Bank Priority and Strategic Debt Restructuring

Laurent Vilanova - Univ. Lyon 2, Coactis*

January 13, 2022

Abstract

I analyze how bank priority affects debt restructurings. The model assumes that the firm has two types of creditors (a bank and a non-bank lender) and can be liquidated/restructured at two dates. If covenants are violated, the bank has the option to intervene immediately (early liquidation or bilateral renegotiation with the firm) or to delay its intervention (with the perspective of late liquidation or multi-creditor renegotiation). In this dynamic restructuring framework, I show how conflicts between creditors of different priorities affect the order and the form of debt restructuring and how a distressed firm can benefit from playing one class or creditor against another (senior vs. junior) to minimize its own concessions. Depending on its initial debt structure and its expected quality, the distressed firm can benefit or suffer from a debt structure with a senior bank and bank priority can increase or decrease the bank's incentive to monitor.

Keywords: Bank priority, debt restructuring, debt covenants, creditor conflicts

*Correspondence: Laurent Vilanova, Coactis, 14-16 Av. Berthelot (MSH), 69363 Lyon Cedex 7, France. Email: laurent.vilanova@univ-lyon2.fr

1 Introduction

Much of the traditional literature on financial intermediation has stressed the superior ability of banks to face distressed firms. This superior ability is often attributed to the priority of bank loans, i.e., the fact that bank debt is usually senior and has a more restrictive set of covenants than other types of debt. The priority of their claims is supposed to incentivize banks to exert a stricter monitoring of borrowers. Monitoring, in turn, enables banks to accelerate debt renegotiation (when the firm is viable) or firm liquidation (when things go wrong) and deters borrower opportunism. Thus, when debt-equity conflicts are severe, firms optimally borrow from a single lender or adopt a debt structure with a senior bank lender (Park 2000).

However, questions remain about how bank priority affects the resolution of financial distress. First, the empirical evidence on the role of banks in distressed debt restructurings is mixed. Several studies show that firms with a higher proportion of bank debt are more likely to restructure successfully out-of-court (Gilson et al. 1990; Demiroglu and James 2015), thus suggesting that senior banks help lead distressed firms out of default more quickly. But other studies show that banks slow down the renegotiations (Helwege 1999) and are tough negotiators in debt restructurings – in particular, they are less likely to forgive principal or increase their claims than bondholders (Rauh and Sufi 2010; Demiroglu and James 2015) or trade creditors (Petersen and Rajan 1997; Franks and Sussman 2005). Second, although allocating priority to bank debt is likely to reduce debt-equity conflicts, it may in counterpart increase conflicts among creditors – conflicts between banks and other creditors (e.g., bondholders, trade creditors) that hold junior and covenant-lite claims. Creditor conflicts may in turn affect the outcomes of troubled debt restructurings (Ayotte and Morrison 2009; Becker and Josephson 2016). However, it is not entirely clear how these conflicts affect the capacity of distressed firms to restructure their debt and how these firms can exploit creditor conflicts to their own advantage in debt renegotiations (Noe and Wang 2000). Third, questions remain on the impact of priority on the bank's incentive to monitor. Because covenants give banks the option to intervene early and this option has value only if banks acquire enough information to show that the covenants have been violated, it makes no doubt that bank covenants encourage monitoring (Rajan and

Winton 1995). However, the role of seniority is more ambiguous. On the one hand, banks with a senior and impaired claim have more incentive to monitor than junior lenders to accelerate firm liquidation (Park 2000). On the other hand, a bank that holds a non-senior debt (e.g., a claim that ranks pari passu with other debt) may have strong incentive to monitor to accelerate contract renegotiation and get ahead of other claimants.

To address these questions, I present a model of debt restructuring between a firm and two types of creditors: a bank and a non-bank lender. I consider two features of debt claims that establish the priority of bank loans. First, bank debt is covenant heavy, whereas other types of debt are more covenant lite (Donaldson et al. 2018). In particular, bank debt has performance covenants that provide the bank the option to force renegotiation or liquidation before maturity if the bank can prove the deterioration of the borrower's quality (Christensen and Nikolaev 2012). Second, bank debt is typically senior with public or trade credit subordinate to it.

Both lenders have claims that mature at the time firm revenues are realized but the firm's debt can be renegotiated at two interim dates.[1] At the first date, the firm learns the quality of its projects. Creditors can also obtain this information if they exert a costly monitoring. Upon observing a deterioration of the firm's quality, the bank can force early liquidation or bilateral renegotiation of its claim (henceforth, early restructuring) if performance covenants are violated (Gorton and Kahn 2000). At the second date, the firm's quality becomes public information and all the creditors can participate to the firm's financial restructuring, conditional on the firm being distressed. At this later stage, restructuring (henceforth, late restructuring) involves the different types of creditors and the firm can choose the order of negotiations with creditors.

In this context, questions arise about how bank priority affects the interactions between the firm and creditors at the two restructuring dates:

(i) Consider first the distressed firm's choice of the order of negotiations in late restructuring. As typical in three-party negotiations, the common player (here, the firm) chooses the order to maximize its own payoff and can try to extract rents from playing one creditor against

[1] Financial distress is often a long-term process and the traditional assumption of an immediate and irreversible liquidation decision is quite unrealistic (Kahl 2002). In reality, a bank that authorizes the continuation of a distressed firm at an early stage of distress (either because the distressed situation is not detected or because the bank waives covenants) keeps the option to liquidate it later (if the situation goes worse or if the bank obtains a more precise information about the borrower's viability).

the other. The firm's ability to extract rents depends on the heterogeneity of debt claims. Bank seniority, by reinforcing this heterogeneity and weakening the non-bank creditor, can facilitate rent extraction and can enable the firm to minimize its own concessions. However, bank seniority is potentially a double-edged sword for the firm, as it makes the threat of liquidation more credible and may force the firm to make more concessions to the bank. Thus, whether a distressed firm benefits or suffers from a prioritized debt structure (with a senior bank and a junior non-bank creditor) is an open question.

(ii) Consider now the bank's behavior at the early restructuring date. The bank's claim contains performance covenants that give the bank an option to accelerate liquidation or renegotiation. However, it is not perfectly clear how the senior status of the bank's claim affects the value of this acceleration option and incentivizes bank monitoring. Banks have two potential motives for early monitoring: accelerating the liquidation of non viable firms (the "early liquidation motive") or accelerating debt restructuring of distressed but viable firms (the "early renegotiation motive"). The "early liquidation motive" is clearly stronger for senior banks that receive the full liquidation value and thus prefer accelerating the liquidation of a non viable firm (whose liquidation value declines over time). In contrast, the "early renegotiation motive" is potentially stronger for banks with non-senior claims that have a weak position in late multi-creditor restructuring and may prefer triggering early bilateral restructuring with the firm. Thus, whether seniority increases the bank's incentive to monitor and to intervene early following a covenant violation is ambiguous and may depend on some firm characteristics (e.g., its expected quality or its initial debt structure).

By comparing the case when the bank has a senior claim (prioritized debt structure) with the case when the two creditors have equal priority, I derive the following main results. First, distressed firms sometimes benefit from bank priority in multi-creditor late restructuring. This might appear counterintuitive since the senior status of its claim reinforces the bank's bargaining position and may thus force the firm to make more concessions to the bank. However, bank priority also weakens the position of the non-bank creditor and allows the firm to elicit more concessions from the junior non-bank creditor. In this context, a distressed firm can strategically exploit the heterogeneity of debt claims associated to bank priority by choosing the order

of negotiations with the different debholders and playing one creditor against the other. Specifically, I show that a distressed firm can limit its own concessions to creditors by strategically weakening the junior non-bank lender (i.e., by negotiating first and offering a partial repayment of its claim to the senior bank). In contrast, when creditors have equal priority, the firm has initially a stronger position in negotiations vis-à-vis the bank but has less latitude to exploit conflicts among creditors. Overall, I find that distressed firms benefit from bank priority in late restructuring when (i) they have an intermediate expected quality (i.e., when they are moderately distressed), (ii) the senior bank has a stronger bargaining power vis-à-vis the firm than the non-bank creditor, and (iii) the firm's potential concessions in negotiations are low relative to the potential concessions of the non-bank creditor. An additional insight is that partial repayment of senior bank debt at the last stage of distress is not always detrimental to a distressed firm and can be part of the firm's optimal strategy.

My second main result is to show how priority incentivizes the bank to intervene early (after a covenant violation) and monitor the firm at the onset of distress (early restructuring). Obviously, the bank's incentives to monitor/intervene early depend on the outcomes of postponing its intervention to a later date. Based on this idea, I show that seniority increases the bank's incentive to intervene early for low-quality firms – which are likely to be liquidated in late restructuring – and relatively high-quality borrowers – whose debt will not be restructured in late restructuring but for whom the senior bank can force restructuring and extract concessions at the early stage of distress. In contrast, seniority increases the bank's incentives to stay passive (i.e., waive covenants) for intermediate-quality firms – for which the senior bank expects high concessions from the firm and the junior claimant in late restructuring. Overall, the impact of priority on the bank's incentive to monitor depend on the expected quality of the distressed firm, with priority increasing bank monitoring when the firm's expected quality is either low or high and decreasing bank monitoring for firms of intermediate expected quality.

Finally, my third main result is to identify the conditions under which firms that enter financial distress benefit or suffer from a prioritized vs. an equal priority debt structure. Debt level being equal, I show that low-quality and (relatively) high-quality distressed firms benefit from having an equal priority debt structure at the onset of distress. Instead, intermediate-quality firms are better off with a prioritized debt structure that facilitates rent extraction from

non-bank creditors and limit the firm's own concessions during distress. Interestingly, the optimality of bank priority for intermediate-quality firms depends on other firm characteristics (e.g., the non-bank lender's bargaining power), thus allowing to make different empirical predictions depending on the identity of the non-bank lender (concentrated/dispersed bondolholders or trade creditors).

This article contributes to the finance theory literature on how priority affects lender monitoring and conflicts among creditors. My model explicitly refers to the puzzle first argued by Fama (1985): why senior banks would have more incentive to monitor than other debtholders whereas they are well protected in liquidation? Like Park (2000), I assume that senior banks have a risky claim and can appropriate the full liquidation value. Thus, when the liquidation value of the firm's assets decreases over time, senior banks have strong incentives to monitor to accelerate liquidation of non viable firms. Unlike Park's model, however, my model considers that early monitoring also permits to accelerate debt restructuring of distressed but viable firms. For these firms, bank priority, by reinforcing the bank's bargaining position in late multi-creditor restructuring, may weaken the bank's incentive to monitor early. My model also relates to the small literature on how priority rules mitigate conflicts among creditors. Donaldson et al. (2018) study the role of collateral and negative pledge covenants in debt contracts - two elements that respectively establish priority among creditors and the potential for dilution from other creditors. Collateral is more protective as secured creditors (with collateral) cannot be diluted, whereas unsecured creditors can be diluted by secured ones even if their claims have negative pledge covenants (see also Badoer et al. 2019). Still, covenants can enable unsecured creditors to accelerate repayment and to avoid dilution by other unsecured creditors. The key difference with my model is that they focus on the optimal debt structure, i.e., the mix of secured claims and unsecured claims (with or without negative pledge convenants) that commits the firm to the efficient investment policy, whereas I focus on how the priority of debt claims affects distressed debt restructurings.

My model is also related to the large empirical literature on distressed debt restructurings. This literature suggests that, in private workouts, banks are tougher negotiators than bondhold-

ers or trade creditors, whose claims are typically junior to bank loans.[2] Different explanations for the soft behavior of non-bank creditors have been proposed, for example that bondholders have dispersed debt ownership and are weak relative to large bank creditors (Becker and Josephson 2016) or that trade creditors are commercially dependent to the borrowing firms (Wilner 2000). My paper proposes an alternative explanation: due to their junior status, the position of non-bank creditors is weak and may be further weakened by the distressed firm's strategy of playing one creditor against another to limit its own concessions.[3] Specifically, in certain cases, the firm opts for a (partial) repayment of senior bank debt to force concessions and refinancing from junior debtholders. Interestingly, such strategy may explain Franks and Sussman's (2005) evidence that "*in quite a few cases the magnitude of trade credit expansion is similar to the contraction of bank debt, as if the money obtained from the trade creditors is used to repay the bank*" (p.87).

Finally, my model is closely related to theories of debt restructurings in an incomplete contract framework. Gorton and Kahn (2000) propose a model of renegotiation between a borrower and a bank. They show that banks are soft (lower the interest rate) when they receive moderately unfavorable news about the borrower and adopt a more coercive behavior towards highly distressed firms. My model shares many ideas with Gorton and Kahn's paper. Like them, I consider that the bank has the ability to call back its claim at any time (if the bank monitors the firm) and that renegotiation takes place at a time where information asymetries have disappeared. There are nevertheless many differences. A key difference is that their paper considers only one creditor and does not discuss in any detail the importance of bank priority. Other differences are that they do not consider two liquidation opportunities nor the bank's incentives to monitor the firm, and that their model focuses on firm moral hazard rather than on creditor conflicts. Noe and Wang (2000) analyze restructuring negotiations between a borrower and many creditors. They show that a distressed firm can strategically choose the sequence of negotiation with creditors and "play" creditors against one another. My paper also under-

[2]Specifically, public debt is more likely to be restructured than bank debt in out-of-court restructuring and public debt restructuring involves more often a reduction of principal (Demiroglu and James 2015). Trade credit often substitutes for bank credit in distressed situations (Franks and Sussman 2005; Petersen and Rajan 1997).

[3]Relatedly, several empirical legal studies find that firms coalesce with secured creditors to transfer value from unsecured creditors to shareholders prior to bankruptcy filing (e.g., Adler and Capkun 2019).

lines the importance of timing issues in out-of-court restructurings. The principal difference is that they consider a general priority structure and do not discuss in detail how their results depend on the priority status of the bank's debt. They also do not consider a succession of liquidation/renegotiation decisions.

The rest of the paper proceeds as follows. The model is specified in section 2. Section 3 provides results on how priority of debt claims affects the multi-creditor renegotiation game at the last stage of the project (late restructuring). Section 4 studies how bank priority affects bilateral negotiation (early restructuring) and the bank's incentive to monitor early. Section 5 discusses the results and contains extensions. Concluding comments are in Section 6. All the proofs are in the Appendix.

2 Model and assumptions

2.1 The basic framework

I consider three agents, all risk neutral and rational: a borrowing firm, a bank and a non-bank creditor. The risk-free rate is 0.

The model has four dates (see Figure 1 and Appendix A for a concise summary of notations). At $t = 0$, the firm has an outstanding debt (with face value D_0) due at $t = 3$. This debt is partly due to the bank (D_0^B) and to the non-bank lender (repayment of D_0^C at $t = 3$). Note that D_0, D_0^B and D^C are exogeneously given as my model focuses on how the firm's initial debt structure (including the priority of debt claims) affects subsequent distressed debt restructurings.[4]

The firm learns the quality of its projects at $t = 1$. With probability p, the firm is successful and returns Y at $t = 3$. The firm fails with probability $1 - p$, in which case it returns y at $t = 3$.[5] For simplicity and without loss of generality, I assume that $y = 0$. I denote by $\pi = pY$ the firm's (expected) continuation payoff. Note that firms do not differ by the revenues obtained at $t = 3$ but only by their *ex ante* probability of success p and their continuation payoff π. At

[4]This aspect of my model contrasts with other models dealing with debt covenants and the priority of debt claims that derive the firm's optimal *ex ante* debt structure (e.g.,Park 2000; Donaldson et al. 2018). However, I discuss briefly the consequences of endogenizing initial debt claims in Section 5.2.

[5]In my model, the firm's quality p is exogenous contrary to Park (2000) and Bharath (2002). There are two reasons: first, my model focuses on bank opportunism during episodes of corporate distress and not on borrower opportunism; second, empirical studies have found little support for the idea that borrowing firms behave opportunistically during financial distress (e.g., Franks and Sussman 2005).

$t = 1$, the bank can also observe the firm's quality p by exerting a costly monitoring (I note c the cost of monitoring).[6] Conditonal on bank monitoring and the firm's quality is low, the bank has the option to call back its claim and can force *early restructuring* (early liquidation or renegotiation). If the bank chooses to liquidate, the liquidation value is L_1. If the bank decides to renegotiate with the firm, I note D_1^B the new face value of bank debt. At $t = 1$, the bank is the only lender to have a liquidation/renegotiation option and the non-bank lender remains passive so $D_1^C = D_0^C$.

At $t = 2$, if the firm has been authorized to continue, all the creditors learn without cost the quality of the firm. If p is low enough, the firm can be liquidated or can renegotiate its debt (*late restructuring*). In contrast with date 1, all the creditors (the bank and the non-bank lender) may participate to late renegotiation and may choose to roll-over or ask for a repayment (full or partial) of their claims. I note D_2, the global repayment due to lenders at $t = 3$ following date-2 late restructuring. Alternatively, the firm can be liquidated at $t = 2$ if negotiations with creditors fail. The liquidation value at t=2 is L_2 with $\Delta L = L_1 - L_2 > 0$.

At $t = 3$, revenues are realized and lenders are repaid on the basis of outstanding contracts if the firm is successful (revenue Y). Figure 1 summarizes the timing of the model.

In this setting, interim liquidation at $t = 1,2$ is efficient if the liquidation value of assets exceeds the value of the firm as a going concern, i.e., if $L_t > \pi$. With this benchmark in mind, I aim to establish how the priority of bank debt at $t = 0$ influences subsequent debt restructurings (at $t = 1,2$) and the bank's incentive to monitor the firm at $t = 1$. My solution concept is perfect Bayesian equilibrium throughout and I will start with date 2 (late restructuring), as the game is solved by backward induction.

2.2 Detailed assumptions

Assumption 1. *(Revenues, initial claims, and liquidation values):* $Y > D_0 > D_0^B > L_1 > L_2$

The liquidation value declines over time. Because $Y > L_t$, interim liquidation at $t = 1,2$ is never optimal for a high-quality firm ($p = 1$). If failure is certain ($p = 0$), the firm has to

[6] I consider implicitly that banks are the only lenders able to exert a costly monitoring of the firm. This assumption finds many justifications, such as the fact that banks benefit from economies of scope in their monitoring activity, bank loans are held in more concentrated positions and have more covenants than bonds or trade credit claims (Becker and Josephson 2016).

t=0	t=1 (*Early restructuring*)	t=2 (*Late restructuring*)	t=3
Firm (F) has an outstanding debt $D_0 = D_0^B + D_0^C$, where D_0^B and D_0^C are for bank debt and non-bank debt, respectively.	• F learns the quality of its project (p) and its expected payoff π. • Bank chooses to monitor (cost c). If it monitors, bank learns p. • If the bank monitors, it can either: − Liquidate (liquidation value: L_1) − Ask for a renegotiation of its claim (new face value D_1^B) − Make nothing (status quo)	• F's quality (p) becomes public information. • If at least one creditor has a liquidation threat, F renegotiates with the two creditors and chooses the order of negotiations. • If renegotiation occurs, F either continues (new face value D_2) or is liquidated ($L_2 < L_1$).	• Revenues are realized (Y if success; y = 0 if failure). • Repayment of debt claims

Figure 1: **The timing of the model**

be liquidated as soon as possible. Assumption 1 also states that the bank's claim is risky at the beginning of the game ($D_0^B > L_1$). In other words, a bank cannot be fully repaid in liquidation. This assumption eliminates the trivial case where a senior bank would have incentive to liquidate systematically the firm even if it does not know its true quality.[7] Finally, $Y > D_0$ implies that debt restructuring will occur at $t = 1, 2$ only if the firm's quality (p) is sufficiently low.

Assumption 2. *(Concessions and creditor conflicts):* $D_0^C > Y - D_0 > 0$

Assumption 2 is made for two reasons. First, firms whose debt is restructured privately are often highly indebted (such that $Y - D_0$ is low) and have substantial non-bank debt. Second, this assumption focuses my model on situations in which creditor conflicts are potentially severe and the firm has incentive to "play one creditor against another" in debt renegotiations. In this perspective, $Y - D_0$ and D_0^C can be interpreted as the maximum concessions that the firm and the non-bank lender can make to convince the bank not to liquidate. Thus, the assumption that $D_0^C > Y - D_0$ reinforces the firm's incentive to force concessions from the non-bank lender to minimize its own concessions to the bank.[8]

[7] Diamond (1993) and Gorton and Kahn (2000) also assume that the bank's claim is large enough to be impaired by liquidation.

[8] Assumption 2 is made for simplicity. Note, however, that creditor conflicts and the strategic expropriation of the non-bank lender can exist even if $D_0^C \leq Y - D_0$.

Assumption 3. (Covenants and early liquidation): *The bank contract includes a liquidation option allowing the bank to call its loan upon the arrival of new information about the firm's quality at t=1,2.*

The bank contract has a unique feature that allows the bank to call the loan at any time. In other words, upon the arrival of new and adverse information about the firm's quality, the bank can force interim liquidation or renegotiation of its claim at $t = 1, 2$. This assumption is similar to that of Gorton and Kahn (2000) and reflects the fact that banks often set stricter covenants than other types of lenders (e.g., Rauh and Sufi 2010; Zhang 2018). In my model, bank debt covenants are set such that the bank can call back the loan when its expected continuation payoff with the original contract is lower than its payoff under liquidation. Thus, these covenants are violated each time the bank has a credible threat to liquidate.[9] However, a covenant violation does not necessarily lead to liquidation or debt restructuring. First, the bank can exercise its liquidation/renegotiation option only if it possesses enough information about the firm's quality to show that covenants have been violated (Rajan and Winton 1995; Park 2000). This condition always holds at $t = 2$ (when the firm's quality is public information), but holds at $t = 1$ only if the bank has monitored the firm. Additionally, even if it has monitored and detected a covenant violation at $t = 1$, the bank can decide to waive covenants if it anticipates a higher expected payoff in late vs. early debt restructuring.

Assumption 4. *(Early vs. late restructuring): A creditor can participate in debt restructuring at date t if and only if it observes the firm's quality at date t.*

An implication of Assumption 4 is that early restructuring at $t = 1$ and late restructuring at $t = 2$ involve different potential sets of creditors. The bank is the only creditor that can participate in early restructuring (conditional on monitoring), whereas both the bank and the non-bank lender can participate in late restructuring. This implies that the bank will have in certain cases the possibility to choose the timing of debt restructuring, by opting either for bilateral renegotiation with the firm at $t = 1$ or multi-creditor renegotiation at $t = 2$.

[9] A consequence of this specification is that the level of firm's quality (p or π) under which bank covenants are violated varies according to the seniority of bank debt (as seniority increases the bank's payoff in liquidation) and the size of the initial bank claim (as this size affects the bank's payoff in continuation).

Assumption 5. (No alternative source of financing at interim dates): *The firm has no cash available and no alternative source of financing at t=1,2.*

Assumption 5 is similar to that made by Gorton and Kahn (2000) and Park (2000) and implies that the firm has no refinancing options outside the two initial creditors at interim dates. Thus, any demand of repayment by one creditor (even partial) at an interim date must be compensated on a one-to-one basis by an increase of the other creditor's claim for the firm to continue as a going concern.[10]

Assumption 6. *(Protection of the non-bank lender at $t = 1$): In early restructuring, the bank cannot increase its claim over $Y - D_0^C$.*

Strictly speaking, Assumption 6 means that initial non-bank debt contract restricts the amount and priority of renegotiated bank debt at $t = 1$ (see Diamond 1993, p.348-349). It also implies that the non-bank lender cannot be unilaterally expropriated by the bank at $t = 1$. Such protection exists in reality. For example, the non-bank lender's claim may contain negative pledge covenants that prohibit the issuance of new debt with a higher priority (Donaldson et al. 2018), a type of covenant that is present in most loan credit contracts (Ivashina and Vallee 2020; Simpson and Grossmann 2017). In the US, another protection comes from the legal doctrine of equitable subordination that permits a firm's claimants (trade creditors, bondholders) to petition *ex post* the bankruptcy court to subordinate a controlling investor's financial claim (Berlin and Mester 2001). Under this doctrine, a senior bank using its strong position to extract undue concessions at others' expense may be held responsible and lose ex post its priority status.

2.3 The three agents' bargaining game at t=2 (late restructuring)

At t=2, the project enters its last stage and all information asymmetry has disappeared. If at least one creditor has a credible threat, a three agents' restructuring game, inspired from Noe

[10] Assumption 5 implies that the firm cannot use asset sales to compensate creditors that ask for a partial repayment, possibly because the firm has no other assets but those necessary for continuing as a going concern (Frantz and Instefjord 2019; Koh et al. 2015). It is consistent with the evidence that distressed firms often have limited cash or liquid assets and have thus difficulties to buy goods and continue their operations when banks ask for a partial repayment, except if other creditors (e.g., trade creditors) accept to increase their claims (Franks and Sussman 2005). Relaxing Assumption 5, i.e., allowing the firm to have cash or use asset sales at interim dates, would reinforce the bank's incentive to monitor and intervene early and would reduce the firm's capacity to limit its own concessions by playing one class of creditor against another.

and Wang (2000), occurs. This game has two sequential steps (see Figure 2):

- *Step a*: The firm chooses the first creditor (creditor a) and makes a restructuring offer (D_2^a, T), where D_2^a is for the renegotiated face value of creditor's a claim (under the hypothesis of no partial repayment) and $T \geq 0$ is for the partial repayment of creditor's a claim at $t = 2$. Creditor a has three options. First, creditor a can accept the offer, in which case it receives T at $t = 2$ (conditional on creditor b accepting to refinance T) and has a claim $D_2^a - T$ due at $t = 3$. Second, creditor a can pass the offer, in which case its initial claim D_1^a is maintained until $t = 3$. Third, creditor a can reject the offer and bargains. In this case, the value of the firm is dissipated with probability $(1 - \rho_a)$. If the value is not dissipated, with probability ρ_a, creditor a can make a counter-offer that the firm can accept or pass. Thus, ρ_a can be interpreted as the first creditor's bargaining power relative to the firm.

- *Step b*: The firm can make a restructuring offer to the second creditor (creditor b). If the firm chooses to make an offer to the second creditor, the game is similar to that played at step a, and creditor b can either accept, pass or reject the offer (with ρ_b, the second creditor's bargaining power relative to the firm).

This late restructuring game has several important features. First, all the creditors are perfectly and equally informed about the firm's quality. This assumption precludes all signaling effects between the two sequential steps, as the second creditor learns nothing about the firm when it observes the result of the first step of negotiation.[11] Second, this game captures in the simplest form the idea that successful late restructuring implies to renegotiate with all existing debtholders. Specifically, high concessions made to the first creditor (through a substantial increase of D_2^a relative to D_1^a or through a partial repayment) can avoid liquidation only if the second creditor accepts either to reduce the face value of its claim or to refinance the firm.[12] Along the lines of Diamond (2004), this implies that the second creditor may buy out the first creditor's claim. Finally, the key difference with the restructuring game of Noe and Wang (2000) is the

[11] This is at odds with Berlin et al. (1996) and Rajan and Winton (1995). In these models, banks have an informational advantage over other lenders and banks' decisions act as a signaling mechanism (if banks negotiate first).

[12] Here, the crucial assumption is that the firm has no alternative sources of financing (except the two existing creditors) before revenues are realized at $t = 3$ (Assumption 5).

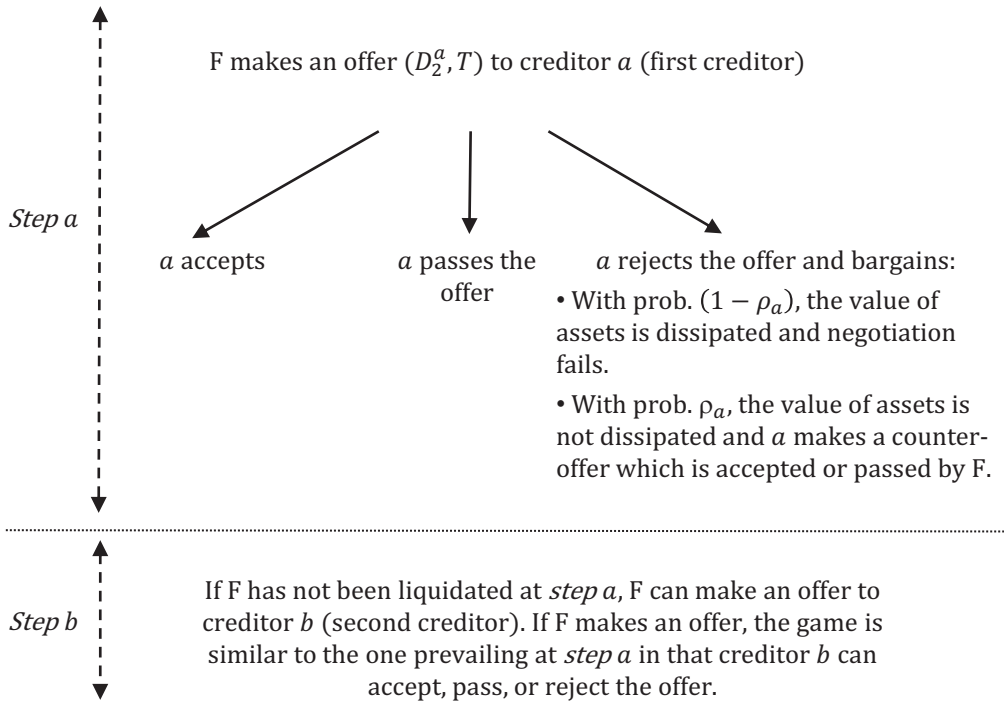


Figure 2: **The three agents' restructuring game at t=2 (late restructuring)**

possibility for the firm to offer a partial repayment of its claim to the first creditor. This feature, consistent with evidence that some claimants (in particular senior banks) often contract lending during distress while others expand lending (e.g., Franks and Sussman 2005), enables the firm and the first creditor to strategically force the second creditor to make concessions in debt restructuring (i.e., to reinject $T > 0$) and increases the possibility of wealth transfers between creditors.

3 Bank priority and late restructuring at t=2

At t=2, the firm's quality becomes public information and renegotiation takes place if at least one creditor has a credible threat to liquidate. Thus, renegotiation occurs at t=2 if $\pi_1^a < \lambda_1^a L_2$ and/or $\pi_1^b < \lambda_1^b L_2$, where π_1^a and π_1^b are the expected payoffs of creditors a and b with their outstanding contracts (those prevailing at the end of date 1), and λ_1^a and λ_1^b are the parts of the firm's liquidation value captured by each creditor. Obviously, liquidation cannot be avoided if $\pi < L_2$.

If at least one creditor has a credible threat and $\pi \geq L_2$, the firm (hereafter F) engages in a two-step restructuring process. Reasoning backwards:

– at step b, the strategies of the firm and the second creditor depend on the output of step a-negotiation. If the first creditor obtained no partial repayment at step a (i.e., $T = 0$) and $\pi \geq \pi_2^a + \pi_1^b$ (with π_2^a, the expected payoff of the first creditor after step a), F can either pass the second creditor, in which case $\pi_2^b = \pi_1^b$, or make an offer that gives creditor b an expected revenue $Max[\pi_1^b, \lambda_1^b L_2, \rho_b(\pi - \pi_2^a)]$. If $T = 0$ and $\pi < \pi_2^a + \pi_1^b$, F has no other choice but to obtain concessions from creditor b to continue as a going concern and must make an offer that leaves creditor b with an expected revenue $Max[\lambda_1^b L_2, \rho_b(\pi - \pi_2^a)]$. Alternatively, if F and the first creditor agreed on a partial repayment at step a (if $T > 0$), creditor b cannot pass without triggering immediate liquidation. In this case, even if $\pi \geq \pi_2^a + \pi_1^b$, F offers $Max[\lambda_1^b L_2, \rho_b(\pi - \pi_2^a)]$ to creditor b.

– at step a, if $\pi \geq \pi_1^a + \lambda_1^b L_2$, F must make a restructuring offer (D_2^a, T) that gives creditor a an expected payoff $Max[\pi_1^a, \lambda_1^a L_2, \rho_a(\pi - \lambda_1^b L_2)]$. If instead $\pi < \pi_1^a + \lambda_1^b L_2$, F makes an offer that leaves creditor a with $Max[\lambda_1^a L_2, \rho_a(\pi - \lambda_1^b L_2)]$. As apparent here, this first step of negotiation must leave sufficient space for the second creditor to accept the firm's offer at step b.

Obviously, the order of negotiations affects the two creditors' and the firm's payoffs. The first creditor (creditor a) has a potential advantage over the second one (creditor b) and strategic sequencing of negotiation may allow the firm to minimize its own concessions. To illustrate, consider, a firm characterized by $\pi = 40$ and $L_2 = 30$ with senior bank debt such as $\pi_1^{BS} = 25$ and $\rho_B = 0.8$ (BS is for senior bank). With these values, it is efficient not to liquidate (because $\pi > L_2$), but debt restructuring is necessary since BS has a credible threat to liquidate (because $\lambda_1^{BS} = 1$ and $\pi_1^{BS} < L_2$). Consider next three alternative cases as regard to junior non-bank debt (CJ is for junior creditor).

Case 1: $\pi_1^{CJ} = 10$ and $\rho_C = 0.5$

– If F negotiates with BS first, F offers a new contract that leaves BS with $\pi_2^{BS} = 32$ (what BS obtains if it rejects the offer and bargains). At step b, CJ has no other choice but to accept concessions and F offers CJ a new contract with $\pi_2^{CJ} = 4$ (what CJ obtains if it bargains). With this strategy, F's expected payoff after date 2 restructuring is $\pi_2^{FS} = 4$ (i.e.

$\pi - \pi_2^{BS} - \pi_2^{CJ}$), BS's expected payoff increases by 7 (relative to π_1^{BS}) and this increase is made possible by the concessions of the other parties (-6 for CJ and -1 for F).

– If, instead, F negotiates with CJ first, CJ passes any renegotiation offer at step a (since $\pi_1^{CJ} > Max[\lambda_1^{CJ} L_2, \rho_C(\pi - \lambda_1^{BS} L_2)]$) such that $\pi_2^{CJ} = \pi_1^{CJ} = 10$ and BS accepts an offer that gives it $\pi_2^{BS} = 30$ (its payoff in liquidation) at step b. Thus, if F negotiates with CJ first, its expected payoff after date-2 restructuring is $\pi_2^{FS} = 0$, BS's expected payoff increases by 5 and F is the only party that makes concessions.

Overall, Case 1 illustrates that sequential negotiations tend to weaken the second creditor. Here, the firm's optimally negotiates with BS first to force concessions from CJ.

Case 2: $\pi_1^{CJ} = 8$ and $\rho_C = 0.5$

The main difference with case 1 is when F negotiates with BS first. Following the offer made to BS at step a (that is, $\pi_2^{BS} = 32$), CJ has no natural incentives to make concessions and will pass at step b if step a-negotiation involves no partial repayment ($T = 0$). Thus, without partial repayment, $\pi_2^{FS} = 0$.[13] Instead, if F offers a partial repayment to BS at step a ($T > 0$), CJ loses its pass option, F makes an offer that leaves CJ with $\pi_2^{CJ} = 4$ and increases its own payoff to $\pi_2^{FS} = 4$. Negotiating with BS first and offering BS a partial repayment is thus optimal for F since negotiating with CJ first would leave F with only $\pi_2^{FS} = 2$.[14] Overall, case 2 illustrates that F may strategically offer a partial repayment of BS's claim at the first step of negotiation to force CJ to make concessions.

Case 3: $\pi_1^{CJ} = 2$ and $\rho_C = 0.5$

Like in case 2, CJ can pass if F negotiates with BS first. However, CJ prefers bargaining with F at step b rather than passing because $\pi_1^{CJ} = 2 < \rho_C(\pi - \pi_2^{BS}) = 4$. Therefore, F is better off not negotiating with CJ (which leaves F with $\pi_2^{FS} = 6$) rather than offering CJ to participate in date-2 restructuring (in this case, $\pi_2^{FS} = 4$). Overall, case 3 illustrates that in certain cases F optimally chooses to negotiate only with creditors that have a credible liquidation threat, i.e., the senior bank.[15]

[13] This strategy is equivalent to that consisting in negotiating only with BS.

[14] If F negotiates with CJ first, CJ passes and BS obtains $\pi_2^{BS} = Max[30;0{,}8 \times 32]$ at step b.

[15] Not negotiating with CJ is also a better strategy than playing first with CJ. If F plays first with CJ, CJ prefers bargaining at step a to passing, F obtains $\pi_2^{FS} = 5$ and the two creditors obtain $\pi_2^{CJ} = 5$ and $\pi_2^{BS} = 30$.

With these examples in mind, I now investigate the effect of bank priority on the sequence and outcomes of late restructuring by examining successively the case where the bank has priority over the non-bank creditor (senior bank debt) and the case where both creditors have equal priority.

3.1 Late restructuring with senior bank debt

Many empirical studies have shown that bank claims are typically senior to the firm's other creditors (e.g., Demiroglu and James 2015; Franks and Sussman 2005). The senior bank, BS, has a credible threat to liquidate at $t = 2$ if its continuation payoff with its outstanding contract is less than its payoff in liquidation, i.e., if $\pi_1^{BS} \equiv pD_1^{BS} < L_2$. This condition holds if the firm's quality π is low enough, i.e., if $\pi < \pi_{RS2}$ with $\pi_{RS2} = \inf\{\pi : \pi_1^{BS} \geq L_2\} = \frac{L_2 Y}{D_1^{BS}}$. In contrast, the junior non-bank lender, CJ, has never a credible threat since $\pi_1^{CJ} \equiv pD_1^{CJ} > 0$. Obviously, liquidation cannot be avoided if $\pi < L_2$. Thus, late restructuring occurs whenever $L_2 \leq \pi < \pi_{RS2}$. In this case, the firm, F, must choose the sequence of negotiations with creditors with the objective of maximizing its own expected payoff (equivalently, minimizing its own concessions to creditors). For that, F can play one creditor against the other, favoring the creditor with whom it plays first and weakening the second creditor. The question, however, is which creditor F has the most interest in weakening.

I first consider the situation when the firm negotiates with the senior bank first.

Lemma 1 (Late restructuring with BS first)**.** *When there is late restructuring ($L_2 \leq \pi < \pi_{RS2}$) and the firm (F) negotiates with the senior bank (BS) first, F makes an offer that leaves BS with an expected payoff $\pi_2^{BS} = Max(L_2, \rho_B \pi)$. The precise form of the offer made to BS (partial repayment or not) and the junior non-bank lender's (CJ) concessions in late restructuring depend on the following:*

(i). If $pD_1^{CJ} > \pi - Max(L_2, \rho_B \pi)$, CJ makes natural concessions ($\pi_2^{CJ} < \pi_1^{CJ}$) at step b and F offers $\pi_2^{BS} = Max(L_2, \rho_B \pi)$ to BS at step a indifferently with $T = 0$ (no partial repayment) or $T > 0$ (partial repayment).

(ii). If $\rho_C [\pi - Max(L_2, \rho_B \pi)] < pD_1^{CJ} \leq \pi - Max(L_2, \rho_B \pi)$, F forces CJ to make concessions at step b ($\pi_2^{CJ} < \pi_1^{CJ}$) by offering BS a partial repayment of its claim ($T > 0$) at step a.

(iii). If $pD_1^{CJ} \leq \rho_C[\pi - Max(L_2, \rho_B\pi)]$*, F offers no partial repayment to BS at step a (*$T = 0$*) and does not renegotiate with CJ (such that* $\pi_2^{CJ} = \pi_1^{CJ}$*).*

The intuition is the following. When negotiating first with BS, F must offer BS the higher value between L_2 (what BS obtains in liquidation) and $\rho_B\pi$ (what BS obtains if it rejects the offer and bargains). Hence, the remaining value left for the step *b*-negotiation between F and CJ is $\pi - Max(L_2, \rho_B\pi)$. If $pD_1^{CJ} > \pi - Max(L_2, \rho_B\pi)$, CJ has no other choice but to make concessions at step *b* – i.e., to accept an offer such that $0 \leq \pi_2^{CJ} < pD_1^{CJ}$ – to maintain the firm as a going concern (see case 1 of the introducing example). If instead $pD_1^{CJ} \leq \pi - Max[L_2, \rho_B\pi]$, CJ will make no concessions at step *b* (i.e., will pass any offer) except if BS obtained a partial repayment at step *a*. Offering $T > 0$ to BS at step *a* is optimal for the firm if forcing CJ to bargain – such that $\pi_2^{CJ} = \rho_C[\pi - Max(L_2, \rho_B\pi)]$ – makes CJ worse off than if it passes the offer (see case 2 of the introducing example). Instead, if CJ's bargaining payoff is higher than its inital payoff pD_1^{CJ}, F optimally refuses to renegotiate with CJ and negotiates only with BS (see case 3 of the introducing example).

Consider next the case when the firm negotiates with the junior non-bank lender first.

Lemma 2 (Late restructuring with CJ first)**.** *When there is late restructuring (*$L_2 \leq \pi < \pi_{RS2}$*) and the firm (F) negotiates with the junior creditor (CJ) first at t=2:*

(i). If $pD_1^{CJ} > \pi - L_2$*, CJ makes concessions and obtains* $\pi_2^{CJ} = \rho_C(\pi - L_2)$ *and BS obtains* $Max[L_2, \rho_B[\pi - \rho_c(\pi - L_2)]]$ *at step b.*

(ii). If $\rho_C(\pi - L_2) \leq pD_1^{CJ} \leq \pi - L_2$*, CJ passes (CJ makes no concessions) and BS obtains* $Max[L_2, \rho_B(\pi - pD_1^{CJ})]$ *at step b.*

(iii). If $pD_1^{CJ} < \rho_C(\pi - L_2)$*, CJ extracts concessions from F and obtains* $\pi_2^{CJ} = \rho_C(\pi - L_2)$ *and BS obtains* $Max[L_2, \rho_B[\pi - \rho_c(\pi - L_2)]]$ *at step b.*

The intuition is straightforward. If $pD_1^{CJ} \leq \pi - L_2$, CJ knows that late restructuring will be successful even if it refuses to make concessions at step *a*. Depending on its bargaining power ρ_C, CJ either passes (such that $\pi_2^{CJ} = \pi_1^{CJ}$) or obtains concessions from F (such that $\pi_2^{CJ} > \pi_1^{CJ}$). If instead $pD_1^{CJ} > \pi - L_2$, CJ has no other choice but to make concessions at step *a* ($\pi_2^{CJ} < \pi_1^{CJ}$) to dissuade BS to liquidate at step *b*.

Combining the results of Lemmas 1 and 2 leads to the following Proposition:

Proposition 1 (Late restructuring with senior bank debt)**.** *The firm's debt is restructured at t=2 whenever* $L_2 \leq \pi < \pi_{RS2}$*. The firm's optimal order of negotiations and restructuring outcomes are the following:*

(i). If $L_2 \geq \rho_B \pi$*, such that BS has a liquidation bias and cannot be weakened by strategic sequencing:*

- *F is indifferent to the order and CJ makes concessions if* $pD_1^{CJ} \geq \pi - L_2$ *(region A).*
- *F negotiates with BS first (with* $T > 0$*) and CJ makes concessions if* $\rho_C(\pi - L_2) \leq pD_1^{CJ} < \pi - L_2$ *(region B)*
- *F negotiates with BS only if* $pD_1^{CJ} < \rho_C(\pi - L_2)$ *(region C).*

(ii). If $L_2 < \rho_B \pi$*, such that BS has a restructuring bias and can be weakened by strategic sequencing:*

- *F negotiates with CJ first and CJ makes concessions if* $pD_1^{CJ} > \pi - L_2$ *(region D)*
- *F negotiates with BS first (with* $T > 0$*) and CJ makes concessions either if* $Max\{\pi - \frac{L_2}{\rho_B}, \pi[\rho_B + \rho_C(1-\rho_B)] - L_2\} < pD_1^{CJ} \leq \pi - L_2$ *(region E) or* $\rho_C \pi < pD_1^{CJ} < \pi - \frac{L_2}{\rho_B}$ *(region F)*
- *F negotiates with CJ first and CJ makes no concessions either if* $Max\{\rho_C(1-\rho_B)\pi, \pi - \frac{L_2}{\rho_B}\} < pD_1^{CJ} < \pi[\rho_B + \rho_C(1-\rho_B)] - L_2$ *(region G) or if* $\rho_C(1-\rho_B)\pi < pD_1^{CJ} < Min\{\rho_C \pi, \pi - \frac{L_2}{\rho_B}\}$ *(region H)*
- *F negotiates with CJ first and F makes concessions to CJ* $(\pi_2^{CJ} > \pi_1^{CJ})$ *if* $Min[\rho_C(1-\rho_B)(\pi - L_2), (\rho_C - \rho_B)\pi + (1-\rho_C)L_2] < pD_1^{CJ} < \rho_C(1-\rho_B)\pi$ *(region I)*
- *F negotiates with BS only if* $pD_1^{CJ} < Min[\rho_C(1-\rho_B)(\pi - L_2), (\rho_C - \rho_B)\pi + (1-\rho_C)L_2]$ *(region J)*

To understand Proposition 1, note that the firm can use two alternative strategies for minimizing its own concessions in late restructuring:

- Negotiating first with CJ to weaken BS. This strategy cannot work when BS has a liquidation bias (when $L_2 \geq \rho_B \pi$), since in this case BS never bargains (even it it plays second). In contrast, BS can be weakened and the firm may have incentives to negotiate with CJ first when BS has a restructuring bias (when $L_2 < \rho_B \pi$).

– Negotiating first with BS to weaken CJ, i.e., to avoid that CJ passes (makes no concessions). CJ has a natural preference for continuation (it obtains nothing in liquidation) but also prefers a continuation in which its initial claim is kept intact or increases (such that $\pi_2^{CJ} \geq \pi_1^{CJ}$). The risk that CJ passes the firm's offer at step a exists if $pD_1^{CJ} \leq \pi - L_2$ and incentivizes the firm to negotiate with BS first and to offer BS a partial repayment of its claim.

In some cases, one of these two strategies is clearly suboptimal for the firm (see Figure 3):

– when $L_2 \geq \rho_B \pi$, strategic sequencing cannot weaken BS and negotiating first with CJ is never optimal: either the firm is indifferent about the sequence (region A), prefers negotiating with BS first (with $T > 0$) and forcing CJ to make concessions (region B) or optimally negotiates only with BS (region C).

– when $pD_1^{CJ} > \pi - L_2$, the risk that CJ passes (refuses to make concessions) does not exist and negotiating first with BS is never optimal for the firm (regions A and D).

In other cases, i.e., when $L_2 < \rho_B \pi$ and $pD_1^{CJ} \leq \pi - L_2$, the firm faces a trade-off between the two strategies. The optimal sequence mainly depends on pD_1^{CJ}, which represents both the initial expected payoff of CJ and the maximal concessions that CJ can accept in late restructuring. If pD_1^{CJ} is relatively high (i.e., sligthly less than $\pi - L_2$), the gains from extracting concessions from CJ exceed the gains from weakening BS and the firm optimally forces CJ to make concessions by playing first with BS and offering BS a partial repayment ($T > 0$) (see regions E and F). In contrast, if pD_1^{CJ} is lower, forcing CJ to make concessions, while still possible, is not optimal: the first motivation (weakening BS) dominates and F is better off negotiating with CJ first (regions G and H). Finally, when $pD_1^{CJ} < \rho_C(1 - \rho_B)\pi$, CJ always bargains (and obtains $\pi_2^{CJ} > \pi_1^{CJ}$) if the firm decides to involve it in debt negotiations. In this case, F can either play first with CJ – this first strategy weakens BS but leads F to make concessions to CJ – or negotiates with BS only – this second strategy allows F to avoid making concessions to CJ. The first strategy is optimal in region I, in which the gains from weakening BS exceed the costs of reinforcing CJ, whereas the second strategy – negotiating only with BS – is optimal in region J.

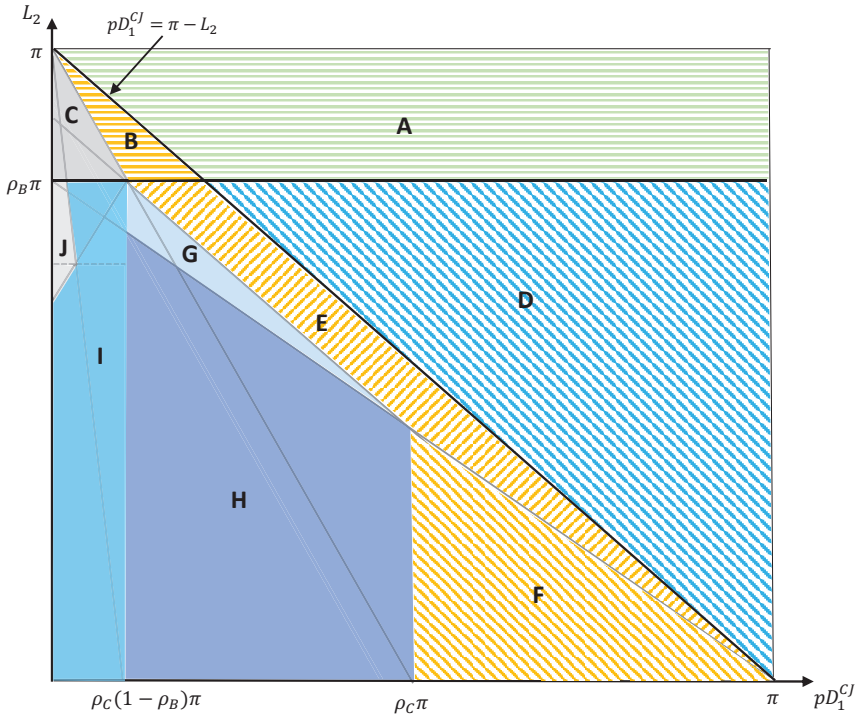


Figure 3: **Late restructuring when the senior bank (BS) is more powerful than the junior creditor (CJ).** The vertical axis is for the firm's liquidation value, which also represents BS's payoff in liquidation. The horizontal axis is for CJ's payoff in continuation with its outstanding contract (before restructuring). Overall, Figure 3 describes the order of negotiations and the concessions made by CJ in late restructuring (i.e. when $L_2 \leq \pi < \pi_{RS2}$). Hatched areas indicate regions where CJ makes concessions whereas non-hatched areas represent regions where CJ makes no concessions. Colors indicate the order of negotiations: green indicates that F is indifferent to the order, blue that F negotiates with CJ first, yellow that F negotiates with BS first and grey that F negotiates with BS only. Data used are the following: $\pi = 40$, $\rho_B = 0.8$ and $\rho_C = 0.5$.

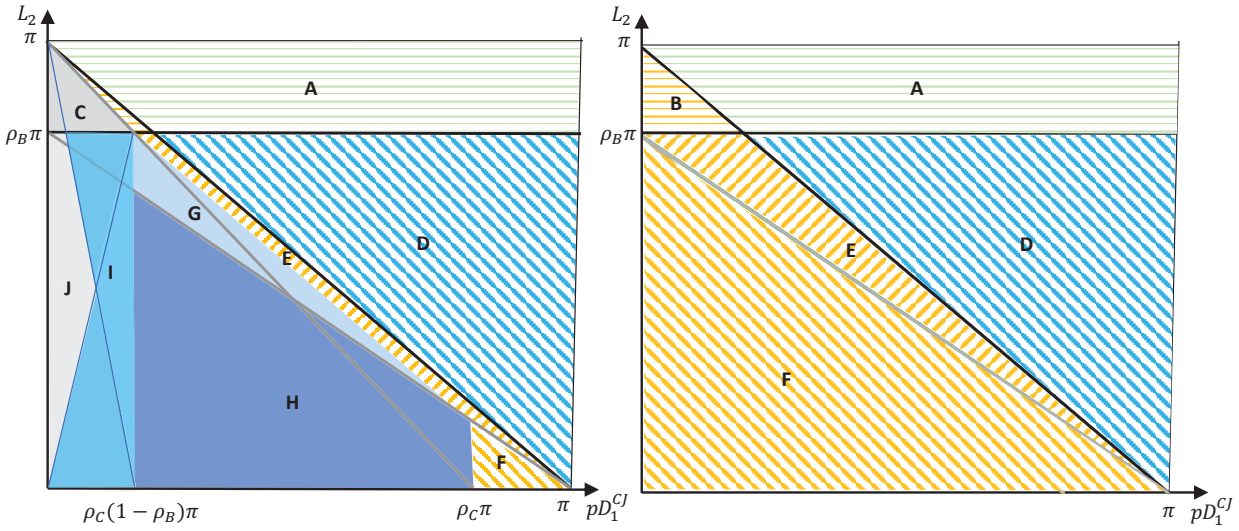
Obviously, several parameters affect the optimal sequence of negotiations and the concessions made by CJ in late restructuring. Consider first the relative bargaining powers of the two creditors. All else being equal and starting from the case where BS is more powerful than CJ (Figure 3), increasing CJ's bargaining power reduces the firm's incentive to force this creditor to restructure its claim (by playing first with BS and offering $T > 0$), explaining reduced regions B, E and F in Panel a of Figure 4, and reinforces its incentive to negotiate either with CJ first (regions G, H and I) or BS only (regions C and J). Increasing ρ_C also makes CJ less likely to make concessions at $t = 2$. In contrast, Panel b of Figure 4 illustrates that the firm is more likely to force CJ to restructure its claim and CJ is more likely to make concessions when CJ has a weak bargaining power.[16] From Proposition 1, it is also direct that the firm's quality π and the size of CJ's claim influence the concessions made by the junior non-bank lender, as CJ is less willing to make concessions (and forcing CJ to make concessions is less beneficial for F) when π increases and CJ has a low stake (when D_1^{CJ} is low).

Corollary 1 (Impact of CJ's bargaining power, CJ's stake and firm's quality on late restructuring)**.** *When debt is restructured at t=2 and all else equal:*
(a) F is more likely to negotiate with CJ first (or with BS only) and CJ is less likely to make concessions when ρ_C increases. Instead, F chooses more often to negotiate with BS first and CJ is more likely to make concessions when ρ_c decreases.
(b) F is less likely to obtain concessions from CJ as the firm's quality increases. Specifically, F obtains concessions if $L_2 \leq \pi < \pi_{CS2}$ and obtains no concessions from CJ if $\pi_{CS2} \leq \pi < \pi_{RS2}$. This last condition never holds, such that CJ always makes concessions in late restructuring, when $\rho_C = 0$.
(c) F is less likely to obtain concessions from CJ when CJ has a low stake (i.e., when D_1^{CJ} is low).

3.2 Late restructuring with equal priority

I consider next the case when the two creditors have equal priority. If the firm is liquidated at date 2, each creditor obtains a fraction of the liquidation value that depends on the relative face

[16] As illustrated in Panel b, I prove in the Appendix that CJ always makes concessions in late restructuring when $\rho_C = 0$.



a. Creditors have equal bargaining powers (ρ_B=ρ_C=0,8)

b. Junior creditor has no bargaining power (ρ_B=0,8 and ρ_C=0)

Figure 4: **Impact of creditors' bargaining powers on late restructuring.** Hatched areas indicate regions where CJ makes concessions whereas non-hatched areas represent regions where CJ makes no concessions. Colors indicate the order of negotiations: green is when F is indifferent to the order, blue is when F negotiates with CJ first, yellow is when F negotiates with BS first and grey when F negotiates with BS only. Except bargaining powers, all the other parameters are similar to those used for Figure 3.

value of its claim: creditor i and creditor j receive a fraction $\lambda_1^i = {}^{D_1^i}/_{D_1}$ and $\lambda_1^j = {}^{D_1^j}/_{D_1}$ respectively, with $D_1 = D_1^i + D_1^j$.

In the equal priority case, creditors have both a credible liquidation threat at date 2 when $\pi_1^D \equiv pD_1 < L_2$. This condition holds if the firm's quality π is low enough, i.e., if $\pi < \pi_{RE2}$ with $\pi_{RE2} = \inf\{\pi : \pi_1^D \geq L_2\} = \frac{L_2 Y}{D_1}$. Thus, F does not restructure its debt at t=2 if $\pi \geq \pi_{RE2}$, restructures its debt if $L_2 \leq \pi < \pi_{RE2}$, and is liquidated if $\pi < L_2$. Additionally, because the two creditors have equal threats, F has no other choice but to renegotiate with and make concessions to the two creditors (negotiating with only one creditor is not an option) and no creditor will pass when restructuring occurs. Thus, the strategy consisting in offering the first creditor a partial repayment to force the second creditor to restructure its claim has no value in the equal priority case and F cannot minimize its own concessions by playing one creditor against the other.

However, leaving out the partial repayment strategy does not imply that F is indifferent to the order of negotiations. Like in the senior bank case, F can in certain cases weaken a creditor with whom it negotiates in second position. More precisely:

Proposition 2 (Late restructuring with equal priority creditors)**.** *Suppose creditors i and j have equal priority and* $D_1^i + D_1^j = D_1$. *The firm's debt is restructured at t=2 when* $L_2 \leq \pi < \pi_{RE2}$ *with* π_{RE2} *the firm's expected quality above which creditors have no credible liquidation threat at t=2. When debt is restructured, neither creditor makes concessions. The optimal sequence and the outcomes of late restructuring are the following:*

(i). If $L_2\lambda_1^i > \rho_i(\pi - L_2\lambda_1^j)$ *and* $L_2\lambda_1^j > \rho_j(\pi - L_2\lambda_1^i)$*: F is indifferent to the sequence and* $\pi_2^{FE} = \pi - L_2$

(ii). If $L_2\lambda_1^i < \rho_i(\pi - L_2\lambda_1^j)$ *and* $L_2\lambda_1^j > Max\{\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)], \rho_j(\pi - L_2\lambda_1^i)\}$*: F is indifferent to the sequence and* $\pi_2^{FE} = (1-\rho_i)(\pi - L_2\lambda_1^j)$

(iii). If $L_2\lambda_1^i < Min\{\rho_i(\pi - L_2\lambda_1^j), \rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)]\}$ *and* $\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)] < L_2\lambda_1^j < \rho_j(\pi - L_2\lambda_1^i)$*: F negotiates with creditor i first and* $\pi_2^{FE} = (1-\rho_i)(\pi - L_2\lambda_1^j)$

(iv). If $L_2\lambda_1^i < Min\{\rho_i(\pi - L_2\lambda_1^j), \rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)]\}$ *and* $L_2\lambda_1^j < Min\{\rho_j(\pi - L_2\lambda_1^i), \rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)]\}$*: F negotiates with creditor i first if* $\lambda_1^i/\lambda_1^j < (1-\rho_j)\rho_i/(1-\rho_i)\rho_j$ *and* $\pi_2^{FE} = (1-\rho_j)[\pi - \rho_i(\pi - L_2\lambda_1^j)]$.

(v). If $\rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)] < L_2\lambda_1^i < \rho_i(\pi - L_2\lambda_1^j)$ *and* $\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)] < L_2\lambda_1^j < \rho_j(\pi - L_2\lambda_1^i)$*: F negotiates with creditor i first if* $(1-\rho_j)(\pi - L_2\lambda_1^i) < (1-\rho_i)(\pi - L_2\lambda_1^j)$ *and* $\pi_2^{FE} = (1-\rho_i)(\pi - L_2\lambda_1^j)$.

The intuition is the following. First, F is indifferent to the sequence of negotiations if switching the order would not alter the two creditors' behaviors and if at least one creditor never bargains. This is the case when the two creditors' liquidation payments are so high that they never bargain (part i), or when one creditor always bargains and the other never bargains, potentially because of a significant difference between the two creditors' bargaining powers (part ii).

Second, if the sequence can limit the demand of creditor *j* while not affecting the other creditor's behavior, F strictly prefers to weaken (play second with) creditor *j*. This is the case in part (iii) where creditor *j* (either because it has a larger claim and/or a lower bargaining power than creditor *i*) optimally bargains if it plays first but only asks for its liquidation payment if it plays second. Referring to Noe and Wang (2000) who define a creditor's bargaining position as decreasing with the size of its claim (before negotiation) and increasing with its bargaining

power, this implies that F optimally negotiates first with the creditor in the stronger bargaining position and next with the creditor in the weaker bargaining position.

Third, if the sequence can limit the demands of the two creditors, F optimally chooses to weaken the creditor who suffers the most from playing second, i.e., the one who reduces the most its demand if it plays second. The identity of this (second) creditor varies depending on the case. When the two creditors bargain whatever the sequence (part iv), the creditor in the weaker bargaining position (with the higher λ_1 and the lower ρ) suffers the most from playing second, and F optimally negotiates first with the stronger creditor . In contrast, when the two creditors bargain only if they negotiate first with the firm (part v), the creditor in the stronger bargaining position (with the lower λ_1 and the higher ρ) suffers the most from playing second and F optimally negotiates first with the weaker creditor.

These results can be compared with those of Noe and Wang (2000) who find that distressed firms have in general no interest in negotiating first with creditors with the stronger bargaining position. [17] A key difference is that, in my model, renegotiation takes place before maturity, i.e., when covenants are violated and the two equal priority creditors have a credible threat to liquidate. This implies that neither of the two creditors (nor the firm) has interest to pass in late restructuring (both creditors prefer to renegotiate or liquidate versus the status quo). Thus, the firm benefits from negotiating first with the creditor in the stronger bargaining position (with the smaller claim and the higher bargaining power) if the second position does not permit to weaken the stronger creditor (part iii) or weakens more the weaker creditor (part iv). The following corollary presents some comparative statics.

Corollary 2. *When late restructuring occurs with equal priority creditors i and j:*
(a) F is always indifferent to the order of negotiations if ρ_i and/or ρ_j are equal to 0,
(b) Suppose $\rho_i = \rho_j = \rho$ (equal bargaining powers) and $\lambda_1^j > \lambda_1^i$. Then, F is indifferent to the sequence if L_2 is high and/or ρ is low; F negotiates first with the small creditor (creditor i) if creditor i bargains whatever the sequence (when L_2 is low and/or ρ is high); F negotiates first with the large creditor (creditor j) if both creditors bargain only when they play first (when L_2

[17] More precisely, they show that the firm is indifferent to the sequence if each creditor's nominal claim is larger than the firm's value, and either passes or negociates second with the creditor in the stronger bargaining position when at least one claim is less than the firm's value (see their theorems 2-4).

and ρ are moderate),

(c) Suppose $\lambda_1^i = \lambda_1^j$ (equal stakes) and $\rho_i > \rho_j$. Then, F is indifferent to the sequence if L_2 is high and/or $\rho_i - \rho_j$ is large; F negotiates first with the creditor who has the higher bargaining power (creditor i) if creditor i bargains whatever the sequence (when L_2 is low and/or ρ_i is high); F negotiates first with the creditor who has the lower bargaining power (creditor j) if both creditors bargain only when they play first (when L_2, ρ_i and ρ_j are moderate).

3.3 How bank priority affects the firm's expected payoff at t=2

A natural question is how the presence of a senior bank affects the firm's expected payoff in late restructuring. To analyze the specific effect of bank priority, I assume that the face value of debt claims are similar under the two priority structures, such that $D_1^{BS} = D_1^{BE} = D_1^B$ and $D_1^{CJ} = D_1^{CE} = D_1^C$.

It follows from Propositions 1 and 2 that a key difference between a debt structure with a senior bank (henceforth, a BS-debt structure) and a debt structure with an equal priority bank (a BE-debt structure) is that late restructuring is more likely under a BS-debt structure (because $\pi_{RS2} > \pi_{RE2}$). However, this does not imply that the presence of a senior bank is always detrimental to the distressed firm, as bank priority is a double-edged sword. On the one hand, a BS-debt structure strengthens the bank's bargaining position and increases its ability to extract large concessions from others, thus reducing the firm's expected payoff. On the other hand, a BS-debt structure can increase the firm's payoff if (i) it allows the firm to extract concessions from the non-bank lender *and* (ii) the firm can exploit the non-bank lender's concessions to reduce the total payment to creditors. Thus, whether bank priority increases or decreases the firm's payoff at t=2 depends on the balance between the costs of strengthening the bank's bargaining position and the gains from weakening the non-bank lender.

In general, a BS-debt structure is more beneficial for the firm when the two creditors have different bargaining powers in favor of the bank. The reason is that the firm's capacity to play one creditor against the other within a BS-debt structure is more valuable when the firm can extract high concessions from the non-bank lender (when ρ_c is low). This explains why the firm is almost always better off with a BS-debt structure when $\rho_c = 0$, except if ρ_B is so high that the

firm has to retrocede most of the non-bank lender's concessions to the bank (if $\rho_B > \overline{\rho_B}$) (see part a of Proposition 3 and Panels a and c of Figure 5).

When creditors have equal bargaining powers ($\rho_B = \rho_C = \rho$), the main benefit of a BS-debt structure – allowing the firm to play one creditor against the other – vanishes while its main drawbacks – strengthening the bank's position and making the status quo less frequent – still exist, explaining that the firm is almost always better off with a BE-debt structure (see part b of Proposition 3). However, the relative merits of each debt structure at least partly depend on the firm's quality. Low-quality firms, those for which $L_2 \leq \pi < \pi_{RE2}$ and restructuring occurs under the two debt structures, are worse off with a BS-debt structure. For these firms, even if CJ makes large concessions, quality is so low that firms have no other choice but to retrocede most of these concessions to BS to avoid liquidation. The situation is potentially different for higher-quality firms, those for which $\pi_{RE2} \leq \pi < \pi_{RS2}$ and restructuring occurs only under a BS-debt structure. These firms are better off with a status quo under a BE-debt structure if the creditors' bargaining power relative to the firm (ρ) is high (see Figure 5 Panel b). Instead, these firms are better off with a BS-debt structure if ρ is low and π is high enough ($\pi > \pi_S$), since in this case the firm can extract high concessions from CJ without retroceding all these concessions to BS (Figure 5 Panel d).

Proposition 3. *Assume $D_1^{BS} = D_1^{BE} = D_1^B$ and $D_1^{CJ} = D_1^{CE} = D_1^C$. Because $\pi_{RS2} > \pi_{RE2}$, debt restructuring at t=2 is more likely under a prioritized (BS) debt structure than under an equal priority (BE) debt structure. When late restructuring occurs with at least one debt structure, i.e., when $\pi \in [L_2, \pi_{RS2}[$:*

(a) Suppose $\rho_C = 0$. Then, F is always (weakly) better off with a BS-debt structure except if $\rho_B > \overline{\rho_B}$ and $\pi_{RE2} < \pi < \pi_{RS2}$.

(b) Suppose $\rho_B = \rho_C = \rho$. When $L_2 \leq \pi < \pi_{RE2}$ (restructuring under the two debt structures), F is always better off with a BE-debt structure. When $\pi_{RE2} \leq \pi < \pi_{RS2}$ (restructuring with a BS-debt structure only), F is always better off with a BE-debt structure except if the non-bank lender makes concessions under a BS-debt structure, $\rho < \overline{\rho}$, and $\pi > \pi_S$ (with $\pi_S > \pi_{RE2}$).

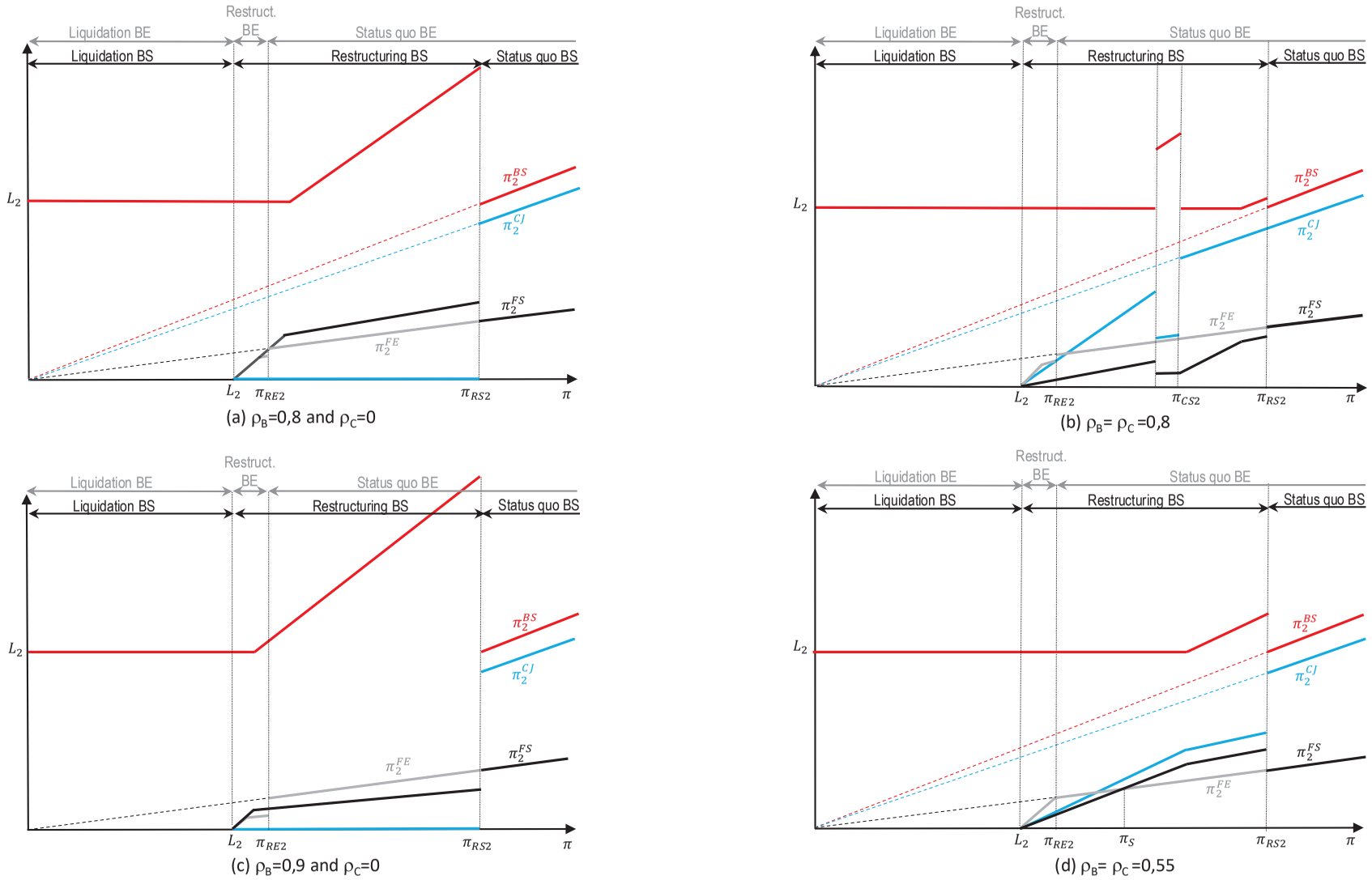


Figure 5: **Impact of bank priority on late restructuring.** The dotted lines are for the expected payoffs of the bank (red line), the non-bank lender (blue line) and the firm (black line) if no restructuring takes place. The emphasized lines are for the expected payoffs of the different players at the end of date 2. π^{FS} and π^{FE} are for the expected payoffs of the firm under a BS-debt structure (senior bank) and a BE-debt structure (equal priority bank), respectively. Data used are the following: Y=100, y=0, $L_2 = 25$, $D_1^B = 45$, and $D_1^C = 40$. With these data $\overline{\rho_B} = \frac{D_1}{Y} = 0.85$ and $\overline{\rho}$ =0.61.

4 Bank priority and early restructuring at t=1

At date 1, the bank is the only lender that can liquidate the firm or restructure its claim because bank debt has performance covenants that allow the bank to intervene early in response to ex post changes in the company or market conditions (Christensen and Nikolaev 2012).[18] However, even if the firm's quality is low and performance covenants are violated, the bank's early intervention is not guaranteed and occurs only if two conditions are met: (1) the bank has exerted a costly monitoring and, (2) the bank prefers to intervene early if it detects covenant violation (by forcing liquidation or restructuring at $t = 1$) rather than to not intervene (by waiving covenants). Obviously, the bank has incentive to monitor only if it anticipates that it will intervene in case of covenant violation. Thus, the bank can follow two strategies at $t = 1$: a passive strategy, where it does not monitor and does not intervene early; an active strategy, where the bank monitors and can intervene early in case of covenant violation.

Most prior literature argues that senior lenders have more incentive to adopt an active strategy. When creditors have only one liquidation opportunity before debt matures, Park (2000) shows that incentives to monitor are maximized when the lender is senior and the senior claim is impaired in liquidation because the senior lender appropriates the full return from liquidation. In my model where creditors have two liquidation opportunities, Park's argument suggests that the senior bank, which claim is impaired in liquidation (see Assumption 1), has greater incentive to monitor than an equal priority bank to accelerate the liquidation of low-quality firms, and this incentive increases when liquidation values strongly deteriorate over time (high ΔL). Overall, this liquidation-accelerating argument suggests that priority has a positive effect on the bank's incentive to intervene and monitor early.

In my model, however, the evolution of liquidation and going concern values are not the only factors governing the bank's decision to monitor. This is because early monitoring can not only help to accelerate liquidation of low-quality firms but can also help to accelerate debt restructuring of intermediate-quality firms. Therefore, it is not certain that priority always

[18] I do not endogenize optimal covenants (the level of p or π below which the bank can call back the loan) (see Park 2000 on this topic). Like Gorton and Kahn (2000), I assume that covenants are set such that the bank can intervene early if its expected payoff in continuation (with its initial claim) is less than its payoff in liquidation, i.e., if the bank has a credible threat to liquidate.

increases the bank's incentive to intervene and monitor early. Consider, for example, the case of a distressed firm that can be saved if debt restructuring occurs. The bank can either: (i) monitor the firm and trigger early bilateral restructuring with the firm at $t = 1$, or (ii) stay uninforned at $t = 1$ and trigger late restructuring involving both the firm and the non-bank lender at $t = 2$. Clearly, the accelerating strategy (strategy i) is not always optimal for a senior bank as this bank can in certain cases extract high concessions from the firm and the non-bank lender at $t = 2$ and may thus be better off saving on monitoring costs.[19]

4.1 Early restructuring with a senior bank (BS-debt structure)

If it monitors the firm at date 1, BS can intervene early if $\pi_0^{BS} \equiv pD_0^{BS} < L_1$, equivalent to $\pi < \pi_{RS1} \equiv \frac{L_1 Y}{D_0^{BS}}$. If this condition holds, i.e., if performance covenants are violated at $t = 1$, BS can choose either to: (i) exert covenants and trigger early liquidation (receiving L_1), (ii) exert covenants and trigger early restructuring of its claim, or (iii) waive covenants and stay passive at $t = 1$ (thus obtaining an expected payoff π_2^{BS}).

A key element to understand how BS reacts to the violation of performance covenants is my assumption that non-bank debt has negative pledge covenants that impede the bank and the firm to set at $t = 1$ a new contract that would impair the non-bank lender's expected payoff in continuation (see Assumption 6).[20] This assumption implies that BS cannot obtain more than $\pi - pD_0^{CJ} = \pi \frac{Y - D_0^{CJ}}{Y} < \pi$ through early restructuring and prefers to liquidate early (rather than restructure early) when $L_1 > \pi \frac{Y - D_0^{CJ}}{Y}$. Because BS has also the option to stay passive at $t = 1$ (to waive covenants), early liquidation occurs if $L_1 > Max\left[\pi \frac{Y - D_0^{CJ}}{Y}, \pi_2^{BS}\right]$, equivalent to $\pi < \pi_{LS1}$. Obviously, the fact that BS cannot capture all the firm's continuation value in early restructuring induces inefficient overliquidation in the range $\pi \in]L_1, \pi_{LS1}]$. [21]

[19] Kahl (2002) also considers liquidation as a dynamic process and shows that creditors may postpone the liquidation decision. The argument is different, however, as the reason for postponing decision is to wait for more information about the firm's prospects.

[20] Strictly speaking, a contract with this type of covenant "*prohibits (the issuance of new) debt that is senior to it*" (Diamond 1993, p.348), such as the largest face value that the bank can obtain at $t = 1$ is $Y - D_0^{CJ}$. As already argued, I assume that this covenant only applies for early restructuring. At date 2, contrary to date 1, the non-bank lender knows the firm's quality and participates to debt restructuring and may, hence, accept to transfer part of its payoff to BS (i.e., to waive the negative pledge covenant). This is consistent with recent evidence showing that negative pledge covenants are often waived (see references in Donaldson et al. 2018).

[21] Following Donaldson et al. (2018) on the weakness of negative pledge covenants, it could be argued that junior non-bank lenders may agree to waive negative pledge covenants to avoid overliquidation at $t = 1$, such that Assumption 6 could be relaxed. A counter argument, however, is that non-bank lenders are likely to reject any

The senior bank's liquidation bias does not imply, however, that it always intervenes early when performance covenants are violated (when $\pi < \pi_{RS1}$). When $\pi_{LS1} < \pi < \pi_{RS1}$, BS can either trigger early restructuring of its claim, in which case its expected payoff is $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right]$, or stay passive, waive covenants and wait for late restructuring at date 2, a strategy that leaves it with an expected payoff π_2^{BS}.[22] Whether BS decides to restructure early or stay passive depends on the quality of the firm. In general, BS prefers to restructure early when the firm's quality is (i) so low that BS cannot expect obtaining more than its liquidation payment L_2 in late restructuring, and (ii) so high that BS cannot expect concessions from CJ at date 2 (i.e., either because CJ makes no concessions in late restructuring or because BS has no credible liquidation threat at $t = 2$). In contrast, BS prefers to stay passive at $t = 1$ when it anticipates large concessions from CJ in late restructuring, i.e., when the firm is of intermediate quality $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}\}$ with $\pi_{PS1} \geq \pi_{LS1}$ and ρ_C is low.[23]

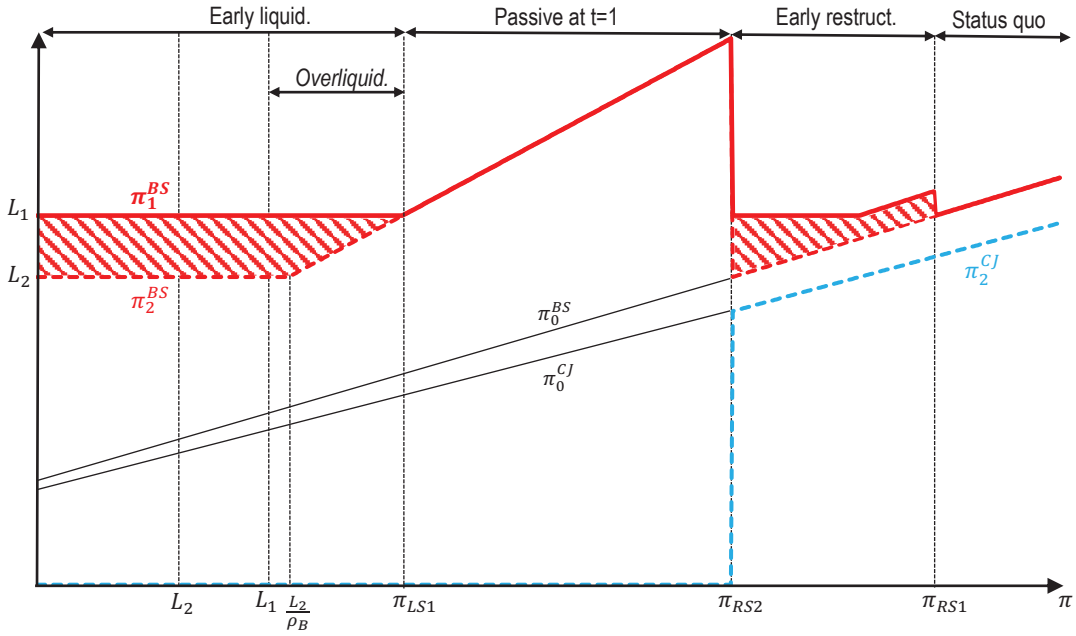
Figure 6 illustrates BS's willingness to intervene (exert covenants) or stay passive (waive covenants) at date 1 under the assumption of bank monitoring. When ρ_C is low (Panel a), BS triggers early liquidation when $\pi < \pi_{LS1}$ and there is over-liquidation when $\pi \in [L_1, \pi_{LS1}[$. BS waives covenants at $t = 1$ when $\pi \in [\pi_{LS1}, \pi_{RS2}[$ (because $\pi_{PS1} = \pi_{LS1}$ and $\pi_{CS2} > \pi_{RS2}$ with the data of Figure 6 Panel a), where π_{RS2} is the threshold above which no restructuring occurs at $t = 2$. In this region, BS is better off staying passive at $t = 1$ because it can capture a significant part of CJ's concessions in late restructuring. If $\pi \in [\pi_{RS2}, \pi_{RS1}[$, restructuring is possible only at $t = 1$ and BS triggers early restructuring of its claim. Finally, there is a status quo at the two dates if $\pi \geq \pi_{RS1}$, since in this case BS has never a credible liquidation threat (equivalently, no covenant violation). Panel b shows how an increase in ρ_C affects the reaction of BS to a covenant violation. The main difference is that the "passivity region" is reduced, as increasing ρ_C reduces the bargaining payoff of BS in late restructuring. A side effect is that increasing ρ_C increases BS's willingness to over-liquidate (see Panel b).[24]

request to waive negative pledge covenants if they are at an informational disadvantage relative to the bank about the firm's quality (like in date 1 of my model) because they may suspect the bank of strategically underestimating the firm's quality to extract undue concessions.

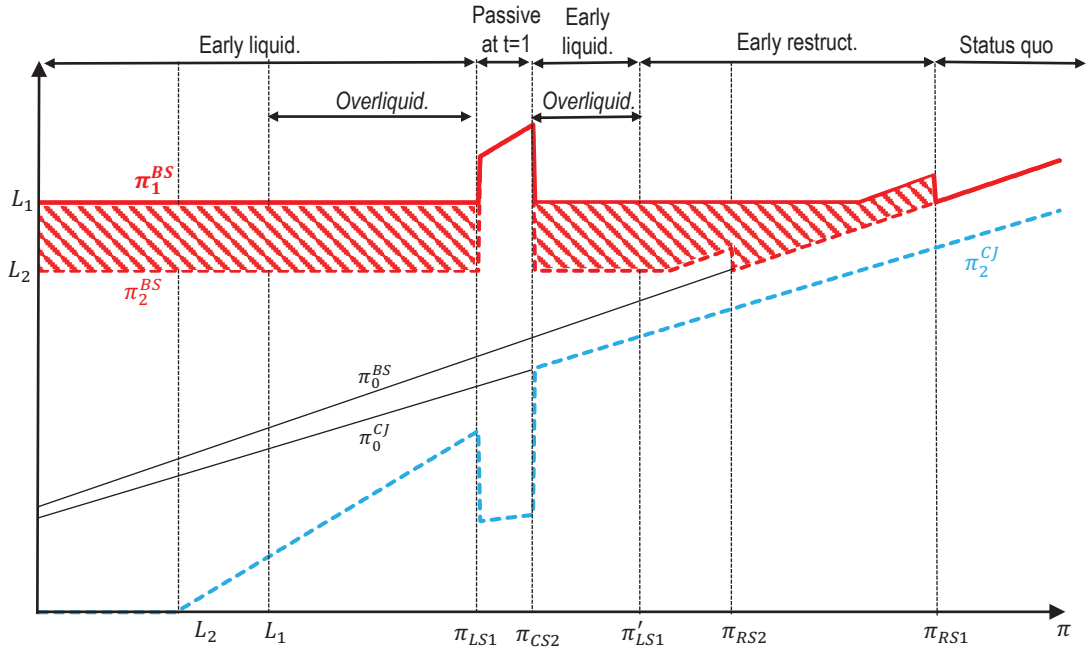
[22]Note that under a BS-debt structure, there will be no late restructuring if the bank's claim has been restructured early. Indeed, BS's obtains an expected payoff of at least L_1 in early restructuring and will thus have no credible threat to liquidate at t=2.

[23]It is also obvious that BS is more likely to intervene early (either through liquidation or restructuring) if liquidation values strongly deteriorate over time (i.e., if $\triangle L$ is high).

[24]An interesting feature in Figure 6 Panel b is that (over)liquidation is not monotonic in the firm's quality. This is because π_2^{BS}, BS's payoff if it is passive, is not monotonic in π, which explains the existence of two liquidation



a. ρ_B=0,8 and ρ_C=0



b. ρ_B=ρ_C=0,8

Figure 6: **Effects of performance covenants on the senior bank's early intervention behavior**. The figure is for the case when the senior bank has monitored the firm and the non-bank lender's negative pledge covenant is not renegotiable. The red emphasized line is for the senior bank's (BS) expected payoff after date 1 (π_1^{BS}), the red and the blue dashed lines are the payoffs of BS and the junior lender CJ after date 2 (if there is no restructuring at $t = 1$) respectively. Red shadowed area is for the variation of BS's payoff due to the presence of bank covenants at t=1 or, equivalently, for the expected benefits of early intervention for BS (c_S). Here, L_1=30 and all the other data are similar to those used for Figure 5. With these data, $\pi_{RS2} = 55.6$ and $\pi_{RS1} = 66.7$ in both Panels. In Panel a, $\pi_{PS1} = \pi_{LS1} = 37.5$. In Panel b, $\pi_{PS1} = \pi_{LS1} = 41.7$, $\pi'_{LS1} = 50$ and $\pi_{CS2} = 44.6$.

Overall, the result that BS is, in certain cases, passive when covenants are violated is consistent with empirical evidence showing that debt covenants are frequently violated and are routinely waived (Chava and Roberts, 2008). It also illustrates BS's tradeoff between postponing or accelerating renegotiation in a context where early intervention may permit to extract more concessions from the firm (because $L_1 > L_2$) but limits the possibility to capture CJ's concessions in late multi-creditor restructuring. Obviously, the "acceleration" option is more valuable for BS when it anticipates that CJ will have a strong bargaining position at date 2, typically when CJ has a small claim and a high bargaining power, and when liquidation values strongly deteriorate over time.

Proposition 4. *When the senior bank (BS) has monitored the firm at date 1, BS has a credible threat to liquidate and can intervene early if* $\pi_0^{BS} < L_1$*, equivalent to* $\pi < \pi_{RS1}$*. When BS can intervene early:*

(i). BS triggers early liquidation if $L_1 > Max\left[\pi\frac{Y-D_0^{CJ}}{Y}, \pi_2^{BS}\right]$*, which occurs if the firm is of low quality* $\pi < \pi_{LS1}$ *(and of intermediate quality* $\pi_{CS2} < \pi < \pi'_{LS1}$ *if there are two liquidation thresholds). Because* $L_1 < \pi_{LS1}$*, BS over-liquidates at t=1.*

(ii). BS stays passive at t=1 (i.e., waives covenants) if $\pi_2^{BS} \geq Max\left[L_1, \rho_B\pi\frac{Y-D_0^{CJ}}{Y}\right]$*, which occurs if the firm is of intermediate quality* $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}\}$ *with* $\pi_{PS1} \geq \pi_{LS1}$*. A necessary condition for BS to stay passive is that CJ makes concessions and/or is weakened in late restructuring .*

(iii). BS triggers early restructuring of its claim if $Max[L_1, \rho_B(\pi - pD_0^{CJ})] > \pi_2^{BS}$*, which occurs if the firm is of (relatively) high quality* $Min\{\pi'_{LS1}, \pi_{RS2}\} \leq \pi < \pi_{RS1}$ *or intermediate quality* $\pi_{LS1} \leq \pi < \pi_{PS1}$*.*

The expected benefits of early intervention for BS, denoted by c_S*, increase with* ρ_C *and* ΔL*, and decrease with* D_0^{CJ}*.*

---

thresholds (denoted by π_{LS1} and π'_{LS1}) for which $L_1 = Max\left[\pi\frac{Y-D_0^{CJ}}{Y}, \pi_2^{BS}\right]$. Thus, BS can have an interest in not liquidating at $t = 1$ some relatively low-quality firms (for which it can capture concessions from CJ at $t = 2$) and an interest in liquidating early some higher-quality firms (for which CJ makes no concessions and BS receives only its liquidation payment at $t = 2$).

4.2 Early restructuring with an equal priority bank (BE-debt structure)

The effects of performance covenants on early restructuring are totally different when the bank has equal priority with the non-bank lender. First, the equal priority bank (BE) has less often a credible threat to liquidate and the range of π values for which the bank can intervene early is narrower than in the senior bank case, i.e., $\pi_{RE1} < \pi_{RS1}$, and covenants are less restrictive. Second, even when covenants are violated and firms are of relatively low quality, BE has a strong incentive to choose early restructuring over early liquidation. This is because BE only captures a part $\lambda_0^B < 1$ of the firm's liquidation value if it liquidates early, whereas it can increase its share of the firm's continuation payoff π from λ_0^B to a higher $\lambda_1^B = Max\left[\frac{L_1\lambda_0^B}{pD_0^{CE}+L_1\lambda_0^B}, \rho_B\frac{Y-D_0^{CE}}{Y}\right]$ if it chooses to restructure its claim at t=1.[25] These two effects explain why BE under-liquidates some low-quality firms. A third and complementary result is that BE has no incentive to waive covenants (i.e., to stay passive) for higher quality firms (those for which covenants are violated at $t = 1$ but liquidation will not occur at $t = 2$) because it knows that it will obtain (if any) limited concessions from the firm and the non-bank lender in late restructuring and has hence strong incentives to accelerate restructuring.

In sum, compared to BS, BE has less opportunity to intervene early (performance covenants are less strict) and tends to under-liquidate. However, when this opportunity arises (i.e., when covenants are violated), BE has more incentive to intervene early and accelerate restructuring than BS because of its weaker position in late multi-creditor restructuring.[26]

Proposition 5. *When the equal priority bank (BE) has monitored the firm at date 1, BE has a credible threat to liquidate and can intervene early when* $\pi_0^B < L_1\lambda_0^B$ *with* $\lambda_0^B = \frac{D_0^{BE}}{D_0}$*, equivalent*

[25] Formally, BE can increase its share of liquidation value by renegotiating the face value of its claim from D_0^{BE} to a maximum of $Y - D_0^{CE}$ (Assumption 6). In the equal priority case, and unlike in the senior bank case, such a renegotiation modifies the priority of non-bank debt as $\lambda_1^B > \lambda_0^B$ implies that $\lambda_1^C < \lambda_0^C$. Thus, here, restricting the face value of renegotiated bank debt to a maximum of $Y - D_0^{CE}$, interpreted by Diamond (1993) as indicative of the presence of negative pledge covenants in non-bank debt, does not fully protect the priority of the non-bank's claim.

[26] Another (minor) difference is that early restructuring does not always preclude subsequent restructuring at date 2 under a BE-debt structure, whereas it does under a BS-debt structure (see Footnote 22). This is because early restructuring does not affect the priority of the bank's claim under a BS-debt structure, whereas it allows the bank to increase the priority of its claim ($\lambda_1^B > \lambda_0^B$) and thus reinforces its threat to liquidate at $t = 2$ under a BE-debt structure. I show in the Appendix that BE can restructure at the two dates only if the "priority effect" is stronger than the "liquidation value effect" (due to $\triangle L < 0$). Overall, this specific case of two subsequent restructurings illustrates another reason why BE has more incentive to accelerate restructuring than BS, i.e., to reinforce its initially weak position in late multi-creditor restructuring.

to $\pi < \pi_{RE1}$.

When it can intervene early, BE always decides to intervene. Specifically:

(i) BE liquidates early when $\pi < \pi_{LE1}$ *with* $\pi_{LE1} = Max\{\frac{L_1\lambda_0^B Y}{Y - D_0^{CE}}, L_2\}$. *Because* $\pi_{LE1} < L_1$, *BE under-liquidates at t=1.*

(ii) *BE restructures its claim at t=1 and obtains* $Max\left[L_1\lambda_0^B, \frac{\rho_B(Y - D_0^{CE})}{Y}\pi\right]$ *when* $\pi_{LE1} \leq \pi < \pi_{RE1}$ *with the effect of accelerating restructuring (when* $\pi_{LE1} \leq \pi < \pi_{RE2}$*) or avoiding the status quo (when* $\pi_{RE2} \leq \pi < \pi_{RE1}$*).*

4.3 How priority affects the bank's incentives to monitor and the firm's expected payoff at t=1

In order to isolate the effects of priority on the bank's incentive to monitor and the distressed firm's expected payoff, I assume from now on that $D_0^{BS} = D_0^{BE} = D_1^B$ and $D_0^{CJ} = D_0^{CE} = D_0^C$.

Propositions 4 and 5 have established that the bank's motivation to intervene early depends on the priority of its claim, with accelerating the liquidation of low-quality firms and seizing a unique opportunity to hold-up (relatively) high-quality firms the main motivations of BS, and accelerating debt restructuring of intermediate-quality firms the main motivation of BE. A still open question, however, is whether BS has more or less incentive to monitor than BE. While several parameters play a role, the firm's expected quality and the bank's bargaining power are the main factors explaining the impact of priority on bank monitoring.

In my framework, the bank monitors the firm at $t = 1$ if the expected benefits of early intervention – denoted by c_S and c_E for a senior and an equal priority bank, respectively – exceed the fixed cost of monitoring c. These expected benefits depend on the distribution of firm quality: c_E increases with the probability that the firm is of quality $\pi < \pi_{RE1}$ – in which case BE either liquidates early (if $\pi < \pi_{LE1}$) or restructures early (if $\pi_{LE1} \leq \pi < \pi_{RE1}$) (see Proposition 5); c_S increases with the probability that the firm is either of quality $\pi < \pi_{LS1}$ – in which case BS optimally liquidates early – or relatively high quality $Min(\pi'_{LS1}, \pi_{RS2}) \leq \pi < \pi_{RS1}$ – in which case BS restructures its claim early (see Proposition 4).

With this in mind, it is immediate that BS, because it captures a higher share of the liquidation value, has more incentive to monitor low-quality firms – those for which $\pi < \pi_{LE1}$ and that are liquidated early under the two debt structures – than BE. BS has also more incentive to monitor relatively high-quality firms – those for which $Max(\pi_{RE1}, \pi_{RS2}) \leq \pi < \pi_{RS1}$ that ben-

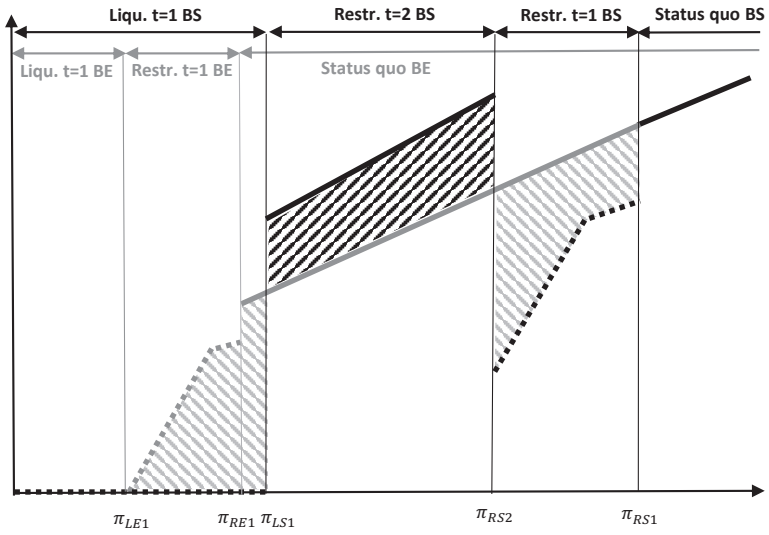
efit from a status quo under a BE-debt but whose debt is restructured early under a BS-debt structure.

There are, however, two cases when BE derive higher benefits from early monitoring than BS. The first case is when BS is passive at $t = 1$ and BE restructures early, which occurs for firms of intermediate quality $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}, \pi_{RE1}\}$. The second case is for lower quality firms (i.e., those with $\pi_{LE1} \leq \pi_m < \pi < Min\{\pi_{LS1}, \pi_{RE1}\}$), whose debt is restructured early by BE but that are liquidated early by BS, and for which BE's gains from early restructuring exceed BS's gains from triggering early liquidation. Obviously, because BE restructures early in both cases, a necessary condition for BE to have more incentive to monitor these low-to-intermediate quality firms than BS is that ρ_B is high enough.

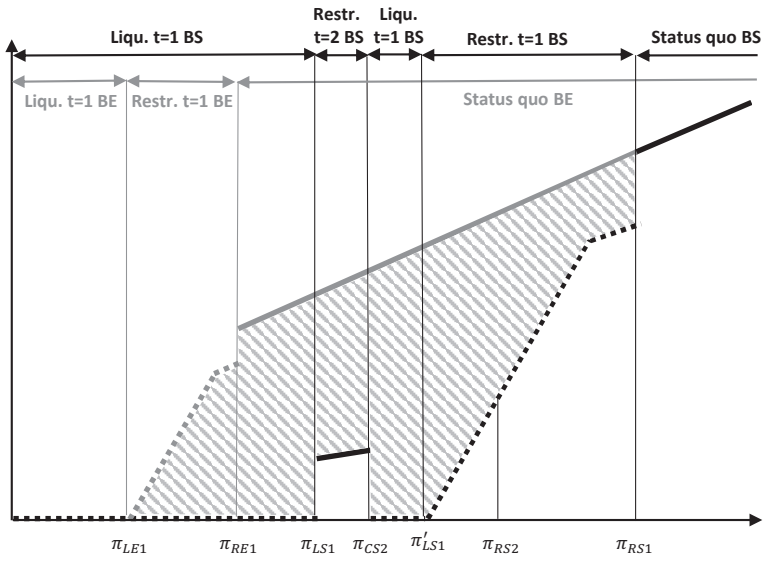
Proposition 6. *(Impact of priority on bank monitoring) Assume that* $D_0^{BS} = D_0^{BE} = D_1^B$ *and* $D_0^{CJ} = D_0^{CE} = D_0^C$. *Then, BS has always more incentive to monitor the firm at t=1 than BE* ($c_S > c_E$) *when* $\rho_B < \rho_{Bm}$. *When* $\rho_B > \rho_{Bm}$, *BS has more incentive to monitor low-quality and of (relatively) high-quality firms but BE has in certain cases more incentive to monitor firms of intermediate quality. Specifically, BE has more incentive to monitor firms with* $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}, \pi_{RE1}\}$ *for which BS is passive at t=1 (this region exists only if* $\rho_B > \overline{\rho_B} > \rho_{Bm}$*) and firms with* $\pi_{LE1} \leq \pi_m < \pi < Min\{\pi_{LS1}, \pi_{RE1}\}$ *for which BE's benefits from increasing the priority of its claim exceed BS's benefits from triggering early liquidation.*

Consider now the impact of bank priority on the firm's expected payoff at the initial date. Unsurprisingly, BE's bias toward under-liquidation coupled with BS's bias toward over-liquidation makes low-quality firms better off with a BE-debt structure (see Figure 7 Panels a and b). Similarly, relatively high-quality firms (i.e., weakly distressed firms) ex post prefer a BE-debt structure that leads to the status quo rather than a BS-debt structure that allows the bank to hold-up the firm at t=1 (through the activation of performance covenants).

The impact of bank priority is more complex for intermediate quality firms. In general, these firms can benefit from the presence of a senior bank if a BS-debt structure induces the bank to stay passive at $t = 1$ (i.e., to waive covenants and restructure only at $t = 2$) while a BE-debt structure leads to a status quo. This necessitates that ρ_B is neither too low (otherwise, BS is never passive at t=1 when it has a credible threat), nor too high (otherwise, BS is passive



a. ρ_B=0,8 and ρ_C= 0



b. ρ_B=0,8 and ρ_C= 0,8

Figure 7: **How bank priority affects the firm's expected payoff at the onset of distress.** The dark line is for the firm's expected payoff with a senior bank (BS) (with dotted line if BS intervenes early) and the grey line is for the firm's expected payoff with an equal priority bank. Black-dashed areas and grey-dashed areas represent the relative benefits for the firm of a BS-debt structure and of a BE-debt structure, respectively. All the data are similar to those used for Figures 5 and 6. With these data $\overline{\rho_B}$= 0.85, $\underline{\rho_B}$= 0.54, $\overline{\rho} = 0.613$ and $\rho_{Bm} = 0.813$.

at t=1 but demands high concessions from the firm at t=2). Obviously, BS's passivity at $t = 1$ has more value for intermediate quality firms and these firms are more likely to benefit from bank priority when ρ_C is low, since in this case the firm can extract high concessions from CJ at $t = 2$ and can thus minimize its own concessions (see Figure 7 Panel a). When ρ_C increases, the relative benefits of a BS-debt structure vanish as BS is more likely to intervene at $t = 1$ – the "passivity region" is reduced – and the firm's capacity to transfer concessions to CJ at t=2 is reduced, explaining that even the intermediate quality-firms are better off with a BE-debt structure in Figure 7 Panel b.Finally, the impact of a BS-debt structure on a distressed firm's expected payoff also depends on the size of the two creditors' initial claims, since the benefits from playing one creditor against the other in late restructuring are higher when the firm is highly indebted (such that $Y - D_0$ is low) with a high proportion of non bank debt (see Corollary 1 and Proposition 4). Thus, intermediate quality firms are more likely to benefit (and if so, to benefit more) from a BS-debt structure when D_0^C and D_0 increase.[27]

Proposition 7. *Assume that* $D_0^{BS} = D_0^{BE} = D_1^B$, $D_0^{CJ} = D_0^{CE} = D_0^C$ *and* $c < Min[c_E, c_S]$ *such as the bank monitors the firm at t=1 whatever the priority of its claim. The distressed firm is always better off with a BE-debt structure when its quality is either low or high, i.e., when* $\pi \in [\pi_{LE1}, \pi_{PS1}] \cap [Min(\pi_{CS2}, \pi_{RS2}), \pi_{RS1}]$. *Distressed firms of intermediate quality are in certain cases better off with a BS-debt structure. More precisely:*

(i) when $\rho_c = 0$, *firms benefit from a BS-debt structure either if* $\rho_B > \overline{\rho_B}$ *and* $\pi \in [\pi_{PS1}, \pi_{RE1}]$, *or* $\underline{\rho_B} < \rho_B < \overline{\rho_B}$ *and* $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$

(ii) when $\rho_B = \rho_c = \rho$, *firms benefit from a BS-debt structure if* $\underline{\rho_B} < \rho < \overline{\rho}$ *and* $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$

A BS-debt structure is more likely to be beneficial (and its comparative benefits are larger) when ρ_c *is low and the firm is highly indebted with a high proportion of non-bank debt.*

[27] This implies that some firms can prefer a BS-debt structure even if $\rho_B = \rho_C = \rho$. Specifically, increasing ρ_C reduces the potential benefits of bank priority but some intermediate quality firms can still prefer a BS-debt structure if $Y - D_0$ is low and $\lambda_0^C = \frac{D_0^C}{D_0}$ is high.

5 Extension and discussion

5.1 What if the junior bank lender is informed and has a short-term claim?

So far, I have assumed that the bank is the only lender that can obtain information at the early stage of distress and that both creditors have long-term claims (that mature when project outcomes are realized). This seems realistic when non-bank creditors are bondholders. However, trade creditors often have short-term claims and some studies suggest that they have an informational advantage over other lenders (Ivashina and Iverson 2018).

The fact that some junior non-bank creditors like trade creditors hold short-term claims and receive timely information about the firm's quality suggests that they have an "early intervention" option. However, whether these creditors exert their early intervention option in distressed situations is an open question. In the specific case of trade creditors, several studies suggest that some are sophisticated investors and reduce their claims at initial stages of distress, anticipating their weak position in later stages. For example, Ivashina and Iverson (2018) find that large trade creditors are the first to exit their position inside bankruptcy. For large firms, Zhang (2018) shows that trade credit experiences a substantial decline outside bankruptcy when banks intervene in the borrowing firm following covenant violations. In contrast, other studies show that firms in financial distress use larger amounts of trade credit to substitute for the decline of bank credit and that trade creditors tend to provide liquidity to their distressed clients (e.g., Molina and Preve 2012; Franks and Sussman 2005).[28]

In my framework, an interesting question is thus on the combined effects of bank priority and short-term maturity of non-bank debt on distressed debt restructurings. Specifically, to what extent does short-term maturity reinforce the position of a non-bank lender that, like a trade creditor, has timely information about the firm and whose claim lacks contractual seniority and formal collateral (Zhang 2018; Garcia-Appendini and Montoriol-Garriga 2019)? Suppose that the non bank's claim matures at t=1, such that the firm must repay D_0^{CJ} at this early date. Because the firm has no cash available at $t = 1$ (Assumption 5), the non-bank lender has the right to liquidate if its short-term claim cannot be fully refinanced. If bank debt has negative pledge

[28] A typical argument for trade creditors acting as liquidity providers for distressed firms is that they are often commercially dependent on their customers (Wilner 2000).

covenants, the firm can promise at most $p(Y - D_0^{BS})$ for refinancing the short term claim, such as the non-bank lender has the right to liquidate if $D_0^{CJ} > p(Y - D_0^{BS})$, equivalent to $\pi < \frac{YD_0^{CJ}}{Y - D_0^{BS}}$. However, even if this condition holds, the non-bank lender has no incentive to liquidate because it has a junior claim and is better off bargaining with the firm. So doing, it obtains $\rho_C[\pi - Max(L_1, \pi_0^{BS})]$ with $L_1 > \pi_0^{BS}$ if BS has a credible threat to liquidate at t=1 (i.e., if $\pi < \pi_{RS1}$). This expected payoff is lower than its initial payoff (without renegotiation) and the non-bank lender has no other choice but to make concessions when $\rho_C[\pi - Max(L_1, \pi_0^{BS})] < pD_0^{CJ}$, which typically occurs when ρ_C and π are low enough and D_0^{CJ} is high enough.[29]

Overall, the outcomes of renegotiation with short-term junior non-bank debt resemble those obtained in Lemma 2 (in which the firm negotiates with CJ first and next with BS) and illustrate that: (i) non-bank lenders, even if they are informed and have short term claims, have a weak bargaining position due to the junior status of their claim, (ii) sophisticated non-bank lenders (informed and with a short-term maturity claim) have on average higher expected payoffs in distressed situations than other junior creditors (uninformed and with long-term claims); (iii) still, the junior status of their claims make these sophisticated non-bank lenders more lenient vis-à-vis distressed firms than senior banks. Another key element that weakens the bargaining position of short-term claimants is the absence of cash availability at date 1. This could explain why trade creditors tend to provide liquidity to distressed small-and-medium sized firms (see Franks and Sussman 2005; Petersen and Rajan 1997, for evidence on small firms), which typically have little cash available at the onset of financial distress, whereas (some) trade creditors of large firms are more likely to exit their position in distressed situations (e.g. Zhang 2018; Ivashina and Iverson 2018).[30]

5.2 Initial loan pricing and ex ante optimality of a prioritized debt structure

In my model, the sequence and the outcomes of debt restructuring at $t = 1, 2$ were determined assuming given D_0^B and D_0^C that had been determined earlier at $t = 0$. Moreover, I did not endogenize the impact of priority of claims on D_0^B and D_0^C, illustrating my model's focus on the

[29] The formal proofs are available upon request

[30] In support of the argument that cash availability differs according to the size of the distressed firm, Koh et al. (2015) find a negative effect of firm size on the likelihood for a distressed firm to engage in asset sales (and in other forms of operational restructuring).

ex post consequences of bank priority (i.e., how priority affects debt restructurings) rather than on the ex ante optimality of bank priority. It is, however, natural to question the role that D_0^B and D_0^C play in the model and the ex ante preferences of firms regarding bank priority.

From an efficiency perspective, and in the absence of moral hazard considerations, the socially optimal face values of bank debt and non-bank debt should minimize inefficient early liquidation. Because the senior bank tends to over-liquidate at t=1, socially optimal liquidation under a BS-debt structure would be obtained if the bank can threaten liquidation only when $\pi < L_1$ and/or can capture the firm's continuation value π in early restructuring. This is possible if $D_0^{BS} = Y$ (such that $\pi_{RS1} = L_1$), which supposes that the senior bank is the only initial claimant on the firm's cash flows, or if $D_0^{BS} < Y$ but the senior bank can set $D_1^{BS} = Y$ for low-quality firms (those for which $L_1 \leq \pi < \pi_{LS1}$). This second solution can be implemented if non-bank debt has no negative pledge covenants or if these covenants can be waived at t=1. However, (uninformed) junior lenders may be reluctant either to accept an initial contract without negative pledge covenants or to waive ex post these covenants because of the risk that informed players (the senior bank and the firm) strategically underestimate the firm's quality to extract undue concessions. Thus, an optimal waiver policy may necessitate a third-party (e.g., a court) that could verify that the quality of the firm is low enough that negative pledge covenants on junior debt should be optimally waived. The problem is different under a BE-debt structure where inefficient liquidation (here, under-liquidation) comes from the equal priority bank's ability to increase the face value and the priority of its claim at t=1, such that the bank prefers not to liquidate early some low-quality firms (for which $\pi_{LE1} \leq \pi < L_1$).[31] A partial solution to this problem could be to cancel ex post the increase of the bank's claim priority when the firm is liquidated later on, which corresponds to the US legal doctrine of equitable subordination that permits the court to subordinate a creditor's claim in bankruptcy if "*the creditor used its power to press the borrower to take actions to improve the creditor's own position at others' expense*"

[31] In my model, like in Diamond (1993), negative pledge covenants in non-bank debt prohibit new (bank) debt that is senior to it (by imposing $D_1^{BE} \leq Y - D_0^{CE}$). However, these covenants do not eliminate totally the dilution of non-bank debt, as such dilution occurs if the equal priority bank increases the face value of its claim (i.e. $D_1^{BE} > D_0^{BE}$), such that $\lambda_1^{BE} > \lambda_0^{BE}$ with $\lambda_1^{BE} < 1$. In the senior bank case, increasing the face value of bank debt at t=1 has no effect on priority since $\lambda_1^{BS} = \lambda_0^{BS} = 1$.

(Berlin and Mester 2001, p.113). However, this solution is fully efficient only if $L_1 = L_2$.[32] [33]

It is also questionable whether the firm benefits from a BS- or a BE-debt structure when initial loan pricing is taken into account. For given amounts of bank and non-bank funding at $t = 0$ (call them I_B and I_C), it is straighforward that $D_0^{CJ} > D_0^{CE}$ and $D_0^{BS} < D_0^{BE}$ to compensate the non-bank lender (the bank) for its lower (higher) expected payoff under a BS-debt structure. In essence, considering that the bank (the non-bank creditor) has a lower (higher) stake under a BS-debt structure should reinforce the preference of a (potentially) distressed firm for a BS-debt structure. To understand the intuition, let start from the situation in which $D_0^{BS} = D_0^{BE}$ and $D_0^{CJ} = D_0^{CE}$ (like in Proposition 7), and consider variations of D_0^{BS} and D_0^{CJ} such that $D_0^{BS} < D_0^{BE}$ and $D_0^{CJ} > D_0^{CE}$. The immediate consequences are that both π_{CS2} and π_{RS2} will increase, thus enlarging the range of intermediate quality firms $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$ for which BS is passive at t=1 (see Proposition 7). Intuitively, this is because decreasing D_0^{BS} and increasing D_0^{CJ} both reinforce BS's ability to threaten liquidation and CJ's willingness to make concessions in late restructuring. In turn, BS's increased passivity in early restructuring, as well as the inflated concessions of CJ in late restructuring, both contribute to increase the ex post payoff of an intermediate quality firm under a BS-debt structure. Overall, this suggests that the preference of (potentially) distressed firms for a BS-debt structure is reinforced when the initial pricing of debt claims is endogenized.

5.3 Implications

The paper provides a number of testable empirical implications depending on bank priority and the relative bargaining power of senior banks and junior creditors. Empirical proxies for ρ_B and ρ_C include the concentration of claims in each group of creditors (e.g., Becker and Josephson 2016; Ivashina et al. 2016; Li et al. 2018). Bank priority obviously depends on the

[32] If instead $L_1 > L_2$, some firms that should have been liquidated at t=1 will not be liquidated at t=2, such that socially efficient liquidation cannot be fully restored by equitable subordination.

[33] The doctrine of equitable subordination may also affect the bank's incentive to monitor at $t = 1$. In Berlin and Mester (2001), the risk of equitable subordination increases the bank's motivation to monitor the state of nature, because the bank can lose its priority if the court finds that the bank's action reduced the value of the firm (given the state). Instead, in my model, equitable subordination can decrease bank monitoring by limiting the bank's ability to increase the priority of its claim in early restructuring. This illustrates the dual role of monitoring in my model: it reduces inefficient mistakes in interim liquidation/continuation decisions (like in Berlin and Mester 2001), but it also enables the bank to accelerate restructuring at the detriment of other creditors.

specificities of bank debt contracts, with higher priority for secured bank debt. However, what senior banks obtain in liquidation is also partially affected by the orientation of the bankruptcy code (Davydenko and Franks 2008), suggesting that the creditor-orientation of the code may serve as an indirect proxy for bank priority. My paper suggests several implications on how bank priority affects distressed restructurings.

Implication 1 (Bank priority and strategic sequencing of negotiations in multi-creditor private workouts): *In private workouts with multiple creditors, the distressed firm is more likely to negotiate first with the senior bank when the bank has a liquidation bias ($L_2 > \rho_B \pi$). When the senior bank has a restructuring bias (if $L_2 \leq \rho_B \pi$), the firm is more likely to: (i) negotiate first with junior creditors when these creditors have either a weak bargaining position (high stake in the firm's total debt) or a strong one (low stake and high bargaining power) (ii) negotiate first with the senior bank (and to partially repay the bank's claim) when junior creditors have an intermediate bargaining position (intermediate stake and not too high bargaining power).*

In late restructurings – in which all the creditors know the firm's quality and sit at the negotiation table –, a distressed but economically viable firm trades-off between weakening senior claimants and weakening junior claimants when choosing the order of negotiations. In general, the distressed firm optimally negotiates first (second) with the creditor group it has the least (most) interest in weakening. From Proposition 1 (see also Figures 3 and 4), it results that the firm prefers to negotiate first with junior creditors (with the aim of weakening the senior bank) if the senior bank has a strong restructuring bias (i.e., if $L_2 \leq \rho_B \pi$) and the bargaining position of junior creditors is either weak (i.e., if junior creditors have a large claim and are thus naturally prone to make concessions, such that weakening junior creditors is not necessary) or strong (i.e., if junior creditors have a small claim coupled with a relatively high bargaining power, such that weakening junior creditors generates low potential concessions). In contrast, the distressed firm optimally negotiates first with the senior bank (with the aim of weakening junior non-bank creditors) when this sequence allows the firm to extract high concessions from junior creditors – i.e., when junior creditors have an intermediate stake and a not too highr a low bargaining power.

Note that this implication is novel – it differs from Noe and Wang's prediction (2000) (see

Section 3.2) – and untested as, to my knowledge, no empirical study has examined the order of negotiations between senior and junior claimants in out-of-court restructurings. However, indirect and anecdotical evidence supports the ideas that (i) firms often negotiate first with senior creditors when these creditors have a strong restructuring bias and junior creditors have a low bargaining power and, (ii) negotiating first with senior creditors strengthens the firm's bargaining position vis-à-vis lower priority stakeholders. For instance, Falato and Liang (2016) show that firms operate employment cuts following loan covenant violations and these cuts are larger when employees have a weak bargaining power, suggesting that senior creditor intervention (or threat of intervention) allows the firm to weaken (and elicit concessions from) employees. [34] Another example is Eurotunnel's debt restructuring in late 90s. On 14 September 1995, Eurotunnel announced it was suspending interest payments on its roughly £8 billion in junior bank debt (which represented 96% of total debt), which triggered the opening of negotiations with a creditors' committee appointed by the members of the bank syndicate (the Steering Group). At the time, junior banks had a strong restructuring bias (because Eurotunnel's liquidation value was very low) and shareholders (in large part individual shareholders) advocated for a debt write-off (to limit equity dilution) and had a relatively strong bargaining power through political pressures on UK and French Governments (Vilanova 2007). On October 2, 1996, Eurotunnel announced that it had reached agreement with the Steering Group. The terms of this agreement were secret and revealed only in mid-1997 for approval by shareholders. Thus, in the Eurotunnel case, the firm and its management negotiated first with the banks and next with the most junior claimants, i.e., shareholders. Shareholders' consent to the reorganization plan was obtained through presenting the agreement with the junior bank syndicate as a take-it-or-leave-it offer (with no return option), thus weakening the position of shareholders.

Implication 2 (Wealth transfers during the firm's distress period). *When senior banks have a strong relative bargaining power versus the firm and junior claimants, debt restructuring involves the transfer of the senior banks' risk exposure to junior claimants during the firm's distress period – senior banks contract their claims while junior creditors expand theirs.*

[34] Relatedly, Benmelech et al. (2012) show that employees of distressed firms tend to accept wage reductions to avoid the costs of bankruptcy and these wage reductions are higher when pension plans are underfunded (thus, when employees have a weak bargaining power).

This prediction is consistent with empirical evidence on small companies' private workouts showing that banks almost never write-off their loans and often obtain a partial repayment of their claims (Davydenko and Franks 2008; Franks and Sussman 2005), whereas junior trade creditors tend to expand their claims (e.g.,Kolay et al. 2016; Molina and Preve 2012; Petersen and Rajan 1997). In my model, the likelihood of risk transfer from senior to junior claimants increases when junior claimants have a low bargaining power versus the firm and have a relatively low stake in the firm's debt (such that, junior creditors would make no concessions if the firm negotiates first with them). These conditions are often satisfied for trade creditors that typically hold subordinated unsecured claims (Zhang 2018), have a low bargaining power relative to the firm – either because they are commercially dependent on the firm (Wilner 2000) or because trade credit is held in more dispersed positions than bank loans –, and have small claims.

Wealth transfers from senior banks to junior non-bank creditors are not specific to small firms' debt restructurings. Like trade creditors, bondholders of large companies often hold dispersed positions and have a weak ex post bargaining position in out-of court restructurings, explaining that they often suffer larger losses than banks (Becker and Josephson 2016). Consistent with Implication 2, it is also no surprise that the size of the bank's claim decreases whereas the fraction of debt held by junior bondholders increases when credit quality deteriorates (Rauh and Sufi 2010). Also consistent with the idea that senior lender control in distressed firms reduces bondholder wealth, Li et al. (2018) demonstrate that senior lender control (proxied by the presence of financial covenants) increases bond yield spreads, and this effect is stronger when bondholders' collective bargaining position is weak against senior lenders (i.e., when the ownership of bonds is highly dispersed). Finally, DeAngelo et al. (2002) report in their clinical study of L.A. Gear that part of the firm's initial bank debt was paid off by issuing new public debt during the distressed period, thus demonstrating the existence of wealth transfers from junior bondholders to senior banks.

Implication 3 (Junior claimants' bargaining power and distressed debt restructuring). *Increasing the junior claimants' bargaining power, e.g., through transfers of claims that increase the concentration of junior debt, limits concessions from junior creditors and wealth transfers from junior non-bank debt to senior bank debt in private debt restructurings.*

By emphasizing the role of the relative bargaining power of the firm vs. senior and junior claimants, my model can inform on the consequences of transfer of claims in distressed periods. Recent research has shown that hedge funds often buy a substantial part of junior debt of distressed firms (Baird and Rasmussen 2010; Ivashina et al. 2016; Jiang et al. 2012). The resulting higher concentration of junior debt may contribute to rebalance the bargaining power between the different parties (i.e., this higher concentration should increase ρ_C) and may limit the ability of the firm and senior claimants to extract concessions from junior claimants in debt negotiations. This corresponds both to how hedge funds present their role in distressed firms – "*standing against orchestrated efforts to enrich [senior creditors] and current and former management at the expense of [junior claimants]*" (Ellias 2015, p.501) – and the finding that participation of hedge funds is associated with higher payoffs to junior claims (Jiang et al. 2012).[35] The fact that hedge funds target firms with relatively strong operating performance and in which secured creditors have a weak liquidation bias (Jiang et al. 2012) – hence, firms for which restructuring (rather than liquidation) is likely – also corroborates my findings that the junior claimants' marginal benefit from higher bargaining power increases with the expected quality of the distressed firm.

Implication 4 (Early bank monitoring and intervention). *A senior bank's incentive to monitor ex ante and its reaction after a covenant violation depends on the firm's quality: senior banks have strong incentives to monitor and are likely to intervene early after a covenant violation when the firm's expected quality is either low or high; instead, senior banks have weak incentives to monitor and tend to stay passive after a covenant violation when the firm is of intermediate quality. Bank passivity toward distressed firms of intermediate quality is more likely when bank debt is highly concentrated and non-bank debt is dispersed.*

To my knowledge, few empirical studies directly examine how the priority of their claims affect creditors' incentives to monitor borrowers. Existing studies yield ambiguous results,

[35] Activist investors commonly acquire a large enough stake in the prereorganization junior claims to gain influence over the course of the restructuring (see Hotchkiss and Mooradian 1997and additional references in Altman et al. 2019, Chapter 6). The typical interpretation is that activist investors acquire just over the "1/3 threshold" in unsecured debt to potentially block a plan of reorganization. One caveat of this interpretation, however, is on the credibility of the junior claimants' threat to block the plan: if the reorganization fails, the firm is liquidated and junior claimants obtain nothing. My model provides an alternative reason why increasing the concentration of junior debt is beneficial for junior claimants: it does not confer them a credible threat, but it increases the firm's incentive to weaken the senior bank (rather than junior claimants).

with some studies finding a positive impact of seniority (measured through collateral rights in liquidation) on the intensity of monitoring (Cerqueiro et al. 2016) and other studies finding a negative relationship (e.g.,Costello 2019). On this question, my model predicts that four parameters affect a bank's propensity to monitor early signs of distress and intervene following a covenant violation: the decline of liquidation values, the seniority of the bank's claim, the expected quality of the firm and the firm's bargaining power versus the different classes of creditors. Relative to other theoretical papers (Gorton and Kahn 2000; Manove et al. 2001; Park 2000), the contribution of my model is to predict a nonmonotonic effect of the firm's expected quality on the senior bank's incentive to monitor and intervene early. Specifically, I find that bank priority incentivizes early monitoring and intervention when the firm's quality is either low (when the bank's motivation is to accelerate liquidation) or relatively high (when the bank's motivation is to accelerate early restructuring under the risk of status quo at later dates). In contrast, bank priority decreases the incentive to monitor and intervene early when the bank anticipates that it will capture a substantial portion of the firm's reorganization value in late restructuring – i.e., when the firm is of intermediate quality and the bank has a high relative bargaining power versus the firm and junior claimants.

Implication 5 (Firm quality and variation of leverage during financial distress). *Among firms using senior bank debt and emerging from a distressed restructuring as a going concern, firms with lower ex ante quality (i) have been restructured later on and, (ii) have experienced a smaller increase of total debt face value.*

Proposition 4 established that, among firms operating under a prioritized debt structure and emerging from a distressed debt restructuring as a going concern, firms with lower ex ante quality (i.e., intermediate quality firms in Proposition 4) may benefit from a more favorable treatment by creditors than higher quality firms (see also Figure 7 Panel a). This is because viable firms of lower quality can extract concessions from junior creditors in late restructuring, which limits their own concessions and induces senior banks' passivity at the early stages of distress, whereas higher quality firms cannot obtain concessions from junior creditors in late restructuring and are likely to be "hold-uped" by senior banks in early restructuring. Obviously, bank hold-up is more likely for borrowers without access to alternate funding sources, e.g., small firms or firms without access to public markets (Santos and Winton 2008). Thus, particu-

larly for this category of borrowers, a novel and testable implication is that senior banks trigger debt restructuring at a later date for intermediate-quality firms, and these firms experience a smaller increase of total debt face value during the distress period compared with distressed firms of higher quality.

As compared to prior theory and evidence on distressed debt restructurings, Implication 5 precises the conditions under which viable distressed firms can benefit *ex post* from bank priority (by strategically playing one class of creditors against another) or suffer from bank priority (if they are "hold-uped" by senior banks) and the conditions under which bank passivity and bank hold-up – two types of behaviors that were previously presented in distinct theoretical models (e.g.,Manove et al. 2001; Rajan 1992) – occur. Implication 5 does not imply, however, that senior banks are intrinsically softer with lower quality firms. Rather, senior banks adopt a hard behavior toward viable these firms in late restructuring (they obtain a partial repayment of their claim and increase the interest rate) but this "hard" bank behavior can have favorable conquences for lower quality firms (by weakening junior lenders and increasing bank passivity at the early date). In empirically assessing the effects of bank priority for distressed firms, it is thus important to consider the behaviors of the different classes of creditors and their aggregate consequences (e.g., the variation of total debt face value) during the entire financial distress process.

6 Conclusion

In this paper, I examine the complex effects of bank priority on the sequence and outcomes of troubled debt restructurings. Two forces are at play. First, a prioritized debt structure (involving a senior bank and junior claimants) enables the distressed firm to strategically play one class of creditor against the other in order to minimize its own concessions to creditors. Specifically, the firm can choose the order of negotiations to either weaken junior non-bank creditors or the senior bank. Second, financial covenants – another feature of debt claims that establish the priority of bank loans – provide senior banks the option to accelerate or defer the firm's liquidation or debt renegotiation.

I show that the impact of bank priority for distressed firms depends on their quality.

Specifically, bank priority is detrimental to low-quality firms (because it induces over-liquidation) and (relatively) high-quality firms (because it facilitates bank hold-up). However, bank priority can be beneficial to intermediate-quality firms. For these firms, senior banks are likely to obtain a partial repayment of their claim during the distressed period, but this tough bank behavior allows the firm to extract more concessions from junior creditors and can be part of the firm's optimal negotiation strategy.

The paper also shows how priority affects the banks' incentive to monitor early and their reaction following covenant violations. Past research typically argues that senior claimants who are impaired in liquidation have more incentives to monitor because they stand to lose a lot if liquidation is postponed, and thus want to accelerate the liquidation of non viable firms. My theory suggests another motivation for bank monitoring, namely to accelerate debt restructuring of distressed but viable firms. Bank priority has a negative effect on this second motivation, as senior banks anticipate they will have a strong bargaining position in late restructuring and thus have few incentives to accelerate debt restructuring. Considering these two motivations, I find that senior banks' incentives to monitor and their reaction following a covenant violation (whether they exercise or waive covenants) depend on the firm's expected quality and the relative bargaining power of senior banks and junior creditors. This may contribute to the old but ongoing debate on the complementarity/substituability between the senior status of bank claims and bank monitoring.

References

Adler, B. E. and V. Capkun (2019, August). Debt-Equity Conflict and the Incidence of Secured Credit. *The Journal of Law and Economics 62*(3), 551–578. Publisher: The University of Chicago Press.

Altman, E. I., E. Hotchkiss, and W. Wang (2019). *Corporate financial distress, restructuring, and bankruptcy: analyze leveraged finance, distressed debt, and bankruptcy*. John Wiley & Sons.

Ayotte, K. M. and E. R. Morrison (2009). Creditor control and conflict in Chapter 11. *Journal of Legal Analysis 1*(2), 511–551. Publisher: Oxford University Press.

Badoer, D. C., E. Dudley, and C. M. James (2019). Priority Spreading of Corporate Debt. *The Review of Financial Studies*.

Baird, D. G. and R. K. Rasmussen (2010). Antibankruptcy. *The Yale Law Journal*, 648–699.

Becker, B. and J. Josephson (2016). Insolvency Resolution and the Missing High-Yield Bond Markets. *The Review of Financial Studies 29*(10), 2814–2849.

Benmelech, E., N. K. Bergman, and R. J. Enriquez (2012). Negotiating with labor under financial distress. *The Review of Corporate Finance Studies 1*(1), 28–67.

Berlin, M., K. John, and A. Saunders (1996). Bank Equity Stakes in Borrowing Firms and Financial Distress. *The Review of Financial Studies 9*(3), 889–919.

Berlin, M. and L. J. Mester (2001, April). Lender Liability and Large Investors. *Journal of Financial Intermediation 10*(2), 108–137.

Cerqueiro, G., S. Ongena, and K. Roszbach (2016). Collateralization, Bank Loan Rates, and Monitoring. *The Journal of Finance 71*(3), 1295–1322.

Chava, S. and M. R. Roberts (2008). How does financing impact investment? the role of debt covenants. *The Journal of Finance 63*(5), 2085–2121.

Christensen, H. B. and V. V. Nikolaev (2012). Capital versus performance covenants in debt contracts. *Journal of Accounting Research 50*(1), 75–116.

Costello, A. M. (2019). The value of collateral in trade finance. *Journal of Financial Economics 134*(1), 70–90.

Davydenko, S. A. and J. R. Franks (2008). Do bankruptcy codes matter? a study of defaults in france, germany, and the uk. *The Journal of Finance 63*(2), 565–608.

DeAngelo, H., L. DeAngelo, and K. H. Wruck (2002). Asset liquidity, debt covenants, and managerial discretion in financial distress: The collapse of l.a. gear. *Journal of Financial Economics 64*(1), 3–34.

Demiroglu, C. and C. James (2015). Bank loans and troubled debt restructurings. *Journal of Financial Economics 118*(1), 192–210.

Diamond, D. W. (1993). Seniority and maturity of debt contracts. *Journal of Financial Economics 33*(3), 341 – 368.

Diamond, D. W. (2004). Presidential Address, Committing to Commit: Short-term Debt When Enforcement Is Costly. *The Journal of Finance 59*(4), 1447–1479.

Donaldson, J. R., D. Gromb, and G. Piacentino (2018). Conflicting priorities: A theory of covenants and collateral. *Unpublished working paper*.

Ellias, J. A. (2015). Do activist investors constrain managerial moral hazard in chapter 11? evidence from junior activist investing. *Journal of Legal Analysis 8*(2), 493–547.

Falato, A. and N. Liang (2016). Do creditor rights increase employment risk? evidence from loan covenants. *The Journal of Finance 71*(6), 2545–2590.

Fama, E. F. (1985). What's different about banks? *Journal of Monetary Economics 15*(1), 29–39.

Franks, J. and O. Sussman (2005). Financial Distress and Bank Restructuring of Small to Medium Size UK Companies*. *Review of Finance 9*(1), 65–96.

Frantz, P. and N. Instefjord (2019, January). Debt overhang and non-distressed debt restructuring. *Journal of Financial Intermediation 37*, 75–88.

Garcia-Appendini, E. and J. Montoriol-Garriga (2019, May). Trade Credit Use as Firms Approach Default. *Journal of Money, Credit and Banking n/a*(n/a). Publisher: John Wiley & Sons, Ltd.

Gilson, S. C., K. John, and L. H. Lang (1990). Troubled debt restructurings: An empirical study of private reorganization of firms in default. *Journal of Financial Economics 27*(2), 315–353.

Gorton, G. and J. Kahn (2000). The design of bank loan contracts. *The Review of Financial Studies 13*(2), 331–364.

Helwege, J. (1999, February). How Long Do Junk Bonds Spend in Default? *The Journal of Finance 54*(1), 341–357. Publisher: John Wiley & Sons, Ltd.

Hotchkiss, E. S. and R. M. Mooradian (1997, March). Vulture investors and the market for control of distressed firms. *Journal of Financial Economics 43*(3), 401–432.

Ivashina, V. and B. Iverson (2018). Trade Creditors' Information Advantage. Technical report, National Bureau of Economic Research.

Ivashina, V., B. Iverson, and D. C. Smith (2016). The ownership and trading of debt claims in chapter 11 restructurings. *Journal of Financial Economics 119*(2), 316–335.

Ivashina, V. and B. Vallee (2020). Weak credit covenants. Technical report, National Bureau of Economic Research.

Jiang, W., K. Li, and W. Wang (2012). Hedge Funds and Chapter 11. *The Journal of Finance 67*(2), 513–560.

Kahl, M. (2002). Economic Distress, Financial Distress, and Dynamic Liquidation. *The Journal of Finance 57*(1), 135–168.

Koh, S., R. B. Durand, L. Dai, and M. Chang (2015). Financial distress: Lifecycle and corporate restructuring. *Journal of Corporate Finance 33*, 19–33.

Kolay, M., M. Lemmon, and E. Tashjian (2016). Spreading the misery? sources of bankruptcy spillover in the supply chain. *Journal of Financial and Quantitative Analysis 51*(6), 1955–1990.

Li, B., L. D. Purda, and W. Wang (2018). Senior Lender Control: Monitoring Spillover or Creditor Conflict? *Journal of Law, Finance, and Accounting 3*, 373–411.

Manove, M., A. J. Padilla, and M. Pagano (2001). Collateral versus project screening: A model of lazy banks. *The Rand Journal of Economics 32*(4), 726–744.

Molina, C. A. and L. A. Preve (2012). An empirical analysis of the effect of financial distress on trade credit. *Financial Management 41*(1), 187–205.

Noe, T. H. and J. Wang (2000). Strategic debt restructuring. *The Review of Financial Studies 13*(4), 985–1015.

Park, C. (2000). Monitoring and Structure of Debt Contracts. *The Journal of Finance 55*(5), 2157–2195.

Petersen, M. A. and R. G. Rajan (1997). Trade credit: Theories and evidence. *The Review of Financial Studies 10*(3), 661–691.

Rajan, R. G. (1992). Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt. *The Journal of Finance 47*(4), 1367–1400.

Rajan, R. G. and A. Winton (1995). Covenants and Collateral as Incentives to Monitor. *The Journal of Finance 50*(4), 1113–1146.

Rauh, J. D. and A. Sufi (2010). Capital structure and debt structure. *Review of Financial Studies 23*(12), 4242–4280.

Santos, J. A. C. and A. Winton (2008, June). Bank Loans, Bonds, and Information Monopolies across the Business Cycle. *The Journal of Finance 63*(3), 1315–1359. Publisher: John Wiley & Sons, Ltd.

Simpson, M. W. and A. Grossmann (2017, October). The value of restrictive covenants in the changing bond market dynamics before and after the financial crisis. *Journal of Corporate Finance 46*, 307–319.

Vilanova, L. (2007). Neither shareholder nor stakeholder management: What happens when firms are run for their short-term salient stakeholder? *European Management Journal 25*(2), 146–162.

Wilner, B. S. (2000). The Exploitation of Relationships in Financial Distress: The Case of Trade Credit. *The Journal of Finance 55*(1), 153–178.

Zhang, Z. (2018). Bank interventions and trade credit: evidence from debt covenant violations. *Journal of Financial and Quantitative Analysis*, 1–59.

Appendix A. Summary of notations

Y	The firm's cash flow at t=3 if successful
p	Probability of success for the firm at t=3
π	Expected quality of the firm (with $\pi = pY$)
D_t	Total debt face value at the end of date t
D_t^B,	Face value of the bank debt at the end of date t
D_t^C	Face value of the non-bank debt at the end of date t
L_t	Liquidation value of the firm at date $t = 1, 2$
ΔL	$L_1 - L_2$: Decline of the firm's liquidation value between $t = 1$ and $t = 2$
ρ_B, ρ_C	Bargaining power of the bank and the non-bank lender relative to the firm
c	Monitoring cost for the bank at $t = 1$
T	Partial repayment obtained by the bank in late restructuring
λ_t^B, λ_t^C	Priority of the bank's and the non-bank lender's claim if the firm is liquidated at date t
π_t^{BS}, π_t^{BE}	Expected payoff for the bank at date t when the bank is senior (BS)
	and has equal priority with other creditors (BE), respectively
π_{LSt},π_{LEt}	Threshold of firm's quality for liquidation at date t when the bank is senior
	and has equal priority, respectively
π_{RSt} , π_{REt}	Threshold for debt restructuring at date t when the bank is senior
	and has equal priority, respectively
π_{CS2}	Threshold for concessions from the non-bank creditor at t=2 under a BS-debt structure
π_{PS1}	Threshold for bank passivity at t=1 under a BS-debt structure
c_S, c_E	Benefits from early intervention for the senior bank and the equal priority bank

Appendix B. Proofs

Proofs of Lemma 1, Lemma 2 and Proposition 1. At t=2, there is late restructuring if BS has a credible threat and the firm's continuation value exceeds its liquidation value, i.e., if $\pi_1^{BS} < L_2 \leq \pi$. If late restructuring occurs, I distinguish two cases depending on whether BS can be weakened or not.

BS cannot be weakened ($L_2 \geq \rho_B \pi$). In this case, F has no other choice but to offer BS an expected payoff L_2 whatever the order of negotiation. However, CJ's and F's payoffs depend on the sequence:

- F negotiates with BS first: If $pD_1^{CJ} > \pi - L_2$ (Region A), CJ makes natural concessions at step b, CJ obtains $\rho_C(\pi - L_2)$ and $\pi_2^{FS} = (1-\rho_C)(\pi - L_2)$. When instead $pD_1^{CJ} \leq \pi - L_2$, F can either force CJ to make concessions (by offering $T > 0$ to BS at step a), in which case $\pi_2^{FS} = (1-\rho_C)(\pi - L_2)$, or maintain CJ's initial contract, in which case $\pi_2^{FS} = \pi - pD_1^{CJ} - L_2$. If $\rho_C(\pi - L_2) < pD_1^{CJ} \leq \pi - L_2$ (Region B), F is better off forcing CJ to make concessions. If $pD_1^{CJ} < \rho_C(\pi - L_2)$ (Region C), F prefers a status quo with CJ. This status quo will prevail only if F does not renegotiate with CJ, since CJ prefers to bargain rather than pass if F makes an offer to CJ.

- F negotiates with CJ first: If $pD_1^{CJ} > \pi - L_2$ (Region A), CJ has no other choice but to make concessions at step a, i.e. accepting $\rho_C(\pi - L_2)$, which leaves F with $\pi_2^{FS} = (1-\rho_C)(\pi - L_2)$. If instead $pD_1^{CJ} \leq \pi - L_2$ (Regions B and C), CJ makes no natural concessions and F must offer CJ $Max\{pD_1^{CJ}, \rho_C(\pi - L_2)\}$. Thus, CJ receives pD_1^{CJ} (CJ passes at step a) and $\pi_2^{FS} = \pi - pD_1^{CJ} - L_2$ in Region B; instead, CJ receives $\rho_C(\pi - L_2)$ and $\pi_2^{FS} = (1-\rho_C)(\pi - L_2)$ in Region C .

By comparing F's payoff in both sequences, it is direct that: F is indifferent to the sequence and CJ makes concessions in Region A; F plays with BS first (with T>0) and CJ makes concessions in Region B; F negotiates only with BS and CJ makes no concessions in Region C.

BS can be weakened ($L_2 < \rho_B \pi$). For expositional convenience, I consider each Region or group of Regions and compute the optimal sequence:

- Region D ($pD_1^{CJ} > \pi - L_2$): If F plays with CJ first, CJ has no other choice but to make concessions and obtains $\pi_2^{CJ} = \rho_C(\pi - L_2) < \pi_1^{CJ}$, BS obtains $Max\{L_2, \rho_B[\pi - \rho_C(\pi - L_2)]\}$ and $\pi_2^{FS} = Min\{(1-\rho_C)(\pi - L_2), (1-\rho_B)[\pi - \rho_C(\pi - L_2)]\}$. Instead, if F plays with BS first, BS obtains $\rho_B \pi$, CJ obtains $\pi_2^{CJ} = \rho_C(1-\rho_B)\pi$ and $\pi_2^{FS} = (1-\rho_C)(1-\rho_B)\pi$. It is immediate that $Min\{(1-\rho_C)(\pi - L_2), (1-\rho_B)[\pi - \rho_C(\pi - L_2)]$ is higher than $(1-\rho_C)(1-\rho_B)\pi$ when $L_2 < \rho_B \pi$, such that F is always better off playing with CJ first in Region D.

- Regions E to H ($\rho_C(1-\rho_B)\pi < pD_1^{CJ} \leq \pi - L_2$): Consider first the case when F negotiates with BS first, such that F offers BS $\rho_B \pi$ at step a. At step b, CJ refuses to make concessions (status quo with $\pi_2^{CJ} = \pi_1^{CJ}$) if there was no partial repayment at step a. Instead, if $T > 0$ at step a, CJ makes concessions and obtains $\rho_C(1-\rho_B)\pi$. Because in all these regions $\rho_C(1-\rho_B)\pi < pD_1^{CJ}$, F is better off offering $T > 0$ and obtains $\pi_2^{FS} = (1-\rho_C)(1-\rho_B)\pi$ if it chooses to negotiate with BS first. Consider now F's payoff if it negotiates with CJ first. In all these regions (E to H), CJ passes if F plays first with CJ because $pD_1^{CJ} > \rho_C(1-\rho_B)\pi$. At step b, BS obtains $Max\{L_2, \rho_B(\pi - pD_1^{CJ})\}$ and $\pi_2^{FS} = \pi - pD_1^{CJ} - L_2$ if $pD_1^{CJ} > \pi - L_2/\rho_B$ (Regions E and G) or $\pi_2^{FS} = (1-\rho_B)(\pi - pD_1^{CJ})$ if $pD_1^{CJ} < \pi - L_2/\rho_B$ (Regions F and H).

Comparing F's payoff under the two sequences, it is immediate that: F is better off renegotiating with BS first (and with T>0) and obtains $\pi_2^{FS} = (1-\rho_C)(1-\rho_B)\pi$ when either $Max\{\pi - \frac{L_2}{\rho_B}, \pi[\rho_B + \rho_C(1-$

$\rho_B)] - L_2\} < pD_1^{CJ} \leq \pi - L_2$ (Region E) or $\rho_C\pi < pD_1^{CJ} < \pi - \frac{L_2}{\rho_B}$(Region F); F is better off negotiating with CJ first and obtains $\pi_2^{FS} = \pi - pD_1^{CJ} - L_2$ when $Max\{\pi\rho_C(1-\rho_B), \pi - \frac{L_2}{\rho_B}\} < pD_1^{CJ} < \pi[\rho_B + \rho_C(1-\rho_B)] - L_2$ (Region G); F is better off negotiating with CJ first and obtains $\pi_2^{FS} = (1-\rho_B)(\pi - pD_1^{CJ})$ when $\rho_C(1-\rho_B)\pi < pD_1^{CJ} < Min\{\rho_C\pi, \pi - \frac{L_2}{\rho_B}\}$ (Region H).

- Regions I to J ($L_2 < \rho_B\pi$ and $pD_1^{CJ} < \rho_C(1-\rho_B)\pi$): If F negotiates first with BS and second with CJ, CJ negotiates at step b and $\pi_2^{FS} = (1-\rho_C)(1-\rho_B)\pi$. Alternatively, F can negotiate with BS only, in which case $\pi_2^{FS} = (1-\rho_B)\pi - pD_1^{CJ}$. Because $pD_1^{CJ} < \rho_C(1-\rho_B)\pi$ in Regions I and J, F always prefers to negotiate with BS only (than with BS first and CJ second). Consider now the case when F negotiates with CJ first. At step a, CJ always bargains because $pD_1^{CJ} < \rho_C(\pi - L_2)$ when $pD_1^{CJ} < \rho_C(1-\rho_B)\pi$ and $L_2 < \rho_B\pi$. At step b, BS obtains $Max\{\rho_B[\pi - \rho_C(\pi - L_2)], L_2]$ and $\pi_2^{FS} = Min\{(1-\rho_C)(\pi - L_2), (1-\rho_B)[\pi - \rho_C(\pi - L_2)]\}$ when F plays with CJ first. Thus, F is better off playing with CJ first (rather than with BS only) if $Min[(1-\rho_C)(\pi - L_2), (1-\rho_B)[\pi - \rho_C(\pi - L_2)]\} > (1-\rho_B)\pi - pD_1^{CJ}$, equivalent to $pD_1^{CJ} > Min[(\rho_C - \rho_B)\pi + (1-\rho_C)L_2, (1-\rho_B)\rho_C(\pi - L_2)\}$ (Region I). Note that in Region I $\pi_2^{CJ} > \pi_1^{CJ}$. Instead if $pD_1^{CJ} < Min[(\rho_C - \rho_B)\pi + (1-\rho_C)L_2, (1-\rho_B)\rho_C(\pi - L_2)\}$ (Region J), F is better off negotiating with BS only and $\pi_2^{CJ} = \pi_1^{CJ}$. The underlying idea is that, in these two regions, playing with CJ first is costly because it obliges F to make concessions to CJ; however, this strategy also enables F to weaken BS. The first effect dominates and F is better off not renegotiating with CJ when ρ_C is relatively high (Region J), whereas the second effect dominates when ρ_C is relatively low (Region I). □

Proof of Corollary 1. Examining the conditions established in Proposition 1, it is straighforward that Regions C, H, I, and J do not exist when $\rho_C = 0$. For Region G to exist when $\rho_C = 0$, we must have $\pi - \frac{L_2}{\rho_B} < pD_1^{CJ} < \rho_B\pi - L_2$, which is impossible. Thus, when $\rho_C = 0$, there exists no case where CJ makes no concessions in late restructuring.

When $\rho_C > 0$, define π_{CS2} as the π-threshold above which CJ makes no concessions in late restructuring. To prove that CJ can avoid concessions only if π is high enough, consider the frontiers between the regions in which makes natural concessions (A and D) or forced concessions (B, E, and F) and those where CJ makes no concessions (regions C and G to J). For given bargaining powers ρ_B and ρ_C, regions with natural concessions prevail when $pD_1^{CJ} > \pi - L_2$, regions with forced concessions prevail when $pD_1^{CJ} < X_1(\pi - L_2)$ with $X_1 \leq 1$ and regions with no concessions from CJ prevail when $pD_1^{CJ} < X_2(\pi - L_2) < X_1(\pi - L_2)$. This implies that CJ is less likely to make concessions when π increases, specifically when $\pi \geq \pi_{CS2}$. To illustrate, consider the shift from region E to region G: in this case π_{CS2} is defined by $p_{CS2}D_1^{CJ} = \pi_{CS2}X - L_2$ with $X = [\rho_B + \rho_C(1-\rho_B)] \leq 1$, equivalent to $\pi_{CS2} = \frac{L_2 Y}{YX - D_1^{CJ}}$. This threshold is higher than the one explaining the shift from region D to E (equal to $\frac{L_2 Y}{Y - D_1^{CJ}}$). However, the regions in which CJ makes no concessions in late restructuring do not always exist since, as demonstrated above, regions G to J never exist when ρ_C tends to 0. □

Proof of Proposition 2. For determining the optimal sequence of negotiation in each region, the key element is to analyze how the behavior of each creditor varies with the sequence of negotiations. Referring to Proposition 2:

(i). If $L_2\lambda_1^i > \rho_i[\pi - L_2\lambda_1^j]$ and $L_2\lambda_1^j > \rho_j[\pi - L_2\lambda_1^i]$, the two creditors accept an offer that leaves them with their liquidation payments whatever the sequence. Thus, F is indifferent to the sequence and obtains $\pi^{FE} = \pi - L_2$.

(ii) If $L_2\lambda_1^i < \rho_i[\pi - L_2\lambda_1^j]$ and $L_2\lambda_1^j > Max\{\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)]; \rho_j[\pi - L_2\lambda_1^i]\}$, creditor i bargains and creditor j receives its liquidation payment whatever the sequence. Thus, F is indifferent to the sequence and obtains π^{FE}=$(1-\rho_i)[\pi - L_2\lambda_1^j]$.

(iii) If $L_2\lambda_1^i < Min\{\rho_i[\pi - L_2\lambda_1^j]; \rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)]\}$ and $\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)] < L_2\lambda_1^j < \rho_j[\pi - L_2\lambda_1^i]$, creditor i bargains whatever the sequence whereas creditor j bargains only if it plays first. If F plays first with creditor i, i obtains $\rho_i(\pi - L_2\lambda_1^j)$, j obtains $L_2\lambda_1^j$ and F obtains $(1-\rho_i)[\pi - L_2\lambda_1^j]$. If plays first with creditor j, j obtains $\rho_j(\pi - L_2\lambda_1^i)$, i obtains $\rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)]$ and F obtains $(1-\rho_i)[\pi - \rho_j(\pi - L_2\lambda_1^i)]$. Comparing the payoffs to F in the two sequences, it is immediate that F prefers negotiating first with creditor i – the creditor in the stronger bargaining position (lower λ_1 and higher ρ) – to weaken creditor j and obtains $\pi^{FE} = (1-\rho_i)[\pi - L_2\lambda_1^j]$.

(iv) If $L_2\lambda_1^i < Min\{\rho_i(\pi - L_2\lambda_1^j); \rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)]\}$ and $L_2\lambda_1^j < Min\{\rho_j(\pi - L_2\lambda_1^i); \rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)]\}$, the two creditors bargain whatever the sequence. If F plays first with creditor i, i obtains $\rho_i(\pi - L_2\lambda_1^j)$, j obtains $\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)]$ and F obtains $(1-\rho_j)[\pi - \rho_i(\pi - L_2\lambda_1^j)]$. By the same reasoning, F obtains $(1-\rho_i)[\pi - \rho_j(\pi - L_2\lambda_1^i)]$ if it negotiates with creditor j first. Comparing the payoffs to F in the two sequences, it is immediate that F prefers playing first with creditor i if $\lambda_1^i/\lambda_1^j < (1-\rho_j)\rho_i/(1-\rho_i)\rho_j$ and obtains $\pi^{FE} = (1-\rho_j)\left[\pi - \rho_i(\pi - L_2\lambda_1^j)\right]$. A direct interpretation of this result is that F prefers to negotiate first with the creditor in the stronger bargaining position (lower λ_1 and higher ρ) and next with the creditor in the weaker bargaining position (higher λ_1 and lower ρ).

(v) If $\rho_i[\pi - \rho_j(\pi - L_2\lambda_1^i)] < L_2\lambda_1^i < \rho_i(\pi - L_2\lambda_1^j)$ and $\rho_j[\pi - \rho_i(\pi - L_2\lambda_1^j)] < L_2\lambda_1^j < \rho_j(\pi - L_2\lambda_1^i)$, creditors i and j bargain if they play first and accept their liquidation payments if they play second. F obtains $(1-\rho_i)(\pi - L_2\lambda_1^j)$ if it negotiates with creditor i first and $(1-\rho_j)(\pi - L_2\lambda_1^i)$ if it negotiates with creditor j first. Thus, F prefers playing with creditor i first when $(1-\rho_j)(\pi - L_2\lambda_1^i) < (1-\rho_i)(\pi - L_2\lambda_1^j)$ – such that i is the creditor in the stronger bargaining position (with a larger claim and a lower bargaining power) – and obtains $\pi^{FE} = (1-\rho_i)(\pi - L_2\lambda_1^j)$. □

Proof of Corollary 2. Part (a) is immediate since only cases (i) and (ii) described in Proposition 2 can exist if ρ_i and/or ρ_j are equal to 0.

For Part (b) with equal bargaining powers, it derives from cases (i) and (ii) of Proposition 2 that F is indifferent to the sequence if at least one creditor obtains its liquidation payment whatever the sequence, which occurs when L_2 is high and/or ρ is low. There are two cases when the small creditor (by assumption, creditor i) bargains whatever the sequence: in case (iii) of Proposition 2, it is immediate that F negotiates first with creditor i if $L_2\lambda_1^i(1-\rho^2) < \rho\pi(1-\rho) < L_2\lambda_1^j(1-\rho^2)$, thus confirming that F is better off negotiating first with the small creditor; in case (iv) of Proposition 2, F negotiates with creditor i first if $\lambda_1^i/\lambda_1^j < 1$, i.e., if i has the smaller claim. Finally, when both creditors bargain only when they play first (and receive their liquidation payments if they play second) (part v of Proposition 2), F negotiates with creditor j first if $(1-\rho)\left[\pi - L_2\lambda_1^i\right] > (1-\rho)\left[\pi - L_2\lambda_1^j\right]$,equivalent to $\lambda_1^j > \lambda_1^i$, thus confirming that in this case F is better off negotiationg with the large creditor first.

For Part (c) with equal stakes ($\lambda_1^i = \lambda_1^j$) and following the same reasoning as above, it is immediate that F negotiates first with the most powerful creditor (by assumption, creditor i) when creditor i bargains whatever the sequence and negotiates first with the least powerful creditor (by assumption, creditor j) when both creditors bargain only when they play first. □

Proof of Proposition 3. To isolate the effect of priority, I assume here that debt face values are similar

under the two debt structures: $D_1^{BS} = D_1^{BE} = D_1^B$ and $D_1^{CJ} = D_1^{CE} = D_1^C$. I know from Proposition 1, that restructuring occurs under a BS-debt structure when $L_2 \leq \pi < \pi_{RS2}$ with $\pi_{RS2} = \frac{L_2 Y}{D_1^B}$. Likewise, I know from Proposition 2, that a BE-debt structure triggers late restructuring when $L_2 \leq \pi < \pi_{RE2}$ with $\pi_{RE2} = \frac{L_2 Y}{D_1}$. Because $D_1^B < D_1$, $\pi_{RS2} > \pi_{RE2}$ and late restructuring is more likely under a BS-debt structure.

Part (a): Consider first the case when $\rho_C = 0$ and $L_2 \leq \pi < \pi_{RE2}$, such that restructuring occurs under both debt structures. From Proposition 1, regions C, G, H, I and J do not exist when $\rho_C = 0$. Thus, under a BS-debt structure, the firm's expected profit can take only two values: $\pi_2^{FS} = \pi - L_2$ if $L_2 \geq \rho_B \pi$ (Regions A or B) or $\pi_2^{FS} = (1-\rho_B)\pi$ if $L_2 < \rho_B \pi$ (regions D, E, or F). Likewise, it derives from Proposition 2 that the firm's expected profit under a BE-debt structure can take only two values when $\rho_C = 0$: $\pi_2^{FE} = \pi - L_2$ if $L_2 \lambda_1^B \geq \rho_B \left(\pi - L_2 \lambda_1^C\right)$ (case i) or $\pi_2^{FE} = (1-\rho_B)\left(\pi - L_2 \lambda_1^C\right)$ if $L_2 \lambda_1^B < \rho_B \left(\pi - L_2 \lambda_1^C\right)$(case ii). Because a necessary condition for $L_2 \lambda_1^B \geq \rho_B \left(\pi - L_2 \lambda_1^C\right)$ is $L_2 \geq \rho_B \pi$, it is direct that $\pi_2^{FS} = \pi_2^{FE}$ if $L_2 \lambda_1^B \geq \rho_B \left(\pi - L_2 \lambda_1^C\right)$ and $\pi_2^{FS} > \pi_2^{FE}$ in all the other cases when $\rho_C = 0$ and restructuring occurs under both debt structures.

When restructuring occurs only with a BS-debt structure, i.e., when $\pi_{RE2} < \pi \leq \pi_{RS2}$, the firm's profit with a BE-debt structure is $\pi_2^{FE} = p(Y - D_1)$. In this case, it is direct that $\pi_2^{FS} > \pi_2^{FE}$ if region A or B prevails at t=2 with a BS-debt structure because $\pi_2^{FS} \equiv \pi - L_2 > p(Y - D_1)$ is always true when $\pi > \pi_{RE2}$. If instead $\pi_2^{FS} = (1-\rho_B)\pi$, F benefits from a BS-debt structure if $(1-\rho_B)\pi > p(Y - D_1)$, equivalent to $\rho_B < \frac{D_1}{Y} \equiv \overline{\rho_B}$, and from a BE-debt structure if $\rho_B > \overline{\rho_B}$.

Part (b): To compare the effects of the two debt structures when $\rho_C = \rho_B = \rho$, I first consider the case when $L_2 \leq \pi < \pi_{RE2}$ (restructuring with both debt structures). In this case, if $L_2 \geq \rho \pi_{RE2}$ such as F cannot weaken BS, the only possible regions under a BS-debt structure are regions A, B or C (Proposition 1), and the only possible cases under a BE-debt structure are cases (i) and (ii) (Proposition 2). It is immediate that F's expected profit under a BE-debt structure – $\pi_2^{FE} = \pi - L_2$ (case i) or $\pi_2^{FE} = (1-\rho)(\pi - L_2 \lambda_1^j)$ (case ii) – is higher than its profit under a BS-debt structure when CJ makes concessions – $\pi_2^{FS} = (1-\rho)(\pi - L_2)$ (in regions A and B). It is also direct that F's profit is higher in case (i) of a BE-debt structure than in region C of a BS-debt structure. The only case in which a BS-debt structure may be more beneficial for F is when region C and case (ii) prevail. However, because of my assumption that $D_0^C > Y - D_0$, region C cannot exist in late restructuring when $L_2 \leq \pi < \pi_{RE2}$ (note that in my model, late restructuring can occur only if early restructuring did not occur at t=1, such that $D_0^C > Y - D_0$ implies that $D_1^C > Y - D_1$ in late restructuring).Thus, a BE-debt structure is always optimal when $L_2 \leq \pi < \pi_{RE2}$ and $L_2 \geq \rho \pi_{RE2}$. When instead $L_2 < \rho \pi_{RE2}$, the optimality of a BE-debt structure is not immediate since in this case there exists a π-threshold $\in [L_2, \pi_{RE2}]$ above which BS can be weakened. However, even if BS can be weakened, it is easy to show that F is always better off restructuring with BE. To prove that, note first from Proposition 1 that CJ makes "natural" concessions with a BS-debt structure if $pD_1^C > \pi - L_2$, equivalent to $\pi < \frac{L_2 Y}{Y - D_1^C}$. This condition always holds when $\pi < \pi_{RE2} \equiv \frac{L_2 Y}{D_1}$ if $D_1^C > Y - D_1$, in which case the only possible region with a BS-debt structure when $L_2 < \rho \pi_{RE2}$ is region D. Also, when $L_2 < \rho \pi_{RE2}$, the only possible cases with a BE-debt structure are cases (iii), (iv) or (v) and it is direct from Propositions 1 and 2 that π_2^{FE} in these cases is higher than π_2^{FS} in region D. To summarize, when $L_2 \leq \pi < \pi_{RE2}$, F is always better off under a BE-debt structure.

Consider next the case when $\pi_{RE2} \leq \pi < \pi_{RS2}$ – i.e., when restructuring occurs with a BS-debt structure and the status quo prevails with a BE-debt structure. In this case, $\pi_2^{FE} = p(Y - D_1)$. With

a BS-debt structure, π_2^{FS} depends on the non-bank creditor's willingness to make concessions. When the non-bank creditor makes no concessions (status quo with CJ), π_2^{FS} can take two values. If π_2^{FS}=$\pi - pD_1^C - L_2$ (regions C or G in Proposition 1), it is direct that $p(Y-D_1) > \pi - pD_1^C - L_2$ if $\pi < \pi_{RS2}$. If $\pi_2^{FS} = (1-\rho)(\pi - pD_1^C)$ (regions H or J), we know that $pD_1^C < \pi - \frac{L_2}{\rho_B}$, which implies that $(1-\rho)(\pi - pD_1^C) < \pi - pD_1^C - L_2 < p(Y-D_1)$. Thus, F is always better off with a BE-debt structure when the status quo prevails with equal priority creditors and the non-bank lender makes no concessions in a BS-debt structure. If instead the non-bank lender makes concessions in a BS-debt structure, π_2^{FS} is either equal to $(1-\rho)(\pi - L_2)$, $(1-\rho)[\pi - \rho(\pi - L_2)]$ or $(1-\rho)^2\pi$ (Proposition 1). Comparing with $\pi_2^{FE} = p(Y-D_1)$, it is immediate that a BE-debt structure is more beneficial for F when D_1 is low (relative to Y) and ρ is high. To illustrate, consider the specific case when $\pi_2^{FS} = (1-\rho)(\pi - L_2)$ (regions A, B or D). In this case $\pi_2^{FE} > \pi_2^{FS}$ if $\rho > \frac{pD_1 - L_2}{\pi - L_2}$, a condition that always holds when $\pi = \pi_{RE2}$ (because in this case $pD_1 = L_2$) and that holds if $\rho > \overline{\rho}$ with $\overline{\rho} = \frac{D_1^C}{Y - D_1^B} \leq 1$ when $\pi = \pi_{RS2}$. Similarly, when $\pi_2^{FS} = (1-\rho)^2\pi$ (in regions E and F), $\pi_2^{FE} > \pi_2^{FS}$ when $\pi = \pi_{RE2}$if $\rho > \overline{\rho}$ with $\overline{\rho} = 1 - \sqrt{\frac{Y-D_1}{Y}} \leq 1$ (this value was used to compute $\overline{\rho}$ in Figure 5). More generally, the threshold $\overline{\rho}$ increases with D_1 (and is equal to 1 when $D_1 = Y$). Thus, $\pi_2^{FE} > \pi_2^{FS}$ for all $\pi \in [\pi_{RE2}, \pi_{RS2}[$ if $\rho > \overline{\rho}$. If instead $\rho < \overline{\rho}$, there exists a threshold such that $\pi_2^{FE} \geq \pi_2^{FS}$ if $\pi \leq \pi_S$ and $\pi_2^{FS} > \pi_2^{FE}$ if $\pi > \pi_S$. □

Proof of Proposition 4. BS has a credible threat and can intervene at t=1 if $\pi_0^{BS} < L_1$, equivalent to $\pi < \pi_{RS1}$ with $\pi_{RS1} = \frac{L_1 Y}{D_0^{BS}}$. If BS intervenes early, it obtains $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right]$ with $\rho_B \pi \frac{Y - D_0^{CJ}}{Y} = \rho_B(\pi - pD_0^{CJ})$. The firm is liquidated early if the firm's maximum concessions in date 1-negotiation, $\pi - pD_0^{CJ} = \pi \frac{Y - D_0^{CJ}}{Y}$, are not sufficient to leave BS with L_1 and if $L_1 > \pi_2^{BS}$. Thus, early liquidation occurs if $L_1 > Max\left[\pi \frac{Y - D_0^{CJ}}{Y}, \pi_2^{BS}\right]$, equivalent to $\pi < \pi_{LS1}$ with π_{LS1} the firm's quality threshold such as $L_1 = Max\left[\pi_{LS1} \frac{Y - D_0^{CJ}}{Y}, \pi_2^{BS}(\pi_{LS1})\right]$. Because $Max\left[\pi \frac{Y - D_0^{CJ}}{Y}, \pi_2^{BS}\right] \leq \pi$ (with equality possible only when $\rho_B = 1$), the presence of performance covenants leads BS to overliquidate at t=1.

When the firm is not liquidated and covenants are violated, BS's decision to stay passive or restructure early depends on the comparison between $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right]$ (BS's expected payoff if it restructures early) and π_2^{BS} (BS's expected payoff it it stays passive at t=1). Specifically, BS restructures early if $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right] > \pi_2^{BS}$ and stays passive at t=1 if $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right] < \pi_2^{BS}$. For passivity to be optimal, the expected quality of the firm must be high enough, $\pi > \pi_{PS1}$ with π_{PS1} the firm's quality threshold such as $\pi_2^{BS}(\pi_{PS1}) = Max\left[L_1, \rho_B \pi_{PS1} \frac{Y - D_0^{CJ}}{Y}\right]$. Note that $\pi_{PS1} \geq \pi_{LS1}$ with strict equality if $\pi_{LS1} \frac{Y - D_0^{CJ}}{Y} < Min\left[\frac{L_1}{\rho_B}, \pi_2^{BS}(\pi_{LS1})\right]$ (this condition holds with the data of Figure 6). Also, for passivity to be optimal, the firm's quality must not be too high, in order for π_2^{BS} to be higher than $\rho_B \pi \frac{Y - D_0^{CJ}}{Y}$. This is the case if $\pi < Min[\pi_{CS2}, \pi_{RS2}]$ with π_{CS2} the π-threshold above which CJ makes no concessions in late restructuring (see the proof of Corollary 1). To prove that, let return to the different restructuring regions at t=2 defined in Proposition 1. In regions A, B, C and G, $\pi_2^{BS} = L_2$, such that $Max\left[L_1, \rho_B \pi \frac{Y - D_0^{CJ}}{Y}\right] > L_2$ and BS is always better off restructuring early. When instead $\pi_2^{BS} = \rho_B \pi$ (in regions E, F and J), BS is better off bargaining at t=2 than at t=1 because $\rho_B \pi > \rho_B \pi \frac{Y - D_0^{CJ}}{Y}$ and BS receives L_1 if it restructures early: thus, in these regions, BS optimally restructures early if $L_1 > \rho_B \pi$ and stays passive if $L_1 < \rho_B \pi$. If regions D or I prevail at t=2, $\pi_2^{BS} = Max[L_2, \rho_B[\pi - \rho_C(\pi - L_2)]]$ and passivity at t=1 can be optimal if and only if BS obtains $\rho_B[\pi - \rho_C(\pi - L_2)]$ at t=2. In region I, I know that $pD_0^{CJ} < \rho_C(1-\rho_B)\pi$ (noticing that $D_0^{CJ} = D_1^{CJ}$ as the non-bank's claim is never renegotiated at t=1)

and $L_2 < \rho_B\pi$, such that $\rho_B\pi\frac{Y-D_0^{CJ}}{Y} > \rho_B[\pi-\rho_C(\pi-L_2)]$: thus, BS is better off restructuring at t=1 than at t=2. In region D instead, $\rho_B\pi\frac{Y-D_0^{CJ}}{Y} < \rho_B[\pi-\rho_C(\pi-L_2)]$: thus, BS is better off restructuring at t=1 if $L_1 > \rho_B[\pi-\rho_C(\pi-L_2)]$ and staying passive if $L_1 \leq \rho_B[\pi-\rho_C(\pi-L_2)]$. Finally, in region H, $\pi_2^{BS} = \rho_B\pi\frac{Y-D_0^{CJ}}{Y}$ and BS either restructures early if $L_1 > \rho_B\pi\frac{Y-D_0^{CJ}}{Y}$ or is indifferent between early restructuring and passivity if $L_1 < \rho_B\pi\frac{Y-D_0^{CJ}}{Y}$. Finally, when $\pi < \pi_{RS1}$ and the status quo prevails at t=2, $\pi_2^{BS} = p(Y-D_0) = \pi\frac{Y-D_0}{Y}$ and early restructuring is always optimal if $\rho_B > \frac{Y-D_0}{Y-D_0^{CJ}}$. In sum, when $\pi \in [\pi_{LS1}, \pi_{RS1}]$,early restructuring prevails except if $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}\}$, in which case BS stays passive at t=1.

This can be illustrated with the data used in Figure 6 (where $\pi_{PS1} = \pi_{LS1}$). In Panel a (where ρ_C=0), BS's expected benefits of early intervention are:

$$c_S(a) = \Delta L\int_0^{L_2/\rho_B} h(\pi)d\pi + \int_{L_2/\rho_B}^{\pi_{LS1}(a)}(L_1-\rho_B\pi)h(\pi)d\pi + \int_{\pi_{RS2}}^{\pi_a}(L_1-\pi_0^{BS})h(\pi)d\pi + \int_{\pi_a}^{\pi_{RS1}}[\rho_B\pi\tfrac{Y-D_0^{CJ}}{Y}-\pi_0^{BS}]h(\pi)d\pi$$

where $\pi_{LS1}(a) = \frac{L_1}{\rho_B}$ and $\pi_a = \frac{L_1 Y}{\rho_B(Y-D_0^{CJ})}$ is the π threshold for which $\rho_B\pi\frac{Y-D_0^{CJ}}{Y} = L_1$.

Instead, in Figure 6 Panel b (where ρ_C=0.8), we have:

$$c_S(b) = \Delta L\int_0^{\pi_{LS1}(b)} h(\pi)d\pi + \Delta L\int_{\pi_{CS2}}^{\pi_b} h(\pi)d\pi + \int_{\pi_b}^{\pi_{RS2}}[L_1-\rho_B\pi\tfrac{Y-D_0^{CJ}}{Y}]h(\pi)d\pi + \int_{\pi_{RS2}}^{\pi_a}(L_1-\pi_0^{BS})h(\pi)d\pi + \int_{\pi_a}^{\pi_{RS1}}[\rho_B\pi\tfrac{Y-D_0^{CJ}}{Y}-\pi_0^{BS}]h(\pi)d\pi$$

where $\pi_{LS1}(b) = \frac{L_2 Y}{Y-D_0^{CJ}}$ and $\pi_b = \frac{L_2 Y}{\rho_B(Y-D_0^{CJ})}$ is the π threshold for which $\rho_B\pi\frac{Y-D_0^{CJ}}{Y} = L_2$.

By comparison:

$$c_S(b) - c_S(a) = \int_{L_2/\rho_B}^{\pi_{LS1}(a)}(\rho_B\pi-L_2)h(\pi)d\pi + \Delta L\int_{\pi_{LS1}(a)}^{\pi_{LS1}(b)} h(\pi)d\pi + \Delta L\int_{\pi_{CS2}}^{\pi_b} h(\pi)d\pi + \int_{\pi_b}^{\pi_{RS2}}[L_1-\rho_B\pi\tfrac{Y-D_0^{CJ}}{Y}]h(\pi)d\pi > 0$$

illustrating that BS has more incentive to intervene early when ρ_C increases.

□

Proof of Proposition 5. If BE has monitored the firm, it can intervene early (i.e., has a credible threat to liquidate) if $\pi_0^{BE} \equiv pD_0^{BE} < L_1\lambda_0^B$ with $\lambda_0^B = \frac{D_0^{BE}}{D_0}$, equivalent to $p < \frac{L_1}{D_0}$ or $\pi < \pi_{RE1} \equiv \frac{L_1 Y}{D_0}$. Because $\frac{L_1}{D_0} < \frac{L_1}{D_0^{BE}}$, $\pi_{RE1} < \pi_{RS1}$, implying that BE has less often a credible threat than BS at t=1. If BE decides to intervene at t=1, it obtains either its liquidation payment $L_1\lambda_0^B$ or its bargaining payment $\rho_B(\pi - pD_0^{CE}) = \rho_B\pi\frac{Y-D_0^{CE}}{Y}$. Thus, BE has incentive to intervene early (instead of staying passive until t=2) if $Max\left[L_1\lambda_0^B, \rho_B\pi\frac{Y-D_0^{CE}}{Y}\right] > \pi_2^{BE}$. This leaves us with the two following cases when covenants are violated (i.e. when $\pi < \pi_{RE1}$):

1. If $\pi < \pi_{LE1}$ with $\pi_{LE1} = Max\{\frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}, L_2\}$, BE liquidates at t=1 (with $\frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}$ the π-threshold such that $L_1\lambda_0^B = \pi\frac{Y-D_0^{CE}}{Y}$). When $\pi < \frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}$, the firm's quality is so low that BE cannot obtain $L_1\lambda_0^B$ in continuation even if $\rho_B = 1$ and BE's claim is restructured early at $D_1^{BE} = Y - D_0^{CE}$, implying that BE

prefers to liquidate early rather than restructure its claim early and let the firm continuing its operations until t=3. When $\pi < L_2$, BE knows that the firm will be liquidated at t=2 and is thus better off accelerating liquidation. Interestingly, $\frac{L_1\lambda_0^B Y}{Y-D_0^{CE}} < L_2$ and $\pi_{LE1} = \frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}$ if $\frac{L_1}{L_2} < \frac{Y-D_0^{CE}/Y}{\lambda_0^B}$, that is, if the effect of accelerating liquidation is weaker than the effect (for BE) of increasing the priority of its claim. If this condition holds, even if BE can obtain $L_1\lambda_0^B$ through early restructuring on paper when $\pi \in \left[\frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}, L_2\right]$, it will not be the case in reality since the firm will be liquidated at t=2, such that BE is better off liquidating early (rather than accepting $L_1\lambda_0^B$ in early restructuring). Thus, BE liquidates early if $\pi_{LE1} = Max\{\frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}, L_2\}$ and this liquidation policy departs from the efficient liquidation policy at t=1 (which consists in liquidating the firm if $\pi < L_1$) because $Y > D_0 > L_1 > L_2$ (Assumption 1) implies that $\pi_{LE1} < L_1$. Thus, BE under-liquidates when $\pi_{LE1} \leq \pi < L_1$.

2. If $\pi_{LE1} \leq \pi < \pi_{RE1}$, BE chooses either to restructure early or to stay passive. In early restructuring, BE obtains $L_1\lambda_0^B$ if $\pi \in \left[\pi_{LE1}, \frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}\right]$ or $\rho_B\pi\frac{Y-D_0^{CE}}{Y}$ if $\pi \in \left[\frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}, \pi_{RE1}\right]$, conditional on no subsequent debt restructuring at t=2. It is easy to demonstrate that there is no subsequent restructuring (i.e., equal priority creditors have no credible threat to liquidate at t=2) if $\pi_{LE1} = \frac{L_1\lambda_0^B Y}{Y-D_0^{CE}}$, equivalent to $\frac{L_1}{L_2} > \frac{Y-D_0^{CE}/Y}{\lambda_0^B}$. If instead $\frac{L_1}{L_2} < \frac{Y-D_0^{CE}/Y}{\lambda_0^B}$, late restructuring can occur when $\pi_{LE1} \leq \pi < \pi_{RE1}$, in which case BE obtains at least $L_2\frac{D_1^{BE}}{D_0^{CE}+D_1^{BE}} = \frac{L_2L_1\lambda_0^B}{pD_0^{CE}+L_1\lambda_0^B} > L_1\lambda_0^B$ at the end of the two debt restructurings. If it stays passive, BE either restructures its claim at t=2 if $\pi < \pi_{RE2}$ or maintains its initial contract if $\pi \in [\pi_{RE2}, \pi_{RE1}]$ (see Proposition 2). If $\pi < \frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}$ and $\pi < \pi_{RE2}$, BE prefers to accelerate restructuring (which gives it a payoff $L_1\lambda_0^B$ or $\frac{L_2L_1\lambda_0^B}{pD_0^{CE}+L_1\lambda_0^B}$) than to stay passive and obtain either $L_2\lambda_0^B$ at t=2 or $\rho_B(\pi - L_2\lambda_0^C)$ in late restructuring. This is because $\pi < \frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}$ implies that $L_1\lambda_0^B > \rho_B\pi\frac{Y-D_0^{CE}}{Y}$ and $\rho_B\pi\frac{Y-D_0^{CE}}{Y} > \rho_B(\pi - L_2\lambda_0^C)$ when $\pi < \pi_{RE2} \equiv \frac{L_2Y}{D_0}$ (a necessary condition for late restructuring). If $\pi < \frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}$ and $\pi > \pi_{RE2}$, BE is also better off restructuring early than staying passive and obtaining $\pi_2^{BE} = \pi_0^{BE}$ (under a status quo) at date 2 because $L_1\lambda_0^B > \pi_0^{BE}$ for BE to have a credible threat at t=1. Finally, when $\pi \in \left[\frac{L_1\lambda_0^B Y}{\rho_B(Y-D_0^{CE})}, \pi_{RE1}\right]$, BE obtains $\rho_B\pi\frac{Y-D_0^{CE}}{Y} > L_1\lambda_0^B$ in early restructuring and it is immediate from above that this expected payoff is higher than either $L_2\lambda_0^B$ or $\rho_B(\pi - L_2\lambda_0^C)$ in late restructuring (if $\pi < \pi_{RE2}$) or π_0^{BE} under a status quo at t=2 (if $\pi > \pi_{RE2}$).

In sum, BE has always incentive to intervene early in case of covenant violation. To illustrate, I compute the expected benefits of early intervention for BE with the data of Figure 6 Panel a and Panel b, respectively:

$$c_E(a) = \Delta L\lambda_0^B \int_0^{\pi_a'} h(\pi)d\pi + \int_{\pi_a'}^{\pi_{RE2}} [L_1\lambda_0^B - \rho_B(\pi - L_2\lambda_0^C)]h(\pi)d\pi + \int_{\pi_{RE2}}^{\pi_a} (L_1\lambda_0^B - \pi_0^{BE})h(\pi)d\pi + \int_{\pi_a}^{\pi_{RE1}} [\rho_B\pi\frac{Y-D_0^{CE}}{Y} - \pi_0^{BE}]h(\pi)d\pi$$

$$c_E(b) = \Delta L\lambda_0^B \int_0^{\pi_{RE2}} h(\pi)d\pi + + \int_{\pi_{RE2}}^{\pi_a} (L_1\lambda_0^B - \pi_0^{BE})h(\pi)d\pi + \int_{\pi_a}^{\pi_{RE1}} [\rho_B\pi\frac{Y-D_0^{CE}}{Y} - \pi_0^{BE}]h(\pi)d\pi$$

with $\pi_a' = L_2\lambda_0^C + \frac{L_2\lambda_0^B}{\rho_B}$ the π-threshold for which $L_2\lambda_0^B = \rho_B(\pi - L_2\lambda_0^C)$ and $\pi_a = \frac{L_1Y}{\rho_B(Y-D_0^{CE})}$ the threshold for which $\rho_B\pi\frac{Y-D_0^{CE}}{Y} = L_1\lambda_0^B$ (π_a is similar to the threshold used for computing c_S in Proposition 4 when $D_0^{CE} = D_0^{CJ}$). In the two expressions, the benefits of early intervention include the benefits of accelerating liquidation and restructuring (when $\pi < \pi_{RE2}$) and the benefits of avoiding the status quo at t=2 (when

$\pi_{RE2} < \pi < \pi_{RE1}$). Note that the positive effect of ρ_C on the bank's incentive to monitor is much more limited than in the BS case since here:

$$c_E(b) - c_E(a) = \int_{\pi'_a}^{\pi_{RE2}} [\rho_B(\pi - L_2\lambda_0^C) - L_2\lambda_0^B]h(\pi)d\pi$$

□

Proof of Proposition 6. There are two cases when BE can derive higher benefits from early intervention than BS.

The first case is when BS is passive at t=1 and BE restructures early. From Propositions 4 and 5, this happens when $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}\}$ and $\pi_{LE1} \leq \pi < \pi_{RE1}$. Because $\pi_{LE1} < \pi_{LS1}$ and $\pi_{PS1} \geq \pi_{LS1}$, BE has more incentive to monitor than BS when $\pi_{PS1} \leq \pi < Min\{\pi_{CS2}, \pi_{RS2}, \pi_{RE1}\}$. Obviously, this case occurs only if the "passivity region" exists, which requires that $\pi_{LS1} < \pi_{RE1}$. Since $\pi_{RE1} = \frac{L_1 Y}{D_0}$ and $\pi_{LS1} = \frac{L_1}{\rho_B}$ (if $\pi_2^{BS} = \rho_B\pi > \pi - pD_0^{CJ}$), $\pi_{LS1} < \pi_{RE1}$ is equivalent to $\rho_B > \overline{\rho_B}$ with $\overline{\rho_B} = \frac{D_0}{Y}$. Note that this threshold is similar to $\overline{\rho_B} = \frac{D_1}{Y}$ defined in Proposition 3 because late restructuring can occur at t=2 only if BS was passive at t=1 (BS has no credible threat at t=2 if debt was restructured at t=1), such that $D_1 = D_0$.

The second case is when BS liquidates early ($\pi < \pi_{LS1}$), BE increases the priority of its claim at t=1 (when $\pi_{LE1} \leq \pi < \pi_{RE1}$ and $\rho_B\pi\frac{Y-D_0^C}{Y} > L_1\lambda_0^B$), and the benefits of accelerating restructuring for BE, $\rho_B\pi\frac{Y-D_0^C}{Y} - \pi_2^{BE}$, exceed the benefits of triggering early liquidation for BS, $L_1 - \pi_2^{BS}$. Two conditions are necessary for this case to exist. First, $\rho_B\pi\frac{Y-D_0^C}{Y} - \pi_2^{BE}$ must be high enough, which typically occurs when BE obtains a status quo and $\pi_2^{BE} = \pi_0^{BE}$ if it is passive at t=1. Second, $L_1 - \pi_2^{BS}$ must be low enough, which typically occurs when CJ makes concessions at t=2 and BS obtains $\pi_2^{BS} = \rho_B\pi$ if it is passive at t=1. In this case, BE has more incentives to monitor if $\pi > \frac{L_1 Y}{\rho_B(2Y-D_0^C)-D_0^B} \equiv \pi_m$. This condition is compatible with $\pi < \pi_{RE1}$ if $\rho_B > \frac{D_0+D_0^B}{2Y-D_0^C} \equiv \rho_{Bm}$, with $\rho_{Bm} < \overline{\rho_B}$ (because of my assumption that $Y > D_0$).

Note that the two cases where BE may have more incentives to monitor arise when the firm is of intermediate quality and ρ_B is high enough. By contrast, BS has always more incentive to monitor low-quality firms and (relatively) high-quality firms. For low-quality firms, the benefit from accelerating liquidation is higher for BS than for BE (because $\Delta L > \Delta L\lambda_0^B$); for high-quality firms – those for which $\pi \in [\pi_{RS2}, \pi_{RS1}]$ – BS can extract concessions from the firm at t=1 whereas BE has no credible threat. □

Proof of Proposition 7. I focus on firms of intermediate quality $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$ (in the other cases, it is immediate that F is always better off with a BE-debt structure).

I first consider the case when $\rho_C = 0$ and I distinguish three subcases:
(i) If $\rho_B > \overline{\rho_B}$ (with $\overline{\rho_B} = \frac{D_0}{Y}$), $\pi_{LS1} < \pi_{RE1}$ and $\pi_{LS1} = \pi_{PS1} = \frac{L_1}{\rho_B}$. When $\pi \in [\pi_{PS1}, \pi_{RE1}]$, F's payoff $(1-\rho_B)\pi$ under a BS-debt structure (that leads to passivity at t=1 and restructuring at t=2) is higher than (i) its payoff $Min\left[(1-\rho_B)\pi\frac{Y-D_0^C}{Y} - pD_0^C, \pi - L_1\lambda_0^B - pD_0^C\right]$ under a BE-debt structure with early restructuring and status quo at t=2 and, (ii) its payoff $\pi - L_2$ or $(1-\rho_C)(\pi - L_2\lambda_1^B)$ if two subsequent restructurings take place under a BE-debt structure (see the proof of Proposition 5). By contrast, a BE-debt structure is optimal when $\rho_B > \overline{\rho_B}$ and $\pi \in [\pi_{RE1}, Min(\pi_{CS2}, \pi_{RS2})]$ because F's payoff $p(Y - D_0) = \pi\frac{Y-D_0}{Y}$ under a BE-debt structure (with a status quo) is higher than $(1-\rho_B)\pi$.

(ii) If $\rho_B < \overline{\rho_B}$, $\pi_{LS1} > \pi_{RE1}$ and $\pi_{PS1} \geq \pi_{LS1}$, such that the status quo prevails under a BE-debt structure when BS is passive at t=1. Because $(1-\rho_B)\pi > p(Y-D_0)$ when $\rho_B < \overline{\rho_B}$, F is better off under a BS-debt structure when $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$. Note, however, that this "passivity" region exists only if $\pi_{PS1} < \pi_{RS2}$, which supposes that ρ_B is not too low. For example, when $\pi_{PS1} = \frac{L_1}{\rho_B}$, the passivity region exists only if $\rho_B > \underline{\rho_B}$ with $\underline{\rho_B} = \frac{L_1 D_0^B}{L_2 Y}$.

(iii). If $\rho_B < \underline{\rho_B}$, a BE debt structure is always optimal for the firm, since in this case $\pi_{LS1} > \pi_{RS2}$ and BS is never passive at t=1 when it has a credible threat.

I next consider the case when $\rho_B = \rho_C = \rho$. Two conditions must hold for an intermediate quality firm to benefit from a BS-debt structure. First, when $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$, F's expected payoff with a passive BS at t=1 must be higher than its expected payoff with BE. Assume that F obtains a status quo with BE in this region: in this case, F prefers a BS-debt structure if $\pi_0^{FS} = (1-\rho)^2\pi > p(Y-D_0)$, equivalent to $\rho < \overline{\rho} \equiv 1 - \sqrt{\frac{Y-D_0}{D_0}}$ (the same threshold as that defined in Proposition 3 since $D_0 = D_1$ if there is a status quo with BE). It is direct that $\overline{\rho} < \overline{\rho_B}$, which validates the above hypothesis that $\pi_{LS1} > \pi_{RE1}$ and the status quo always prevails with BE when $\rho < \overline{\rho}$. The second condition is that the "passivity" region with BS must exist (otherwise, F always prefers a BE-debt structure), which is the case if $\rho\pi$ (BS's payoff if passive at t=1) is higher than $Max\left[L_1, \rho(\pi - pD_0^{CJ})\right]$(BS's payoff if early intervention). This condition always holds when $\pi \in [\pi_{PS1}, Min(\pi_{CS2}, \pi_{RS2})]$ if $\rho > \frac{L_1}{\pi_{RS2}}$ with $\frac{L_1}{\pi_{RS2}} = \frac{L_1 D_0^B}{L_2 Y} = \underline{\rho_B}$. Thus, when $\rho_B = \rho_C = \rho$, the firm is better off with a BS-debt structure if $\underline{\rho_B} < \rho < \overline{\rho}$. Finally, the fact that $\overline{\rho} < \overline{\rho_B}$ illustrates that the intermediate-quality firm's preference for a BS-debt structure decreases with ρ_C. □