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**Building Legal Indexes to explain Recovery Rates:  
An Analysis of the French and UK Bankruptcy Codes**

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# Building Legal Indexes to explain Recovery Rates: An Analysis of the French and UK Bankruptcy Codes

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## Abstract

The main aim of this paper is to find the legal characteristics that impact on the recovery rates. Previous studies (LLSV, Doing Business Report, World Bank) have usefully used a set of legal indexes to rank the bankruptcy law prevalent within the country. But they fail to identify the characteristics of bankruptcy procedures that create more recoveries. We give here elements of answer by taking into consideration two countries that are good representatives of the two main legal systems prevailing in Europe: France (Civil Law) and United Kingdom (Common Law). To enable this, we built original legal indexes comprising of 158 binary questions that highlight ten major dimensions of corporate bankruptcy procedures: (1) accessibility, (2) exclusivity, (3) bankruptcy costs, (4) production of information, (5) protection of the debtor's assets, (6) protection of claims, (7) coordination of creditors, (8) decision power, (9) sanction of faulty management, and (10) inclination towards liquidation / reorganization. We then propose a mapping of procedures that shows a clear specialization between them. The French procedures ("*redressement judiciaire*" and "*liquidation judiciaire*") are more protective of the debtor's assets and favor more the coordination of secured claims, public claims, and unsecured claims. In UK, we find strong opposition between the procedures oriented to liquidation and the other procedures.

We then use an original database of 833 French and UK bankruptcy files to measure the recovery rates that are generated by each procedure. We find strong differences between them. We then turn to OLS regressions and use our legal indexes to isolate the characteristics of bankruptcy law that significantly impact on the total recovery rate. By controlling for the value of assets, the structure of claims, the origins of default, and the firm characteristics, we test for several hypotheses. We first isolate the legal features of bankruptcy procedures that are associated to higher total recovery rates: namely, accessibility of the procedure, protection of the debtor's assets, protection and coordination of claims, orientation towards reorganization, and bankruptcy costs. From that perspective, these costs are not sunk cost only, but can be viewed as the counterpart of a service provided by the practitioners that eventually serve the creditors' recoveries. On the contrary, we find that the production of information under bankruptcy has a negative impact on total recoveries, probably due to the breach in confidentiality. Last, some dimensions of corporate bankruptcy law are not significantly related to total recovery rates (inclination towards liquidation, severity towards faulty management).

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## Introduction

Since the end of the 90's, a widespread literature in law and finance has been investigating how the legal context might impact the behaviors of stakeholders and their decisions and finally on their outcomes. In their seminal work, La Porta et al. (1997, 1998) have notably suggested that the origin of the legal systems (Common Law *vs.* Civil Law), and the resulting differences in protection of the stakeholders' rights, are likely to influence the development of financial markets and the economic growth. So far, the laws that have been investigated by this literature are numerous: mainly credit law, corporate law, commercial law, banking law, financial markets law, and corporate bankruptcy law. The latter is of prime importance as bankruptcy codes help in solving the governance conflicts emerging between the companies' shareholders and their creditors after the occurrence of default. Indeed, governance conflicts arise from default as the previous financial commitments have not been fulfilled and creditors cannot receive their contractual payments. In that context, bankruptcy procedures should be able to preserve as much value as possible in order to increase the creditors' expected recoveries. This issue deals with ex-post efficiency and was pointed out by Bebchuck (1988), White (1989), Longhofer (1998), and more recently, by Blazy and Chopard (2004), Fisher and Martel (2009).

Bankruptcy procedures are ex-post efficient if they promote the reallocation of the debtor's assets towards the most efficient alternative projects (that is those maximizing the market value of the firm). A narrower perspective restricts this reallocation issue to a simpler alternative: should the bankrupt firm be liquidated or continued? As concluded by White (1989), bankruptcy procedures are considered to be ex-post efficient, if they favour the outcome (liquidation *or* continuation) that maximizes the value of the firm which is defined as the sum of all stakeholders' claims. Precisely, a firm should be liquidated as soon as the discounted value of its present and future expected outcomes exceeds under liquidation, when compared to continuation. Empirically, the measure of such trade-off is obviously difficult to compute, as it requires comparison between the rival values which can hardly be ascertained for same debtor. Consequently, most researchers have suggested recovery rates as a proxy for a measure of each observed outcome. (Armour, Hsu, and Walters (2006), Davydenko and Franks (2007)).

These studies focusing on the recoveries under bankruptcy are useful in drawing a ranking between countries based on their abilities to design ex post efficient bankruptcy procedures thereby creating value for the creditors. Two recent works have followed this path. Using banking data, Davydenko and Franks (2008) find that recovery rates for banks are significantly lower in France than those observed in Germany and in the UK. As a consequence, an observed outcome is that French banks ask for more collateral when they provide credit. In addition, they may rely on special collateral forms which minimize the risk of dilution during the court-administered bankruptcy process. More recently, Blazy, Petey and Weill (2010) find that this ranking is reversed when encompassing all the classes of claimants: Germany and France both outrank the UK which shows the lowest average overall recovery rate (13.8%) as against 20.7% for France and 21.5% for Germany. According to the authors, three elements can explain the differences in recoveries amongst the countries: the quality of assets at the early stage of bankruptcy, the structure of claims by seniority levels, and the intrinsic qualities of national bankruptcy codes.

Despite their valuable contribution, these works do not offer a satisfactory explanation of the legal mechanisms that play a role in explaining the differences in creditors' recoveries. The fact to be taken into consideration is that, without the use of legal indexes accounting for such characteristics, the researchers could only observe differences between various legal environments of bankruptcy but they fail to comprehend the legal characteristics that may impact creditor recoveries. In other words, these studies could answer the following question: "are recoveries higher/lower due to the design of its bankruptcy law or to external factors?". But they fail to address the following ones: "what are the characteristics of bankruptcy procedures that create more recoveries?", "are these characteristics linked to the production of information taking place under bankruptcy or to the protection conferred to assets after the triggering or to the coordination mechanisms that are implemented to make a collective choice?", etc.. The objective of our paper is to directly answer these questions by taking into consideration two countries that are good representatives of the two main legal systems prevailing in Europe: France (civil law country) and United Kingdom (common law country). We first propose a set of original legal indexes highlighting ten major dimensions of corporate bankruptcy law. In a

second step, we use these indexes to explain the recovery rates coming from a database gathering 833 bankruptcy files in France and in UK.

This article is organized as follows. Section 1 describes the methodology we use to build legal indexes on corporate bankruptcy law. Section 2 presents the French and UK bankruptcy codes. Section 3 uses our legal indexes to compare both legislations. Section 4 presents our dataset on recoveries in France and in UK. Section 5 discusses the results of regression models using legal indexes to explain the total recovery rate in both countries. The last section concludes.

## **1. Building Legal Indexes on Corporate Bankruptcy Law**

We begin by addressing a set of questions. How can the differences between various bankruptcy laws be ascertained? How can the most important legal features be identified, when focusing on a particular legislation? Both questions are related to the way bankruptcy law should be designed for managing financial distress. Answering them requires the use of several complementary approaches. Monographs in comparative law (Ringe, Gullifer, and Théry (2009)) are helpful to provide a detailed view of the content of the national bankruptcy procedures (Franks and Torous (1996), White (1996)). Yet, the qualitative nature of such works makes quite difficult, a systematic and direct comparison of the bankruptcy procedures across countries. To draw a parallel comparison of different legal systems, one has to consider the use of legal indexes, and thus to follow the avenue opened by La porta et al. (1997, 1998). Following their work, numerous institutions have been engaged in the production of legal indexes (World Bank, World Economic Forum, INSEE, French *ministère de l'économie*, rating agencies...). These indexes are useful from a Law and Economics perspective as they systematize the comparison of heterogeneous legal environments, making them comparable.

However, some authors (du Marais et al. (2006), Ménard and du Marais (2008), Haravon (2009)) have tackled the reliability of such indexes, especially those published in the annual Doing Business reports (World Bank (2009)). According to their views, the reliance on legal indexes suffers from two major drawbacks.

The first issue is related to the fallacious ease of use of rankings: as pointed out by Kerhuel and Fauvarque-Cosson (2009) “*The complexity of the traditional comparative method contrasts starkly with the almost disconcerting simplicity of the mathematical criteria driving an economic analysis. (...) Under these conditions, there could be a strong temptation to substitute the economic analysis of law for the more traditional comparative approach.*”. Following Kerhuel and Fauvarque-Cosson (2009), we consider that both approaches should be considered as complements rather than substitutes. Indeed, the approach based on legal indexes cannot ignore the traditional comparative methods: building quantitative tools, such as indexes, requires relying first on some qualitative perspective that only comparative works can provide. The latter approach is by nature, more informative, complete, and balanced than the use of pure quantitative tools. Yet, such qualitative comparative works are insufficient to draw a complete view of numerous legal systems.

The second issue is related to the methodology that is used to build legal indexes on corporate bankruptcy systems. To illustrate this, let us consider the indicators of LLSV (1998) on corporate bankruptcy. The authors build four indexes: (1) “restrictions for going into reorganization”<sup>1</sup>, (2) “no automatic stay on secured assets”<sup>2</sup>, (3) “secured creditors first”<sup>3</sup>, (4) “management does not stay”<sup>4</sup>. The aggregation of these indexes leads to a composite index (ranked between 0 and 4) named “creditor rights”. These indicators help in comparing a huge rank of countries as they provide a common basis for comparison. Yet, they suffer from several weaknesses. First, usage of four indicators is clearly insufficient to draw a complete map of corporate bankruptcy law. Staying at a too general level of analysis may lead to spurious interpretations. In France for instance, the rank of secured creditors in the absolute priority order varies with the outcome (liquidation or reorganization). Second, it would be misleading to stay at the country level when we know that several bankruptcy procedures can prevail within the same country. In UK for instance, four insolvency procedures prevail (administration, receivership, compulsory liquidation, and creditor voluntary liquidation<sup>5</sup>), each of them being characterized by

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<sup>1</sup> Equals 1 if the reorganization procedures impose restrictions (for instance, creditors consent).

<sup>2</sup> Equals 1 if the reorganization procedure does not impose an automatic stay of claims on the debtor’s assets.

<sup>3</sup> Equals 1 if the secured creditors are ranked first in the absolute priority order (in case of piecemeal liquidation).

<sup>4</sup> Equals 1 if an official is appointed to manage the bankrupt company during reorganization.

<sup>5</sup> The receivership does not prevail anymore: the UK Enterprise Act 2002 put an end to the secured creditor’s right to appoint a receiver.

different features. Third, the aggregation of different binary indexes, even if mathematically feasible, is logically unacceptable as it sums heterogeneous indicators.

In this paper, we try to augment previous studies which were conducted in the fields of Law and Economics on the topic of the design of corporate bankruptcy law. It is important to stress that our objective is to account for the content of the law and not on the manner in which it is enforced. Most of the previous studies computing legal indexes implicitly relied on the same assumption as they adopted the similar approach. Yet, as we are comparing two developed countries belonging to the same area (Europe), we can consider that some similarities might prevail regarding their economic, financial, and legal practices, even if the behaviours might vary across civil law and common law systems.

We propose here original indexes accounting for corporate bankruptcy law. These results come from legal templates that were sent to 13 national experts of corporate bankruptcy law, being either academics or practitioners in their respective country (three academics and four bankruptcy practitioners in France, two academics and four bankruptcy practitioners in UK). They were involved (1) in the production of the legal indexes (by filling/checking the templates), and/or (2) in the analysis of the bankruptcy files. Additional students were involved in the data collection process. The experts who were in charge of the filling of our legal templates were required to answer a set of “yes-no” questions regarding the content of corporate bankruptcy law, for each procedure. The double checking process was made anonymously. The whole process took place between March 2006 and November 2010. It was financed and supervised by *Fonds National de la Recherche* (Luxembourg) and *OSEO* (France).

Our approach aims at ameliorating some of the methodological issues mentioned previously. Namely, these improvements deal with (1) the country-level analysis, (2) the number of indexes, and (3) the aggregation of heterogeneous binary indexes.

Firstly, we build one set of indexes per bankruptcy procedure. We thus account for the fact that several procedures might prevail in the same country. In UK, we consider four procedures: (1) administration, (2) receivership, (3) compulsory liquidation, and (4) creditor

voluntary liquidation. In France, we split our sample between (1) liquidation procedure (“*liquidation judiciaire*”), and (2) reorganization procedure (“*redressement judiciaire*”). We thus obtain a set of indexes, each of them being built on six procedures. This shift from a country-level analysis towards a procedure-level analysis has two advantages. First, we account for the specificities of procedures whose purposes (and resulting design) might differ. Second, we acknowledge that a ranking of countries is less informative than a comparative analysis of procedures that various stakeholders can use in their country. Indeed, in UK, the choice between receivership and administration is strategic and depends on the owned collateral.

Secondly, we make our analysis sharper by drastically increasing the number of indexes. We consider a set of 158 binary questions, each of them being equal to one or zero. Adding precision has obvious advantages. First, it helps in considering several classes of claimants (and not only the secured ones). Indeed, depending on their respective rights, the various creditors are not equally protected under bankruptcy. We isolate here five classes of creditors: (1) the employees, (2) the State, (3) the fixed secured creditors<sup>6</sup>, (4) the floating secured creditors<sup>7</sup>, and (5) the unsecured creditors. Second, using more indexes helps in capturing the complexity of the bankruptcy procedures that are, by nature, multidimensional. One can consider bankruptcy law as a set of state-dependant tools aiming at the resolution of governance conflicts after default. Describing such tools requires the use of numerous indicators. However, adding more indexes mechanically increase their heterogeneity and challenges the question of aggregation. This is the third methodological issue we address in this paper.

Thirdly, our approach aims at reducing the heterogeneity of the legal indexes that are aggregated for the computation of composite indexes. In our view, considering bankruptcy law as a homogenous corpus of legal rules is unsatisfactory, and aggregating these rules altogether to obtain an average rank is even more misleading. Here, one needs a thorough analysis of bankruptcy procedures to identify several major functional features of the bankruptcy codes. Precisely, we propose to define a finite set of *dimensions* attached to corporate bankruptcy law so that each one can be considered as a linear combination of binary and individual indexes. Thus, their aggregation is acceptable provided it is performed within each identified dimension. Now

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<sup>6</sup> I.e. the creditors having collateral(s) on a specific asset of the debtor (fixed charge).

<sup>7</sup> I.e. the creditors having collateral(s) on the total assets of the debtor (floating charge).



the question is: how can these dimensions, be identified? The economic literature on corporate bankruptcy provides several arguments that help in answering this question. We now present these arguments that will help us in defining *10 major dimensions of bankruptcy laws*, namely: (1) accessibility of the procedure, (2) exclusivity of the procedure, (3) cost of the procedure, (4) production of public information, (5) protection of the debtors' assets, (6) protection of the creditors (employees, State, secured creditors<sup>8</sup>, and unsecured creditors), (7) coordination of the claims, (8) collective decision tools, (9) sanction of faulty managers, (10) orientation favouring liquidation (10a) against reorganization (10b). These dimensions are related to the process of resolving default. Indeed, the debtor and its creditors can resolve default by choosing between two alternatives: either by exploring informal solutions (private agreement), or by delegating this work to a judge (formal bankruptcy). Several arguments and counterarguments have been proposed to describe the advantages and the disadvantages of both ways of resolving default. On one hand, informal agreements are relatively fast, cheap and preserve confidentiality while, on the other hand, formal bankruptcy procedures can solve coordination issues, disclose public information, and preserve the debtor's value.

In the following sections, we detail the 10 dimensions mentioned above. Each of them is related to the role of the Law as an alternative way of resolving financial distress, when compared to private workouts.

### ***1.1. Accessibility and exclusivity of the procedure (dimensions 1 and 2)***

Default stems from the debtor's inability to respect the current charges deriving from previous commitments. Yet, default does not lead always to bankruptcy. To be initiated, a procedure needs the conjunction of two distinct conditions: first, the stakeholders having the power to trigger the procedure must wish to do it. Second, the debtor must be in financial (and/or economic) situation that justifies the opening of a legal procedure. In other terms, a bankruptcy procedure is "accessible" to the various stakeholders, provided (1) the legal solution is opened to them (and desired by them), and (2) the required criteria to trigger bankruptcy are met.

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<sup>8</sup> Owning either fixed or floating collaterals.

The optimal<sup>9</sup> situation is in between two polar cases. On the one side, the procedure should not be triggered too easily and/or too early so that the stakeholders cannot use the bankruptcy environment in their sole interests. From that perspective, such strategic use of bankruptcy is all the more likely to happen when the procedure is too much accessible (Delaney (1999)). On the other side, the triggering criteria should not be too restrictive, so that a wide set of stakeholders can turn to bankruptcy as a credible alternative to private attempts of renegotiation. In addition, inaccessibility of the procedures reduces the chances of bankruptcy being triggered at a time when opportunities of recovery are still present. Thus, an efficient bankruptcy procedure should be accessible *up to a certain level*, so that it can be triggered by those stakeholders having good incentives to turn to the legal solution (Taube (1984)), and at a time when the maximization of the value of assets is still feasible (White, (1989)).

To account for the “accessibility” of the procedure, we use 20 binary indexes (yes/no questions) related to (1) the triggering criteria related to the value of assets, (2) the types of difficulties that justify the opening of a procedure, (3) the stakeholders who are allowed to trigger the procedure, and (4) the creditors’ opposition rights to the triggering. Appendix A1 lists all these indexes for the six encompassed procedures (administration, receivership, compulsory liquidation, creditor voluntary liquidation, French “liquidation judiciaire”, and French “redressement judiciaire”). Each binary index equals 1 (respectively 0) whenever the answer to the question is “yes” (respectively “no”). Precisely, the “yes/no” questions are labelled so that the binary indexes take a strict positive value provided the answer reflects an *increase* in accessibility. For instance, when answering “yes” to the sentence “*unsecured creditor(s) can trigger the procedure*” means that the considered procedure is *more accessible* regarding this criterion. As these 20 questions account for the same dimension (i.e. accessibility), we consider them to be homogenous and aggregate<sup>10</sup> them to obtain an overall composite index reflecting such dimension. This composite index, named “ACCESSIBILITY”, is initially bounded between 0 and 20, and rescaled into a percentage.

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<sup>9</sup> I.e. maximizing the expected value of the debtors’ assets.

<sup>10</sup> The aggregation is not weighted. Thus all the questions are considered to be equivalently important.

Most of the papers on corporate default consider two main ways of resolving financial distress: private renegotiation and formal bankruptcy (Gilson, John, and Lang (1990), Jensen (1989) (1991)). Yet, once bankruptcy is triggered (i.e. when renegotiation has failed), the most common assumption is that the involved stakeholders cannot abort the procedure and resort to other ways of resolving bankruptcy. For instance, Franks and Nyborg (1996) model the UK bankruptcy procedure as a game with no solution of exit and/or change of procedure. Such approach contrasts with the observed legal practices, as several countries propose a menu of bankruptcy procedures (four in UK<sup>11</sup>, two in France<sup>12</sup>) with – sometimes – the ability for the stakeholders to abort them, either by turning back to renegotiation or by switching to another procedure. Under the UK receivership, for instance, the appointing floating charge holder is given the ability to abort the procedure. We thus consider a procedure to be *exclusive* if it cannot be aborted easily so that it remains the sole way of resolving bankruptcy. To account for “exclusivity” of our six procedures, we consider three binary variables (see Appendix A1) that equal one if the stakeholders cannot abort the ongoing procedure to switch to another (private or legal) alternative. The sum of these three indexes leads to the composite index “EXCLUSIVITY” (in percentage).

### ***1.2. Bankruptcy costs and information disclosure (dimensions 3 and 4)***

The arbitration between private agreement and formal bankruptcy is related to the Coasian approach of litigation. Haugen and Senbet (1978) (1988) studied the various ways to resolve default efficiently in a market solution so that the litigation costs accruing from the legal solution can be avoided. Consequently, the creditors should always turn the solution which increases their recoveries at the lowest cost (Gilson (1997), Wruck (1990)). Yet, such approach relies on the assumption that the legal solution is always more costly than the private one. Indeed, formal procedures involve direct (accruing out of the legal process for instance legal fees) and indirect costs (arising out of foregone investment opportunities, loss of sales) which eventually have to be borne by the already distressed company and thus can shrink the overall recoveries. Some recent works (Lubben (2010)) questioned such assumptions, mainly for three reasons: first, the empirical measure of the costs incurred to resolve default is a challenging

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<sup>11</sup> Administration, receivership, creditors voluntary liquidation, and compulsory liquidation.

<sup>12</sup> Two bankruptcy procedures prevail under the 1994 French legislation “*redressement judiciaire*” and “*liquidation judiciaire*”). Since 2005, two additional procedures have been introduced: “*conciliation*” and “*sauvegarde*”.

task<sup>13</sup>, as private agreements are not always cheaper than formal bankruptcies. Second, it is wrong to consider the payment of bankruptcy costs to be a pure loss of money. On the contrary, the legal fees charged under bankruptcy are often related to audit procedures and verification of claims that produce information for the various stakeholders<sup>14</sup>. As observed by Webb (1987), “*bankruptcy costs are essentially verification costs*” (p.286). Third, one can consider that the costs which are attached to a particular bankruptcy procedure mainly reflect the complexity and the sophistication of the solution that is offered by the law to reach an efficient solution.

The question of how big the bankruptcy costs are is fundamental as it questions the very existence of collective procedures in bankruptcy. Even if we provide later in the paper some estimates of these costs in France and in UK, we do not primarily aim to measure them within the scope of building legal indexes. Again, the purpose of such indexes is to account for the content of the law. From that perspective, several elements in the law are related to these costs, and it is possible to identify the rules that are *likely* to increase the costs paid under bankruptcy. For instance, these costs should be higher *ceteris paribus*, if a *numerus clausus* limits the number of bankruptcy practitioners who are allowed to operate in the market. Such a limitation prevails in France so that liquidators and administrators do not work under perfect competition. The resulting effect should be an overpricing of bankruptcy files. This effect is captured by the question “*Do some barriers limit free entrance of the practitioners?*”. Overall, we build six binary indexes, which aggregation result in the composite index “COSTLY\_PROC” (in percentage).

Bankruptcy procedures are costly. In counterpart, they are non confidential procedures and disclose information to the creditors. Practically, information disclosure is facilitated through the implementation of audit procedures under the supervision of the Court. In France, for instance, the administrator in charge of the bankrupt company has 20 months to write and forward a report

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<sup>13</sup> For instance, the measure of the direct costs of private workouts is a difficult task as this process is carried out with confidentiality. Nevertheless, some researchers have been able to document these costs. Namely, Gilson, John and Lang (1990) examine the exchange cost for 18 offers which averaged at 0.6 % of the book value of assets.

<sup>14</sup> As quoted by Lubben (2010) : “*The wealth transfer argument depends on the odd belief that professionals would otherwise be sitting at home on the couch, but for chapter 11. But most who work on large chapter 11 cases are very talented, and quite employable, and could otherwise be working on mergers or bond offerings or loan agreements. These alternative tasks have real economic value, and professionals are routinely compensated for their work on such tasks, without much press or academic disparagement.*” (p.4).

(“*bilan économique et social*”) to the Court. This report contains detailed information on (1) the causes of default, (2) the market value of the assets, (3) the number of creditors and the value of their value of the claims, (3) the buyout proposal(s) (if any), (4) an assessment of the chances of recovery (etc.). Such costly state verification process is similar to the one described by Townsend (1979) and Gale and Hellwig (1985) regarding the theoretical justification of standard debt contracts<sup>15</sup>.

The breach of confidentiality is justified as the debtor’s financial commitments have not been fulfilled and the creditors might not receive their contractual payments. In that context, bankruptcy procedures should preserve as much value as possible in order to increase their expected recoveries (Blazy, Petey and Weill, 2010). One measure of increasing *ex-post* recoveries is to disclose public information to warn the creditors about the debtor’s actual situation. From an economic point of view, information disclosure has opposite effects. On one hand, it increases the awareness of the creditors on the debtor’s actual situation and might moderate type I and type II errors<sup>16</sup> when choosing between liquidation and reorganization. On the other hand, public procedures might have discrediting effects leading to the disengagement of key partners and/or to losses of investment opportunities (Sutton and Callahan (1987)). The fear of bankruptcy is more likely to take roots when financial markets are imperfect and suffer from lack of information. In that context, the disclosure of any new signals might be misinterpreted by the stakeholders (Campbell (1979)).

To account for the production of public information under our six bankruptcy procedures, we consider 11 binary indexes (yes/no questions, listed in Appendix A1) related to (1) confidentiality, (2) information and warning rights of the various creditors, (3) audit procedures, and (4) forecast accounting. The resulting composite index is rescaled in percentage and named “INFORMATION”.

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<sup>15</sup> These contracts are efficient as they limit the occurrence of situations when the creditors have to check the actual value of the debtor’s assets (here, the costly state verification process takes place only when the debtor cannot repay its debt anymore, which is the most common triggering criterion of formal bankruptcy).

<sup>16</sup> Creditors might commit type I errors if they liquidate the debtor’s assets, whereas they are worth more under reorganization. On the contrary, creditors might commit type II errors if they reorganize bankrupt firms whose liquidation is desirable (see Fisher and Martel (2004) for empirical tests).

### ***1.3. Protection of the debtors' assets and of the creditors' claims (dimensions 5 and 6)***

When compared to private workout, bankruptcy provides a specific protective environment for both the debtor and the creditors. An efficient procedure should be able to preserve as much debtor's value as possible before a collective decision is made. As the bankruptcy process takes time, the debtor's assets might lose substantial value due to reputation effects, lost investment opportunities, and/or management failures. *Ceteris paribus*, the more the debtor's assets are protected under bankruptcy, the higher the recovery rates should be, irrespective of the final outcome. There are several ways to protect the debtor's assets. First, some of the assets that were sold prior to default might be recovered by the bankruptcy practitioner if the purpose of such sale was to impoverish the creditors (cf. "*période suspecte*" in France). Second, specific managerial rules may apply during the procedure to protect the assets (forced extension of previous contracts, supervision of the managers...). Third, various preventive rules taking place before default might preserve the value of assets before any bankruptcy (cf. "alert rights", account certification, interview of the managers...). According to Blazy, Petey and Weill (2010), the differences in prevention policies explain the observed differences in coverage rates<sup>17</sup> at the early stage of bankruptcy. To account for the legal rules that increase and/or facilitate the protection of the debtor's assets under bankruptcy, we build 10 binary indexes (see Appendix A1). Their aggregation leads to the composite index named "PROTECT\_ASSETS" (in percentage).

The protection of the debtor's assets is related to efficiency (i.e. the maximization of the "size of the cake"). Another complementary question is related to repartition: i.e. how to "share the cake" between the claimants having various rankings in the absolute priority order? In other terms, why do bankruptcy codes define several classes of claimants wherein some enjoy more protection as compared to others? The literature provides two elements of answers (Baird and Jackson (2007)): by granting priority, bankruptcy law acknowledges that (1) some creditors should be protected because they were cautious enough to take guaranties prior to default (White (1989), Davydenko and Franks (2008)), and (2) some other creditors should be protected because they hardly can renegotiate outside of bankruptcy (for instance, the employees: see Korobkin (1996)). Both types of creditors might benefit from seniority. Yet, depending on the procedure,

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<sup>17</sup> The "coverage rate" is defined as the ratio of the value of assets at triggering divided by the due claims.

seniority may be more or less protected under bankruptcy<sup>18</sup>. For each class of creditors, we consider 6 binary indexes (see Appendix A1) accounting for the creditors' ability to obtain additional payments outside of bankruptcy and to escape debt reduction and/or extended delays. We additionally take into account the time at which the claim originated, either before or after the procedure. The resulting composite indicators (in percentage) are named "PROTECT\_EMPL" (employees), "PROTECT\_STATE" (the State), "PROTECT\_FIXEDSEC" (fixed secured creditors), "PROTECT\_FLOATSEC" (floating secured creditors), and "PROTECT\_UNSEC" (unsecured creditors). These indicators take higher value when the considered class of claimant is more protected by the Law.

#### ***1.4. Creditors' coordination and collective decision tools (dimensions 7 and 8)***

Bankruptcy procedures can be viewed as a tool to coordinate between the creditors' competing interests and to help them in finding a collective solution that maximizes the debtor's overall value. Under the bankruptcy process, the need of coordination and of decision-making arises at two successive stages.

At the time of default, the distressed firm is likely to be dismantled through an anarchic creditors' run, which eventually reduces the value of the debtor's assets. This common pool problem has been widely addressed by Bulow and Shoven (1978), Gertner and Scharfstein (1990), and more recently by Longhofer and Peters (2004). By implementing various legal mechanisms (stay of claims and of individual proceedings, creditors' representation, creditors' consultation...), bankruptcy procedures help in freezing the creditors' individual right to sue the debtor and, more generally, in solving the arising coordination problems among them.

At the end of bankruptcy, the various procedures differ in the way of collectively making the final decision (voting rules, Court enforced solution, appeal rights...). Indeed, finding an agreement that leads to reorganization is more complex to attain when creditor with conflicting interests are numerous. Without coordination, the creditors might not reach an agreement and

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<sup>18</sup> In addition, by granting priority, bankruptcy law acknowledges that some creditors play a key role in the final decision. Such decision-making process needs time. From that perspective, "new money" claims (i.e. the ones that are born during the bankruptcy procedure) should be protected as they provide the required financing resources to prepare the decision. In most countries, new money benefits from a higher priority than other claims.

consequently select an outcome that does not maximize the overall recoveries. An important question can arise here as to how can this problem, be overcome. The first solution is to give the creditors the right to vote on the final outcome and to approve reorganization (for instance, France since 2005, and UK). Here, the creditors' decision power is maximized, but the final decision might depend on the capital structure. Indeed, as mentioned by Bergström, Eisenberg, and Sundgren (2002) and Morrison (2007), the more secured the creditors are, the lower is the likelihood of reorganization under bankruptcy systems that require secured (and unsecured) creditors to approve the reorganization plan. The second solution is to transfer the decision to a Court (France before 2005). Here, the creditors' decision power is minimized as it relies in the hands of one sole decision maker: on one hand, the final outcome should not depend on conflicting interests anymore, while on the other hand, types I and type II errors may arise if the primary objectives of the judge do align with the maximization of the debtor's assets.

To account for coordination and decision-making issues, we consider several aggregated indicators (in percentage). They are computed for each class of creditors: "COORD\_EMPL", "DECISION\_EMPL", (employees), "COORD\_STATE", "DECISION\_STATE", (the State), "COORD\_FIXEDSEC", "DECISION\_FIXEDSEC" (fixed secured), "COORD\_FLOATSEC", "DECISION\_FLOATSEC", (floating secured), "COORD\_UNSEC", "DECISION\_UNSEC" (unsecured). Each indicator is composed of 5 binary indexes on each class of creditors (see the listed questions in Appendix A1). Each index equals one (and zero otherwise) whenever the answer to the corresponding question is "yes", which represents an improvement in either the coordination of creditors or in their decision making power under bankruptcy.

### ***1.5. Sanction of faulty managers (dimension 9)***

The distinction between faulty managers and honest ones is an important and quite recent feature of the modern corporate bankruptcy codes. In the 16<sup>th</sup> century, in the city of Florence, Italy, a merchant who could not repay the creditors had his bench (*banca*) physically broken (*rotta*) so that (s)he could not sell his (her) wares anymore. Such practice (*la "banca rotta"*, which gave its name to "bankruptcy") had a double justification: first, it informed the creditors about the default of their debtor and, second, it was a punishment tool to prevent him from future business. Similarly in France, until the recent reforms, the effects of bankruptcy affected both the



firm's and the manager's patrimonies: managers had to be punished whatever the origins of default, even if it was related to bad luck or to times of crisis. Here, the systematic punishment of managers was justified by their inability to fulfill the firm's financial commitments. However, this approach has been evolving over time. Nowadays, most of the contemporary legislations admit that default might derive from unfavorable environment. From that perspective, legal sanctions should apply to faulty managers *only*; whose bad behaviour has worsened the consequences of financial distress. Sanctions should be either criminal and/or pecuniary (the latter makes the manager pay for the firm's debt using his own patrimony). In a nutshell, moral hazard should be punished whereas bad luck should be forgiven: namely, honest and competent managers (and their patrimony) should be preserved from the consequences of bankruptcy. On the contrary, faulty managers should be punished individually.

One can wonder if applying legal sanctions onto the faulty managers is the solitary way of reducing the managers' incentives to moral hazard. Indeed, an adequate design of the debt contracts might be another solution with equivalent effects. For instance, following Bester (1985), one could argue that implementing personal guarantees on the manager's private wealth is an efficient way to reduce bad incentives: here, collateralization can help in discriminating between good and bad managers. Yet, the systematic use of such personal guarantees might lead to underinvestment. From that perspective, by punishing faulty managers only, legal sanctions reduce advantageously the incentives to moral hazard but without frightening the honest – but unlucky – managers (Sen (2007)). Naturally, implementing legal sanctions on faulty managers implies a costly state verification process. We consider such process as a counterpart of the bankruptcy costs associated to the verification and audit procedures that take place under bankruptcy. For instance, in France, the Court can sanction managers if the administrator's report reveals faulty management. Here, the "fault" covers asset substitution, tricky behavior, and, more generally, any action that have worsened the debtor's financial situation<sup>19</sup>.

To capture the importance of the sanctions of faulty management, we consider 5 binary variables accounting for the ways to supplant – or at least to control – the faulty and incompetent managers (see Appendix A1). We also consider the various sanctions that might be pronounced

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<sup>19</sup> French code n°85-98, 25<sup>th</sup> of January 1985, Title V, Art. 180 to 182.

against them (obligation to personally repay the creditors, deprivation of the right to start a new business, fines, jail). The resulting composite indicator (in percentage) is named “SANCTION”.

### ***1.6. Orientation favouring liquidation against continuation (dimension 10)***

As pointed out by Di Martino (2008), the protection of the debtor against the various creditors should be distinguished from the inclination towards liquidation or continuation. Let us consider first the protection of the debtor vs. the creditors: the bankruptcy procedures are more or less debtor/ creditor-friendly depending on (1) the way they protect the various claims, (2) the decision power they grant to the different stakeholders, (3) the way they discharge the debtor, (4) the absolute priority order that prevails under bankruptcy, etc. Such features were captured by the previous dimensions that we discussed previously. Let us turn now the liquidation/ continuation bias of corporate bankruptcy law. We need to consider another dimension related to the way the procedure drives the choice between liquidation and continuation. Indeed, even if the various creditors might have different opinions on such a choice, the ultimate decision mainly depends on the legal framework that prioritises one solution over the other. Precisely, some bankruptcy procedures (liquidation procedures in the UK, or immediate “*liquidation judiciaire*” in France) are fully dedicated to liquidation and do not offer any scope for reorganization. Some other procedures are fully dedicated to the elaboration of a continuation plan (cf. French “*redressement judiciaire*”). Last, some other procedures are flexible enough to preserve both solutions (under the UK administration for instance, the administrator is given a mission to either liquidate or reorganize the firm).

Depending on the considered legislation, bankruptcy procedures are more or less inclined to liquidation or reorganization. As mentioned by Berglöf et al. (2007), such inclination mainly depends on the countries. In the emerging market economies, liquidation biases are more common as reorganization procedures are more complex to implement than liquidation ones. Now turning to the developed economies, some profiles have been identified in the literature (Berglöf, Rosenthal and Von Thadden (2001)) wherein the US bankruptcy code is often viewed as a pro reorganisation system (as established by the Bankruptcy Act of 1898 and then, by the Bankruptcy Reform Act of 1978). Likewise, France is also considered to favour reorganization over liquidation. Precisely, the 1<sup>st</sup> article of the 1985 French bankruptcy law explicitly ranks the

various objectives, in declining order: safeguarding the business first, then maintaining the firm's operations, and last discharging liabilities. Contrastingly, the regimes prevailing in UK and in Germany are considered to be more in favour of liquidation, either because they concentrate the power to decide within the hands of some secured creditors (UK receivership<sup>20</sup>), or because reorganization is an exceptional outcome (Germany).

Nevertheless, the recent legal reforms in the European western economies suggest a shifting trend favouring more reorganizations. Namely, UK and Germany engaged several reforms following that direction. In UK, Part 10 of the 2002 Enterprise Act specifies a new objective, "to facilitate company rescue" in addition to "produce better returns for creditors as a whole". Additionally, the former UK Receivership was abolished in 2003 as it was suspected to generate too many liquidations. In Germany, we observe a similar shift since the new bankruptcy code *Insolvenzordnung* (1994)<sup>21</sup>. While the German legislation keeps prioritising the repayment of creditors, the new German code sets an additional derogatory procedure (*Insolvenzplan*), allowing for continuation (provided the value of the debtor's assets exceeds the expected bankruptcy costs). This trend reflects to some extent the legislators' willingness to use bankruptcy as a tool to promote reorganization in order to protect businesses and employment (Blazy et al. (2009)).

Our two last composite indexes (in percentage) account for the inclination towards liquidation (EASY\_LIQ) and towards continuation (EASY\_REORG). The former and the latter indexes are respectively composed of 13 and of 10 binary indexes (see Appendix A1). The indexes reflect (1) the main objectives of the procedure as they are stated by the Law, (2) the ability to force an outcome (liquidation, reorganization), and (3) the measures that are allowed by the procedure in order to achieve one specific outcome.

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<sup>20</sup> The UK receivership allows a creditor (generally a bank) in possession of a floating charge, to appoint a receiver to protect its own interests.

<sup>21</sup> It was put into practice since the 1st of January 1999.

## **2. The French and UK bankruptcy laws**

In this section, we present the six main corporate bankruptcy procedures prevailing in France (“*Loi sur le redressement judiciaire des entreprises en difficultés*”, 1994) and in United Kingdom (*Insolvency Act*, 1986, and *Enterprise Act*, 2002). Both countries offer a menu of procedures to the stakeholders, depending on the debtor’s situation, the types of claims, and the perspectives of recovery. Their analysis shows strong differences that should be reflected in our indexes and that are likely to impact on the creditors’ recoveries.

### **2.1 French bankruptcy code**

Three successive reforms were implemented in France. Initially, on the 25<sup>th</sup> January 1985, the French bankruptcy code settled two procedures dedicated to reorganization (“*redressement judiciaire*”) or to liquidation (“*liquidation judiciaire*”)<sup>22</sup>. The 1985 legislation explicitly prioritized reorganization over liquidation. Precisely, the 1<sup>st</sup> article of the 1985 French code ranks first the continuation of business, second the protection of employment, and third the repayment of creditors<sup>23</sup>. On 10<sup>th</sup> June 1994, the 1985 legislation was slightly reformed. First, the secured creditors now benefited from a higher rank in the absolute priority order in case of liquidation. Second, prevention was strengthened after 1994. More recently, in 2005, bankruptcy law was reformed (“*loi de sauvegarde*”, 26<sup>th</sup> July 2005): the 1985 original structure (and its hierarchy of objectives) has not changed but a new procedure (“*sauvegarde*”) is added to the previously ones. This new procedure is close to “*redressement judiciaire*” but is dedicated to solvent firms which face difficulties. This reform is too recent to have reliable information on its macroeconomic impact. We thus restrict our research to the 1994 legal framework<sup>24</sup>.

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<sup>22</sup> Before 2005, sales as a going concern were a part of “*redressement judiciaire*”. They are now viewed as a particular case of “*liquidation judiciaire*”.

<sup>23</sup> The 1<sup>st</sup> article of the French bankruptcy law 10<sup>th</sup> of June 1994 explicitly promotes continuation over liquidation. In French, it states that “*la procédure est destinée à permettre la sauvegarde de l’entreprise, le maintien de l’activité et de l’emploi et l’apurement du passif. Le redressement judiciaire est assuré selon un plan arrêté par décision de justice à l’issue d’une période d’observation. Ce plan prévoit, soit la continuation de l’entreprise, soit sa cession. Lorsque aucune de ces solutions n’apparaît possible, il est procédé à la liquidation judiciaire.*”. This is the main justification for the opening of an observation period (“*période d’observation*”).

<sup>24</sup> In addition to this set of procedures, several ways of strengthening prevention were introduced. Most of them are private renegotiations under the supervision of the Court. This is the purpose of “*règlements amiables*” (1984) and of “*conciliations*” and “*mandats ad-hoc*” (2005). These procedures do not deal with bankruptcy *stricto sensu*, as (1) the targeted firms are still solvent and (2) the default resolution is confidential and quite informal.

The triggering of “*redressement judiciaire*” or “*liquidation judiciaire*” relies on the same criterion: when the value of liquid assets is less than due debts, the firm has to enter into the procedure rapidly (within 15 days<sup>25</sup>). Once the debtor enters the procedure, an observation period (“*période d’observation*”) begins and lasts up to 20 months in order to assess the chances of recovery. Owing to this specificity, the French procedure provides additional time to elaborate a reorganization plan (if possible). Contrastingly, liquidation is the default solution, most of them being decided immediately<sup>26</sup> by the Court when the chances of recovery are obviously minimal.

During this observation period, there is a stay of claims. The manager of the bankrupt firm might stay in place with the help of an administrator (in the worst cases, (s)he replaces the manager). Meanwhile, a creditors’ representative (“*représentant des créanciers*”) is appointed to check the claims and the remaining assets. In case of liquidation, (s)he becomes the liquidator (“*mandataire liquidateur*”) of the firm. During the observation period, the bankrupt firm has to keep on running the business: first, the maintenance of the previous contracts might be enforced, and, second, the new creditors (i.e. new money claims) are granted a higher position in the absolute priority order in case of liquidation.

The final decision lies in the hands of the commercial Court that decides either to liquidate (i.e. the procedure becomes “*liquidation judiciaire*”) or to reorganize the firm (i.e. the procedure becomes “*redressement judiciaire*”)<sup>27</sup>. Hence, creditors do not vote or play a significant role in the decision-making process. Such court-administered decision process might temper coordination problems between the creditors, but it might also generate inefficiencies if the Court’s objectives systematically prioritize continuation over liquidation.

The absolute priority order is quite specific in France: especially, the last (2 months) unpaid wages benefit from a “*superprivilège*”: whatever the outcome, these should be repaid prior to the other claims<sup>28</sup>. Regarding the other due claims, they are repaid successively following a specific priority order depending on the final outcome. In case of liquidation (and/or

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<sup>25</sup> This delay is extended to 45 days since 2005.

<sup>26</sup> I.e. without any observation period.

<sup>27</sup> According to the Observatoire Consulaire des Entreprises en Difficultés (OCED), bankrupt firms are piecemeal liquidated in 95% of the cases, sold in 2.5% of the cases, and reorganized in 2.5% of the cases.

<sup>28</sup> The employees benefit from a public insurance system (AGS) if the firm’s assets are insufficient to repay them.

sale), the liquidation proceeds (and/or the sale price) is the basis for the creditors' repayment. The priority order is (from the highest to lowest rank): “*superprivilège*” claims, bankruptcy costs, new money claims, preferential and secured claims<sup>29</sup>, and last, unsecured claims. In case of reorganization, all the creditors must be repaid equally<sup>30</sup>. The continuation plan states the extended delays (limited to 10 years) and the debt reductions (if any).

## 2.2 UK insolvency code

Until 2002, the UK corporate insolvency was ruled by the *Insolvency Act* of 1986. In 2002, it was reformed by the *Enterprise Act* that came into force in September, 2003. Among other important changes, this recent reform incorporated an additional objective: “to facilitate company rescue” (in addition to “produce better returns for creditors”)<sup>31</sup>.

The UK legislation offers the stakeholders a menu of procedures: liquidation (85% of cases according to *London Gazette*), administration (5%), and receivership (10%). The latter procedure does not prevail anymore since 2003<sup>32</sup>. Indeed, receivership had been increasingly considered as an inefficient procedure favouring too much liquidation (Armour and Mokal, 2005, and formerly, Aghion, Hart, and Moore, 1992,). In addition, a fourth procedure (CVA, for Company Voluntary Arrangement) exists which aims to ease informal renegotiation under the court's supervision. Yet, this latter procedure is not a bankruptcy procedure: it is closer to a workout and does not require default as a prerequisite for initiation.

Let us begin our discussion in detail, with the first procedure: Liquidation. As in UK, this is the most common outcome (even more frequent). There are 3 types of liquidation procedures: Compulsory Liquidation, Creditor Voluntary Liquidation and Member Voluntary Liquidation. Firstly, Compulsory Liquidation is the one which can prevail under a rather large set of circumstances<sup>33</sup>: illiquidity, future financial difficulties, no business for more than 1 year, and/or

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<sup>29</sup> Since the 1994 reform, some secured creditors are repaid before new money claims, in case of liquidation.

<sup>30</sup> With two exceptions: “*superprivilège*” and small claims should be repaid first.

<sup>31</sup> This reform reflects a slight change towards the debtor's interests. However, the creditors are still well protected by the UK insolvency law, which is still considered as “creditor friendly”.

<sup>32</sup> Since 2003, one had attended some substitution from receivership to administration procedures, which are more frequent now.

<sup>33</sup> See section 122 of the *Insolvency Act* 1986.

less than 2 associates in the business. Petition for Compulsory Liquidation can be presented either by the creditors or by the debtor. As can be interpreted literally, second and third types of liquidations are triggered voluntarily. Depending on the debtor's individual situation, such procedure is either Creditor Voluntary Liquidation, or Member Voluntary Liquidation. Creditor Voluntary Liquidation takes place when the debtor itself decides to liquidate the firm, as it cannot repay the firm's debts anymore and has become insolvent<sup>34</sup> while on the other hand Member Voluntary Liquidation happens when the shareholders convene to liquidate: at this point, the firm has sufficient assets to pay off its liabilities<sup>35</sup> and the creditors do not need to be notified. Thus, we exclude Member Voluntary Liquidation from the analysis as such this procedure has nothing to do with default companies. For each procedure, a liquidator is appointed. Most creditors are subjected to automatic stay of their claims. However, some secured creditors might be exempt from it. The liquidation ends with piecemeal liquidation or sale as a going concern. Once the liquidation process is terminated, a priority order of repayment applies: first, the bankruptcy costs, second and third the secured and preferential creditors, fourth the unsecured creditors.

The second procedure is administration, which is a way to reorganize the firm, or to prepare a CVA with its creditors, or to plan liquidation<sup>36</sup>. An administrator is appointed by the court: (s)he replaces the manager(s) and has the duty to protect all the interests at stake (debtor's and creditors'). The individual pursuits are suspended during administration. The procedure can be triggered by the debtor or by the creditors. Two conditions are needed to enter administration: the company should be illiquid (or insolvent), the administrator's mission<sup>37</sup> should be reachable. Eventually, the administrator prepares either a reorganization plan (8% of cases, according to

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<sup>34</sup> It is noteworthy that – despite its misleading name - , CVL cannot be initiated by the creditors

<sup>35</sup> The directors then issue a statutory declaration under section 89 of Insolvency act (1986) that the company is solvent. After this, it is mandatory for the company to pay off all its debts within a period of 12 months.

<sup>36</sup> Section 8(3) of Insolvency Act 1986 lays down the purposes for making an administration order. These are: (1) the survival of the company and the whole or any part of its undertaking as a going concern, (2) the approval of a voluntary arrangement, (3) the sanctioning under section 425 of the Companies Act of a compromise or arrangement between the company and any such persons as are mentioned in that section, (4) a more advantageous realization of company's assets that would be effected under liquidation. Enterprise Act 2002 streamlined the old administration procedure and brought some major changes in its provisions. Specifically, schedule B1 was inserted in the Insolvency Act 1986 with effect from 15<sup>th</sup> September 2003. The new purpose of administration is to achieve one of the following objectives: (1) rescuing the company as a going concern, (2) achieving a better result for company's creditors on the whole than would be likely if the company were wound up, (3) realizing property in order to make a distribution to one or more secured or preferential creditors.

<sup>37</sup> As described in the “administrative order”.

Homan, 1989), or prepare a CVA (11%), or organize liquidation (45% as piecemeal liquidation and 36% as sale as a going concern). In case of reorganization, the administration ends with the vote of the creditors who endorse either accept or reject the plan. Consequently, the creditors are not passive in the decision-making process (even if but they stay under the supervision of the court that might impose another solution if the plan is rejected by them).

The third procedure is receivership. It is the most specific one. It had been applicable until 2003 but was abolished thereafter<sup>38</sup>. It is not a mere collective procedure. Indeed, it gives the secured creditors in possession of a *floating charge*<sup>39</sup> (the appointer) the right to appoint a receiver<sup>40</sup>, whose mission is to prioritize and protect the appointer's interests. Consequently, receivership leads to liquidation<sup>41</sup>. Under receivership, the absolute priority order of repayment ranks decreasingly (1) secured and preferential creditors, (2) floating charges, (3) liquidator's fees (if receivership leads to liquidation), and (1) junior creditors. Receivership has been suspected to be costly and to undermine the recoveries, as the receiver has no incentives to manage the procedure in the unsecured creditors' interests (Armour, Hsu, Walters, 2008).

### **3. Using legal indexes to compare the French and UK bankruptcy laws**

The preceding section has described in a nutshell the French and UK bankruptcy procedures. We now use our legal indexes to analyze the six procedures prevailing in France (“*redressement judiciaire*”, “*liquidation judiciaire*”) and in UK (administration, receivership, compulsory liquidation, voluntary liquidation). The use of legal indexes helps in highlighting the procedures' characteristics (strengths / weaknesses) that are most noteworthy. We first turn to univariate statistics showing the values of the indexes for each procedure (Tables 1a and 1b).

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<sup>38</sup> European Insolvency Regulation that came into effect from 31st May 2002 provides for collective proceedings to open in all EU member states. Receivership failed to meet this European criterion as it was not a collective procedure. Finally, the Enterprise Act 2002 put an end to the secured creditor's right to appoint a receiver.

<sup>39</sup> The floating charges are not attached to one specific asset: the value of the assets they encompass may fluctuate over time. When the administrative receivership is triggered, the value of the assets is crystallized. Let's note that some charges may be fixed charges as well, provided the repayment basis is attached to one specific asset.

<sup>40</sup> Or an administrative receiver if (s)he manages the firm at the same time.

<sup>41</sup> Thus, selecting the type of collaterals (i.e. traditional ones vs. floating charges) is a strategic decision for the creditor's point of view. On the one hand, floating charges enables their owner to escape a collective procedure, but on the other hand, they do not grant a very high rank in the absolute priority order.



**Table 1a. Legal indexes on the French and UK bankruptcy procedures (part 1/2)**

	Accessibility of the procedure	Exclusivity of the procedure	Costly procedure	Production of public information	Protection of the debtor's assets	Sanction of faulty management	Ease of liquidation / sale	Ease of reorganization
French "redressement judiciaire" (1994)	55%	100%	33%	82%	100%	100%	62%	70%
French "liquidation judiciaire" (1994)	55%	100%	33%	82%	90%	100%	69%	0%
UK Receivership	50%	33%	67%	100%	50%	40%	38%	0%
UK Administration	65%	67%	67%	100%	60%	60%	38%	50%
UK Compulsory liquidation	45%	100%	17%	91%	80%	100%	69%	0%
UK Voluntary liquidation	45%	67%	17%	91%	80%	100%	46%	50%

**Table 1b. Legal indexes on the French and UK bankruptcy procedures (part 2/2)**

	Employees			State			Fixed Secured Claims			Floating Secured Claims			Unsecured Claims		
	Protection	Coordination	Decision power	Protection	Coordination	Decision power	Protection	Coordination	Decision power	Protection	Coordination	Decision power	Protection	Coordination	Decision power
French "redressement judiciaire" (1994)	100%	60%	20%	33%	100%	40%	67%	80%	20%	50%	80%	20%	33%	80%	20%
French "liquidation judiciaire" (1994)	100%	60%	0%	33%	80%	20%	67%	80%	0%	50%	80%	0%	67%	80%	0%
UK Receivership	67%	60%	20%	50%	60%	20%	100%	20%	60%	83%	60%	80%	50%	60%	20%
UK Administration	50%	80%	40%	33%	80%	40%	83%	80%	40%	33%	80%	40%	17%	80%	40%
UK Compulsory liquidation	17%	60%	20%	17%	60%	20%	100%	20%	40%	67%	0%	40%	17%	80%	20%
UK Voluntary liquidation	17%	60%	20%	17%	60%	20%	100%	20%	40%	67%	0%	20%	17%	80%	40%

One may note that, in Table 1a, the legal indexes for French procedures take almost similar values. This is not unexpected, as the two French procedures share several features in common (especially the way they are triggered and managed). French “*liquidation judiciaire*” and “*redressement judiciaire*” mainly differ in their outcome and in the associated repayment order. On the contrary, UK procedures are quite different in their characteristics, as reflected by their indexes.

We first consider the legal index ACCESSIBILITY. The UK administration is the most accessible procedure, when compared to the others (especially the UK liquidation procedures). *Ceteris paribus*, administration is easier to trigger and is accessible to a wider set of stakeholders. As a consequence, the parties can revert to the legal solution if the attempts to privately renegotiate fail. Now turning to the EXCLUSIVITY of the procedure, we notice that the French procedures are more exclusive than the UK ones (except UK compulsory liquidation). As a consequence, the French bankruptcy code can be viewed as more “irreversible” than other

procedures, in the sense that, once triggered, the legal solution is hard to abort and coming back to the private solution is more difficult.

When considering corporate bankruptcy law as a means to generate INFORMATION, we observe that the indexes of both countries show rather high values (bigger than 80%). Thus, in both countries, entering bankruptcy breaches confidentiality. Yet, the UK procedures show higher values than for France. From this perspective, the creditors are more protected in UK as they benefit from a more transparent legal environment. On the contrary, the debtor might suffer from lack of confidentiality and incur opportunity costs.

The protection of the assets (PROTECT\_ASSETS) is a core feature of corporate bankruptcy laws. Indeed, by holding the environment constant, if a procedure is efficient in protecting the debtor's assets, it should generate more recoveries for the pool of creditors. We observe that the design of the French procedures is relatively more protective of the debtor's assets. On the contrary, UK receivership is less protective. Overall, it is interesting to see that the various procedures do not equally protect the debtor's assets. This should generate significant differences in the overall recovery rates and confirm the idea that choosing one procedure against another is a strategic choice.

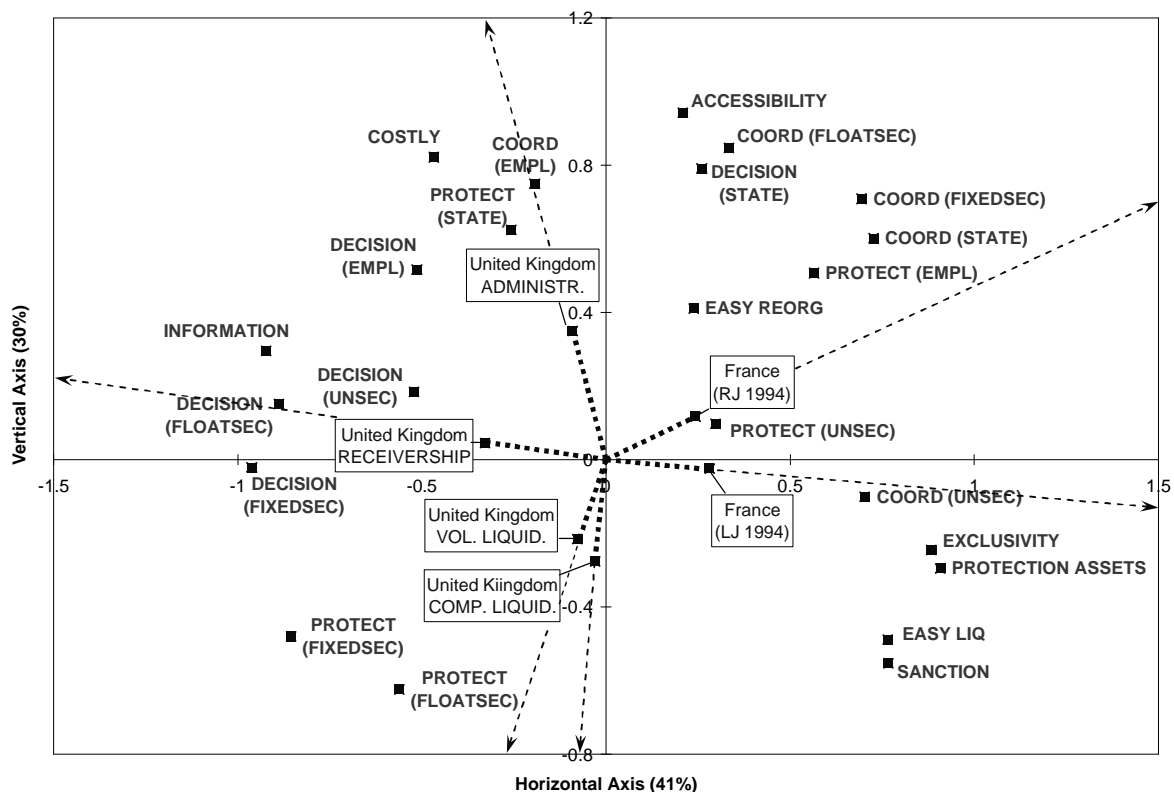
The SANCTION of faulty management is another key dimension of corporate bankruptcy laws. If we follow the assumption that such sanctions are anticipated by the managers, one can expect that the legal environment has ex-ante effects onto the managerial behaviours taking place before default. From that perspective, French procedures and UK liquidation procedures are the most severe ones against faulty managers. At this stage of the analysis, let us remind that we focus on the content of the law only, and not on the way the law is enforced (especially, a procedure might contain lots of chapters dealing with sanction, but such sanctions might not be effective if the Courts are clement towards managers). That being said, it is not surprising to observe that liquidation procedures are more severe against faulty managers as liquidation generates additional costs relatively to reorganization (social costs, reputation costs, systemic costs, dominos effects...).

Another difference between liquidation and reorganization procedures is the way they facilitate LIQUIDATION or REORGANIZATION. Here, without any surprise, we observe that all the procedures are in coherence with respect to their objectives. Precisely, the procedures that are oriented toward liquidation facilitate more liquidation than reorganization. Yet, some of them do not show a big imbalance between the two possible outcomes (namely, the French “*redressement judiciaire*”, the UK administration and the UK voluntary liquidation).

Table 1b shows, for each type of creditor, the values of the legal indexes accounting for PROTECTION, COORDINATION and DECISION. We confirm that the French legislation is more protective of the employees’ interests and prioritizes social goals. This finding is coherent with the ranking of objectives, as stated by the 1<sup>st</sup> article of the 1985/1994 French bankruptcy law. On the other hand, in UK, the (fixed or floating) secured creditors are relatively more protected under receivership, compulsory liquidation, and voluntary liquidation. As most of the secured creditors are bankers, one can predict that such orientation of the UK law might generate higher recovery for the banks (Davydenko and Franks (2008)). The scenario however changes with respect to unsecured claims: the UK bankruptcy procedures (except receivership) show quite low protection indexes for them. On the contrary, unsecured creditors seem more protected in France, especially against delays or repayment and debt reduction. Most of the unsecured creditors are suppliers (i.e. other companies). Again, this is coherent with the orientation of the French legislation prioritizing the protection of business. When considering coordination in UK, it appears that liquidation procedures do not provide strong coordination tools to the secured creditors. This contrasts with the situation of the other creditors (employees, State and public claims, unsecured creditors) who benefit from more coordination, whatever the considered procedure. Overall, receivership and administration equally coordinate the various creditors. In France, the coordination indexes are strong and quite balanced: all the classes of claimants benefit from a comparable level of coordination. Last, we turn to the indexes relative to decision. The situation of France contrasts with the UK. Indeed, the lowest values for decision are observed for “*redressement judiciaire*” and “*liquidation judiciaire*”. This is a direct consequence of the absence of voting procedures in France: the final decision lies in the hands of the Court, so that the decision power of creditors is minimized.

Tables 1a and 1b do not account for the combined effect of the 10 indexes. We then turn to multivariate approach and perform principal component analysis (PCA) to draw a mapping of the six procedures. Graph 1 provides the result of this analysis which explains 71% of the initial inertia<sup>42</sup>. The first axis (41% of inertia) mainly opposes the French and UK procedures and the second axis (30%) mainly opposes liquidation against reorganization procedures. Each arrow shows a direction indicated by one particular procedure. The variables used to compute the PCA are the legal indexes. They are also displayed in the same graph. Thus, the interpretation of the PCA mapping is straightforward: an index is higher (respectively lower) for the procedure(s) that indicate(s) a location close to them. For instance, the indexes *COORD\_UNSEC*, *EXCLUSIVITY*, *PROTECT\_ASSETS*, *EASY\_LIQ*, and *SANCTION* *altogether* take relatively higher values for French “*liquidation judiciaire*” than for other procedures, especially the UK ones.

**Graph 1: Mapping of the French and UK bankruptcy procedures (component analysis)**



<sup>42</sup> I.e. the original dispersion of the scatter-plot.

We observe several interesting features on the United Kingdom. Administration – which is a quite sophisticated procedure as it follows multiple objectives – shows the highest COSTLY\_PROC index. Such a costly procedure may be less attractive but, on the other side administration appears relatively accessible to all the stakeholders. Administration and receivership have frequently been compared together. Indeed, since the abolishment of receivership in 2003, the number of administrations has increased, which probably reflects a substitution effect between both the procedures. Yet, administration and receivership show several differences. On one side, administration preserves the decision power of public claims and of employees’ claims, and strongly coordinates them. On the other side, receivership provides more decision power to the secured creditors. This is a direct and natural consequence of the bank-friendly inclination of receivership. Yet, interestingly enough, this procedure remains transparent to all the stakeholders as it shows a high INFORMATION index that makes it comparable to administration. In that view, receivership is actually a collective procedure as it shares information beyond the sole appointer’s interests. Last, (compulsory and voluntary) liquidation procedures are quite close to each other. They show higher SANCTION indexes than the other UK procedures. In addition, they provide more protection to the secured claims (fixed and floating). This inclination towards the secured-creditors’ interests has a cost, as it exhibits a low level of protection for the employees, the public claims, and the unsecured creditors. This might impact on efficiency: some of the creditors cannot get secured either because their bargaining power is low outside bankruptcy (employees) or because they can hardly take collaterals to protect their claims (trade creditors).

The French legislation also shows interesting characteristics. First, the coordination of secured claims, public claims, and unsecured claims is higher in France than is in UK (this is less true for the employees, but they take advantage of other types of protection, especially in terms of privilege<sup>43</sup>). Yet, these stronger coordination mechanisms are compensated by weaker decision mechanisms. Thus, entering the French procedures has two opposite effects (that might impact on the incentives to trigger bankruptcy): on the one hand, the creditors benefit from good coordination that should reduce the common pool problem, but on the other hand, they are excluded from the final choice that finally affects their recoveries. In addition, the French

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<sup>43</sup> Cf. “super-privilège des salaries”.

procedures are characterized by a stronger protection of the debtor's assets. This is a core aspect of the French legislation that has been prioritizing prevention and post-default conservatory measures that aim to preserve the debtors' asset and, consequently, the chances of reorganization.

We now wonder if these differences between the procedures are sufficient to explain (or not) the differences in the recovery rates that are observed on each procedures. We then need to use an additional set of data coming from bankruptcy files in France and in UK. This is the purpose of the two subsequent sections.

#### **4. The dataset on recoveries in UK and France**

Data were manually collected from 833 bankruptcy files for the period 1993-2005 for France, and for the period 1998-2005 for the United-Kingdom (the time repartition of our sample is shown in appendix A2). The English data are slightly more recent for three reasons: first, they were already stored in electronic format<sup>44</sup> so that the data collection process was quicker to undertake. Second, we could not extract too many French files for year 2005 as it was a transition year in France (between the old and the new legislation). Third, we had to exclude from the sample the very recent files as we needed to work on closed files only (so that the computation of recovery rates is reliable and definitive). As the covered period is quite long (more than 10 years), we control for macroeconomic shocks by introducing in our regressions the annual growth rate of GDP.

The data on France were collected at the Commercial Court of Paris (*Tribunal de Commerce de Paris*). As the French bankruptcy procedure is mainly carried out under the supervision of the court, data might not fully reflect the countrywide application of the bankruptcy code. Additionally, local conditions might have some influence on reorganization decisions. However, we assume that this potential geographic bias is marginal when compared to the international differences that our study focuses on.<sup>45</sup> The bankrupt firms were identified

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<sup>44</sup> Source: Insolvency Service and Companies House.

<sup>45</sup> A comparison of our sample with the characteristics of French corporate bankruptcies shows little differences in terms of structural dimensions: size, sector, yet our sample entails slightly more LTD firms compared to France.

using the BODACC<sup>46</sup> that records each new bankruptcy judgement. English data were collected from the Companies House web-database (Insolvency Service). This database collects the main documents of the bankrupt firms located in Greater London, Yorkshire, North, North West, East Midlands, East Anglia, Rest of South East, South West, West Midlands, Wales and Scotland. The bankrupt firms were identified using the bankruptcy filings announcements published in the “London Gazette”.

Despite some formal differences, the bankruptcy files in both countries contain similar information, which allowed us to collect data using a common template (see appendix A4). The main available data are: (1) identification of firm (age, legal form, sector, number of employees, part of a group, duration of the procedure); (2) the cause(s) of default (these causes were coded into 51 dummies which were further classified into 7 groups: outlets, strategy, production, finance, management, accident, and macroeconomic environment<sup>47</sup>: see appendix A3); (3) the coverage rates (i.e. the market value of assets divided by the due debts); (4) the estimated value of assets at the time of bankruptcy; (5) the amounts recovered by the creditors; (6) the direct bankruptcy costs<sup>48</sup>.

Our dataset has the following breakdown for the six bankruptcy paths: 164 French “*redressements judiciaires*”, 100 “*liquidations judiciaires*” (excluding sales<sup>49</sup>), 199 UK administrations, 198 receiverships, 100 compulsory liquidations, and 72 voluntary liquidations (to our knowledge, no previous studies on the UK had access to liquidations files). Such distribution of the sample does not reflect the actual breakdown between procedures in each country. Indeed, in order to have robust estimates in the subsequent analyses, we need to use a sufficiently high number of observations *for every procedure*. However, if we had the same structure as the national one, the samples would have exhibited excessive imbalance towards

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<sup>46</sup> *Bulletin Officiel des Annonces Civiles et Commerciales*.

<sup>47</sup> We built 7 dummy variables equal to 1 if there is at least 1 cause identified in a given category and 0 elsewhere. A few files miss information on the cause(s) of default. As such information is critical, we consider them as missing data and remove them from the econometric models.

<sup>48</sup> The UK files contain direct information about bankruptcy costs, which mainly correspond to the administrator’s fees. For France, this information is not displayed in the bankruptcy file. However, as bankruptcy costs are precisely defined by a legal formula based on observable characteristics (recovered amounts...), costs could be reconstituted using the regulatory formula and validated by a bankruptcy practitioner.

<sup>49</sup> Sale as a going concern is not part of “*liquidation judiciaire*” until 2005, but part of “*redressement judiciaire*”.

liquidation. Yet, to rebuild the original national structure, our estimations weight the observations by using each country's actual repartition of procedures for the given period<sup>50</sup>.

Both samples are made of young SMEs. The average firm's age lies between 8 and 17 years for both the countries (the liquidated firms being younger than the others). The bulk of the sample is made of limited liability companies (on an average ranging between 90% – 100%). The number of employees was available for the French sample only: the liquidated firms in France are on an average smaller (12 employees) than the reorganized ones (26). Additionally, in France, most of the firms do not belong to a group (more than 90% of them), while this figure is in contrast with the percentages applicable to UK firms where 23% and 28% of the companies entering administration (resp. receivership) are a part of group. On the other side, all the firms being liquidated in UK do not belong to a group. We now consider the market value of assets at triggering<sup>51</sup>. The French figures look similar between both the procedures: the most important accounts, in percentage of total assets, are receivables (from 23% to 36%), tangible assets (around 25%), intangible assets (around 13%), and cash (less than 7%). The UK figures are quite different: receivables account for more than 36% (to 44%) of the total assets. The liquidated firms show high values of cash (from 27% to 38%) which is in contrast with the administration and receivership files (less than 5%). The latter files show higher values of tangible assets (around 40%).

The various bankruptcy procedures differ considerably in their scope and in the types of rights they confer to the creditors. We thus focus on the main output of such procedures: the creditors' recovery rate, which can be considered as a proxy of the ex-post efficiency of bankruptcy law; *ceteris paribus*, a higher debtor's value should generate more recoveries. These recoveries strongly depend on the final outcome: under liquidation (or sale), the recoveries come from the liquidation (or sale) price. Under reorganization, the plan contains a provisional schedule of payments<sup>52</sup>. As a consequence, the actual recoveries depend on the success of the

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<sup>50</sup> Individual weights are 5% for “*redressement judiciaire*”, 95% for “*liquidation judiciaire*”, 5% for administration, 10% for receivership and 30% for compulsory liquidation, and 55% for voluntary liquidation.

<sup>51</sup> This is the estimated value from the administrator's or the manager's point of view. We additionally have the final verified value of the assets that enters in the computation of the recovery rates.

<sup>52</sup> In France, the plan – as designed by the court – cannot force debt forgiveness but can impose longer delays.



plan. For the French data, the use of external databases over the period<sup>53</sup> makes it possible to identify the companies whose reorganization plan failed or ended successfully: we observe that 89% of plans are successful. If the reorganized company defaults again, subsequent failure signifies that future recoveries are expected to be null. For the other successful plans, we discount the future recoveries using the French Treasury term structure. For UK data, we do not observe reorganization plan as the entire files end either in piecemeal liquidation or sale.

Table 2 shows the recovery rates for each type of procedure and for each class of creditors. The total recovery rate shows noticeable differences between the procedures. The higher value (46%) is observed for the French “*redressement judiciaires*”. Then, come receiverships (30%), administrations (21%), and liquidation procedures. It is noteworthy that UK liquidations show poor total recovery rates (9% for compulsory liquidation, 13% for voluntary liquidation): these values are in contrast with the higher rate for French liquidations (20%).

**Table 2: Recovery rates, coverage rate, and structure of claims**

Variables	France		United Kingdom			
	Redressement judiciaire (incl. sales)	Liquidation judiciaire (excl. sales)	Administration	Receivership	Compulsory liquidation	Voluntary liquidation
<i>Sample size</i>	164	100	199	198	100	72
Recovery rate (total)	<b>45.8%</b>	<b>19.6%</b>	<b>20.5%</b>	<b>29.7%</b>	<b>8.6%</b>	<b>12.9%</b>
Recovery rate (junior)	38.2%	3.1%	3.5%	1.6%	7.7%	4.3%
Recovery rate (preferential)	56.9%	30.8%	42.0%	31.2%	17.2%	18.7%
Recovery rate (secured)	51.9%	40.3%	38.7%	43.7%	16.2%	25.3%
Recovery rate (new money)	62.6%	27.3%	98.7%	100.0%	n.s.	100.0%
Coverage rate	66.7%	46.4%	31.8%	35.8%	15.4%	20.8%
Due claims (amount in K€)	1743	760	1788	3390	283	658
% of junior due claims	45.9%	32.9%	53.6%	35.6%	91.0%	69.5%
% of preferential due claims	33.9%	55.8%	0.7%	5.7%	3.8%	10.3%
% of secured due claims	15.2%	7.6%	31.6%	45.8%	5.1%	10.6%
% of new money claims	2.3%	0.7%	6.1%	7.6%	0.0%	4.2%
% of bankruptcy costs	2.7%	3.1%	8.0%	5.3%	0.1%	5.4%
Duration of the procedure (in months)	11.6	3.1	19.4	38.9	26.4	35.5

<sup>53</sup> Sources: INSEE, “*série nationale des défaillances d’entreprises*”, BODACC.

The questions we address in this paper are the following: *what can explain such differences between the countries? Is the design of bankruptcy Law a significant explanation? If yes, which features increase (or not) the total recovery rate?* To answer these questions, we must control for several factors.

Firstly, the recovery rate mechanically depends on the situation of the firm at triggering, and more precisely, on the value of its assets. To capture this effect, we use the coverage rate which measures the value of assets (at triggering) divided by the total due amounts. We observe in the sample that the coverage rate takes higher values in France (67% for “*redressements judiciaires*” and 46% for “*liquidations judiciaires*”). Thus the French bankrupt firms are in relative better shape when they enter the procedure than the UK ones<sup>54</sup>.

Secondly, the structure of claims (secured, unsecured, new money...) might impact on the total recovery rate. Especially, one can expect the secured creditors to monitor the debtor more as compared to the unsecured ones. In addition, the more secured the assets are, the less value they should lose, as collateralized assets cannot be sold as easily as uncollateralized ones. Table 2 shows the weight of each class of creditors in percentage of total due claims. We observe that the part of junior claims is generally lower in France (between 33% and 46%) as compared to UK. Especially, UK liquidations show the highest share of junior creditors (between 70% and 91%). On the contrary, the French claims are mainly owned by preferential creditors (between 34% to 56%). This mainly reflects the protection of social claims (employees) and of public claims (State) that benefit from numerous privileges (“*superprivilège des salariés*”, “*privilège général des salariés et des créances publiques*”). The share of secured creditors (mainly banks) is on an average higher in UK (especially for administration (32%) and for receivership (46%)) than in France (less than 15%).

Thirdly, the differences in total recovery rates might reflect differences in bankruptcy costs. The share of direct bankruptcy costs differs from one procedure to another. To measure this, Table 2 discloses the percentage of direct bankruptcy fees out of the total claims. The most

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<sup>54</sup> Several factors might explain this, especially, the effects of prevention policy that is quite developed in France. All remaining things being equal, a higher prevention should preserve more value before bankruptcy is triggered.

expensive procedures are administrations (8.0%), voluntary liquidations (5.4%) and receiverships (5.3%). The less expensive ones are “*liquidations judiciaires*” (3.1%), “*redressements judiciaires*” (2.7%), and compulsory liquidations (0.1%). We additionally compute the duration of the procedure. Indeed, as previously suggested by White (1989), duration can be viewed as a proxy of cost of the procedure, or the complexity of the case, or the attempts to keep the firm alive and in view of this, the delay evidently suggests attempts of renegotiation. However, it can also be a proxy of lengthy court and administrative procedures demanding a series of formalities to be fulfilled at the time of trigger or at the time the firm is finally being dissolved. In our sample, we observe differences in the durations across countries. France shows the fastest procedures (less than one year on average)<sup>55</sup>.

Fourthly, once the three first effects (coverage rate, structure of claims, bankruptcy costs) have been accounted for, we consider that the fourth explanation of the differences between the total recovery rates can be attributed to the effects of the Law. In other terms, we first have to control for these three first effects (plus some other environmental variables). Then, if significant difference between the total recovery rates remains, this should reflect some differences in the design of the procedure that might be more or less efficient in generating recoveries. To capture such effects, we have to switch from univariate approach to multivariate analysis and regressions. In the next section, we shall see how this is accomplished.

## **5. Using legal indexes to explain the recoveries in France and UK**

We use regression analysis to test the variables that explain the differences in total recovery rates. We split between control variables and test variables, the latter being related to the procedures and to the legal indexes.

We first control for several variables. First, we use the coverage rate to control for the quality of the assets at triggering. It compares the initial value of assets to due claims. Second, to control for the structure of claims, we compute the percentage of secured claims, which mainly

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<sup>55</sup> However, the two countries differ in their practices and there can be a considerable delay before the case is closed from an economic point of view and the formal closing by a court. So, we consider the time necessary for creditors (or a court) to make a decision on the outcome of the procedure.

represents the weight of bankers' claims. Third, we control for bankruptcy costs, and mainly the indirect ones<sup>56</sup> through the duration of the procedure. In fact, the duration itself is a misleading indicator as it is strongly related to the procedure. In fact, it is more relevant to use the duration *in excess*: for each procedure, some files are more complex or difficult to deal with, so that they last longer than the average duration. Thus, for each file, we compute the difference between the duration of such file and the average duration that is observed on all the files belonging to the same procedure (in log). Fourth, we encompass the causes of default that have played a role in the bankruptcy process. For each category, (strategy, production, finance, management, accident, outlets, macro.), we built a dummy variable equal to 1 if a cause related to such category was mentioned in the bankruptcy file<sup>57</sup> (and 0 elsewhere). Fifth, we control for a set of variable accounting for the firm's characteristics: age (in log), limited liability (dummy variable), group belonging (dummy variable), percentage of estimated cash in the total assets, and total assets (thousands of euros, in log). Last, we control for the sector (industrial dummy) and for the macroeconomic growth (increase rate of national GDP).

Then, we test the impact of corporate bankruptcy law onto the total recovery rate (our explained variable). From this perspective, we build successive models. In the first set of models, our explanatory variables are the bankruptcy procedures. Each procedure ("*redressement judiciaire*", "*liquidation judiciaire*", administration, receivership, compulsory liquidation, and voluntary liquidation) is a dummy variable that enters into the regression equation: a positive and significant coefficient indicates that the considered procedure significantly increases (relatively to the others) the total recovery rate. Table 3 shows the results of OLS regression models. They are computed on the full sample, i.e. France and UK (due to missing data, 735 observations out of 833 were used in the regressions). The six columns share the same control variables. The difference between them is the considered procedure as test variable. Our models are globally significant at the 1% level (Fisher stat.). The adjusted R<sup>2</sup> is satisfactory with values lying between 27% and 30%. Last, we use the VIF<sup>58</sup> check for multicollinearity: all our variables show an acceptable VIF factor (inferior to 2).

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<sup>56</sup> Direct bankruptcy costs are already taken into account in the analysis as the total recovery rate is net of such costs.

<sup>57</sup> Let us stress the fact that all the causes should be mentioned here as they come from the report of the administrator who checked and reported all of them.

<sup>58</sup> VIF stands for "Variance Inflation Factor". It measures the severity of multicollinearity in an OLS regression. It indicates how much the variance of an estimated regression coefficient is increased because of multicollinearity.

**Table 3: Bankruptcy procedures as explanatory variables of the total recovery rate**

Variables	Dependant variable: total recovery rate					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	0.19903*** 0.0007	0.21721*** 0.001	0.21177*** 0.0004	0.22493*** 0.0002	0.22131*** 0.0002	0.19806*** 0.0009
"Redressement judiciaire"	0.19951*** <.0001					
"Liquidation judiciaire"		-0.00203 0.9173				
Administration			-0.02955 0.3724			
Receivership				0.03023 0.3102		
Compulsory liquidation					-0.05047* 0.0615	
Voluntary liquidation						-0.0828*** 0.0054
Coverage rate	0.13017*** <.0001	0.13419*** <.0001	0.1327*** <.0001	0.13671*** <.0001	0.13576*** <.0001	0.13169*** <.0001
% of secured debts	0.25756*** <.0001	0.24323*** <.0001	0.25096*** <.0001	0.22491*** <.0001	0.23911*** <.0001	0.25*** <.0001
Duration of the procedure (relative to average)	0.00753 0.4075	0.00506 0.5857	0.00472 0.6116	0.00592 0.5252	0.00613 0.5088	0.00866 0.353
In (age)	-0.00184 0.8028	0.0007 0.9267	0.00087 0.9082	0.00054 0.9422	0.001 0.8939	0.00182 0.8074
Limited liability	-0.16005*** 0.0005	-0.19771*** <.0001	-0.19646*** <.0001	-0.20043*** <.0001	-0.19526*** <.0001	-0.19265*** <.0001
Debtor belongs to a group	-0.09305*** 0.0014	-0.09431*** 0.0016	-0.09247*** 0.002	-0.09811*** 0.0011	-0.0943*** 0.0016	-0.10434*** 0.0005
% of estimated cash in the assets	0.04664 0.1526	0.04906 0.1621	0.05013 0.1326	0.04839 0.1471	0.07373** 0.0383	0.0515 0.1206
In (total assets, in K€)	0.01835*** 0.0008	0.02251*** <.0001	0.02291*** <.0001	0.02126*** 0.0002	0.01961*** 0.0006	0.02157*** <.0001
Cause of default: strategy	-0.00427 0.8266	-0.00633 0.7528	-0.00521 0.7942	-0.00633 0.7509	-0.00648 0.7448	0.00204 0.9191
Cause of default: production	-0.06569*** 0.0004	-0.06494*** 0.0006	-0.06426*** 0.0007	-0.06463*** 0.0007	-0.06764*** 0.0004	-0.06111*** 0.0013
Cause of default: finance	-0.02334 0.2219	-0.02165 0.2702	-0.0209 0.2849	-0.02203 0.2596	-0.02114 0.2783	-0.01781 0.3607
Cause of default: management	0.08481*** 0.0001	0.08734*** 0.0001	0.0871*** 0.0001	0.08782*** <.0001	0.08647*** 0.0001	0.09557*** <.0001
Cause of default: accident	0.01238 0.49	0.01337 0.4804	0.01509 0.4119	0.01318 0.4723	0.01953 0.2925	0.0188 0.3051
Cause of default: outlets	0.01521 0.3625	0.01125 0.5115	0.01125 0.5098	0.01022 0.55	0.00907 0.5953	0.0206 0.2338
Cause of default: macro	0.00135 0.9362	0.00681 0.702	0.00807 0.641	0.00547 0.7527	0.00622 0.7184	0.01711 0.3299
Sector: industry	0.01756 0.2833	0.01171 0.4906	0.01278 0.4449	0.00981 0.5604	0.01612 0.338	0.01215 0.4649
Annual change in GDP	-0.94378 0.1599	-0.76997 0.2801	-0.77274 0.2601	-0.77761 0.2571	-0.42876 0.5433	-0.54845 0.424
<b>OLS regression</b>	Fisher Stat: 18.35 (prob: <.0001) Adj. R <sup>2</sup> : 0.299 Nb. of variables with VIF>2: none	Fisher Stat: 15.75 (prob: <.0001) Adj. R <sup>2</sup> : 0.266 Nb. of variables with VIF>2: none	Fisher Stat: 15.81 (prob: <.0001) Adj. R <sup>2</sup> : 0.267 Nb. of variables with VIF>2: none	Fisher Stat: 15.83 (prob: <.0001) Adj. R <sup>2</sup> : 0.267 Nb. of variables with VIF>2: none	Fisher Stat: 16.02 (prob: <.0001) Adj. R <sup>2</sup> : 0.270 Nb. of variables with VIF>2: none	Fisher Stat: 16.35 (prob: <.0001) Adj. R <sup>2</sup> : 0.274 Nb. of variables with VIF>2: none
<b>Number of observations: 735</b>						

Note – The dependent variable is the total recovery rate. Table reports coefficients with t-statistics below. \*, \*\*, \*\*\* denote an estimate significantly different from zero at the 10%, 5% or 1% level.

When compared to the others, only one bankruptcy procedure is significantly associated to higher total recovery rate: the French “*redressement judiciaire*”. On the contrary, the two procedures which are significantly associated to lower total recovery rate are the UK compulsory and voluntary liquidation procedures. This result is quite important, as UK has long been

suspected to generate more recoveries than France. But, most of the previous studies on UK ignored liquidation procedures and only focused on administration and receivership. Overall, this first result confirms that the Law is not neutral: after having controlled for various factors (value of assets, structures of claims, origins of default, bankruptcy duration, firm's characteristics...), we find that the total recovery rate strongly depends on the procedure that is triggered after default.

This first approach is useful in identifying those procedures which are most efficient in increasing the total recovery rate. Yet, this approach is not sufficient as it does not highlight precisely the legal features that play a role in generating additional recoveries. In the second set of models, we use our legal indexes<sup>59</sup> as explanatory variables of the total recovery rate. We propose here a set of 8 hypothesis (H1 to H8), each of them being related to one or more index(es).

*Hypothesis H1. A more accessible procedure increases the total recovery rate.*

We consider the first the index named "ACCESSIBILITY". What is the expected impact on the total recovery rate? As discussed before, an accessible procedure should be triggered earlier because it relies on a wide and accessible set of triggering criteria and/or can be triggered by a wide set of stakeholders. As a consequence, "accessibility" should increase recoveries. Yet, an easily accessible procedure might be triggered for pure strategic purpose, and the final impact on recoveries be reversed. We second consider EXCLUSIVITY. An "exclusive" procedure cannot be aborted easily: precisely, the parties cannot turn back to the private solution or switch to another procedure. We cannot predict any direct impact of "exclusivity" on the recoveries but we can expect the effects of an exclusive procedure to be amplified as no other ways of resolving the default can be used by the stakeholders.

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<sup>59</sup> Namely, these dummies are: ACCESSIBILITY, EXCLUSIVITY, COSTLY PROCEDURE, INFORMATION, PROTECT\_ASSETS, PROTECT\_CLAIMS, COORD\_CLAIMS, DECISION\_CLAIMS, EASE\_LIQ and EASE\_REORG.

Hypothesis H2. *A costly procedure has opposite effects onto the total recovery rate.*

We expect bankruptcy costs (COSTLY\_PROC) to have balanced and opposite effects onto the recoveries. On one hand, the higher the bankruptcy costs are, the lower is the remaining amount to be shared among the creditors. *Ceteris paribus*, bankruptcy costs compete with the other classes of claimants. On the other hand, bankruptcy costs should not be considered as a loss of money but rather as a way to (1) explore the various outcomes, (2) to audit the debtor's situation, (3) to reward the practitioner's efforts to recover more. Overall, both effects might compensate, so we cannot predict which one will overcompensate the other.

Hypothesis H3. *Production of public information under bankruptcy has opposite effects onto the total recovery rate.*

We consider here the index INFORMATION. A common feature of bankruptcy procedures is that they are not (fully) confidential. From that point of view, they might generate fear among the debtor's partners due to loss of reputation. This effect depends of the relations that have been settled between the debtor and its creditors prior to the default. It might also depend on the "*climat des affaires*" within the country. From that point of view, the final recoveries might suffer from the lack of support from the most important creditors. So, it is important to comprehend that confidence has value, even under the event of bankruptcy. However, the production of public information has also positive effects onto the recoveries. This is particularly true regarding the final choice to be made. Such choice should maximize the value of the bankrupt firm, and consequently the recovered amounts. To be efficient, such choice needs to rely on complete and reliable information. Considering this view, producing more information should reduce type I and type II errors. Overall, both effects might compensate for each other.

Hypothesis H4. *Protection of the debtor's assets should increase the total recovery rate.*

It seems natural to predict that a procedure being able to protect the debtor's assets (PROTECT\_ASSETS) and to preserve their value should generate more recoveries for all the creditors. Such protection can take several aspects. First, some assets might be reinstated within the debtor's patrimony if they were previously sold under suspicious circumstances ("*période suspecte*" in France). Second, other assets might stay in the debtor's patrimony as they are

attached to collaterals. Third, other assets might be protected by the administrators (or the liquidators) in order to avoid any additional loss of value. On the contrary, some creditors might withdraw those assets from the debtor's patrimony whose ownership belongs to them (in France: "droit de revendication", "droit de rétention"). Overall, the rules prevailing under the procedure are not neutral regarding the way the assets (and their values) are preserved. The resulting recoveries mechanically depend on the effect of such rules.

*Hypothesis H5. The protection and coordination of claims should generate higher total recovery rate but with differences depending on the type of claims.*

A first major role of bankruptcy procedures is to protect the creditors' claims (PROTECT\_CLAIMS) and their expected recoveries. One can expect that the more the law protects the creditors' interests, the higher should be the associated recoveries. This is true if we consider the creditors as a homogenous pool of claimants. Yet, the legislation might not identically protect the various types of claimants: such differences might serve the recoveries of specific classes of creditors at the expenses of others. A second important feature of bankruptcy procedures is to help the creditor to coordinate (COORD\_CLAIMS). Resolving this well-known common pool problem should help in increasing the total recoveries, especially when compared to the private solution.

*Hypothesis H6. The decision power granted to the creditors has opposite effect onto the total recovery rate.*

The power to decide has no direct and obvious connection with the recoveries. Nevertheless, we can predict two opposite effects associated to variable DECISION\_CLAIMS. On one hand, having the power to influence the final choice might have positive (direct and indirect) effects on recoveries. First, it gives the creditors more incentives to trigger the procedure earlier as they know they can influence its outcome. Second, it makes them more involved in the procedure seeking for the solution which maximizes their interests. On the other hand, benefiting from the decision power might have contrasting effects. First, it might increase the recoveries of the classes of creditors who have the highest decision power at the expense of the other classes of creditors. Second, it might generate additional coordination issues among the



other creditors. Overall, all these effects can compensate so that it is hard to predict any definitive impact on the total recovery rate.

*Hypothesis H7. Excessive inclination to liquidation or to continuation might have a negative impact on the total recovery rate.*

The various bankruptcy procedures are more or less oriented towards liquidation (EASY\_LIQ) or towards reorganization (EASY\_REORG). Some procedures are solely dedicated to one single outcome, but some others are flexible enough to lead to both solutions. In fact, such orientation has *a priori* no direct link with the global recovery rate. In fact, one can suspect that a systematic orientation in favour of one solution against the other is likely to fail in minimizing the type I and type II errors that might occur while making the final choice. On the contrary, more balanced procedures should be able to minimize such costs as they are flexible enough to lead to the most efficient outcome (i.e. the one maximizing the debtor's value).

*Hypothesis H8. Provided they are anticipated, the sanctions of faulty management should increase the total recovery rate.*

Do managers fully anticipate all the states of the world, especially those corresponding to bankruptcy? This answer is not straightforward and goes beyond the scope of this research. Yet, if we make the assumption that the managers are aware that they might be sanctioned for faulty management, then an increase of sanctions (SANCTION) might reduce their incentives to moral hazard, which in return, should make them more responsible towards the management of the debtors assets, and the resulting recoveries in case of bankruptcy.

Table 4 summarizes the results of our OLS regressions. Appendix A5 details the corresponding estimations<sup>60</sup>. Table 4 discloses the signs and significance of the estimated parameters that are associated to our legal indexes. It also provides the list of the control variables that are used in the regressions.

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<sup>60</sup> Due to space constraints, we only give the estimates on all the claims, without showing our results on the classes of creditors (these are available on request).

**Table 4: Legal indexes as explanatory variables of the total recovery rate**

<b>OLS models on France and UK - sample size: 734 observations</b> (each test variable is introduced one after the other in the models; control variables are the same in all the models)			
<b>Test variables: legal indexes on corporate bankruptcy law (%)</b>			
<i>Accessibility</i>	Positive**	<i>Sanction of faulty management</i>	Non significant
<i>Exclusivity</i>	Non significant	<i>Coordination of claims (all claims)</i>	Positive***
<i>Costly procedure</i>	Positive*	<i>Coordination of claims (employees)</i> <i>Coordination of claims (State, public claims)</i> <i>Coordination of claims (fixed secured)</i> <i>Coordination of claims (floating secured)</i> <i>Coordination of claims (unsecured)</i>	Non significant
<i>Production of information</i>	Negative**		Positive***
<i>Protection of debtor's assets</i>	Positive*		Positive**
<i>Ease of liquidation</i>	Non significant		Positive***
<i>Ease of reorganization</i>	Positive*		Non significant
<i>Protection of claims (all claims)</i>	Positive***	<i>Decision power (all claims)</i>	Non significant
<i>Protection of claims (employees)</i> <i>Protection of claims (State, public claims)</i> <i>Protection of claims (fixed secured)</i> <i>Protection of claims (floating secured)</i> <i>Protection of claims (unsecured)</i>	Positive***	<i>Decision power (employees)</i> <i>Decision power (State, public claims)</i> <i>Decision power (fixed secured)</i> <i>Decision power (floating secured)</i> <i>Decision power (unsecured)</i>	Non significant
	Positive***		Positive***
	Negative***		Non significant
	Non significant		Non significant
	Non significant		Non significant
<b>Control variables (list)</b>			
Coverage rate • Share of secured claims (in % of dues claims) • Age (log) • GDP growth • Limited liability (dummy) • Debtor is part of a group (dummy) • Value of total assets at triggering (thousands of €) • Share of cash (in % of total assets at triggering) • Cause of default: strategy (dummy) • Cause of default: production (dummy) • Cause of default: finance (dummy) • Cause of default: management (dummy) • Cause of default: accident (dummy) • Cause of default: outlets (dummy) • Cause of default: macro. (dummy) • Sector: industry (dummy) • duration of the procedure (in log, relatively to the average duration in the considered country).			

Note – The dependent variable is the total recovery rate. \*, \*\*, \*\*\* denote an estimate significantly different from zero at the 10%, 5% or 1% level.

Several of our hypotheses are empirically confirmed. We first consider H1. As expected, we confirm that an accessible procedure is associated to higher recovery rates, but we do not find such effect on exclusivity (not related to the total recovery rate).

Interestingly enough, when considering hypothesis H2, we empirically find that, despite being in competition with the creditors' recoveries, bankruptcy costs significantly serve the total recoveries. This is coherent with the Lubben's view (Lubben 2010). Bankruptcy costs are not pure sunk costs but are the counterpart of a service that is provided by the practitioners, whose work eventually serves the creditors' interests.

According to hypothesis H3, the production of information has two opposite effects on recoveries. While, on one hand, it should destroy value due to breach in confidentiality. On the other hand, producing public signals to the stakeholders should help them to make the adequate choice at the end of the process. From our result it is evident that the former effect over compensates the latter and our legal index relative to production is negatively related to total recovery rates which signify a more transparent procedure leads to lower recoveries.

We now test hypothesis H4. Without surprise, we confirm that the procedures that provide more protection to the debtor's assets significantly improve the total recovery rate.

We find a similar result regarding the protection and coordination of claims (hypothesis H5). Indeed, we find that both indexes PROTECT\_CLAIMS and COORD\_CLAIMS strongly increase total recoveries. A higher protection of the creditors' rights is actually associated to improved recoveries for them. Similarly, the more the procedure is efficient in reducing the conflicts of interests, by improving coordination, the more recoveries it generates. These findings are key results as they confirm the usefulness of legal procedures when compared to simple private workouts. However, as suggested in H5, the overall effect is not the same for all the classes of claimants. Indeed, we find a reversed result regarding the protection of secured claims that does not generate higher global recoveries. This can be explained as the procedures that provide more protection to the secured creditors (receivership for instance) are not designed with the intent of increasing the overall recoveries but are more focused on the repayment of those creditors who are in possession of the collaterals.

Last, we consider hypotheses H6 to H8. Firstly, regarding H6, we do not find a significant effect of the creditors' decision-power on the global recovery rates. This is not that much surprising as the final outcome should mainly depend on the structure of claims and of the creditors' interests, which varies from a file to another. The power to decide is not sufficient in itself to draw a systematic link (either positive or negative) with the recovery rate. We can also interpret this result in a symmetric way: leaving the power to decide in the hands of a judge (as in France) should not impact too much on the total recoveries. Above finding negates the common vision about the French Bankruptcy code, being suspected to be excessively debtor

friendly and in that sense could compromise the value maximization goal. Secondly, hypothesis H7 is partially confirmed: inclination towards liquidation does not create or destroy recoveries. But, inclination towards reorganization significantly increases the total recovery rate. Thirdly and finally, hypothesis H8 is not confirmed as it is observable that it does not have any impact on the total recoveries. This signifies that a stringent legal environment does not affect the total recoveries.

## **Conclusions**

In this paper, we contribute to the literature by reconciling two complementary approaches of corporate bankruptcy. The first approach belongs to the law and finance paradigm and is based on the construction of legal indexes. Yet, the works following that avenue are mainly oriented to macroeconomic development and growth without drawing a direct link with the creditors' individual recovery rates. The second approach gathers financial works testing for a ranking of countries based on their recovery rates. Nevertheless, such works provide little insights into the legal characteristics that can explain such ranking.

We first propose a set of legal indexes highlighting ten dimensions of corporate bankruptcy law. We build composite indexes on six bankruptcy procedures prevailing in two countries which are good representative of the main European legal systems: France (Civil Law country) and United-Kingdom (Common Law country). We then propose a mapping of procedures that shows a clear specialization between them. The French procedures are more protective of the debtor's assets and favor more the coordination of secured claims, public claims, and unsecured claims. Yet, stronger coordination mechanisms are compensated by weaker decision mechanism in France. In United-Kingdom, we find strong opposition between the procedures oriented to liquidation and the other procedures (administration and receivership). On one side, UK liquidation procedures are more severe against faulty management and provide more protection for secured claims. Indeed, this inclination towards the secured-creditors' interests has a cost, as it provides less protection to the employees, the public and the unsecured claims. On the other side, we observe that UK administration preserves more the decision making power of public claims and of employees' claims, and coordinates them. UK

receivership provides more decision power to the secured creditors but still remains transparent to all the stakeholders.

We then use an original database of 833 bankruptcy files to measure the recovery rates that are generated by each procedure. We find strong differences between them on an average: French “*redressement judiciaires*” (46%), receiverships (30%), administrations (21%), French liquidation (20%), UK voluntary liquidation (13%), and compulsory liquidation (9%).

We then turn to OLS regressions and use our legal indexes to isolate the characteristics of corporate bankruptcy law that significantly impact on the total recovery rate in France and in UK. By controlling for the value of assets, the structure of claims, the origins of default, and the firm characteristics, we test for several hypotheses. We first isolate the legal features of bankruptcy procedures that are associated to higher total recovery rates: namely, (1) accessibility of the procedure, (2) protection of the debtor’s assets, (3) protection and coordination of claims, (4) orientation towards reorganization, and (5) bankruptcy costs. From that perspective, these costs are not sunk cost only, but can be viewed as the counterpart of a service provided by the practitioners that eventually serve the creditors’ recoveries. On the contrary, we find that the production of information under bankruptcy has a negative impact on total recoveries, probably due to the breach in confidentiality. Last, some dimensions of corporate bankruptcy law are not significantly related to total recovery rates (inclination towards liquidation, severity towards faulty management).

Our approach advocates for further works exploring the relations between the Law and the financial output of bankruptcy. The combined use of legal indexes and individual data from the bankruptcy files is an interesting and promising way to explore.

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## Appendixes

### ***C1. Legal indexes (list)***

	France		United Kingdom			
	"Redressement judiciaire"	"Liquidation judiciaire"	Receivership	Administration	Compulsory liquidation	Voluntary liquidation
<b>ACCESSIBILITY</b>						
The triggering criteria does not require the value of the firm's assets to exceed the expected legal costs.	1	1	0	1	0	0
The triggering criteria relies (partially or not) on present financial difficulties (cash shortage, delays...).	1	1	1	1	1	1
The triggering criteria relies (partially or not) on present non financial difficulties (social conflict...).	0	0	0	0	0	0
The triggering criteria relies (partially or not) on future / expected financial difficulties.	0	0	1	1	1	1
The triggering criteria relies (partially or not) on future / expected non-financial difficulties.	0	0	0	0	0	0
The triggering criteria does not require any difficulty, financial or not, present or future.	0	0	0	0	0	0
The debtor (manager or shareholder) can trigger the procedure.	1	1	0	1	1	1
The Court(s) can trigger the procedure.	1	1	0	0	0	0
Debtor's employees can trigger the procedure.	0	0	0	0	0	0
The State & public claims can trigger the procedure.	1	1	0	1	1	0
Secured creditor(s) can trigger the procedure.	1	1	1	1	0	0
Unsecured creditor(s) can trigger the procedure.	1	1	0	1	1	0
Any other stakeholder (account supervisor, customers, etc.) can trigger the procedure.	0	0	0	0	0	0
The debtor cannot oppose to the triggering (when (s)he has not decided to trigger him(her)self).	0	0	1	0	0	0
The Court (in charge of the corporate bankruptcy affairs) cannot oppose to the triggering.	0	0	1	1	1	1
Debtor's employees cannot oppose to the triggering.	1	1	1	1	1	1
The State & public claims cannot oppose to the triggering.	0	0	1	1	0	1
Secured creditor(s) cannot oppose to the triggering. (whatever the type of collateral)	1	1	1	1	1	1
Unsecured creditor(s) cannot oppose to the triggering.	1	1	1	1	0	1
Any other stakeholder(s) (account supervisors, customers...) cannot oppose to the triggering.	1	1	1	1	1	1
<b>EXCLUSIVITY</b>						
The bankruptcy procedure can be aborted if the debtor and the creditor(s) find a private agreement.	0	0	1	1	0	1
The debtor can abort the bankruptcy procedure.	0	0	0	0	0	0
One (at least) creditor(s) can abort the bankruptcy procedure.	0	0	1	0	0	0
<b>COSTLY_PROC</b>						
The firm's assets must exceed the expected legal costs.	0	0	0	0	0	0
The practitioners do not operate under perfect competition: i.e. some barriers limit free entrance.	1	1	1	1	1	1
The legal costs are freely invoiced by the practitioners. Put 'N' if the legal fees are determined by the Law.	0	0	1	1	0	0
The amount of the legal costs does not have to be approved by the creditor(s).	1	1	0	0	0	0
The legal costs are not limited by a pre-determined maximum ceiling. Put 'Y' if the costs are freely invoiced.	0	0	1	1	0	0
The legal costs cannot be reduced for small companies or files. Put 'Y' if the costs are freely invoiced.	0	0	1	1	0	0

	France		United Kingdom			
	"Redressement judiciaire"	"Liquidation judiciaire"	Receivership	Administration	Compulsory liquidation	Voluntary liquidation
<b>INFORMATION</b>						
The procedure is not confidential.	1	1	1	1	1	1
The law entitles stakeholders (employee...) to alert the manager on the difficulties, prior to bankruptcy.	1	1	1	1	1	1
Any stakeholder has an access to the information in the bankruptcy files, before the procedure is ended.	1	1	1	1	1	1
Any stakeholder has an access to the information in the bankruptcy files, once the procedure is ended.	0	1	1	1	1	1
Court and/or practitioner(s) may share the information they gather with the creditors (whatever their type).	1	1	1	1	1	1
An audit of the debtor takes place during the procedure (origin(s) of the default, last financial reports...).	1	0	1	1	1	1
Some experts can be hired to audit the firm.	1	1	1	1	1	1
The value of the debtor's assets is checked. (market value)	1	1	1	1	1	1
The value of the claims is checked. (some may be accepted or rejected)	1	1	1	1	1	1
Pre-estimation of the debtor's liquidation value is performed during the bankruptcy process.	0	1	1	1	1	1
Pre-estimation of the debtor's continuation value is performed during the procedure (forecast accounting).	1	0	1	1	0	0
<b>PROTECT_ASSETS</b>						
The contracts that took place before bankruptcy can be cancelled if they decreased the value of assets.	1	1	0	1	1	1
Before the procedure, some stakeholder(s) can warn the Court in case of first difficulties.	1	1	0	0	0	0
Before the procedure, the Court can interview the manager(s) in case of first difficulties.	1	1	0	0	0	0
During the procedure, the economic value of the debtor's assets is assessed and checked.	1	1	1	1	1	1
During the procedure, an audit of the restructuring opportunities (if they exist!) is performed.	1	0	1	1	1	1
During the procedure, the debtor's assets cannot be freely sold or liquidated.	1	1	0	0	1	1
During the procedure, major decisions (firing, investing...) are subjected to a legal authorization.	1	1	0	1	1	1
During the procedure, the continuation of previous contracts (supplies, electricity...) can be enforced.	1	1	1	0	1	1
During the procedure, legal practitioners (administrators, experts...) can help the manager(s) to run the firm.	1	1	1	1	1	1
During the procedure, faulty and/or incompetent manager(s) can be fired from the direction of the company.	1	1	1	1	1	1
<b>PROTECT_EMPL</b>						
Employees (prior): can be paid outside the procedure.	1	1	1	0	0	0
Employees (prior): no debt reduction	1	1	1	0	0	0
Employees (prior): no delays	1	1	0	0	0	0
Employees (post): can be paid outside the procedure.	1	1	1	1	1	1
Employees (post): no debt reduction	1	1	1	1	0	0
Employees (post): no delays	1	1	0	1	0	0
<b>COORD_EMPL</b>						
Employees: A legal mandatory represents them	1	1	0	1	0	0
Employees: stay of claim	0	0	1	1	1	1
Employees: stay of individual legal proceedings	0	0	1	1	1	1
Employees: They are consulted for the important decision	1	1	0	0	0	0
Employees: they are granted an information right	1	1	1	1	1	1

	France		United Kingdom			
	"Redressement judiciaire"	"Liquidation judiciaire"	Receivership	Administration	Compulsory liquidation	Voluntary liquidation
<b>DECISION_EMPL</b>						
Employees: They are consulted on the final decision	1	0	0	1	1	1
Employees: They vote on the final decision	0	0	0	1	0	0
Employees: The Court cannot impose a solution on them	0	0	1	0	0	0
Employees: They have an appeal right	0	0	0	0	0	0
Employees: Eventually, they can take the control	0	0	0	0	0	0
<b>PROTECT_STATE</b>						
State & public claims (prior): can be paid outside the procedure.	0	0	0	0	0	0
State & public claims (prior): no debt reduction	1	1	1	0	0	0
State & public claims (prior): no delays	0	0	0	0	0	0
State & public claims (post): can be paid outside the procedure.	0	0	1	1	1	1
State & public claims (post): no debt reduction	1	0	1	1	0	0
State & public claims (post): no delays	0	1	0	0	0	0
<b>COORD_STATE</b>						
State & public claims: A legal mandatory represents them	1	1	0	1	0	0
State & public claims: stay of claim	1	1	1	1	1	1
State & public claims: stay of individual legal proceedings	1	1	1	1	1	1
State & public claims: They are consulted for the important decision	1	0	0	0	0	0
State & public claims: they are granted an information right	1	1	1	1	1	1
<b>DECISION_STATE</b>						
State & public claims: They are consulted on the final decision	1	0	0	1	1	1
State & public claims: They vote on the final decision	0	0	0	1	0	0
State & public claims: The Court cannot impose a solution on them	0	0	1	0	0	0
State & public claims: They have an appeal right	1	1	0	0	0	0
State & public claims: Eventually, they can take the control	0	0	0	0	0	0
<b>PROTECT_FIXEDSEC</b>						
Fixed Secured (prior): can be paid outside the procedure.	0	0	1	1	1	1
Fixed Secured (prior): no debt reduction	1	1	1	1	1	1
Fixed Secured (prior): no delays	0	0	1	0	1	1
Fixed Secured (post): can be paid outside the procedure.	1	1	1	1	1	1
Fixed Secured (post): no debt reduction	1	1	1	1	1	1
Fixed Secured (post): no delays	1	1	1	1	1	1
<b>COORD_FIXEDSEC</b>						
Fixed secured: A legal mandatory represents them	1	1	1	1	1	1
Fixed secured: stay of claim	1	1	0	1	0	0
Fixed secured: stay of individual legal proceedings	1	1	0	1	0	0
Fixed secured: They are consulted for the important decision	0	0	0	0	0	0
Fixed secured: they are granted an information right	1	1	0	1	0	0

	France		United Kingdom			
	"Redressement judiciaire"	"Liquidation judiciaire"	Receivership	Administration	Compulsory liquidation	Voluntary liquidation
<b>DECISION_FIXEDSEC</b>						
Fixed secured: They are consulted on the final decision	1	0	1	1	0	0
Fixed secured: They vote on the final decision	0	0	0	1	0	0
Fixed secured: The Court cannot impose a solution on them	0	0	1	0	1	1
Fixed secured: They have an appeal right	0	0	0	0	0	0
Fixed secured: Eventually, they can take the control	0	0	1	0	1	1
<b>PROTECT_FLOATSEC</b>						
Floating Secured (prior): can be paid outside the procedure.	0	0	1	0	1	1
Floating Secured (prior): no debt reduction	1	1	1	0	0	0
Floating Secured (prior): no delays	0	0	0	0	1	1
Floating Secured (post): can be paid outside the procedure.	0	0	1	1	1	1
Floating Secured (post): no debt reduction	1	1	1	1	0	0
Floating Secured (post): no delays	1	1	1	0	1	1
<b>COORD_FLOATSEC</b>						
Floating secured: A legal mandatory represents them	1	1	1	1	0	0
Floating secured: stay of claim	1	1	0	1	0	0
Floating secured: stay of individual legal proceedings	1	1	0	1	0	0
Floating secured: They are consulted for the important decision	0	0	1	0	0	0
Floating secured: they are granted an information right	1	1	1	1	0	0
<b>DECISION_FLOATSEC</b>						
Floating secured: They are consulted on the final decision	1	0	1	1	0	0
Floating secured: They vote on the final decision	0	0	1	1	0	0
Floating secured: The Court cannot impose a solution on them	0	0	1	0	1	1
Floating secured: They have an appeal right	0	0	0	0	0	0
Floating secured: Eventually, they can take the control	0	0	1	0	1	0
<b>PROTECT_UNSEC</b>						
Unsecured (prior): can be paid outside the procedure.	0	0	0	0	0	0
Unsecured (prior): no debt reduction	1	1	1	0	0	0
Unsecured (prior): no delays	0	0	0	0	0	0
Unsecured (post): can be paid outside the procedure.	0	1	1	1	1	1
Unsecured (post): no debt reduction	1	1	1	0	0	0
Unsecured (post): no delays	0	1	0	0	0	0
<b>COORD_UNSEC</b>						
Unsecured: A legal mandatory represents them	1	1	0	1	1	1
Unsecured: stay of claim	1	1	1	1	1	1
Unsecured: stay of individual legal proceedings	1	1	1	1	1	1
Unsecured: They are consulted for the important decision	0	0	0	0	0	0
Unsecured: they are granted an information right	1	1	1	1	1	1

	France		United Kingdom			
	"Redressement judiciaire"	"Liquidation judiciaire"	Receivership	Administration	Compulsory liquidation	Voluntary liquidation
<b>DECISION_UNSEC</b>						
Unsecured: They are consulted on the final decision	1	0	0	1	1	1
Unsecured: They vote on the final decision	0	0	0	1	0	0
Unsecured: The Court cannot impose a solution on them	0	0	1	0	0	0
Unsecured: They have an appeal right	0	0	0	0	0	0
Unsecured: Eventually, they can take the control	0	0	0	0	0	1
<b>SANCTION</b>						
The pre-default managers' decisions can be cancelled if they have decreased the value of the debtor's assets.	1	1	0	1	1	1
During the procedure, faulty and/or incompetent manager(s) can be fired from the direction of the company.	1	1	1	1	1	1
Manager having contributed to impoverish the debtor (voluntarily or not) may be put to jail.	1	1	0	0	1	1
Manager having contributed to impoverish the debtor may have to personally repay for the company's debts.	1	1	0	0	1	1
Manager having contributed to impoverish the debtor may not be allowed to restart a new business.	1	1	1	1	1	1
<b>EASY_LIQ</b>						
The objectives of the law a-priori explicitly promote piecemeal liquidation over continuation.	0	0	0	0	1	0
The objectives of the law a-priori explicitly promote sale over continuation.	0	1	1	0	1	1
The company can (or must) be piecemeal liquidated at the end of the procedure.	1	1	1	1	1	1
The Court can force liquidation.	1	1	0	0	0	0
A specific stakeholder can force liquidation.	0	0	1	0	1	0
A liquidator facilitates/monitors the liquidation process.	1	1	0	1	1	1
A fast (or simplified) liquidation procedure may prevail for the smallest companies (or the simplest files).	0	0	0	0	0	0
The company (or a part of it) can (or must) be sold as a going concern at the end of the procedure.	1	1	0	1	1	1
A liquidator facilitates/monitors the sale (if any).	1	1	0	1	1	1
The Court can force the sale.	1	1	0	0	0	0
A specific stakeholder can force the sale.	0	0	1	0	1	0
Rival Buyout offers can be proposed to the Court at the end (or during) the procedure.	1	1	0	0	0	0
Auctions can take place at the end of (or during) the procedure. (either on the firm itself or its assets)	1	1	1	1	1	1
<b>EASY_REORG</b>						
The objectives of the law a-priori explicitly promote continuation over piecemeal liquidation.	1	0	0	1	0	0
The objectives of the law a-priori explicitly promote continuation over sale.	1	0	0	0	0	0
A continuation plan can (or must) be decided (or voted) at the end of the procedure.	1	0	0	1	0	1
The Court can force a continuation plan.	1	0	0	0	0	0
A specific stakeholder can force a continuation plan.	0	0	0	0	0	0
A practitioner (administrator, mediator...) prepares/facilitates/monitors the plan.	1	0	0	1	0	1
Delays can be imposed on some claims to facilitate the continuation plan.	1	0	0	1	0	1
Delays (if any) are not time-limited.	1	0	0	0	0	1
Claim reduction can be imposed on some creditors to facilitate the continuation plan.	0	0	0	1	0	1
Public aids (direct or indirect) can be granted to the reorganizing firms.	0	0	0	0	0	0

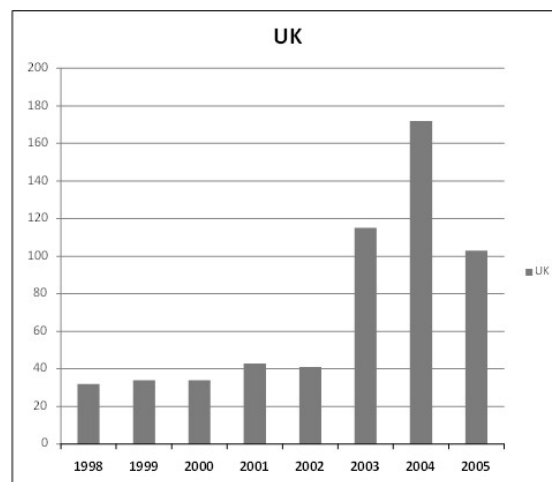
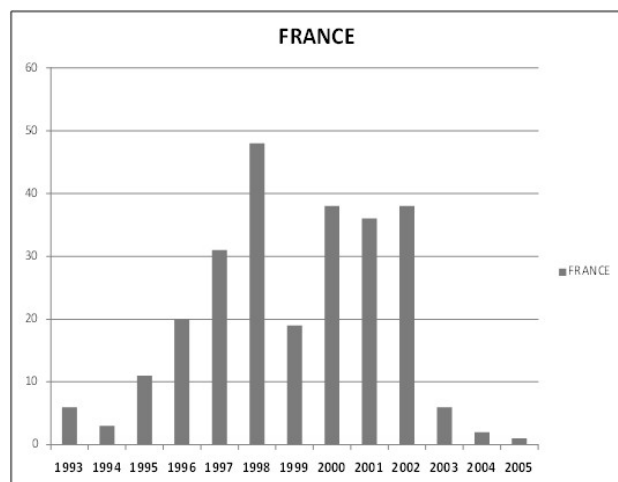
## C2. Sample structure and time repartition

### C2.1. Sample structure

Variables	France		United Kingdom			
	Redressement judiciaire (incl. sales)	Liquidation judiciaire (excl. sales)	Administration	Receivership	Compulsory liquidation	Voluntary liquidation
Sample size	164	100	199	198	100	72
Age (in years)	17.4	9.9	13.3	15.2	8.3	12.3
% of LTD companies	87.2%	97.0%	98.0%	97.5%	100.0%	100.0%
Number of employees	26.12	11.96	n.a.	n.a.	n.a.	n.a.
Sector: trade	20.7%	19.0%	15.6%	13.1%	12.0%	13.9%
Sector: industry	25.6%	26.0%	49.2%	58.6%	48.0%	51.4%
Sector: services & others	53.7%	55.0%	35.2%	28.3%	40.0%	34.7%
% of groups	8.5%	5.0%	23.1%	27.8%	0.0%	0.0%
% of intangible assets	13.7%	12.7%	5.8%	5.1%	0.0%	0.0%
% of tangible assets	24.9%	23.9%	39.9%	42.1%	13.5%	24.7%
% of financial assets	6.6%	2.2%	0.1%	0.5%	0.0%	0.9%
% of inventory	14.5%	6.1%	11.1%	8.5%	4.4%	4.4%
% of receivables	23.3%	35.9%	36.0%	39.1%	44.3%	39.0%
% of marketable securities	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%
% of cash	7.0%	5.7%	4.6%	3.1%	37.7%	27.0%
% of other assets	9.5%	13.4%	2.4%	1.7%	0.1%	4.0%
Cause(s) of default: strategy	14.6%	15.0%	29.6%	26.3%	15.0%	11.1%
Cause(s) of default: production	27.4%	19.0%	30.2%	24.7%	11.0%	11.1%
Cause(s) of default: finance	25.0%	24.0%	19.6%	15.7%	10.0%	6.9%
Cause(s) of default: management	13.4%	12.0%	9.0%	8.1%	18.0%	8.3%
Cause(s) of default: accident	28.7%	20.0%	32.7%	22.7%	57.0%	9.7%
Cause(s) of default: outlets	51.2%	59.0%	64.8%	83.3%	45.0%	27.8%
Cause(s) of default: macro	43.3%	21.0%	42.2%	44.9%	19.0%	20.8%

Remark: for each procedure, the sum of all causes is more than 100% as there can be more than one cause per file that did participate to the bankruptcy process.

### C2.2. Time repartition of the sample



### **C3. Codification of the causes of default**

	<b>Origin of the default (codifications)</b>
<b>Outlets</b>	[1] Brutal disappearance of customers; [2] Customer(s) in default; [3] Product(s) too expensive (selling price is too high); [4] Bad evaluation of the market; [5] Product(s) too cheap (selling price is too low); [6] Unsuitable products; [7] Obsolete products; [8] Loss of market shares (regular fall of the firm's demand).
<b>Strategy</b>	[1] Youth of the company (inexperience); [2] Voluntary dissolution of the activity; [3] Failure of important projects (partnerships, investments, reorganizations); [4] <b>Voluntary acceptance of little profitable markets</b> (dumping...).
<b>Production</b>	[1] <b>Production capacity was too strong, overinvestment</b> ; [2] Depreciation of the assets; [3] Operating costs were too high (other than wages: external expenses, raw materials...); [4] Wages expenses were too high; [5] Brutal disappearance of suppliers; [6] Unsuitable process of production (obsolete); [7] <b>Underinvestment</b> .
<b>Finance</b>	[1] Longer delays on accounts receivable; [2] Contagion / reported losses from subsidiaries; [3] Shorter delays on accounts payable; [4] <b>Excessive speculation of the company</b> ; [5] end of the financial support from the head office / holding; [6] Lack of equity (compared to leverage/liabilities); [7] Loan refusal to the company; [8] end/reduction of the subventions to the company; [9] Contractual interest rates are too high.
<b>Management</b>	[1] <b>Weak accounts reporting / informational system is deficient</b> ; [2] <b>Problems of competence</b> ; [3] Disagreements among the directors / managers; [4] <b>Excessive takings from the managers</b> ; [5] <b>Insufficient provisions</b> ; [6] <b>Lack of knowledge on the real level of costs of returns (causing too weak selling)</b> ; [7] <b>Bad evaluation of inventory</b> ; [8] Problems of transmission of the company / difficulties in restructuring.
<b>Accident</b>	[1] <b>Swindle / embezzlements affecting the company</b> ; [2] Another insolvency procedure (for other companies) is extended to the firm (same patrimonies); [3] Disputes with public partners (fiscal inquiry); [4] Disputes with private partners; [5] Death / disease / disappearance of the manager; [6] Disaster; [7] Social problems within the company.
<b>External environment</b>	[1] Unfavorable fluctuation of the exchange rates; [2] Increase of the competition; [3] Decreasing demand to the sector; [4] "Force majeure" (war, natural catastrophe, industrial crisis, politics, bad price evolution); [5] Public policy less favorable to the sector; [6] Period of credit crunch; [7] The general level of interest rates is too high; [8] Macroeconomic increase of operating costs (raw materials, GMW...).

***C4. Structure of the templates***

<b>1. Company's identification</b>	<b>3b. Financial information and bankruptcy costs</b>
Matriculation number	Declared market values of assets (triggering time).
Sector (French NAF national codification)	Verified claims by levels of priority (end of the procedure)
Geographical localization	Number of creditors.
Number of employees	Bankruptcy costs individual estimation
Legal form	<b>3c. Engaged measures / legal measures</b>
Creation date	Engaged measures during the bankruptcy procédure (up to 10), each of them to the Court approval.
Manager(s): age, functions, nb. of administrators...	Identification of the legal practitioners
<b>2. Process of default</b>	<b>3d. Procedure outcome</b>
Origin of default (up to 10 cumulative causes, based on a specific codification (51 codes). The identification of causes stems from an audit engaged by the administrator.	Realized value of assets (if liquidation)
<b>3. The bankruptcy procedure (from triggering to the final issue)</b>	Characteristics of the buyout plan(s) (if any), in case of a sale as a going concern: pros and cons of the offer, as analyzed by the legal administrator)
<b>3a Type of procedure</b>	Characteristics of the reorganization plan (length of the plan, repayment schedule)
Type of the legal procedure (simplified or not)	<b>3e. Legal sanctions against managers (if any)</b>
Date of triggering and of ending	Suspect period
Identity of the bankruptcy's initiator	Pecuniary sanctions
Legal issue: liquidation, sale, reorganization	Extra pecuniary sanctions
<u>Remark</u> : all files are closed files (with definitive recovery rates).	Type of fault







# Working Papers

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