that $t^*$ is the offer that causes P2 to receive liquidation value in expectation given that E offers it in all states, so P2 weakly prefers to accept. $\pi_l (X_4 - \frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l} + (1 - \pi_l) \alpha_4 > \delta \alpha_3$ holds, a low state E will make the continuation offer, and hence the higher types will also make the offer. Any offer of a lower $t_h$ will be rejected, because P2 will maintain the belief $\tilde{\pi}$ at any lower offer and thus it will pay less than $\beta_3$. Thus, $t = \{\frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l}, \beta_4\}$ constitutes the unique offer made by all types in a pooling equilibrium.

Part (c):

In low state, under complete information, assuming a LIS claim for P2, P2 requires $t^* = \{\frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l}, \beta_4\}$ to accept continuation, since $\pi_l (\frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l} + (1 - \pi_l) \beta_4 = \beta_3$. Since $\pi_l < \tilde{\pi}$, we know that $t_h$ is higher in the low state under complete information: $t_h = \frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l} = \frac{\beta_3 - \beta_4 + \pi_l \beta_4}{\pi_l} = \beta_4 + \frac{\beta_3 - \beta_4}{\pi_l} > \beta_4 + \frac{\beta_3 - \beta_4}{\pi_l} = \frac{\beta_3 - (1-\pi_l) \beta_4}{\pi_l}$.

Proof of Proposition 2:

The only way for P2 to capture all the surplus from both medium and high types while avoiding liquidation is make an offer that provides P1 with riskless debt; then the maximum riskless debt that can be offered is $\{L_4, L_4\}$, that is, $t_h = X_4 - L_4$ and $t_l = 0$. (Can add a small amount of risk to the claim so that E will not accept in the low state). If this is
not enough to compensate $P_1$ (that is, if $\delta \alpha_3 > L_4$) then the high type $P_1$ will receive a greater expected payoff under a given offer than the medium type. So, then, $P_2$ has to choose between reaching for all surplus from the high type or taking all surplus only from the medium type. To take all surplus from the medium type in a way that draws in the most value from the high type, $P_2$’s offer will make $t_h - t_l$ as large as possible, which means setting $t_l = 0$.

To capture all surplus in the high state, $P_2$ will offer to keep $t_h$ such that $P_1$ gets his promised liquidation value in the high state: $\pi_h(X_4 - t_h) + (1 - \pi_h)L_4 = \delta \alpha_3$. Solving for $t_h$, $t_h = X_4 - \frac{1}{\pi_h}\{\delta \alpha_3 - (1 - \pi_h)L_4\}$

To capture all surplus in the medium state, $P_2$ will offer to keep $t_h$ such that $\pi_m(X_4 - t_h) + (1 - \pi_m)L_4 = \delta \alpha_3$.

This implies that to capture all surplus in the medium state, set $t_h = X_4 - \frac{1}{\pi_m}\{\delta \alpha_3 - (1 - \pi_m)L_4\}$.

Comparing $P_2$’s expected payoffs, $P_2$ will choose to capture all surplus in the high state, thus resulting in liquidation in the medium state, if and only if

$$p_h(C_h - \delta \alpha_3) + p_m \beta_3 > p_h \pi_h(X_4 - \frac{1}{\pi_m}\{\delta \alpha_3 - (1 - \pi_m)L_4\}) + p_m(C_m - \delta \alpha_3).$$

This expression reduces to

$$p_h\left(\frac{\pi_h - \pi_m}{\pi_m}\right)(\delta \alpha_3 - L_4) > p_m(C_m - \delta \alpha_3 - \beta_3).$$

Proof of Proposition 3:

Part (a): Note that with an informed $P_2$, the only potential inefficient outcome is continuation in the low state. Thus, the condition in part (a) does not apply unless efficient continuation occurs in the high and medium states under an uninformed $P_2$. If continuation occurs in the medium state, then $P_2$ fails to capture all the continuation surplus in the high state as long as $\delta \alpha_3 > L_4$. Since $P_2$ can capture all this surplus if informed, this creates excess incentive to acquire information. Part (a) holds a fortiori if $\delta \alpha_3 > L_4$ and an informed $P_2$ causes the decision to change from liquidation to continuation in the low state.

Part (b): Proposition 3 illustrates that when information generates gains from efficient continuation in the low state, the gains accrue partially to $P_1$. An inefficient liquidation in the medium state under an uninformed $P_2$ implies that $P_2$ captures all the surplus in the
high state. Hence, there is not excess incentive to acquire information so as to gain rents in the high state. In the medium state, the efficiency gains from efficient continuation due to information accrue entirely to P2, so the medium state also creates no bias.

Part (c): If \( \delta = 1 \) and \( \mu_1^w = 0 \), then P1’s payoff is \( \alpha_3 \) irrespective of the outcome. Hence, any gains or losses from information accrue entirely to E and P2, so they have incentive to make the efficient information decision.

Proof of Proposition 4

Recall that E’s objective at date 2 is the following:

\[
\max_{\eta, w} (1-p)(R_{P2}^{w} + R_{e}^{w}) - \eta \theta i_2 - (1-\eta)i_2,
\]

while the social objective is

\[
\max_{\eta, w} (1-p)(R_{P1}^{w} + R_{P2}^{w} + R_{e}^{w}) - \eta \theta i_2 - (1-\eta)i_2,
\]

So the bias away from efficiency under a given financing choice is larger to the extent that \( (1-p)R_{P1}^{w} \) is larger. Hence, we can simply compare P1’s payoff differential under informed withdrawal and the stay \( R_{P1}^{1,1} - R_{P1}^{0,0} \) under informed withdrawal and the stay. If \( R_{P1}^{1,1} - R_{P1}^{0,0} > 0 \) then there is a bias toward the stay, and vice versa.

a) Under an informed withdrawal right, if continuation occurs in all states, then P1’s expected payoff is \( R_{P1}^{1,1} = \delta \alpha_3 + \frac{1}{2} \mu_1^w(C_{avg} - \delta \alpha_3 - \beta_3) \) where \( C_{avg} \) is the average continuation value in all states. If liquidation occurs in the low state, then P1’s expected payoff is \( (p_h + p_m)(\delta \alpha_3 + \frac{1}{2} \mu_1^w(C_{hm} - \delta \alpha_3 - \beta_3)) + p_l \alpha_3 \). \( C_{hm} \) is the average continuation value conditional on the medium or high state occurring.

Under the stay, if continuation occurs in all states, then P1’s expected payoff is \( R_{P1}^{0,0} = \delta \alpha_3 + \mu_1^s(C_{avg} - \delta \alpha_3 - \beta_3) \) and if liquidation occurs in the low state, it is \( R_{P1}^{0,0} = (p_h + p_m)(\delta \alpha_3 + \mu_1^s(C_{hm} - \delta \alpha_3 - \beta_3)) + p_l \alpha_3 \). As \( \mu_1^s \to 1 \), these expressions converge to \( C_{avg} - \beta_3 \) under continuation in all states and \( (p_h + p_m)((C_{hm} - \delta \beta_3)) + p_l \alpha_3 \) if liquidation in the low state.

Holding the continuation/liquidation decision fixed under the two options, P1’s payoff is higher under the stay, since \( C_{avg} - \delta \beta_3 \geq C_{avg} - \beta_3 \geq \delta \alpha_3 + \frac{1}{2} \mu_1^w(C_{avg} - \delta \alpha_3 - \beta_3) \) and
\[(p_h + p_m)(C_{hm} - \delta \beta_3) + p_3 \alpha_3 \geq (p_h + p_m)(C_{hm} - \beta_3) + p_3 \alpha_3 \geq (p_h + p_m)(\delta \alpha_3 + \frac{1}{2} \mu_1^{w}(C_{hm} - \delta \alpha_3 - \beta_3)) + p_3 \alpha_3.\] Hence, there is a bias toward the informed withdrawal right as \(\mu_1^{i} \rightarrow 1\) if outcomes are not affected.

b) As \(\mu_1^{i} \rightarrow 0\), P1’s payoff converges to \(\delta \alpha_3\) if continuation in all states. Comparing to P1’s payoff assuming liquidation in the low state under an informed withdrawal right (this is the only case in which the outcome can change when financing choice changes), P1’s payoff is \((p_h + p_m)(\delta \alpha_3 + \frac{1}{2} \mu_1^{w}(C_{hm} - \delta \alpha_3 - \beta_3)) + p_3 \alpha_3 > \delta \alpha_3.\) Hence, there is a bias toward the stay when outcomes are affected.

Proof of Proposition 5

To show that E strictly prefers an uninformed withdrawal right to the stay as \(\mu_1^{s} \rightarrow 1\), it suffices to compare the expected payoffs of E and P2 in default under the two options, since the financing cost is the same. Under the stay, as \(\mu_1^{s} \rightarrow 1\), E’s payoff approaches 0 and P2’s payoff approaches \(\delta \beta_3\) in any continuation outcome. P2’s payoff is \(\beta_3\) in any liquidation outcome. Under an uninformed withdrawal right, by contrast, P2’s payoff is at least \(\beta_3\) and is strictly greater than \(\beta_3\) in either the medium state (if continuation occurs) or the high state (if liquidation occurs in the medium state).