The Choice Between Informal and Formal Restructuring: The Case of French Banks Facing Distressed SMEs♦

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Abstract

This empirical paper investigates the path to the resolution of financial distress for a sample of small and medium size French firms in default, in particular with respect to their decision between bankruptcy and informal (out-of-court) renegotiation. The procedure is depicted as a sequential game in which stakeholders first decide whether or not to engage in an informal renegotiation. Second, conditional on opting for renegotiation, the debtor and its creditors may succeed or fail in reaching an agreement to restructure the firm's capital structure. We test different hypotheses which captures i) coordination *vs*. bargaining power issues, ii) informational problems, iii) firms' characteristics, and iv) loan characteristics. The empirical implementation is based on sequential LOGIT regressions. First, we find that the likelihood to opting for informal renegotiation increases with the loan size and the proportion of long term debt. These two results support the argument that size matters in informal renegotiation. Second, the probability of a successful renegotiation decreases when the bank in charge of handing the process is the debtor's "main" creditor and when the firm is badly rated and its management considered as faulty. Third, the estimations show that the collaterals play a significant role in the first stage of the renegotiation process. On the first hand, collaterals ease renegotiation as they increase the bank's information. On the second hand, collaterals reduce the chances to renegotiate with the bank if the latter does not fear deviations from the APR under bankruptcy. However, collateralization is of little importance regarding the second stage of renegotiation, and do not influence the chances to successfully reach an agreement. Finally, some banks are clearly better than others in leading a successful renegotiation process.

JEL classification: G33; K22
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Introduction

In their seminal work, LaPorta *et al.* (1997, 1998) highlighted the main differences in bankruptcy procedures across countries. Although there have been harmonization attempts over the past two decades, there are still important differences in their structure and functioning.[4] As one could expect, such differences are likely to impact on the default process prior to bankruptcy. From a conceptual point of view, default can be viewed as a two-stage mechanism. In the first stage, a firm fails to repay its debt obligations or chooses to postpone its payments in which case it can either engage into informal (out-of-court) restructuring negotiations with its creditors or file for formal bankruptcy. In the second stage, conditional on having opted for out-of-court restructuring, the negotiation process may either succeed or fail. In the event of failure, the firm will seek protection from the bankruptcy court.

According to Haugen and Senbet (1978, 1988), given that private restructuring is less costly than the formal bankruptcy process, firms in default and their creditors have incentives to opt for informal renegotiations. By doing so, they can internalize these costs savings. However, the persistence in the use of the bankruptcy procedure shows that, although less costly, this type of arrangement is not always feasible.[5] Indeed, the tradeoff between the out-of-court and the court solutions is not straightforward and depends on a number of factors such as the classic common pool problem, the nature of the banking relationship, the presence of asymmetric information, the design of debt contracts and the national specificities of the bankruptcy law.

The case of United-States was investigated by Morrison (2008) who gathered firm-level data from Illinois (Cook County) to document the importance of non-bankruptcy procedures. The author theoretically and empirically studies the conditions under which a firm chooses federal bankruptcy law over non-bankruptcy state procedures. Unfortunately, little work has been done on this topic with regards to Europe. Recently, two studies [Franks and Sussman (2005) for the UK and Jostarndt and Sautner (2010) for Germany] have examined the variables that influence the creditors' and the debtor's strategies after default. These studies cover two of the most important European legal systems; the Common Law and the German Civil Law.

[4] See La Porta *et al*. (1997, 1998) for a classification of bankruptcy systems around the world.
[5] See Graph 1 in Appendix A1 for the distribution of corporate bankruptcies in France since 1990.

However, both systems have significant differences, especially with regards to the design of their bankruptcy codes. Surprisingly, no study has yet been performed on the French Civil Law. Yet, this legal system has inspired other important legislations in continental Europe such as Belgium and Luxembourg.[6]

This research contributes to the bankruptcy literature by examining the decision between an informal (out-of-court) renegotiation and a formal bankruptcy procedure for a sample of French firms in default. Unlike previous studies which model the default resolution as a static process (simple LOGIT or PROBIT approaches), we model it as a two-stage dynamic process. First, the debtor and its creditors must decide between engaging into an informal renegotiation in order to reach a new agreement on the firm's capital structure or filing for a formal bankruptcy procedure. Second, conditional on opting for the informal procedure, the renegotiation process may either succeed (informal agreement) or a fail (bankruptcy). Indeed, one can expect that the decision to undertake informal renegotiations is conditional on the expected outcome of the process. Thus, we propose a sequential LOGIT model that explicitly considers the two transitional stages, thus accounting for the accumulation of information during debt renegotiation.

We test for a number of hypotheses. The first hypothesis (H1) encompasses the coordination and bargaining problems that may arise after default. The "coordination argument" suggests that the chances to reach an informal agreement increases with the concentration of creditors, as those can coordinate more easily. The "bargaining power argument" suggests the opposite. Precisely, when a claimant has decisive bargaining power as it is the main creditor, the Court may have no other choice than taking a position that fits well the creditor's interests (for instance, continuation should not be decided without the main bank's support, as it would not be a viable solution). Thus, formal bankruptcy may be a solution desired by the (main) creditor, as it provides a standardized and secure framework having good chances to lead to the solution it prefers. Moreover, a creditor having strong bargaining power may be too greedy during negotiations, which may undermine the chances to reach an agreement. In a nutshell, there may be a tradeoff between these two arguments (coordination *vs.* bargaining). Later on, we suggest that – in the context of the French court-administered system – the "bargaining power argument"

[6] Luxembourg in known to attract most of the European investment funds due to its attractive legal environment, including its bankruptcy law.

may dominate the "coordination argument". The second hypothesis (H2) reflects the informational problems prevailing when a firm is in financial distress. These problems can be mitigated by the length of the banking relationship between the bank and the firm and the use of collateral which can act as a signaling device on the firm's type. We predict that the likelihood of an informal renegotiation increases with the length of the banking relationship and the level of collateral. The third hypothesis (H3) captures the impact of the firm's characteristics. We predict that the likelihood of an informal renegotiation increases with the firm's profitability and the manager's competence and reliability. Finally, the fourth hypothesis (H4) examines the role of the loan characteristics on the type of procedure used to resolve financial distress. This effect is captured by two variables; the size of the loan and the level of collateral. We predict that the probability of an informal workout increases with the size of the loans while the effect of collateral is undetermined and depends on the two factors: i) the strength of the banks' liquidation bias and ii) the severity in the application of the absolute priority rule.

The analysis is based on an original data set collected from five French commercial banks, located in the cities of Paris, Marseilles, and Reims.[7] All five banks represent around one fourth of the French banking sector in terms of market shares. Under the supervision of *Standard & Poor's Risk Solution*, the data was manually collected from the banks' recovery units. The sample includes 735 credit lines allocated to 386 distressed companies. Following the Basel II criteria, a firm is considered in "default" when the repayment delay exceeds 90 days. Our variables cover the firms' individual characteristics such as the company's profile, the causes of default, and the loan characteristics.

Our main findings are the following. First, the likelihood of opting for an informal renegotiation over bankruptcy increases with the size of the loan authorized to the firm and the percentage of long term debt. This suggests that renegotiation is more likely when the amount at stakes is important and when the bank and the debtor are engaged in strong long term lending relationship. Second, the probability a successful renegotiation decreases when the bank in charge of handling the default resolution process is the firm's main creditor. This suggests that the bargaining power argument dominates the coordination argument. In addition, badly rated

[7] This data set is the French part of a wider database (France, United-Kingdom, and Germany) examined by Davydenko and Franks (2008).

firms whose managers are considered as faulty also have a significantly lower chance of reaching a final agreement in an informal restructuring. However, these variables do not impact on the decision to enter into renegotiation. Third, the presence of mortgages and pledges does not have any effect on either stage of the game. Finally, we find that some banks are better than others are reaching a successful renegotiation agreement.

The article is organized as follows. Section 1 offers a quick review of the literature on the resolution of financial distress. Section 2 presents the different hypotheses to be tested in explaining the decision between informal renegotiation and formal bankruptcy. In Section 3, we discuss the data and present some descriptive statistics. Section 4 presents the econometric implementation of the sequential LOGIT estimation and the results. Section 5 concludes.

1. The resolution of financial distress

Strictly speaking, a firm is considered in financial distress when it cannot meet its current obligations as they come due. According to the Basel II criteria, a firm is in "default" when its scheduled payments are delayed for more than 90 days. If so, the debtor and its creditors must find a solution. There are basically two mechanisms for the resolution of financial distress. First, stakeholders can open up negotiations with the objective to arrive at an informal (out-of-court) restructuring of the firm's capital structure. Typically, this involves the reduction of current debt obligations or their postponement to a later date. Second, they can opt for a formal bankruptcy procedure in which the firm can either file for liquidation or reorganization under the supervision of the bankruptcy court. For instance, in the U.S., a firm can file for Chapter 7 (liquidation) or Chapter 11 (reorganization). In the later case, the firm files a plan of reorganization to be approved by creditors and confirmed by the court.[8] In the U.K, the bankruptcy procedure (administrative receivership, until 2003) is controlled by a secured creditor who appoints a receiver to take control of the firm in order to realize enough funds to repay the creditor's debt. In France, a firm in financial distress can opt for the *redressement judiciaire* whereby an administrator is appointed in order to find a solution to the firm's financial problems. His main objective is to i) preserve the firm as a going concern, ii) save jobs and iii) repay creditors.

[8] One should note that there has been an increasing use of pre-pack proposals over the recent years.

Following a detailed analysis of the firm's financial health, a judge then decides whether the firm should be piecemeal liquidated, ceased as a going concern[9], or reorganized through a continuation plan. Creditors have no say in the judge's decision.

According to Haugen and Senbet (1978), Roe (1983) and Jensen (1989, 1991), given that informal restructuring (workout agreement) is less costly than formal restructuring under the protection of bankruptcy law, both distressed firms and their creditors should opt for the former solution in order to internalize the cost difference, which could then be shared. There exists some empirical evidence to document this prediction. Gilson, John and Lang (1990) examined 18 exchange offers of publicly traded firm and estimated that the costs of informal workout represented 0.65% (median of 0.32%) of the book value of assets. Based on a sample of 29 exchange offers, Betker (1997) reports a mean direct cost of 2.5% (median 2%) of pre-restructurings total assets. These are typically lower than direct bankruptcy costs associated with a court-supervised procedure [see for instance, Ang, Chua and McConnell (1982), White (1989), Biais, Hillion, and Malécot (1995)]. Finally, informal workouts are also known to be faster than a court-supervised procedure, involving lower indirect costs.[10]

There is still a lot to be learned on the structure of informal workouts and the extent to which it is used by firms in financial distress. Unlike formal bankruptcy procedures, negotiations leading to workouts are often confidential in order to preserve the company's ongoing activity and its goodwill. They ensure confidentiality on the financial difficulties encountered by the firm, and preserve the creditors' confidence and the firm's image for investors and the public. For instance, Chatterjee, Dhillon, and Ramirez (1995) find less negative abnormal returns for announcements of workouts than for Chapter 11 filings. Gilson, John, and Lang (1990) find that stock returns are more negative for firms that subsequently file for Chapter 11. This represents evidence that the market is able to identify firms that will successfully renegotiate its debt. In addition, Franks and Torous (1994) report that firms that successfully reach a workout agreement with their creditors are more solvent and more liquid than firms emerging from court-supervised

[9] Sales as a going concern are in-between liquidations and reorganizations: on the one hand, assets are sold as a whole to a buyer, and managers are excluded from the company. On the other hand, the business goes on, and some of the job positions might be preserved. Until 2005, sales were viewed as a way to reorganize bankrupt firms. Since the 2005 reform, sales are assimilated to liquidation procedures.

[10] See Hotchkiss, John, Mooradian and Thornburn (2008) for a complete survey of bankruptcy costs in the U.S.

restructuring. They also find evidence that senior creditors in private workouts are ready to forego some of their priorities to junior creditors, which illustrates the importance of bargaining in the context of a workout agreement.

Yet, a large number of firms end up in a formal bankruptcy procedure. There are a number of reasons which explain this outcome and they are linked to the impediments to reaching an informal agreement. Indeed, there are well known conditions under which a private workout is the efficient solution to financial distress: i) perfect coordination, ii) complete contracts, and iii) symmetric information. However, in practice, these conditions may not be satisfied which makes an informal agreement more unlikely.

A first impediment to informal workout is the presence of coordination issues due to the dispersion of creditors. Studies by Bulow and Shoven (1978), Gertner and Scharsfstein (1991), Franks and Torous (1991), Roe (1987) and White (1989) have illustrated the problems arising in a multi-creditors context. First, this gives rise to holdout problems whereby each individual creditor has an incentive to holdout, hoping that the rest of the creditors accept the agreement. This is particularly important in the case of a public debt restructuring in which a new agreement on the interest rate, extension of maturity and the principal requires unanimity. By holding out, a creditor hopes to increase the relative value of its claims in the event that the agreement is signed by all other parties. As pointed out by Grossman and Hart (1981), this effect might be stronger for lower rank creditors (individual bondholders and trade creditors), who may feel that their decision to hold out has little impact on the outcome of the restructuring process. Thus, given that each creditor has the same incentives, negotiations may fail. According to Blazy and Chopard (2004), such free-riding incentives could be reduced if the bankruptcy law was to allow some deviation from absolute priority rule. These deviations could then be internalized through the private negotiation process [Friedman and Viswanath (1994)].[11] One should note that this coordination issue is not strictly speaking linked to the number of creditors involved in the bankruptcy procedure but rather to the bargaining power of a single creditor or a group of creditors. Indeed, even in the presence of numerous creditors, coordination issues may easily be solved if a large single creditor or a group of creditors has sufficient bargaining power to impose a settlement on the rest of creditors.

[11] See Weiss (1990) and Franks and Torous (1989, 1991) for evidence of APR deviations.

The presence of many creditors may also lead to the formation of coalitions and conflicts of interests. For instance, managers, representing equity holders, may have incentives to form a coalition with the bank in order to extract a rent from bondholders [Bulow & Shoven (1978)]. In addition, different classes of creditors may have different preferences on the outcome of the negotiation process and this may lead to a common pool problem and a race for the firm's assets by individual creditors. In such a case, reaching an agreement that suits all parties may become impossible.

A second impediment to informal workout is the incompleteness of contracts. As argued by Hart (1995), complete contracts are difficult and costly to enforce because assets and cash-flows may vary over time, in which case contracts would need to be continuously adjusted. Given these difficulties, it may be impossible to design a contract that would specify the most appropriate procedure to follow in every state of nature. Hence, contracts are by definition incomplete. From that perspective, the implementation of a centralized legal procedure, arbitrated and supervised by a judge might facilitate the implementation of necessary adjustments when unexpected states of the world arise.

Finally, a third impediment to informal workout is the presence of asymmetric information. The main issue at stake in a restructuring is the firm's value. It is generally accepted that managers are better informed about the value of the firm's assets and future cash flows than outside creditors and investors (Myers and Majluf (1984)). This informational advantage may then be used by managers to extract a rent from creditors. In this context, Giammarino (1989) and Mooradian (1994) have showed that poorly informed creditors may prefer a formal court-supervised restructuring, and more costly process to an informal workout. According to Carapeto (2005), the presence of information asymmetry can lead to extended bargaining, requiring several rounds of negotiations before any agreement can be reached. Hence, from a creditors' point of view, the existence of uncertainty on the firm's value can convince them to opt for a costly bankruptcy procedure in which they would get better and more accurate information on the true value of the firm. An alternative point of view has been suggested by Hotchkiss and Mooradian (2003) who show that in the context of bankruptcy auctions, a combined bid for the firm by a

coalition of the management and creditors may convey positive information to outside investors about the firm's true value.

There exists some empirical evidence on the theoretical difficulties of reaching an agreement in an informal setting. Gilson, John, and Lang (1990) who examined a sample of 169 financially distressed firms report that 53 percent fail to restructure privately. Franks and Torous (1994) find similar results. According to Jensen (1991), the legal environment in which informal workouts are conducted may partly explain the decline in the relative use of private workouts. The author cites the example of the LTV Corp. bankruptcy case, where the court held that the debtholders who initially participated in the out-of-court restructuring were only compensated for the reduced claim they have agreed upon in the agreement whereas debtholders who holdout, received the full amount of their original claim. This decision was expected to have a negative impact on the creditors' behavior and might reinforce their incentives to holdout during informal workouts.

Although there are real impediments to informal workouts, there are means by which they can be mitigated. Gilson, John and Lang (1990), show that negotiations in informal workouts are more likely to succeed when firms have closer relationships with their bank and deal with a smaller pool of banks. The authors also find that the firms with a larger proportion of intangible assets prefer informal workouts to a formal restructuring procedure in which they have a higher chance of losing firm value through fire sales or loss of customers. In addition, they suggest that the likelihood of reaching an informal workout agreement increases when the firm has fewer categories of debt, especially if there is a high proportion of long term bank debt. Indeed, a smaller number of debt categories and more debt owed to banks, which are assumed to be better informed, have a positive impact on the outcome of the negotiations. James (1995) and Asquith, Gertner, and Scharfstein (1994) also claim that presence of public debt, as opposed to private bank debt, may hinder the workout process. Chatterjee, Dhillon, and Ramirez (1995) show that the choice of out-of-court restructuring depends on the firm's debt level, its short term liquidity and the probability of occurrence of coordination problems among creditors. Finally, a number of studies examined the case of Japan known for the importance of its banking relationships. According to Hoshi, Kashyap, and Scharfstein (1990), the relationship between firms with strong ties (*keiretsu*) and a main bank reduces agency costs and allow these firms to sustain a higher

bank debt to asset ratio. For Kaplan & Minton (1994), the main bank plays a very important role in monitoring firms and thus serves as an alternative corporate governance mechanism. This is especially valid in period of financial distress [Kang & Shivdasani (1995)]. However, as pointed out by Peek & Rosengren (2005), the strong banking relationship in Japan can also generate perverse incentives for banks to continue lending to weak firms.

It is now clear that the choice between informal negotiations (workout) and a formal bankruptcy procedure depends on a number of factors and that there may be reasons why stakeholders may opt for the more costly formal procedure. The next section develops a number of theoretical hypotheses proposed in the literature which could explain that decision.

2. Hypotheses

This section reviews the main theoretical arguments and proposes a number of hypotheses relative to the determinants of financial distress resolution. These hypotheses highlight the role of the firm's characteristics, the type of debt contract(s), the specificities of the relationship between the firm and the bank, and the legal environment governing corporate bankruptcy.

Hypothesis 1: Coordination *vs*. Bargaining Power

One common view in the bankruptcy literature is that formal bankruptcy can minimize the coordination problems arising during debt restructuring. According to Jackson (1986), "*The basic problem that bankruptcy law is designed to handle, both as a normative matter and as a positive matter, is that the system of individual creditor remedies may be bad for the creditors as a group when there are not enough assets to go around. Because creditors have conflicting rights, there is a tendency in their debt-collection efforts to make a bad situation worse. Bankruptcy law responds to this problem.*"

By freezing the creditors' individual rights ("stay of claims") and by defining coordinated decision mechanisms (creditors' vote, court's judgment, etc.), bankruptcy procedures offer a collective way to avoid the common property problem and allow for a fair valuation of the firm's

assets and the creditors' rights in order to maximize the value of the firm. Unlike a formal bankruptcy procedure, informal negotiations, which rely mostly on consensus or unanimity, do not require a similar type of collective process, in which case conflicts of interests may hinder the resolution of financial distress.

As previously mentioned, a number of studies have shown that informal workouts are more likely when there are fewer classes of creditors and when a large portion of long term debt is held by banks. From that perspective, debt restructuring through a private workout is easier to reach when the creditors are less dispersed. Thus, we expect coordination problems to be less acute when there are fewer categories of claimants in the absolute priority rule (APR). One should note that we focus on the *concentration* of creditors rather than on the *number* of creditors, which may not be sufficient to capture the nature of the coordination issue. We can now state our first hypothesis (H1A).

H1A (Coordination): The probability of an informal renegotiation increases with the concentration of creditors.

A recent study made on Belgium (Dewaelheyns and Van Hulle (2009)[12]) suggests a different view and claims that "*the bank may be less supportive (…) if the chances that substantial value may be lost in the future are high. In practice, reorganization is unfeasible without bank support*". This argument interestingly sheds light on the bargaining power that some important creditors may have over the debtor's fate. Consider this argument for France, where the bankruptcy procedures are mainly handled by a judge and where the creditors do not vote on the final outcome.[13] Consider now a distressed firm with several debtholders, one of them being the

[12] Our approach differs from this study in several respects. First, Dewaelheynes and Van Hulle (2009) rather focus on the time before reorganization terminates. Second, their sample is restricted to formal reorganization procedures, whereas our sample encompasses both informal reorganization attempts and formal bankruptcy procedures. These remarks being made, we still believe that both our approaches are close to each other. Indeed, the authors do not only model the accelerated failure time (which is the conditional probability that the reorganizing company is transferred to liquidation). Precisely, as their sample also contains firms that eventually survived the procedure, the authors estimate a LOGISTIC-Weibull mixture cure model that simultaneously estimates the probability that a firm is not successful (*i.e.* liquidated) and the duration spent in the procedure. In a nutshell, their approach takes into account that the companies that eventually survived the reorganization procedure were initially at risk of being liquidated. Thus, similarly to our approach, Dewaelheynes and Van Hulle (2009) also model the probability to reorganize.

[13] This prevails for the period under study. In 2005, a new voting procedure was introduced for large firms in reorganization. Yet, this vote remains under the supervision of a judge and applies for the biggest files only (*i.e.* firms having more than 150 employees and generating a turnover superior to 50M€).

main creditor, *i.e.* a bank whose financial support is compulsory to allow for continuation. Given its decisive role in the firm's financing and the absence of any alternative financing resources, one can expect the judge to take a position that reflects the main bank's own interests. In particular, continuation should not be decided without the bank's support. Thus, from the (main) bank's point of view, formal bankruptcy may be a suitable solution, as it provides a standardized and secure framework having good chances to lead to the solution preferred by bank.

In addition, one could be argued that, if a firm is financed by one main creditor with strong bargaining power, the latter may be too greedy during negotiations, and thus force the firm to opt for formal bankruptcy.[14]

These arguments provide an alternative hypothesis to H1A.

H1B (Bargaining): The probability of informal renegotiation decreases with the concentration of creditors.

Based on our analysis of the French bankruptcy system, we conjecture that the bargaining argument (H1B) dominates the coordination argument (H1A). However, this remains a matter of empirical verification.

Hypothesis 2: Information

Most theoretical works in economics and finance are based on the assumption that the banks and investors have less information than managers on the firm's prospects, thus generating adverse selection [Stiglitz and Weiss (1981), Myers & Majluf (1984)] and moral hazard problems [De Meza and Webb (1987)]. Adverse selection stems from the bank's inability to observe the quality of the project to be financed. Moral hazard is associated to the debtor's opportunistic behavior. Namely, once the funds have been granted to the firm, the debtor may not provide the optimal level of effort or invest in riskier projects.

There are different means by which these two problems can be mitigated. First, information asymmetry is less severe when the firm and the bank have been involved in a long term credit relationship. *Ceteris paribus*, being more informed should increase the likelihood of

[14] This argument is especially true for countries such as France which have debtor friendly bankruptcy laws.

an informal renegotiation since there is less need to trigger bankruptcy and pay the associated costs in order to discover information [Webb (1987)]. In addition, reputation and trust are built over time in the context of a long and stable financial relationship. Triggering bankruptcy may break that trust and reputation and destroy such accumulated value.

H2A: The probability of informal renegotiation increases with the duration of the banking relationship.

Second, collateral can be used as a signaling device by "high quality" borrowers in order to separate themselves from "low quality" borrowers. Indeed, the use of collateral is assumed to be more costly for "low quality" borrowers having a higher risk of default and hence more likely to lose their collateral [Bester (1985, 1987), Besanko and Thakor (1987)]. In addition, collateral can be used to reduce moral hazard problems and align the firm's and the bank's interests. This is all the more true when the managers have incentives to switch projects and may consider riskier investments. Here, personal guarantees on the manager's patrimony are convenient tools that make the manager less risk-lover since a higher value of collaterals imposes a greater loss in the event of default. This incentive effect is expected to be stronger for outside collateral [Bester (1994), Boot, Thakor and Udell (1991), Hainz (2003)]. In a nutshell, the use of collaterals is a powerful way to gather information when the bank is under-informed about the quality of its borrowers. *Ceteris paribus*, better information should ease the renegotiation process.

H2B: The probability of informal renegotiation increases with the presence of collaterals.

One should note that this argument has been challenged by Berger and Udell (1990) and Jimenez, Salas and Saurina (2006) who argue that banks have sufficient information (financial reports, movements on the bank account, random audits…) to sort adequately their borrowers. For instance, banks use credit scoring to assess a firm's default probability and screen between good and bad firms. This argument is known as the "risk-observed hypothesis". More recently, Ono and Uesugi (2009) in their study of Japanese SMEs loan market found no evidence of a relationship between firm's riskiness and the use of collateral. Finally, as discussed below, the

use of collateral can generate conflicting incentives regarding the bank's willingness to participate in a renegotiation.

Hypothesis 3: Firm's characteristics

The likelihood of opting for informal renegotiation also depends on a number of firm's specific factors such as i) the firm's profitability and ii) the managers' competency/reliability to engage in restructuring. Both factors are expected to be key elements in a successful renegotiation. First, an increase in profitability is synonym for higher cash flows if the firm is restructured and a lower probability of default in the future. Second, competent and reliable managers are more likely to be in a position to successfully restructure their firm in the context of an informal workout. Therefore, we can make the following hypotheses.

H3A: The probability of informal renegotiation increases with the firm's profitability.

H3B: The probability of informal renegotiation increases with the manager's competency and reliability.

Hypothesis 4: Loans' characteristics

In addition to the above factors, we conjecture that the likelihood of informal renegotiation may depend on the loan characteristics, in particular on the amount of the loan (or maximum value of loan authorized) and the level of collateral granted by the firm. These two variables are related to the "expected loss" (EL) notion defined by the Basel 2 agreement.[15]

Let us first examine the impact of the loan value. One can expect the bank's behavior to depend on the size of the loan. Indeed, a bank may be more favorable to informal renegotiation when its stakes in the firms are large.[16] There are two main reasons for this. First, given that bankruptcy costs are positively related to firm size, the cost savings from informal renegotiation also increases with firm size. Second, formal bankruptcy provides a standardized way of

[15] According the first pillar of the Basel 2 agreement, the expected loss is the combined product of three elements: i) probability of default, ii) exposure at default and iii) loss given default.

[16] Banks also have more incentives to invest time and money to gather information about the debtors as the size of the loan increases.

resolving distress irrespective of the firm's size whereas informal negotiations may be more flexible and adequate for large and complex cases.

H4A: The probability of informal renegotiation increases with the size of the loan.

One can also expect the likelihood of renegotiation to be linked with the bank's involvement in the firm's long term financing.

H4B: The probability of informal renegotiation increases with the proportion of long term debt in total debt.

Second, the use of collateral is likely to have opposite effects on the likelihood of an informal workout. On the one hand, as previously mentioned, collateral can be used to mitigate information asymmetries between the bank and the firm.[17] On the other hand, it provides protection for the bank in the event of bankruptcy. Indeed, financial distress generally implies that all the creditors cannot be repaid in full. Secured creditors are expected to have a strong liquidation bias, especially if their loans are fully secured. Several theoretical and empirical works pointed out this bias. For instance, Blazy and Chopard (2012) find that the preference of secured creditors for reorganization over liquidation depends on a number of variables including the level of collateralization. Other recent empirical works confirm that the likelihood of reorganization is negatively correlated with the importance of secured creditors [Ayotte and Morrison (2009), Bergström, Eisenberg and Sundgren (2002), Fisher and Martel (2009)]. As a consequence, the presence of secured creditors may reduce the collective effort to maintain a distressed firm in operation [Frouté (2007)].

However, this effect depends on the bank's position in the absolute priority rule. Indeed, a strict application of the APR in which secured (banking) claims are well protected may reduce the bank's incentives to try to achieve an agreement. Inversely, bankruptcy codes which allow for deviations from the APR may reduce the attractiveness of bankruptcy procedures and force the parties to enter into informal negotiations in order to reach an out-of-court settlement. As pointed out by Davydenko and Franks (2008), the French bankruptcy law offers a weak protection to secured claims at the expense of a greater protection for social claims. Consequently, the secured

[17] See Hyp. H2B.

creditors may wish to avoid bankruptcy if they anticipate strong competition with other creditors being more protected by the law. Depending on the relative strength of these factors, we can make two rival hypotheses:

H4C: The probability of informal renegotiation increases with collateralization if the bank has no liquidation bias and/or the deviations from the APR are high.

H4D: The probability of informal renegotiation decreases with collateralization if the bank has a liquidation bias and/or deviations from the APR are moderate.

3. Data analysis

3.1. Presentation of the data

The data are hand-collected from the recovery units of five French commercial banks.[18] These five banks account for one fourth of the French banking market (in terms of market shares). The French banking sector is composed of large national banks and small regional banks. Our sample reflects this distribution with one major French bank (among the three largest bank at the time of the data collection) and four smaller banks operating mostly in three geographical areas: Paris, south of France (Marseille) and east of France (Reims).[19] The files were analyzed using a standardized template reporting information on each firm and their credit lines. The files were randomly selected among the population of closed files (*i.e.* files with definitive repayment irrespective of the outcome) of firms in default between 1988 and 2004 for loans granted between 1984 and 2001 (see appendix A2 for the time distribution of the sample). By considering rather long-standing data, we are able to compute definitive recovery rates. Indeed, the recovery process may take up to 10 year to be complete.

[18] The data collection process was financed and supervised by *Standard & Poors' Risk Solution* as a part of a wider research program on France, United-Kingdom, and Germany [see Davydenko and Franks (2008)]. Our sample excludes one French bank considered by Davydenko and Franks (due to lack of information on several explanatory variables), but includes more precise data on French regional banks. Our sample does not consider Credit Lyonnais that was affected by too specific issues during this period of time.

[19] The data were collected between 2002 and 2004. Due to confidentiality commitment, the banks' identity cannot be revealed. However, the distribution of default cases in our sample is the following: 25% from bank n°1, 23% from bank n°2, 14% from bank n°3, 28% from bank n°4, and 10% from bank n°5.

This period of time covers the 1985 and 1994 French bankruptcy laws which are very similar. Under these legislations, one unified bankruptcy procedure prevails that may end up with three main outcomes. The Court has the sole power to decide between these outcomes (the creditors do not vote). Namely, the firm may be piecemeal liquidated ("*liquidation judiciaire*"), either immediately or after an observation period. The firm may also be reorganized through a continuation plan or ceased as a going concern (both outcomes corresponds to the "*redressement judiciaire*"). Let us stress that our sample does not encompass the latest bankruptcy reform (26th of July 2005). Yet, as shown in Appendix A3, the *pre* / *post*-2005 French bankruptcy legislations show many similarities. The major difference stems from the introduction of a new procedure (named "*sauvegarde*") in the legal framework. This latter procedure is close to French "*redressement judiciaire*" as it aims at preparing a reorganization plan. However, the "*sauvegarde*" procedure is restricted to solvent firms only, *i.e.* firms showing first signs of difficulties but being still solvent. As our study focuses on default firms only, we do not consider "*sauvegarde*" cases. Now, the other procedures (namely "*redressement judiciaire*" and "*liquidation judiciaire*") both prevail in the *pre*- and *post*- 2005 frameworks, and follow similar rules (stay of claims, court-supervised procedure, deviations of priority in favor of the employees and of the bankruptcy practitioners…). Yet, there are two main differences between both legislations, but those are unlikely to change our results. First, sales as a going concern are now viewed as liquidation files. However, the consequences for the creditors are similar than before 2005 (for instance, the sale price remains the definitive basis for the creditors' repayment). Second, since 2005, the creditors may vote under "*redressement judiciaire*" via the implementation of creditors' committees. Yet, those are restricted to the biggest files only: *i.e.* for firms having more than 150 employees and generating a turnover superior to 20M€. For all the other firms, the creditors do not vote, and the court remains the sole decision-maker.[20] Our sample is mainly made of SMEs (the median number of employees and median turnover respectively range between 11 and 28 employees and between 1.5 and 3.1 M€: see Table). Those figures are far below the thresholds required to settle creditors' committees, so that our files would not benefit from any vote procedure, even after the 2005 reform. For all these reasons, we believe that our results are still relevant in the new legal framework.

[20] Additionally, even in the presence of creditors' committees, the Court still has the power to impose a reorganization plan that was not supported by the creditors.

Default is defined by the Basel II criteria which states that a firm is considered ~~as~~ in "default" when the delays on its financial commitments exceed 90 days.[21] Overall, our sample includes 735 credit lines allocated to 386 French distressed firms (excluding agricultural and financial companies). After eliminating files with incomplete or incoherent data, the sample contains 282 distressed SMEs.[22] Those are used for the descriptive statistics. For the econometric estimations, 49 observations (out of 282) have some missing information on the set of explanatory variables (for instance, the number of employees), so that the final sample used for econometrics contains 233 observations.

The information stems from a systematic analysis of the files kept in each bank's recovery unit. This was then completed by individual interviews with the bank's employees in charge of handling the individual files. Our data cover (see Appendix A4 for a complete description):

i) Bank's indentification. A dummy variable is associated to each bank in order to capture differences in commercial policy, internal organization, risk and capitalization.

ii) Firm's profile. Age, industry, last financial accounts (balance sheet and turnover when available) at default, legal form (limited liability or not) and a dummy variable if the firm belongs to a group. Additionally, we have information on the firm's last rating before default (either computed internally by the bank itself or provided by the *Banque de France*). A dummy is used to capture the firm's rating at default time, with three possibilities: *good rating* (*i.e.* the firm was rated as "safe"), *bad rating* (*i.e.* the firm was rated as "doubtful" or "in worrying state"), and *no rating* (*i.e.* the bank had no available rating on the firm).

iii) Faulty management. The internal reports provided by the recovery units contain a detailed description of the origin(s) of default. These were classified in six categories: i) asset substitution, ii) voluntary excessive risk taking, iii) private abuse of the company's assets, iv) tricky behavior and swindle, v) accounts falsification, and vi) financial fraud. This classification was then used to identify the defaults due to faulty management.

[21] Our dataset is made of firms that have already had their default recognized. Thus, there might be some selection bias as the process of sending the firm to the recovery unit is a decision in itself. Yet, in the context of Basel II, the notion of default is relatively standardized, and the decision to send a file to the recovery unit should not differ too much from one bank to another.

[22] All firms in the sample have liabilities in excess of 100 K€.

iv) Banking relationship. Using the file information, we build a dummy variable defined as "*bank main creditor*" which is equal to 1 whenever the recovery unit of a bank considers that it is the firm's main creditor (in terms of sources of financing and/or of relative bargaining power), and 0 otherwise. This is classification is based on the subjective appreciation of the employees handing the file. In addition, we collected information on the duration of the banking relation (years).

v) Types of credit lines. A firm may have several credit lines with the same bank. Thus, for each firm, we aggregated the different credit lines in order to have a better picture of their loan structure, in particular on the long and short term loans granted by the bank, the overall authorized amounts, the level of recoveries, and the collateralization rate. Regarding the later, collaterals were categorized in five groups: i) personal guarantees from individuals, ii) personal guarantees from firms, iii) pledges, iv) mortgages, v) other collaterals.[23] In the econometric models, we consider either the presence of collaterals (dummy variable), or their amount (in log), or their relative magnitude (as a percentage of the due amounts).

Tables 1 and 2 provide some stylized facts on our sample. Table 1 compares the firms who opted for formal bankruptcy with those that attempted (successfully or not) an informal renegotiation. Table 2 focuses on the sample of renegotiation attempts and offers a comparative analysis between the firms that failed and those that succeeded to renegotiate.

3.2. Direct bankruptcies *vs*. renegotiation attempts

Out of our total sample of 282 firms, 65% of firms opted for formal bankruptcy while 35% chose an informal renegotiation. When looking at Table 1, the first striking feature is that, although firms opting for renegotiation appear to differ from those in bankruptcy from a financial point of view, none of the relevant variables are statistically different. For instance, the mean value of total assets, total debt, turnover, and number of employees is two to three times larger for firms in informal renegotiation than for those in formal bankruptcies. Yet, a simple test of

[23] These other collaterals ("*lettre d'intention*", "*subrogation dans le privilège*", "*retenue sur bordereau*", "*privilège de prêteur de deniers immobilier*"…) are case-specific and very heterogeneous. We thus decided not to include them in the econometric models, and focused the analysis to the most commonly used collaterals (*i.e.* personal guarantees, pledges, and mortgages).

difference in means reveals that, except for the number of employees, they are not statistically significant. This is confirmed by looking at the median values which are similar across the two samples. Both types of firms logically exhibit negative net cash (*i.e.* cash minus short term bank debt) at the time of default, although this problem seems to be a bit less severe for firms in renegotiation.

Yet, the two samples exhibit some significant differences on a number of important aspects. Let's examine the variables related to loan characteristics and duration of the resolution process. First, the maximum authorized loans is significantly larger for informal renegotiations (mean of 1 million €) than for formal bankruptcies (426 000 €). This suggests that the firms opting for renegotiation have access to more banking resources than those filing for bankruptcy. It also reflects the fact that stakeholders are more incline to renegotiate when the amounts at stake are high. This is consistent with hypothesis H4A. Second, firms opting for bankruptcy exhibit a significantly higher collateralization rate than those in renegotiation which is consistent with hypothesis H4D which states that banks may turn more easily towards bankruptcy when their loans are more secured. This is also consistent with the argument that high collateralization may reduce the *ex ante* incentives to monitor the firm [Manove, Padilla and Pagano (2001)]. Third, the recovery rate on loans for firms in informal renegotiation (63%) is significantly higher than on loans of bankrupt firms (44%). This suggests that, on average, informal renegotiations minimize the bank's loss given default. This may also reflect the inefficiency of the French bankruptcy code in maximizing the recovery to creditors [see Blazy, Chopard, and Nigam (2013)]. Fourth, as could be expected, resolution of financial distress is significantly longer (6 months) for firms in informal renegotiation than firms in bankruptcy.[24]

[24] "Duration" measures the time period (in years) from the date when the bank considers the firm to be in default and the date when the file is closed by the recovery unit (either because an agreement was reached or because the bankruptcy procedure was terminated). This does not include the extra time necessary to recover the due claims (*i.e.* when all the proceeds are recovered).

Table 1. Characteristics of firms in bankruptcy and renegotiation

	Direct bankruptcy			Renegotiation attempt		
	#obs.	Mean	Median	# obs.	Mean	Median
Firm's characteristics						
Nb. Employees*	138	59.4	21.5	48	201.5	16.5
Age (years)	183	15.0	9.8	99	17.0	8.1
Firm belongs to a group (%)	183	45.4%	-	99	39.4%	-
Limited liability (%)***	183	92.3%	-	99	81.8%	-
Commerce (%)	183	36.1%	-	99	34.3%	-
Industry (%)**	183	31.1%	-	99	19.2%	-
Services (%)***	183	26.2%	-	99	41.4%	-
Other sectors (%)	183	6.6%	-	99	5.1%	-
Financial accounts						
Total assets (K €)	93	7 480	2 317	60	17 612	2 255
Total debt (K €)	91	5 744	2 118	60	11 889	2 060
Total assets / total debt	91	1.2	1.15	60	1.3	1.16
Long term debt (K €)	90	853	377	60	5 085	492
Short term bank debt (K €)	89	1 508	288	60	1 155	234
Trade debt (K €)	91	2 474	642	60	2 992	547
Long term debt / total debt (%)	90	26.4%	19.0%	60	30.1%	25.0%
Short term debt / total debt (%)	90	73.5%	60.0%	60	69.8%	48.0%
Cash (K €)	91	259	29	60	1 116	25
Net cash (K €)	91	-1 249	-176	60	-39	-125
Turnover (K €)	92	9 377	3 128	60	18 496	2 007
Turnover / total assets	91	1.7	1.32	60	1.3	1.05
Banking relation						
Bank is the main creditor (%)	165	57%	-	99	52.7%	-
Duration of bank's relationship (years)	183	6.7	4.3	99	7.4	4.6
Information on the origin of default						
Bad rating at time of default (%)	183	39.9%	-	99	44.4%	-
Faulty management (%)	183	19.1%	-	99	19.2%	-
Loan's characteristics and duration of the resolution of default						
Maximum loan authorized (K €)***	183	426	275	99	1 005	381
Collateralization rate (%) *	183	171.6%	100.0%	99	104.5%	100.0%
Recovery rate (%)***	183	43.7%	30.2%	99	62.9%	76.2%
Duration of default resolution (years)***	183	1.0	0.8	99	1.5	1.0

Note: *, **, and *** respectively indicate a statistically significant difference in mean values at 10%, 5%, and 1% level (Fisher tests). We also ran non-parametric Wilcoxon tests on these variables. The results are similar than with the Fisher tests, except for the number of employees and for the collateralization rate, which are not significant.

Table 1 also highlights important features in firms' characteristics. The vast majority of firms has limited liability status, the proportion being significantly higher for firms opting for

bankruptcy (92%) than for an informal renegotiation (82%). This is consistent with the fact that fully liable investors have stronger incentives to avoid bankruptcy since the legal procedure can be extended to their own patrimony. The proportion of firms operating in the *services* is significantly higher (41% *vs*. 26%) for the renegotiation sub-sample but the inverse holds for the proportion of firms in the *industry*. More than 40% of firms in the sample belong to a group, the proportion being similar across the two samples. Almost one out of five financial distress procedures involve faulty management. Consistent with expectations, over 40% of firms report bad ratings.

The majority of firms has one bank as a main creditor, the proportion being slightly lower for firms in renegotiation. This finding is consistent with the fact that SMEs have limited access to financial markets and rely heavily on a single bank to finance their operations. This is even more so in a bank-oriented country like France with a highly concentrated banking sector. The average duration of the credit relationship between the debtor and its main bank is around 7 years with little difference across sub-samples. One should note that this duration is about half of the firm's life (around 15 years), which means that the firm's main bank has been supporting the debtor's activity for half of its lifetime. It also confirms that firms in our sample are not pure start-ups since they are, on average, 7 years old at the beginning of the relationship. This could be explained by two factors. First, there exists a positive correlation between age and loan size. Our sample includes only firms with liabilities in excess of 100 K€, therefore excluding younger firms with smaller loans. Second, in France, start-up businesses of less than 2 to 5 years of age are mainly financed by specialized loans, in particular by OSEO which is a public financial institution, rather than traditional loans.[25]

3.3. Successful *vs*. failed renegotiations

The next step in the data analysis focuses on the sample of firms engaged into an informal renegotiation and examines whether or not there are differences in the characteristics of firms that failed compared to those that succeeded in their renegotiation attempt.

[25] The OSEO's updated website is: http://www.bpifrance.fr/

Table 2. Characteristics of Firms in Renegotiation by Outcome (Success or Failure)

	Failed renegotiation			Successful renegotiation		
	#obs.	Mean	Median	# obs.	Mean	Median
Firm's characteristics						
Nb. Employees*	32	30.7	11.0	16	543.3	27.5
Age (years)	45	16.6	7.3	54	17.3	8.3
Firm belong to a group (%)	45	40.0%	-	54	38.9%	-
Limited liability (%)	45	86.7%	-	54	77.8%	-
Commerce (%)*	45	44.4%	-	54	25.9%	-
Industry (%)	45	20.0%	-	54	18.5%	-
Services (%)**	45	28.9%	-	54	51.9%	-
Other sectors (%)	45	6.7%	-	54	3.7%	-
Financial accounts						
Total assets (K €)	23	3 044	1 856	37	26 273	2 248
Total debt (K €)	23	3 023	1 758	37	17 161	2 211
Total assets / total debt***	23	1.0	1.05	37	1.4	1.3
Long term debt (K €)	23	581	311	37	7 763	617
Short term bank debt (K €)	23	527	200	37	1 528	268
Trade debt (K €)	23	1 215	447	37	4 048	637
Long term debt / total debt (%)	23	27.0%	25.0%	37	31.9%	21.6%
Short term debt / total debt (%)	23	72.9%	56.0%	37	68.0%	46.8%
Cash (K €)	23	136	10	37	1 699	37
Net cash (K €)	23	-391	-147	37	170	-90
Turnover (K €)	23	6 171	1 517	37	25 825	2 302
Turnover / total assets	23	1.4	1.18	37	1.2	0.99
Banking relation						
Bank is the main creditor (%)	44	59.1%	-	49	46.9%	-
Duration of bank's relationship (years)	45	7.5	4.4	54	7.3	5.0
Information on the origin of default						
Bad rating at time of default (%)	45	42.2%	-	54	46.3%	-
Faulty management (%)*	45	26.7%	-	54	13.0%	-
Loan's characteristics and duration of the resolution of default						
Maximum loan authorized (K €)	45	752	301	54	1 216	559
Collateralization rate (%)	45	108.1%	100.0%	54	101.5%	85.8%
Recovery rate (%)***	45	48.0%	51.1%	54	75.3%	85.8%
Duration of default resolution (years)***	45	2.1	1.3	54	1.0	0.83

Note: *, **, and *** indicate a statistically significant difference in mean values at 10%, 5%, and 1% level.

To our knowledge, little has been done in this area since most of the studies have looked at the firm's decision between formal bankruptcy and informal renegotiation or between liquidation and reorganization [Fisher and Martel (2009)]. The closest studies have been conducted by Fisher and Martel (1995, 2012) and Martel (2003) who examine the determinants

of the creditors' decision in court-supervised reorganization and the outcome (success vs. failure) of reorganization plans in Canada. According to these studies, between 70 to 80% of court-supervised reorganization procedures are successful with firms exiting the bankruptcy process with a new capital structure. In addition, they find that the likelihood of success increases with the proportion of secured claims and the proportion of short term payments to creditors, which is interpreted as a signal of the firm's quality.

According to our sample, 55% of the firms that entered into an informal renegotiation process succeeded in reaching an agreement while 45% failed. Table 2 reports the same information as Table 1 but only for firms in informal renegotiation and compares the characteristics of those that failed from those that succeeded. Similar to Table 1, with the exception of the assets to liabilities ratio, there is no statistical difference in the financial characteristics of firms that failed and succeeded in renegotiation. Yet, the data suggests that size matters in determining the outcome of renegotiation. Although the is no statistical difference in the total value of assets and liabilities, firms that successfully reorganized have almost 18 times more employees than those that failed. The result on the assets to liabilities ratio also indicates that firms succeeding in renegotiation are in better financial health than those failing.

Successful informal renegotiation offer, on average, a higher recovery rate on their loan (75% vs. 48%) and spend less time in the negotiation process (1 vs. 2 years) than those that failed. As pointed in the literature [Wruck (1990), Franks and Torous (1989) and Thornburn (2000)], the time in bankruptcy can be used as a proxy for indirect bankruptcy costs. Given that that failed renegotiations are more costly than successful ones, banks have strong incentives to accurately evaluate the likelihood of reaching an agreement with the debtor prior to opening up the negotiations. A low *ex ante* probability of success should thus favor formal bankruptcy in order to minimize the indirect costs. Finally, there is no statistical difference in the maximum loan authorization and the collateralization rates.

Faulty management is significantly more prevalent in failing cases but the percentage of badly rated firms is similar in both samples. About 40% of firms under renegotiation belong to a group and the vast majority has limited liability, this number being slightly higher for firms that

failed. The proportion of *commercial* firms is significantly higher for failing firms while successful firms are more represented in the *services* sector. The proportion of failing firms that have a single bank as main creditor is a slightly higher than for successful firms.

Section 4. Econometric Implementation and Results

Two recent European studies have examined the determinants of financial distress resolution. Franks and Sussman (2005) study a sample of 542 distressed SMEs in the United Kingdom and cover the complete default resolution process from its beginning to its end. A financially distressed firm entering a bank's "Business Support Unit" faces three possible outcomes: 1) the firm is successfully rescued (back to branch), 2) the firm is transferred to the "debt recovery unit" (formal bankruptcy procedure) and 3) the firm repays its loan and enters into a new relationship with another bank. The authors analyze the links between the debtor's financial structure and the way financial distress is resolved. Using PROBIT regression, the authors examine the determinants of the likelihood for a firm to be placed in bankruptcy. Their analysis shows that the liquidation rights are largely concentrated in the hands of the main bank, which give them a dominant position in deciding whether to liquidate or restructure a firm. This may lead the bank to become lazy as it relies too much on the value of their collateral. Overall, their study does not find any evidence of coordination failures and/or creditors' runs.

More recently, Jostarndt and Sautner's (2010) adopted a similar approach and focused on a sample of 116 listed German companies having earnings before interests and taxes (EBIT) inferior to the interest charges for more than two consecutive years. Also using a PROBIT regression, they model the probability of reaching a successful workout over formal bankruptcy. The authors find that about half of the firms in their sample succeed in restructuring their debt contract while the other half files for bankruptcy.[26] Overall, their results suggest that the probability of reaching a private agreement is greater for (1) highly leveraged companies and for (2) companies exhibiting higher going concern value. Formal bankruptcy is more likely to happen for the cases showing lack of lenders' coordination and/or high fraction of collateralized debts.

[26] There is a selection effect as the sample contains German distressed companies for which the assets' value is high enough to cover the expected bankruptcy costs, so that a formal bankruptcy procedure can be triggered (the sample on bankruptcy is restricted to "open files").

These studies cover two of the most important legal systems prevailing in Europe: the Common Law and the German Civil Law. Yet, no studies have examined the resolution of financial distress for firms under the French Civil Law which is also considered to be an important legal system and has inspired other legal systems in continental Europe such as Belgium and Luxembourg. In addition, unlike the UK system, the French bankruptcy regime is known to be debtor-friendly and there are potential lessons to be learned from it. In addition, these two studies model the resolution of financial distress as a one step (static) game. We believe that this type of empirical implementation may not be appropriate in the context of bankruptcy. In reality, the resolution of financial distress typically follows a sequential process characterized by a continuous flow of information. First, the creditors and/or the debtor decide between straight bankruptcy and an informal renegotiation with the objective to reach a private agreement.[27] Second, conditional on renegotiation, the parties may fail or succeed in reaching an agreement. The two approaches are illustrated in Figure 1 which considers three possible outcomes: (1) direct bankruptcy, (2) failed renegotiation leading to bankruptcy, and (3) private agreement.

Figure 1. Resolution of financial distress

Figure 1a: Static model (simple LOGIT)

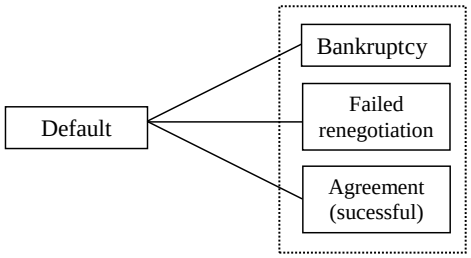

Figure 1b: Dynamic model (sequential LOGIT)

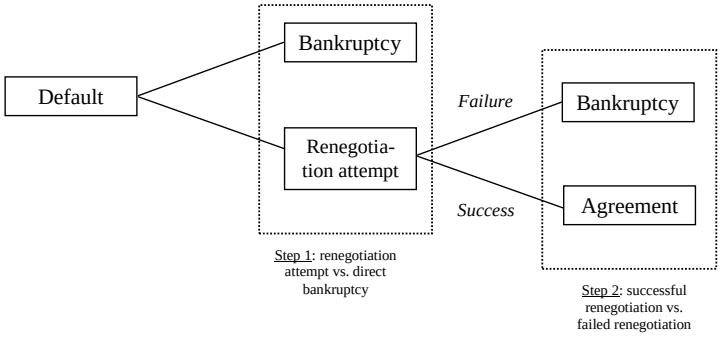

Figure 1a illustrates the simple multinomial LOGIT approach where the choice between the three rival outcomes is modeled as a one-step process. Figure 1b illustrates the sequential LOGIT approach which consists of two transitional steps in which a separate LOGIT regression is run for each decision. These decisions are called "transitions".[28] In such models, the first

[27] In France, bankruptcy procedure can be triggered either by the debtor ("*déclaration de cessation des paiements*") or by the creditors ("*assignation des créanciers*").

[28] This approach is known under several names: "continuation ratio LOGIT" [Agresti (2002)], "model for nested dichotomies" [Fox (1997)], "sequential response model" [Maddala (1983)], or "sequential LOGIT model" [Tutz (1991)].

transition consists of a choice between "direct bankruptcy" and "renegotiation attempt" while the second transition consists of an outcome between "failed" (*i.e.* bankruptcy) and "successful" (*i.e.* private agreement) renegotiation for those cases that have selected "renegotiation attempt" during the first transition.

Although we believe that the sequential approach is a more appropriate and natural approach to this problem, we estimate both models in order to highlight the differences between the two approaches. Our data on France clearly distinguish between direct bankruptcies, failed renegotiations leading to bankruptcy and successful agreements. This allows us to account for the accumulation of information during the renegotiation process.

Our explanatory variables are split in two categories: i) the *test variables* and ii) the *control variables* (Appendix A5 provides the correlation matrix). The "test" variables aim at testing the validity of assumptions H1 to H4.

The first variable, "bank is the company's main creditor" (dummy), aims at determining which of the coordination (H1A) or bargaining (H1B) hypothesis dominates. This variable is equal to one if the bank in charge of the recovery process is the company's main source of financing. This does not preclude other sources of financing (bank and/or trade creditors) but they are marginal relative to the main bank's contribution.

Hypothesis H2 captures the importance of informational problems in the context of a banking relationship. We split H2 in two sub-hypotheses, H2A and H2B (the second one dealing with the informational role of collaterals).

First, we use the variable "duration of the banking relationship" (measured in log) to test for hypothesis H2A, which predicts that the chances to renegotiate are positively related to the duration of the relationship between the debtor and its bank.

Second, we consider hypothesis H2B (informational role of collaterals), according to which the presence of collaterals should ease renegotiation. When testing for hypothesis H2B, we combine the presence of collaterals with a proxy of the asymmetries of information. To measure such asymmetries, we use a variable accounting for the bank's ability to predict default: *i.e.* the bank's rating system. Precisely, when a firm is not rated by the bank, we consider that the latter

has limited information on the borrower as it cannot use standard prediction tools before default occurs eventually. This encompasses many cases: lack of available data on the borrower, new customer and/or project, no available accountancy, bad information system, etc. Following Bester (1985, 1987), we consider that the use of collaterals (either in a high or low proportion) is a good way to screen projects, and brings information to the bank. Then, for non-rated firms, the presence of collateral(s) (whatever the level of the collateralization) makes the bank less under-informed. To account for this, we combine the presence[29] of each type of collaterals with the dummy variable "no rating at default time". *Ceteris paribus*, when this combined variable equals one, renegotiation should be easier to implement, as the bank has more information than with no collateral.

Hypothesis H3 deals with the impact of the firm's characteristics on the decision between bankruptcy and informal renegotiation. This effect is captured by two variables: i) firm's profitability (H3A) measured by the dummy variable "bad rating at default" and ii) manager's competency and reliability (H3B) captured by the dummy variable "faulty management". We also include a variable which captures the interaction between faulty management and bad rating. One would predict that a badly rated firm run by faulty management would have a lower chance of opting for renegotiation and/or reaching a private agreement.

Hypothesis H4 relates to the loan characteristics. H4A and H4B are both related to the size and time-structure of the loans. H4C and H4D are alternative hypotheses accounting for the recovery power of the various collaterals.

According to H4A, the way of resolving financial distress depends on the size of the loan. This effect is captured by the variable "maximum loan authorized". Hypothesis H4B which highlights the debt structure is captured by the "proportion of long term debt".

H4C and H4D predict that the way of resolving default also depends on the level of collateralization (as for H2B), but its effect depends on whether (or not) the bank has a liquidation bias and the extent to which absolute priority rule (APR) is respected. The prevalence

[29] Following the Bester's approach, we find more relevant to consider the presence of collaterals, rather than their magnitude. Indeed, the bank must use both moderately and highly-collateralized debt contracts in order to screen good and bad borrowers. Thus, collateralized contracts bring information to the bank, *whatever the importance of collateralization*.

of deviations from APR is nearly unpredictable without any information on the complete structure of the debtor's claims. Yet, we know that deviations are more likely to prevail when the creditors are dispersed. Particularly, under the French bankruptcy code, several classes of claimants (social claims, etc.[30]) outrank the secured ones. Consequently, when a (secured) bank is the main creditor, such deviations should be mitigated as the secured claims are mostly in the hands of the (main) bank: *ceteris paribus*, a bank should have stronger incentives to trigger bankruptcy as competition with the other creditors is likely to be weaker and the risk of deviations tempered. To account for this, we combine the magnitude[31] of each type of collaterals (as a percentage of the due amounts) with the dummy variable "bank is the main creditor".

Finally, we control for other variables that may impact on the way of resolving default. Namely, we include four dummy variables to identify the bank dealing with the distressed firm.[32] We also consider the value of collaterals (in log)[33], and three dummy variables accounting for i) the legal form of the debtor ("limited liability"), ii) the economic organization ("company belongs to a group"), and iii) the sector of activity ("commerce" and "industry" relative to "services"). [34] Finally, we control for the macroeconomic environment by including the GDP growth at the year of default.

Table 3 reports the results of the two regression models presented in Figure 1. Model I is a simple multinomial LOGIT regression: the dependent variable is the probability that informal renegotiation either fails (column 1) or succeeds (column 2) against the reference alternative represented by direct bankruptcy. Model II is a sequential LOGIT regression. The first step captures the decision between informal renegotiation and direct bankruptcy. The dependent variable is equal to 1 if the stakeholders opt for renegotiation. The second step models the outcome of renegotiation. The dependent variable equals 1 if renegotiation is successful and zero if it fails. Estimates of both steps are reported in columns 3 and 4 respectively.

[30] This includes: (1) the employees (who benefit from higher priority than the secured creditors) and (2) the trade creditors who may escape the procedure by withdrawing some pledged assets from the debtor's patrimony.
[31] Indeed, testing for the recovery power of the collaterals requires that we can measure their weight in the total due debts. We thus compute the ratio between the value of collaterals and the outstanding due amounts.
[32] The fifth bank does not appear in our regressions to avoid multicolinearity.
[33] Here, the value of the collaterals is not combined with other variables.
[34] In France, the bankruptcy procedure can be extended to other companies if, first, they belong to the same group of the debtor, and second, the respective patrimonies are mingled together.

4.1 Static model

The simple multinomial LOGIT approach shown in Table 3 (model I) generates several significant estimates, but the global significance of the model is mixed: although the Score test is significant (below 1%), a Wald test rejects the global significance of the model (the p-value is above 10%).

The first and second columns of Table 3 respectively model the likelihood of failed and successful renegotiation attempts (against direct bankruptcy filings). At first sight, two main results seem to emerge. First, failed renegotiations (column 1) are mainly explained by collateralization (*cf.* combined variables). Precisely, personal guarantees from individuals and pledges both play a significant role, *either positive or negative* depending on the nature of the combined effect (accounting either for H2B or H4C/H4D). Second, the probability of successful renegotiation (column 2) increases with i) the amount of loan authorization and ii) the proportion of long term debt.[35] These results suggest there may be a "size effect" behind successful renegotiations: when i) the financial stakes are high and ii) the bank is financially involved on the long run, the renegotiation process may have more chances to succeed eventually.

However, these primer results on our test variables may be misleading since the static approach does not take into account the sequential nature of the events depicted in Figure 1. Consequently, the apparent relation between collaterals (showing opposite effects), loan size, and term-structure may be simple artefact. Testing for hypotheses H1 to H4 requires disentangling between, first, the variables explaining the tradeoff between direct bankruptcy filing and renegotiation attempts, and second, the variables that are likely to drive to successful renegotiations. This is feasible when considering the dynamics of the choices.

[35] Collaterals (mortgages) seem also to play a role onto successful renegotiations, but showing opposite effects.

Table 3. The determinants of the choice between renegotiation and bankruptcy

	Independent variables	Model I: Simple Multinomial LOGIT				Model II: Sequential LOGIT			
		Failed renegotiation *vs*. direct bankruptcy		Successful renegotiation *vs*. direct bankruptcy		Step 1 Regotiation attempt *vs*. direct bankruptcy		Step 2 Successful *vs*. failed renegotiation	
	Test variables	Estimate	$Pr > \chi^2$	Estimate	$Pr > \chi^2$	Estimate	$Pr > \|z\|$	Estimate	$Pr > \|z\|$
H1	Bank is the main creditor	0.5243	0.103	-0.1913	0.546	0.3454	0.469	-2.6237**	0.030
H2A	*ln* (duration of banking relationship)	0.3182	0.315	0.2746	0.377	0.2688	0.260	0.4653	0.440
H2B	(Personal guarantees: indiv.) × (no rating at default time)	0.9498**	0.031	0.4349	0.350	1.4208**	0.046	-0.5797	0.669
	(Personal guarantees: firm(s)) × (no rating at default time)	-0.8405	0.218	0.4285	0.561	-0.4862	0.622	3.1761	0.222
	(Pledges) × (no rating at default time)	-0.3103	0.723	-1.4221	0.186	-0.8307	0.253	-2.2998	0.109
	(Mortgages) × (no rating at default time)	-0.9759	0.104	-0.7026	0.325	-1.3701	0.159	-1.5207	0.482
H3	Bad rating at default	-0.0848	0.761	0.0974	0.706	0.0187	0.964	-0.4472	0.652
	Faulty management	-0.0016	0.997	0.3533	0.305	0.3775	0.490	1.3885	0.216
	(Faulty management) × (bad rating at default time)	0.7000	0.212	-0.7491	0.306	0.3947	0.659	-4.4917**	0.039
H4A	*ln* (max. loan authorized, K€)	0.3139	0.182	0.5833**	0.014	0.5148***	0.005	0.0915	0.792
H4B	% long term debt (due amounts)	0.7152	0.191	0.9989*	0.063	0.9223**	0.028	-0.1655	0.850
H4C	(% Personal guarantees: indiv.) × (bank is the main cred.)	-1.0618*	0.076	-0.4645	0.258	-0.6376*	0.061	0.0030	0.997
	(% Personal guarantees: firm(s)) × (bank is the main cred.)	-0.0413	0.978	-0.2011	0.938	0.1396	0.912	2.9288	0.593
H4D	(% Pledges) × (bank is the main cred.)	-1.5936*	0.093	-1.2904	0.177	-1.4727**	0.034	0.8530	0.663
	(% Mortgages) × (bank is the main cred.)	1.3753	0.145	1.6707*	0.091	1.3050*	0.089	1.0236	0.482
	Control variables								
	File is managed by: bank n°1	0.2771	0.466	-0.1683	0.627	-0.0832	0.880	-2.5925**	0.043
	File is managed by: bank n°2	0.4937	0.158	-0.3259	0.336	0.1863	0.711	-1.6569	0.164
	File is managed by: bank n°3	1.0053***	0.007	0.1596	0.638	1.0486*	0.057	-2.8206**	0.014
	File is managed by: bank n°4	0.5895	0.200	-1.0997*	0.085	-0.2758	0.710	-5.0233**	0.012
	ln (personal guarantees: individual, amount K€)	0.0831	0.439	0.148	0.141	0.1009	0.199	0.0008	0.996
	ln (personal guarantees: firm(s), amount K€)	0.0175	0.895	-0.2841	0.113	-0.0923	0.388	-0.3670	0.228
	ln (pledges, amount K€)	0.1843*	0.086	-0.0033	0.975	0.0843	0.291	-0.1888	0.234
	ln (mortgages, amount K€)	0.0019	0.989	-0.3241**	0.036	-0.1468	0.185	-0.2404	0.357
	Debtor benefits from limited liability	0.1224	0.745	-0.4907	0.138	-0.3853	0.480	-2.3160*	0.062
	Debtor belongs to a group	-0.0422	0.856	-0.326	0.171	-0.4294	0.241	-1.0765	0.185
	Debtor's sector: commerce	0.0594	0.829	-0.5417*	0.064	-0.4576	0.293	-2.2641**	0.021
	Debtor's sector: industry	-0.2361	0.433	-0.6754**	0.030	-0.9101*	0.052	-2.0453*	0.054
	GDP growth	-10.7969	0.529	8.6233	0.625	-0.6381	0.962	9.6406	0.741
	Constant	-3.1648*	0.086	-7.1398***	<.001	-3.9260***	0.005	6.5731**	0.032
	Test statistics	**Stat**		**Prob > Chi²**		**Stat**		**Prob > Chi²**	
	Nb. of observations	233				233			
	Likelihood ratio	100.93***		<.001					
	Score	84.25***		0.008					
	Wald	64.16		0.212					
	Chi^2					105.92***		<.001	

Note: *, **, *** indicates statistical significance at the 10%, 5% and 1% level

In the simple LOGIT approach, some control variables (the sector and the bank's identity) impact on the firm's decision. Namely, banks N°3 and N°4 are respectively associated to failed renegotiations attempts and to direct bankruptcy filings. This reflects some heterogeneity in the way banks manage the recovery process.

4.2. Dynamic model

In the previous section, we have modeled renegotiation as a static process. We propose a richer and more realistic framework in which the resolution of financial distress follows a dynamic process (Model II, Table 3). The estimates stem from a sequential LOGIT model. The first stage of the game (renegotiation attempt *vs*. direct bankruptcy) is reported in column 3 while column 4 reports estimates associated to the second stage (successful workout agreement *vs*. failed renegotiation leading to bankruptcy). The Chi^2 statistic confirms that Model II is globally significant at the 1% level.

Let us consider the first stage of the financial resolution process: informal renegotiation attempt *vs*. direct bankruptcy (column n°3, Table 3). The results confirm the significance of some test variables that were also at play in the static model. For instance, in the static model, the value of loan authorization and the proportion of long term debt had a positive impact on one particular path of the default process, namely the choice between successful renegotiation and direct bankruptcy. In the dynamic model, these two variables also impact on the resolution process but only in the first stage (*i.e.* initial choice between renegotiation and direct bankruptcy). However, they have no effect on the actual outcome of the renegotiation process (*i.e.* success or failure). This suggests that the probability of undertaking informal renegotiation increases when the amounts at stake are large and/or when the firm has more long term debt, but the outcome of renegotiation is independent of these variables. One can then expect small borrowers are more likely to opt (voluntarily or not) for bankruptcy than renegotiation. These results are consistent with hypotheses H4A and H4B.

In the dynamic model, collateralization plays a significant role, but in the first stage only (see column 3). This is not surprising. Indeed, if one can expect collaterals to influence the choice between bankruptcy and renegotiation attempt, there is no reason why such collaterals should

impact on the chances of success of renegotiation: the renegotiation process should fail or succeed for more fundamental reasons, such as the firm's profitability or the manager's reliability (we discuss these latter effects later on).

Let us first consider the informational role of collaterals (H2B). When combining each type of collaterals with the dummy variable "no rating", we find a positive effect of the personal guarantees from individuals, which fits well the Bester's theoretical framework. This result is quite logical as informational effects are expected to be stronger for outside collaterals such as personal guarantees (see Bester (1994), Boot, Thakor and Udell (1991), Hainz (2003)). As a whole, our paper support hypothesis H2B for personal guarantees.

We now consider the recovery power of collaterals when deviations from APR may occur (H4C *vs.* H4D). As mentioned before, we analyze the influence of collaterals when combined with the dummy variable "bank is the main creditor". Our estimates show that personal guarantees (from individuals) and pledges significantly decrease the chances to renegotiate, which supports hypothesis H4D. In other words, when a (secured) bank does not fear strong deviations under bankruptcy due to competition with other claimants, the chances to renegotiate are lower. Let us stress that this effect is not confirmed for the mortgaged claims that significantly increase the likelihood of renegotiation attempt. This may be explained by the fact that, in France, mortgages are (more than other types of collaterals) subject to deviations from the APR (*cf.* Davydenko and Franks, 2008). Precisely, mortgages may rank below social claims ("*superprivilège*") and/or pledged claims (pledges' owner may withdraw some pledged assets from the debtor patrimony, and thus escape the collective repayment process: cf. "*droit de revendication*" and "*droit de retention*").

Overall, hypotheses H2B and H4C are both confirmed for a subset of collaterals: personal guarantees support H2B (information) while personal guarantees and pledges support H4D (deviations from APR and recovery issues). Those effects are significant for the first step of the arbitration only (*i.e.* direct bankruptcy *vs.* renegotiation attempt).[36]

[36] Let us stress that our results may derive from to the data selection process. Indeed, the firms in our sample are selected from a bank's recovery unit which means that the main bank has already recognized the firms' financial distress and decided to process these cases through their business recovery units. This process is a decision in itself

Column 4 (Table 3) reports the estimates for the second stage of the default resolution process, namely the outcome of informal renegotiation (success *vs*. failure). Two test variables have a significant impact on that stage of the game.

First, the probability of success in renegotiation is significantly lower when the bank handling the recovery process is the firm's main creditor. This result reinforces the argument that the bargaining effect dominates the coordination effect in financial distress (H1B). It is also consistent with the argument that a main bank may not wish to renegotiate and have a preference for bankruptcy when a firm is in financial distress if (1) it considers that competition with other creditors may be weak under a formal bankruptcy procedure, and/or (2) it expects that the debtor cannot survive without the (main) bank's financial support. Thus, bankruptcy may be the most desired outcome from the main bank's perspective. Let us stress that this result applies in the second stage of the game (column 4). One possible explanation is that it takes time for the bank in charge of handing the renegotiation process to get information on other creditors and their relative importance in the firm's financing.[37] Once the bank realizes that it is the dominant creditor, this may either (1) increase its appetite (which might put at risk the renegotiation process), or (2) strengthen the incentives to turn to a court-supervised procedure (the court's decision will most likely account for the main creditor's interests).

This result can be explained in the context of France that is characterized by a court-administered bankruptcy procedure where i) creditors have no say on the outcome of the procedure, ii) the decision lies in the hand of a judge and iii) SMEs have a limited access to capital markets, therefore strongly relying on intermediated financing. In such a setting, the main bank may have a preference for a court-administered procedure in which the judge is expected to opt for a solution benefiting from the bank's support. This is all the more likely to happen once the bank realizes that there is very little to be gained from extended informal negotiations.

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and it may be possible that collateral plays a role at this earlier stage of the game rather than once the firm is in the recovery unit (see also Davydenko and Franks (2008), footnote 7, for a discussion of this possible selection issue).

[37] It takes time and efforts to have a complete view of the scope of the whole set of creditors. Indeed, in France, the banks do not have direct access to any national database gathering, for each client, the extent of the debts and the identity of the respective creditors. This information is gathered after default. Then, the renegotiation process helps in providing information on the set of creditors, with the help of the *Banque de France*.

The second significant test variable is "bad rating" when combined with "faulty management". This combined variable significantly decreases the likelihood of successful renegotiation. This confirms both hypotheses H3A and H3B. Interestingly, these two variables (capturing the firm's profitability and the management's competency/reliability) are not significant when considered individually. One should then wonder why the bank decides to enter into renegotiation at first when it knows that the firm is badly rated and that managers are faulty. This can be explained once we consider resolution of financial distress as sequential information gathering process. At the early stage of financial distress, the bank may have some information on the firm's low profitability (thanks to its own internal rating system), but this information may not be sufficient to influence its decision between informal renegotiation and bankruptcy. Indeed, the negative signal on the firm's profitability is potentially minimized if managers are perceived as competent, reactive, and honest. Yet, discovering the managers' ability to restructure the firm takes time, and this may happen when the bank and the firm have already engaged renegotiation. This explains why the first step of the decision process (informal renegotiation *vs*. bankruptcy) does not depend on these variables but that, once renegotiation is under way, the combined effects of both variables impact on the likelihood of reaching a final agreement.

Our control variables are mostly significant in the second stage of renegotiation. Indeed (relative to bank N°5), the probability of successful renegotiation is significantly lower for banks N°1, 3 and 4. Interestingly (except for bank N°3), these banks are not less likely to opt for renegotiation in the first stage of the game. This suggests that some banks are better than others in successfully finding an out-of-court solution. Finally, limited liability firms and those operating in the commercial and industrial sectors, have a lower chance to reach an agreement.

Section 5. Concluding remarks

This paper investigates the determinants of financial distress resolution for a sample of French SMEs in default. Recent studies have looked at this issue in the context of other legal regimes but until now, no studies have been conducted on the French legal framework. In addition, these previous studies have modeled the resolution of financial distress as a static game. We propose an alternative approach where the resolution of financial distress is modeled as a

sequential process in which firms first decides between bankruptcy and informal renegotiation with its main bank and second – conditional on renegotiation – the process can either be a success (workout agreement) or a failure (bankruptcy).

When analyzing the data, a first striking feature is that the size the loan(s) matters even more in renegotiation than the size of the firm itself. Definitely, the renegotiation process is not independent from the financial stakes: size matters when resolving financial distress. We then test for a number of hypotheses relative to the impact of i) coordination problems and bargaining power, ii) information asymmetry, iii) firm's characteristics and iv) loan characteristics on the likelihood of opting for renegotiation and the chances of reaching a successful workout arrangement. Considering renegotiation as a dynamic process, we find that the probability of successful renegotiation decreases if the bank handling the recovery process is the firm's main creditor. This suggests that the bargaining power argument dominates the coordination argument. In addition, we find that the likelihood of informal renegotiation is positively related to the size of the loan and the proportion of loan term debt.

We also find that the informational role and recovery power of collaterals both play a role in the first stage of the renegotiation process. On the first hand, collaterals ease renegotiation as they increase the bank's information. On the second hand, collaterals reduce the chances to renegotiate with the bank if the latter does not fear deviations from the APR under bankruptcy. However, collateralization is of little importance regarding the second stage of renegotiation, and do not influence the chances to successfully reach an agreement.

Finally, we find that the firm's profitability and the managers' reliability and competency are two essential conditions to succeed in renegotiation. However, this information requires time to be discovered by the bank, which may explain why the decision between informal renegotiation and direct bankruptcy does not depend on these two variables.

In a nutshell, this paper contributes to the literature on the resolution of financial distress, in particular with respect to the negotiation process taking place before a court-supervised procedure. The next stop in the empirical analysis would be to analyze the efficiency effects of these procedures, in particular with respect to the recoveries for the different types of creditors.

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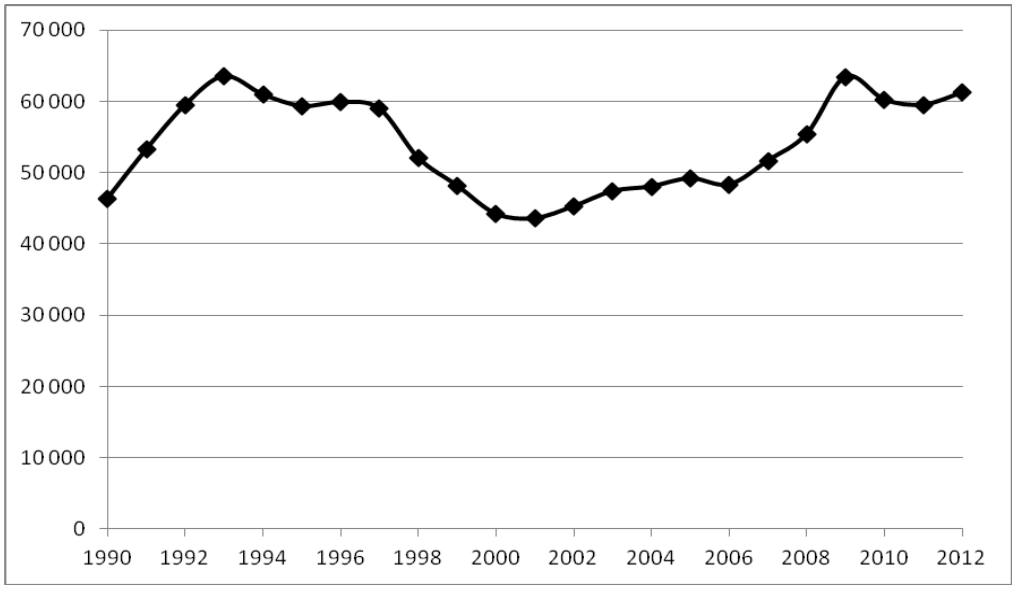
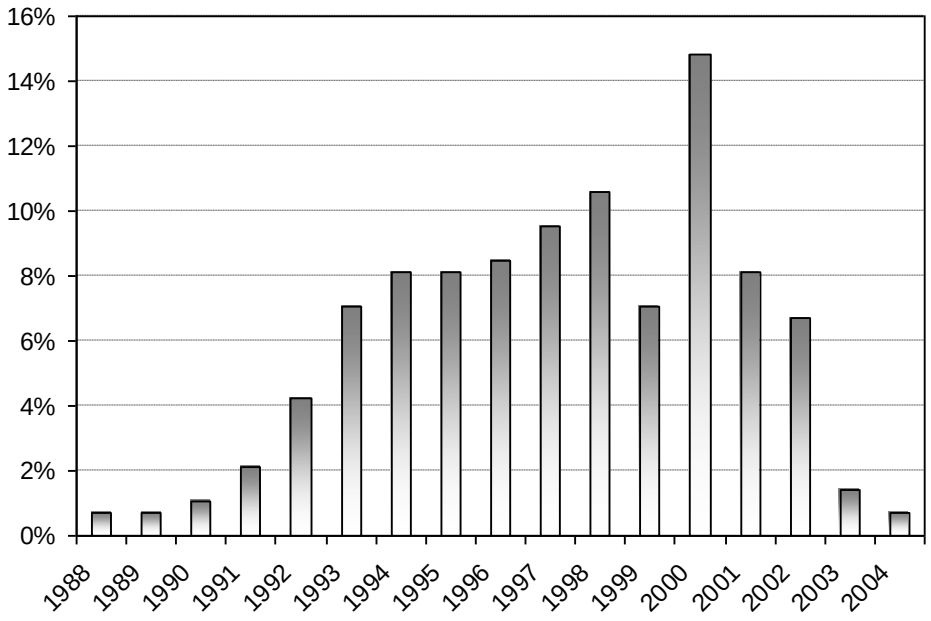
Appendices

A1. Distribution of corporate bankruptcies in France



A2. Time distribution of the sample

Distribution of the sample based on the year of default



A3. Evolution of the French bankruptcy laws

	Initiation of the procedure	Management of the procedure	Available procedure(s)	Possible outcome(s)	Decision-making process	Consequence on recoveries
French bankruptcy law: **1985/1994**	- The bankruptcy procedure can follow a Court-supervised arrangement ("*règlement amiable*"). - The triggering criterion relies on cash shortage ("*cessation des paiements*"). - The Court can summon the managers of firms having first signs of difficulties. - Insolvent debtors must fill for bankruptcy within 15 days. - Both debtor and creditors can trigger bankruptcy.	- The firm is supervised by an administrator during an observation period (up to 20 months). The purpose of this period is to prioritize continuation over liquidation. - Stay of claims and of individual legal proceedings. - Claims must be identified within 2 months. - The assets having been sold prior to bankruptcy can be reintroduced in the debtor's patrimony ("*période suspecte*"). - Liquidation can be decided without any delay ("*liquidation immédiate*"; since 1994 only).	One common procedure: "*Redressement judiciaire*" & "*liquidation judiciaire*" (for all bankrupt firms)	Outcome n°1: - Reorganization (continuation plan) - Sale as a going concern	Court	- No debt forgiveness is allowed. - For continuation plans: most of the claims should be paid at their normal term, but some delays may be imposed by the Court (<10 years). - For sales: rival buyout offers can be proposed to the Court. The sale price is the definitive basis for the creditors' repayment.
				Outcome n°2: Liquidation (immediately or after an observation period)	Court	- The proceeds of liquidation are the definitive basis for the creditors' repayment. - The Long-term secured creditors (mainly banks) have priority over new money claims (*i.e.* claims that were born during the observation period).
French bankruptcy law: **2005/2008**	- The bankruptcy procedure can follow two Court-supervised arrangements ("*conciliation*" and "*mandat ad-hoc*"). Both procedure follow similar rules. Note: despite being confidential, "*conciliation*" may be triggerred either by a solvent or a bankrupt firm. - The triggering criterion relies on cash shortage ("*cessation des paiements*"). - The Court can summon the managers of firms having first signs of difficulties. - Insolvent debtors must fill for bankruptcy within 45 days. - Both debtor and creditors can trigger bankruptcy.	- The firm is supervised by an administrator during an observation period (up to 20 months). The purpose of this period is to prioritize continuation over liquidation. - Stay of claims and of individual legal proceedings. - Claims must be identified within 2 months. - The assets having been sold prior to bankruptcy can be reintroduced in the debtor's patrimony ("*période suspecte*"). - Liquidation can be decided without any delay ("*liquidation judiciaire*", as renamed in 2005).	Proc. n°1: "*Sauvegarde*" (restricted to solvent firms only, but having first signs of difficulties ⇒ *out of the scope of this study*) Proc. n°2: "*Redressement judiciaire*" (for bankrupt firms having chances to get reorganized: observation period)	Outcome n°1: Reorganization (continuation plan)	- Court-administered vote of creditors (**for the biggest firms only**: more than 150 employees and turnover superior to 20M€) - Note: the Court may still impose a solution to the creditors. - Court (all other firms)	- No debt foregiveness is allowed. - Most of the claims should be paid at their normal term, but some delays can be imposed by the Court (<10 years).
			Proc. n°3: "*Liquidation judiciaire*" (for bankrupt firms having no chance to get reorganized: liquidation is immediate)	Outcome n°2: - Liquidation (immediately or after an observation period) - Sale as a going concern (assimilated to liquidation since 2005)	Court	- For liquidations: the proceeds of liquidation are the definitive basis for the creditors' repayment. The Long-term secured creditors (mainly banks) have priority over new money claims (i.e. claims that were born during the observation period). - For sales: rival buyout offers can be proposed to the Court. The sale price is the definitive basis for the creditors' repayment.

Source: Blazy, Delannay, Petey, Weill (2008).

A4. Variables and codifications

Description of explanatory variables

Variable	Description
Origin of default: faulty management	Dummy equals to 1 if one (or more) cause(s) of the default is related to faulty management (conscious acceptance of no-profitable markets, overinvestment, excessive speculation, private benefits, fraud).
Faulty management x bad rating at default	Dummy equals to 1 if one (or more) cause(s) of the default is related to faulty management *and* the debtor's last known rating was bad (*i.e.* the bank classified the firm as "doubtful" or "in worrying state").
ln (duration of banking relationship)	Log of the duration of the banking relationship, from the first lending date to the date of default (in years).
Bank is the debtor's main creditor	Dummy equals to 1 if the bank handling the recovery process is the firm's main creditor (based on the recovery unit's assessment)
Bad rating at default	Dummy equals to 1 if the debtor last known rating was bad ("doubtful" or "in worrying state").
ln (maximum authorized loan)	Log of the maximum amount of authorized loan by the bank (defined by the debt contract).
% long term debt	% of long term debt due (> 1 year) in total debt.
ln (personal guarantees: individual)	Log of the value of personal guarantees offered by individuals (K€).
ln (personal guarantees: firm)	Log of the value of personal guarantees offered by the firm (K€).
ln (pledges)	Log of the value of pledges (K€).
ln (mortgages)	log of the value of mortgages (K€).
(Personal guarantees: indiv.) × (no rating at default time)	Dummy equal to 1 if the loans are collateralized with personal guarantees (indiv.), multiplied by dummy equal to 1 if the bank has no rating on the firm.
(Personal guarantees: firm(s)) × (no rating at default time)	Dummy equal to 1 if the loans are collateralized with personal guarantees (firm), multiplied by dummy equal to 1 if the bank has no rating on the firm.
(Pledges) × (no rating at default time)	Dummy equal to 1 if the loans are collateralized with pledges, multiplied by dummy equal to 1 if the bank has no rating on the firm.
(Mortgages) × (no rating at default time)	Dummy equal to 1 if the loans are collateralized with mortgages, multiplied by dummy equal to 1 if the bank has no rating on the firm.
(% Personal guarantees: indiv.) × (bank is the main cred.)	% of the personal guarantees (indiv.) in the total due amounts, multiplied by the dummy variable "banks is the debtor's main creditor".
(% Personal guarantees: firm(s)) × (bank is the main cred.)	% of the personal guarantees (firm) in the total due amounts, multiplied by the dummy variable "banks is the debtor's main creditor".
(% Pledges) × (bank is the main cred.)	% of the pledges in the total due amounts, multiplied by the dummy variable "banks is the debtor's main creditor".
(% Mortgages) × (bank is the main cred.)	% of the mortgages in the total due amounts, multiplied by the dummy variable "banks is the debtor's main creditor".
Limited liability	Dummy equals to 1 if the debtor is a limited liability firm.
Company belongs to a group	Dummy equals to 1 if the firm belongs to a group.
Commerce	Dummy equals to 1 if the firm operates in the "commerce" sector.
File is managed by bank n°	Dummy variable for each bank in the sample
Service	Dummy equals to 1 if the firm operates in the "service" sector.
Industry	Dummy equals to 1 if the firm operates in the "industry" sector.
GDP growth	Variation in GDP in the year of default

A5. Correlation matrix

	Origin of default: faulty manage-ment	Faulty manage-ment x Bad rating at default time	ln (length of the banking relationship, in years)	Bank is the debtor's main creditor	Bad rating at default time	*ln* (due amount,K€)	% of long term debt	*ln* (internal collaterals)	*ln* (external collaterals)	Limited liability	The company belongs to a group	Commerce	Industry	GDP growth
Origin of default: faulty management	1													
Faulty management x Bad rating at default time	0.52044 <.0001	1												
ln (length of the banking relationship, in years)	-0.03696 0.5365	0.12824 0.0313	1											
Bank is the debtor's main creditor	-0.00316 0.9597	0.03659 0.5585	0.04115 0.5105	1										
Bad rating at default time	-0.09885 0.0976	0.30078 <.0001	0.21976 0.0002	-0.08399 0.1787	1									
ln (due amount,K€)	-0.02858 0.6328	-0.06182 0.3009	0.13888 0.0196	-0.10422 0.0948	-0.07124 0.233	1								
% of long term debt	-0.00773 0.9022	-0.00209 0.9735	-0.07156 0.2549	0.21034 0.0012	-0.08632 0.1694	0.10191 0.1045	1							
ln (internal collaterals)	-0.04582 0.4434	-0.0515 0.3889	0.13159 0.0271	0.09611 0.1236	0.06035 0.3125	0.29941 <.0001	0.17041 0.0064	1						
ln (external collaterals)	0.02512 0.6745	0.13346 0.025	0.04384 0.4633	0.08123 0.1934	0.10881 0.0681	0.07491 0.2098	0.0315 0.6166	0.08627 0.1485	1					
Limited liability	0.00363 0.9516	0.09062 0.129	0.00285 0.9621	-0.1955 0.0016	0.02897 0.6281	-0.08747 0.1429	-0.1963 0.0016	-0.12007 0.0439	0.02384 0.6902	1				
The company belongs to a group	0.0298 0.6182	0.01941 0.7456	0.1431 0.0162	-0.12854 0.0391	-0.00896 0.8809	0.16116 0.0067	0.06884 0.2735	0.00478 0.9363	-0.10883 0.068	-0.02609 0.6627	1			
Commerce	0.05371 0.3689	0.09255 0.121	-0.0816 0.1718	-0.04871 0.4359	0.09795 0.1007	-0.08854 0.138	-0.1248 0.0465	-0.09551 0.1095	0.0808 0.176	0.12497 0.0359	-0.13858 0.0199	1		
Industry	-0.03155 0.5978	0.04763 0.4256	0.15642 0.0085	-0.11092 0.0753	0.04003 0.5031	0.07329 0.2198	-0.17522 0.005	0.02007 0.7372	-0.08109 0.1745	0.16691 0.005	0.03421 0.5673	-0.45023 <.0001	1	
GDP growth	-0.03555 0.5522	0.07046 0.2382	0.08756 0.1424	-0.03331 0.5943	0.13791 0.0205	-0.00169 0.9775	-0.03358 0.5935	0.05888 0.3245	0.04418 0.4599	-0.01038 0.8622	-0.04264 0.4757	-0.02012 0.7366	0.10082 0.091	1

Note: The Table shows the Pearson correlation indexes for the variables included in our regressions. The numbers appearing below each correlation index is the p-value for the null hypothesis (a p-value less than 10% means the null hypothesis can be rejected so that the correlation index is significantly different from zero).