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Evidence from Creditors' Recoveries in France, Germany, and the UK[#]

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Abstract

The aim of this paper is to provide new evidence on the value-creation process taking place in bankruptcy procedures that belong to different legal systems (French civil law, German civil law, and common law): to do so, we assess to which extent the debtor's value can be preserved under bankruptcy by analyzing the recovery rates in France, Germany, and the United Kingdom. We use a unique European sample of 900 corporate bankruptcy files that were manually collected in commercial courts on the period 1993-2005. We also contribute to the literature by considering the recovery rates on the various classes of claimants (senior claims, junior claims, and new money) for each bankruptcy procedure. Our main conclusions are: (a) France and Germany show quite similar global recovery rates which are greater than in the UK, (b) when controlling for the quality of assets at the beginning of the procedure and for the structure of claims, we observe that recovery rates are not significantly different between France and the UK, while they remain greater for German companies, (c) Germany has the greatest recovery rates for senior and junior creditors, (d) the reorganization procedure and the liquidation procedure leading to the highest global recovery rate are, respectively, the French continuation and the German liquidation.

JEL Codes: G33.

Keywords: Bankruptcy, Recovery Rates.

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I. Introduction

Corporate bankruptcy law has received considerable attention due to its implications, first, on the financing and investing decisions made by the debtors and the creditors, and, second, on the way the competing interests are taken into consideration before and after default. Two complementary aspects of the efficiency of bankruptcy procedures have been investigated so far.

On the one hand, ex-ante efficiency investigates how the bankruptcy law may affect the stakeholders' strategies taking place before default. Following the ex-ante pespective, the legal environment should influence all the more the managers' and the creditors' behavior as information is asymmetric (Aghion and Bolton, 1992, Kolecek, 2008): the resulting effect is likely to impact on the macroeconomic growth (Berkovitch, Israel, and Zender, 1998). Additionally, the anticipation of the rules prevailing under bankruptcy may also impact on the design of debt contracts (Gorton and Kahn, 2000, Jappelli, Pagano, and Bianco, 2005), and on the way the firms are monitored and financed (Cornelli and Felli, 1997).

On the other hand, ex-post efficiency focuses on the ability of bankruptcy procedures to maximize the value of bankrupt firms (or, equivalently, to reduce the losses) by considering all the stakeholders' interests, once default has occurred. Following the ex-post perspective, one way of resolving default is to settle auction procedures: indeed, these are efficient at revealing private information, and eventually, at creating value for all the stakeholders (Bebchuk, 1998). In the same way, procedures allowing for deviations from the absolute priority rule may lead to more (or less) ex-post efficient outcomes (Jackson, 1986, Baird and Picker, 1991, Blazy and Chopard, 2004). Thus, focusing on ex-post efficiency is of utmost interest as it helps to appraise the ability of the bankruptcy procedures to preserve the debtor's financial and economic value, or even, to create additional value out of the debtor's initial assets. However, describing the value creation process during bankruptcy would require computing and choosing among continuation and liquidation values of assets. As these assessments are mostly unobservable, proxies have to be used. The literature widely uses the creditors' recovery rate, this being the observable outcome of the valuation process within bankruptcy (Davydenko and Franks, 2008, Grunert and Weber, 2009).

In every country, bankruptcy procedures present peculiar characteristics that are likely to impact on the creditors' recovery rates. Despite these specifications, bankruptcy procedures should at least fulfill three functions. First, bankruptcy codes help to coordinate the creditors: without such coordination, the distressed firms would be dismantled through an anarchic creditors' run, which eventually would undermine the debtor's recovery value. This common pool problem has been widely addressed by Bulow and Shoven (1978), Gertner and Scharfstein (1990), and Longhofer and Peters (2004). Through various legal mechanisms (stay of claims, voting rules, court enforcement), the design of bankruptcy codes helps in solving this coordination issue. Second, bankruptcy codes provide public information, most of the time thanks to the implementation of more or less sophisticated audit procedures, under the court's supervision. Third, bankruptcy codes help in checking the value of the assets and of the claims: by forcing (or deviating from) absolute priority order (White, 1989, Hart, 2000), by checking the various due amounts, by isolating the anterior, posterior, junior, and senior claims, and by transferring the management from the directors to the creditors (Harris and Raviv, 1991), bankruptcy codes settle specific rules which reduce uncertainty. In a sense, this third characteristic can be viewed as a mix of the two previous ones.

As these characteristics differ from a country to another, one can expect that the various bankruptcy codes may lead to different recovery rates. The aim of this paper is thus to provide new evidence on the ex-post efficiency of bankruptcy procedures by analyzing the recovery rates on three European countries that show strongly distinct bankruptcy codes: France, Germany, and the United Kingdom. The choice of these countries is quite representative of the main legal traditions prevailing in Europe which are the German civil law, the French civil law and the common law. It prolongs the paper from Davydenko and Franks (2008) who use a sample of bankrupt firms in France, Germany and the UK to explore the effects of bankruptcy codes on lending and reorganization practices. They notably measure and compare the banks' recovery rates on a set of financially distressed firms[1]. In this area, they find that recovery rates for banks are significantly lower in France than those observed in Germany and in the United Kingdom. However their analysis is limited to one category of creditors: banks. Therefore, one can wonder what the situation of other creditors is and

[1] In our paper, we restrict the analysis to bankrupt firms. Indeed, this is the sole practical way of encompassing all classes of claimants, which are observable once formal bankruptcy is triggered off.

consequently how much total value is created by the bankruptcy procedures. Indeed banks may benefit from a different recovery rate than other creditors.

The Doing Business Report (2010) provides a more global analysis of the efficiency of bankruptcy codes (World Bank, 2009). This report ranks economies on their ease of doing business by considering 10 topics, for which 183 countries are classed in percentiles, with the first percentile being the best. Regarding bankruptcy issues, the report includes the topic "closing a business" which is related to the "recovery rate in bankruptcy". For this indicator, UK is ranked 9th while Germany and France are respectively ranked 35th and 42nd. Thus, according to this study, the UK appears to benefit from a more efficient bankruptcy code than Germany and France. The methodology of this report is based on Djankov et al. (2008) and is based on a case study sent to local insolvency practitioners in all countries.

With our investigation, we aim to challenge this view by providing recovery rates for all creditors on a unique sample of 900 bankruptcy files collected manually in courts on the period 1993-2005. We have gathered information on a large set of variables including firm characteristics, recovered amounts by class of claimants, and cause(s) of default.

As a consequence, our investigation does not rely to one class of creditors like Davydenko and Franks (2008) or to one specific case and the opinion of local insolvency practitioners like the Doing Business Report. We are therefore able to compare the total creation value of the bankruptcy process in these three countries, and then establish a global view of the ex-post efficiency.

We also contribute to the literature by considering the different classes of claimants and the different bankruptcy procedures. Indeed, we provide recovery rates considering three different classes: junior, senior, new money. The different classes of creditors may benefit from quite different recovery rates, following notably the priority deviations and the competition between them. Furthermore, we compare the ex-post efficiency of the various bankruptcy procedures in the three countries. We therefore provide a global view of the bankruptcy codes by not restricting our analysis to liquidation or to reorganization.

From a methodological perspective, our research follows the way opened by a couple of single-country studies assessing the ex-post efficiency of bankruptcy codes with recovery rates. We can notably mention Franks and Torous (1994) on a sample of Chapter 11 bankruptcies in the US, Franks, Franks, Nyborg and Torous (1996) on

UK liquidated companies, Couwenberg and De Jong (2008) on Dutch liquidated companies and Grunert and Weber (2009) on German companies.

The paper is organized as follows. Section 2 presents a brief description of the bankruptcy codes in France, Germany and the UK. Section 3 describes our dataset and the variables we use. In section 4, we develop comparisons of recovery rates and regressions. We finally provide some concluding remarks in section 5.

II. Bankruptcy codes in France, Germany, and the United Kingdom.

This section describes the bankruptcy codes in the three countries of our study. These codes were frequently compared and viewed as competing in their ability to protect creditors and to promote financial development by the recent research in law and finance (World Bank, 2009, La Porta et al., 1997). Traditionally, Germany and the UK were viewed as creditor friendly systems in contrast with the French bankruptcy code. Thus, focusing on these three countries may capture the main stakes of the debate on the bankruptcy reforms that have been implemented in Europe.

II.1 The bankruptcy code in France

Three successive reforms in the fields of corporate bankruptcy were implemented in France. Initially, in 1985, the French "*redressement judiciaire*" settled three legal ways of resolving financial distress: liquidation, sale as a going concern, or continuation plan. The 1985 legislation explicitly prioritized reorganization (through sale or continuation plan) over liquidation: this hierarchy of objectives reflects the legislator's willingness to protect business and employment: indeed, the 1st article of the 1985 French code ranks first the protection of employment, before the repayment of creditors. In 1994, the 1985 legislation was slightly reformed: the banks benefit now from a higher position on the priority order in case of liquidation, and the prevention of default is reinforced. More recently, in 2005-2008, a new legal framework, named "*loi de sauvegarde*", was implemented in France: the 1985 original structure – and its hierarchy of objectives – is preserved but with a new procedure ("*sauvegarde*"), aimed at solvent firms having first difficulties. This reform is too recent to have reliable information on its macroeconomic impact: indeed, at the present time, a high number of "*sauvegarde*" procedures are not ended

yet. In addition to this set of laws, the French legislator has settled various ways of facilitating prevention through court-supervised private renegotiation. This is the aim of the successive 1984 ("*règlement amiable*") and 2005-2008 ("*conciliation*", "*mandat ad-hoc*") legislations. These preventive laws do not deal with bankruptcy *stricto sensu*, as the targeted firms are still solvent[2]. Still, a higher prevention may impact on the firms' financial and economic health when they enter bankruptcy.

Any firm suffering from a cash shortage (i.e. when the liquid assets do not cover the due debts anymore) may trigger bankruptcy. The triggering should not be delayed beyond 15-45 days after the firm defaults, and may be initiated either by the debtor, the creditor(s), or the court. Afterwards, the firm is audited for a period of time ("*période d'observation*"), which may last up to 20 months. During this observation period, a stay of claims prevails, and the manager(s) still run(s) the business, with the help of a legal administrator. In the worst cases, the latter replace the former. At the same time, a creditors' representative is appointed to check the values of the claims and of the assets. In case of liquidation, he/she becomes the liquidator of the firm. During the observation period, first, the maintenance of the previous contracts may be forced, and, second, the new creditors are granted a higher position in the priority order (*new money*). The repayment priority order is quite specific in France, as the last two month unpaid wages benefit from a "*superprivilège*": whatever the bankruptcy outcome, these should be repaid prior to the bankruptcy costs. Then, comes the new money, the preferential claims, the secured claims[3], and last, the unsecured creditors.

In France, the outcome is centralized: based on the administrator's report, the court finally decides either to liquidate (which happens in 95% of the cases, according to the *Observatoire Consulaire des Entreprises en Difficultés*), or to continue the firm, through a reorganization plan (2.5% of the cases), or through a sale[4] (2.5%). Hence, creditors do not vote or play any significant role in the decision-making process. The expected effects of this French specificity are contrasted in terms of efficiency. On the one hand (*ex-ante* efficiency), leaving the decision to the court may involve sub-optimal strategic changes before the default: either delay to fill for bankruptcy, or credit rationing. On the second hand (*ex-post* efficiency), such centralized mechanism is a powerful coordination tool that reduces the conflicts of interests, and the pro-

[2] Yet the 2005-2008 "conciliation" procedure may be triggered for either solvent firms, or early-default ones (i.e. in default for less than 45 days).
[3] Since 1994, the secured claims are repaid before the new money, in case of liquidation.
[4] Since 2005-2008, sales are viewed as a specific modality of liquidation.

liquidation bias from the secured creditors). In addition, this is a simple way to enforce the implicit hierarchy between social and financial objectives, which is a unique feature of the French legislation (Blazy et al., 2007).

II.2 The bankruptcy code in Germany

In Germany, the current bankruptcy code is applied since 1999, although it was passed in 1994. It allocates the control rights over the bankrupt firm to creditors under a court's legality supervision. However, when a firm files for bankruptcy, the court appoints first an administrator who performs an audit of the firm's assets and liabilities at default. Based on the audit's results, the administrator makes a recommendation to the court to open or not the procedure.

Indeed, a central characteristic of the German bankruptcy code is that the access to the collective procedure is not automatic. It is in fact subject to a cost coverage provision, i.e. the expected value of remaining assets should be greater to a threshold that may includes different types of costs and claims in order for a procedure to be launched. Consequently, the "grab race" (as analysed, e.g., in Lambrecht and Perraudin, 1996) for remaining assets is an effective characteristic of the death of German firms. When the case is rejected, civil law applies on a first arrived, first served basis given contractual priority rules and bankrupt firms are finally dissolved.

Before the 1999 reform, the opening threshold included direct bankruptcy costs, which correspond mainly to the administrator's fees[5], new money claims, i.e. claims born during the bankruptcy procedure and some employee claims arisen before default but enjoying the same seniority as new money claims. The reform has lowered this threshold by limiting its scope to direct bankruptcy costs. This has dramatically increased the number of firms in position to take advantage of the coordination benefits of a legally organized bankruptcy procedure. Indeed, before the 1999 reform, less than one third of bankruptcy cases were open. Since the reform, this rate has increased to more than 50% (even nearly 60% in recent years, see Angele (2008)).

When the case is open, the administrator gains the managerial control rights over the firm and has up to three months to recommend to creditors either the liquidation or the elaboration of a continuation plan. An automatic stay on assets

[5] Direct bankruptcy costs include the administrator's fees and fees of the bankruptcy court, latter representing a negligible part of total direct costs (at most a few hundreds euros, to be compared with the average 45 k€ for the administrator's fees).

applies during this period. The final decision results from the creditor's vote on the administrator's proposition. The 1999 reform has introduced the possibility to elaborate a continuation plan (called Insolvenzplan), which theoretically allows for partial debt reliefs and departures from the absolute priority rule. However, continuation, despite being one of the main objectives of the 1999 reform remains a rare option (continuation plans account for less than 1% of bankruptcy files). The decision to engage the (supposed higher) costs of reorganisation remains limited to some in economic terms potentially significant but numerically limited situations.

Another potential determinant of the efficiency of a bankruptcy code is its perceived attractiveness from the point of view of the debtor.[6] This aspect refers to the ex ante efficiency of the bankruptcy code. The incentives to trigger the legal framework of default treatment might be decisive in order to limit the deterioration of the remaining assets' value. An anticipated triggering of the procedure might enlarge the scope of possible options by increasing the likelihood of the alternatives to liquidation. Some aspects of the 1999 reform specifically tried to increase the attractiveness of the procedure or to anticipate its triggering.

A first characteristic that could facilitate an early triggering is the legal definition of default. Indeed, all things being equal, the broader the legal definition of default, the higher the likelihood of a distressed firm to fall earlier in the scope of legal default. Specifically, the 1999 reform has widened the legal definition of default by introducing two new modalities of default: imminent suspension of payments and overindebtedness. These two modalities indeed expand the scope of legal financial distress as it is no longer necessary to observe an effective cessation of payments to trigger the procedure. However, these two new criteria remain scarce, representing less than 2% of total insolvencies in 2005[7] (Angele, 2008). Another attempt to give incentives to the debtor to trigger the procedure is the possibility to maintain the manager in position, while the default solution is his replacement by the administrator. Again, this feature remains largely scarce, representing about 0.4% of total insolvencies in 2005 (Angele, 2008).

II.3 The bankruptcy code in the United Kingdom

[6] The debtor is not the only agent being entitled to trigger the bankruptcy procedure. Creditors, under some conditions, can also file a firm for bankruptcy. In practice, most procedures are triggered by the debtor.

[7] They represent 3.9% in our sample.

In the United Kingdom, corporate bankruptcy was initially ruled by the *Insolvency Act* 1986. In 2002, this legislation was replaced by the *Enterprise Act* that interestingly specifies a new objective: "to facilitate company rescue" in addition to "produce better returns for creditors as a whole". This reform, which came into force in 2003, thus reflected a slight shift towards the debtor's interests, even if the creditors are still well protected under the English code.

The English legislation offers a menu of three alternative procedures: the administration (5% of the cases, according to the *London Gazette*), the liquidation (85%), and the (administrative) receivership (10%). The latter does not apply anymore since 2003, as the receivership was increasingly viewed as a procedure leading too often to liquidation (Aghion, Hart, and Moore, 1992, Armour and Mokal, 2005). In addition, a fourth procedure (the company voluntary arrangement, known as CVA) facilitates the renegotiation between the debtor and his/her creditors, under the court's supervision: a firm does not have to be in default to enter the CVA.

The first procedure, the administration, is a way of, either reorganize the company, plan a liquidation (piecemeal liquidation or sale), or prepare a future CVA. An administrator is appointed by the court: he/she replaces the manager(s) and has to protect both the debtor's and the creditors' interests (all the individual pursuits are suspended during the time of his/her mandate). The administration may be triggered, either by the debtor (shareholders and/or managers), or by the creditors. Two conditions should prevail to enter administration: the company should be illiquid or insolvent, and the administrator's mission, as described in the administrative order, should be *a priori* attainable. In that perspective, the administrator prepares the reorganization (which finally happens in 8% of the cases: see Homan, 1989), the liquidation (45%), the sale (36%), or organizes the future CVA (11%). The administration ends with the vote of the creditors who endorse (or not) the administrator's plan: the creditors play an active role in the decision-making process; but their participation remains under the supervision of the court that may impose a solution, in case the administrator's plan is rejected.

The second procedure deals with liquidation, which is the most common outcome in the United-Kingdom. Three types of liquidations may apply, depending on the situation of the firm, and on the way the procedure is triggered. First, *compulsory liquidation* should prevail as soon as the company has not been active for

more than one year, has less than two associates, or has been illiquid for more than 21 days. Second and third, liquidation may be voluntary, either triggered by the firm itself (*voluntary liquidation*) or by its creditors (*creditor voluntary liquidation*). For each type of procedure, a liquidator is appointed, either by the court, by the assembly of shareholders, or by the creditors. The liquidation ends with either a piecemeal liquidation or a sale as a going concern. Under the liquidation procedure, the priority order is the following, decreasingly: bankruptcy costs (the liquidator's fees) and new money, preferential claims (the employees and, previously, the Crown[8]) and secured claims, junior claims.

The third procedure is probably the most original one, and ruled in the United-Kingdom until the year 2003: the *(administrative) receivership* is not really a collective procedure, as it gives the secured creditors in possession of a *floating charge*[9], the right to appoint a receiver (or an administrative receiver if he/she manages the firm at the same time), whose mission is to protect his/her appointer's interests. Frequently, the receiver's mission is to prepare the firm's liquidation. Thus, the receivership settles a hierarchy of objectives, as the receiver's duty is to preserve the appointer's interests prior to those of all the creditors' (most of the time, the appointer is a banker). Thus, choosing collateral(s) (specifically a traditional one *vs*. a floating charge) is a strategic decision: on the one hand, floating charges give their owner the power to escape a collective procedure, but on the other hand, they do not grant a high position in the priority order: under the receivership, the repayment order ranks decreasingly: secured and preferential claims, floating charges, liquidator's fees (if the receivership ends up with liquidation), and junior claims. The receivership has long been suspected to be costly and to undermine the *ex-post* efficiency, as the secured creditors, in possession of a floating charge, had no incentives to run the procedure in the unsecured creditors' interests (Armour, Hsu, Walters, 2008). Finally, the *Enterprise Act* 2002 put an end to the secured creditor's right to appoint a receiver.

[8] Today, the Crown is not a preferential creditor anymore.

[9] 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.

II.4 Identifying bankruptcy paths

The three bankruptcy codes differ with respect to the different procedures they may offer to the debtor or to creditors to resolve insolvency. Thus, when considering the efficiency of a country's bankruptcy code, it may be of interest to consider the different options provided. Here, table 1 considers 6 different paths for a bankrupt firm. We define here a path as a three-step process including the triggering, the management and the outcome of the procedure. At this level, for a given path, we identify the legal rules prevailing for each stage that may impact on the value creation in terms of expected recovered amounts. For the French case, we distinguish two paths: continuation and liquidation (piecemeal and sale as a going concern). Regarding the management of the procedure, the French bankruptcy code promotes continuation. This is the main justification of the observation period. Thus, the design of French bankruptcy law allows for a high degree of flexibility and delay in the potential elaboration of a continuation plan. Provided this flexibility preserves the value of assets, we could expect that the observation period has a positive impact on recoveries. On the contrary, liquidation is the solution by default, most of them being pronounced immediately at the triggering and without any observation period. However, turning to the triggering, both paths are quite similar.

The German procedure is homogenous in its management and, as discussed earlier, ends overwhelmingly in liquidation. We voluntarily restrict the analysis to open files as unopen files do not reflect a collective bankruptcy process. Consequently, the German data entails a bias in the overall shape of these firms relatively to the French and UK firms, only firms with sufficient available assets being selected in Germany. However, as we later control for available assets or the coverage ratio at the procedure's opening, the remaining procedure effects can be considered as homogenous across countries.

Finally, we consider three paths under the UK insolvency law: liquidation (as well compulsory as voluntary), administration and receivership. Receivership is certainly the most specific procedure regarding the three countries. Indeed, it is not really a collective procedure: the triggering relies on the willingness of the sole appointer and is not related to some legally defined triggering criteria. In addition, the management of the procedure is in the hands of the receiver who has the duty to serve his appointer's interests. Clearly, this hierarchy of objectives may have an impact

(positive or not) on global recoveries whereas one can suspect some negative impact on junior claims. The administration and liquidation procedures, whereas being truly collective, differ in various ways. First, the administration allows for different outcomes (depending on the mission assigned to the administrator) whereas the liquidation procedure is restricted to the sole piecemeal realization of assets. Second, the coordination mechanism prevailing under administration relies on the creditors' vote which is not the case under liquidation. As the decision-making processes differ, both procedures may have different impacts in terms of recoveries.

III. Sample description

Data in the three countries were hand-collected using information extracted from documents established during the bankruptcy procedure for the period 1993-2005. French data were collected at the Paris bankruptcy court (Tribunal de Commerce). As the French bankruptcy procedure is mainly under the control of the court, data may to some extent reflect the Parisian practice rather than the countrywide application of the bankruptcy code. More specifically, local conditions may have some influence on continuation decisions. However, we assume that this potential geographic specificity is limited in comparison with the expected international differences[10]. For the UK, data were collected from the online Companies House database. This database collects the pieces on bankruptcy procedures of insolvent firms located in North, Yorkshire, East Midlands, East Anglia, Greater London, Rest of South East, South West, West Midlands, North West, Wales and Scotland. The bankrupt firms were identified using the bankruptcy filings announcements published by the *London Gazette*. Finally, the German sample was collected at three bankruptcy courts (Berlin-Charlottenburg, Freiburg and Frankfurt/Main). Table 2 gives the time and country structure of the sample.

Most bankruptcies took place between 1998 and 2005. In Germany, all bankruptcy files were opened in 1999 and after, i.e. after the 1999 reform. Hence, the observations for Germany are homogeneous in terms of their legal environment.

[10] 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 limited liability companies compared to France.

Nevertheless, we control for aggregate economic shocks in the data by introducing the annual growth rate of GDP as a further control variable.

Despite their formal differences, the bankruptcy files contain in many aspects similar information which allowed data collection using a unified template. The available data cover the level and the composition of liabilities, estimated asset values at the time of default, realized recoveries and payments made to creditors. Moreover, for Germany and the UK, the files contain explicit information about direct bankruptcy costs, which mainly correspond to the administrator's fees. For France, this information is not part of the file. However, as bankruptcy costs are precisely defined by a regulatory formula based on observable characteristics (recovered amounts…), costs were reconstituted using the regulatory formula and validated by a bankruptcy practitioner. As the files always contain information on the identity of the firm, the firm's age and its legal form are available. Additionally, bankruptcy files can contain accounting information (balance sheets and income statements). However, these data are not always available. In Germany, accounting data are not a mandatory piece in the procedure, so they are not automatically included in the bankruptcy file. When available, accounting data may also to a large extent be outdated. Indeed, 42% of the available accounting data are older than one year and 10% older than two years. Consequently, using even basic accounting figures would have led to substantial losses in data. Table 3 gives an overview of control variables used in the following sections.

In terms of total liabilities, bankruptcy cases remain comparable across countries with UK distressed firms having higher total liabilities. Moreover, the files contain generally some qualitative information on the causes of distress. As it may give some insights in the situation in the firm and underpin the final decision of the creditors or the court, the administrator's report generally gives some indications on the possible causes of default. The information of the causes of default was hand-collected from the bankruptcy files using a list of 52 causes put together in 7 main categories: Accident, Finance, Macro, Management, Outlets, Production and Strategy. As it is difficult to weight the different causes, we construct six dummy variables equal to one if there is at least one cause identified in a given category and zero else. Unfortunately, some files do not contain any information concerning bankruptcy. Assuming that there must be some kind of reason for a business to go bankrupt, we consider the absence of information on the causes as missing data. Table 3 suggests

that the repartition of causes from a country to another remains comparable, with notably the cause of default "Outlet" being the most frequent one.

Moreover, the legal form could have an impact on the bankruptcy outcome and recovery rates as limited liability is generally expected to increase moral hazard problems. So, we introduce a dummy variable equal to one when the distressed firm has limited liability and zero elsewhere. Unsurprisingly, firms in our sample are overwhelmingly limited liability firms in the three countries. Finally, as only closed files are considered in this study, the duration of the case can be considered as a further control variable. Duration may indeed be considered as a proxy for either the complexity of the case or the intensity of the restructuring efforts when continuation is a possible alternative to liquidation. However, the three countries differ in their practices and there may be a considerable delay before the case is closed from an economic point of view and the formal closing by a court. So, we concentrate on the time necessary for creditors or a court to make a decision on the outcome of the procedure (liquidation vs. continuation). Despite this restriction, considerable differences subsist between the three countries. As shown in table 3, the mean duration is of respectively 8.37 months and 5.16 months for France and Germany against 18.2 months in the UK. Thus, in the subsequent regressions, the duration is standardized at the country level.

Table 4 shows the repartition of the data among the six different bankruptcy paths defined in the preceding section. The distribution of the sample does not voluntarily reflect the actual breakdown between procedures in each country in order to achieve consistent estimates in subsequent analyses. Thus, the observations are weighted using each country's repartition of paths. Individual weights are also shown in table 4[11]. Moreover, we do not distinguish in further analyses between the two UK procedures of compulsory and voluntary liquidation.

In cases when the final outcome of the procedure is continuation, the decision takes the form of a continuation plan which contains a provisional plan of payments. Under continuation, debt reliefs are not allowed even if longer delays may be imposed by the court. Thus, this mechanically impacts on recovery rates. However, the effective recovery rate of creditors depends upon the success of the plan. For the French data, it is possible to identify firms whose continuation failed and those whose

[11] Remind that for France, we assume that sale as a going concern can be assimilated to liquidation when considering the creditor's point of view as they receive the sale's proceeds.

continuation plan ended successfully. However, some cases are still pending and should be considered as truncated data. Based on the failed and closed plans, we observe that 89% of continuation plans are successful. We apply this probability to the discounted cash-flows initially planned using the French Treasury term structure. For UK data, all files end either in piecemeal liquidation or sale. Finally, this point is irrelevant when considering the German data as all firms in our sample are finally liquidated.

The different bankruptcy codes differ considerably in the scope and the depth of rights they confer to given creditors in the collective procedure. In order to compare the structure of liabilities as well the recovery rates, we aggregate creditors to three categories: junior, senior and new money claims. New money claims are those arising posterior the opening of a bankruptcy procedure. They generally enjoy a super-priority over existing claims. Senior claims gather all claims borne before bankruptcy but which enjoy some form of priority due to the bankruptcy code or based on some form of collateral. Junior claims are the remaining claims. Note that for some types of collateral or because he/she continues to finance the firm during bankruptcy, a given creditor may appear simultaneously in the several categories. However, statistics on the liabilities' structure as well on recovery rates are left for section 4.

IV. Testing for the creation of value: analysis and results

This section presents the results of our comparative analysis of recovery rates between the three countries. We start with a comparison of the mean recovery rates and follow with econometric estimations.

IV.1 A comparison of the mean recovery rates

We first present the mean recovery rates to check the existence of significant differences among countries and among procedures.

Table 5 displays the mean recovery rates for each country at the overall level and for each class of creditors. The most striking result is the fact that while France

and Germany have quite similar overall recovery rates (with respectively 20.67% and 21.46%[12]), both countries have greater overall recovery rates than the UK (13.82%).

The analysis by class of creditors interestingly allows a thorough investigation of the recovery rates. The recovery rate for senior and junior creditors is clearly higher in Germany (76.71% and 10.10% respectively) than in both other countries with similar levels (35.28% and 5.82% for France, and 30.84% and 6.03% for the UK). Finally, new money creditors obtain approximately 100% of their claims in the UK, while their recovery rate is 78.58% in Germany and only 53.34% in France.

However, the observed differences in the overall recovery rate and the recovery rates by creditors' categories can not solely be attributed to differences in the efficiency of the respective bankruptcy codes. Indeed, three hypotheses can be presented to explain the differences in recovery rates. The first hypothesis deals with the quality of assets at the beginning of the procedure. If companies enter in the bankruptcy procedure in better shape, creditors will recover more. The second hypothesis is based on the structure of claims. The overall recovery rate may for instance be influenced by a greater share of senior creditors among creditors. Finally, the third hypothesis is the fact that a procedure can create more value than others. The hypotheses 1 and 2 can be investigated by analyzing the quality of assets and the structure of claims, while the hypothesis 3 is studied residually.

Table 6 presents the structure of claims by country. We observe the very important share of senior claims (56.19%) in France in comparison with Germany (9.81%) and the UK (23.24%). Consequently junior claims represent a lower share of claims in France (41.63%) than in Germany (81.02%) and the UK (74.18%). New money claims represent a very small share of claims in France (2.18%) and the UK (2.58%), while they are significantly greater in Germany (9.48%). Therefore, the structure of claims explains why the overall recovery rate can be greater for France than for the UK, even if it is not higher for any class of creditors. This is the consequence of the greater share of senior claims with a higher recovery rate than the junior claims in France.

We now turn to the analysis of the mean recovery rates at the procedure level. In all countries, the liquidation procedure is by far the most commonly chosen.

[12] Remember that the German data cover only open files, i.e. bankrupt firms whose assets are sufficient in order to cover expected bankruptcy costs. Consequently, recovery rates in Germany do not reflect the same scpe of bankrupt firms than in France and the UK. However, this difference in assets at the opening of the procedure is controlled for in the subsequent econometric analysis.

Nevertheless one can wonder whether the alternative procedures lead to greater recovery rates.

The comparison of overall recovery rates in table 5 shows that the procedure leading to greater recovery rates is the French continuation procedure with a rate of 74.79%. The British receivership procedure follows with an overall recovery rate for 29.95%. Then, three procedures have quite similar overall recovery rates about 20% (French liquidation procedure, British administration procedure, and German procedure). Finally, the British liquidation is undoubtedly the procedure leading to the worst recovery rate (about 10%).

The analysis by class of creditors corroborates these global findings with some slight differences. If we concentrate our analysis on the liquidation procedures, we can point out that the British procedure is the best for the new money creditors as they obtain all their claims, while for senior creditors the hierarchy by decreasing order is Germany, France and finally the UK. Junior creditors receive more in Germany than in France and the UK where recovery rates are similar for this class of creditors.

The analysis by procedure helps understanding the global results. As the liquidation procedure is the dominant one in all countries, the recovery rates for junior and for senior creditors for the British liquidation procedure explain the observed mean recovery rates at the national level.

In a nutshell, the main finding of the analysis of the recovery rates is the lower recovery rate in the UK in comparison with Germany and more particularly France. This conclusion is antagonistic with the view that the ex-post efficiency of the British bankruptcy law would be greater than the French one (La Porta et al., 1997).

We can nonetheless wonder whether this finding may be explained by the situation of firms entering in the bankruptcy process in each country. Indeed France for instance might benefit from a greater quality of assets for bankrupt firms. To check this aspect, we provide the coverage rate, e.g. the ratio of assets at the opening of the procedure divided by due claims, for each procedure in table 7.

We observe very large differences between countries for the coverage rate. This rate is the greatest for the French continuation procedure (74.04%) but it is also relatively high for the French liquidation procedure (53%) in comparison with the German procedure (27.38%) and British procedures (17.37% for the liquidation and between 31 and 36% for both other procedures). Therefore, we can stress the better quality of assets for French companies than for British and German companies. This

observation may explain the greater recovery rate in France than in the UK. Thus, given available assets, the UK bankruptcy code could still be more ex post efficient than the French law.

Nevertheless the analysis of the recovery rates must be completed by an econometric analysis to assess carefully the hypotheses on the differences in recovery rates and therefore to correctly interpret the results.

IV.2 Estimations

We now turn to regressions to go deeper into our findings about the comparative recovery rates between countries and between procedures. Our idea here is to disentangle the three hypotheses on the differences between recovery rates by controlling for the quality of assets (first hypothesis) and the structure of claims (second hypothesis) to check whether significant differences in recovery rates remain between countries and procedures which can be considered as resulting from a greater creation value from the procedure (third hypothesis).

We first present models explaining the overall recovery rate, meaning without considering separately the creditor classes. We consider two models with one taking countries into account, while the other focuses on procedures. The explanatory variables of primary concern are countries in the first model, meaning dummy variables for France and Germany so that the coefficients of these variables are interpreted in comparison with the United Kingdom, and procedures in the second model, meaning variables for all procedures with the exception of the British liquidation to which all procedures have to be compared with.

Table 8 shows the results of Tobit regressions of the overall recovery rates. Model 1 is a country model introducing national dummies for France and Germany. Model 2 is a procedure model introducing procedure dummies using UK liquidation as the reference point. In addition, the weight of new money and senior creditors in total due amounts are introduced in order to control for the effect of the structure of claims on recovery rates. Moreover, the coverage ratio is introduced in order to control for the financial shape of the firm at the triggering of the procedure. Additional control variables are age, GDP growth, a limited liability dummy and the bankruptcy causes as defined in section 2.

In the first model, we observe that the dummy variable for Germany is significantly positive while it is not significant for France. These results consequently mean that, when quality of assets and structure of claims are controlled for, we do not observe yet a greater recovery rate for France than for the UK, even if it remains significantly higher in Germany.

Therefore, the hypothesis according to which the value creation would be greater is validated for Germany in comparison with both other countries, but not in France relative to the UK. However it is of utmost interest to notice that, even when we control for other influences, we do not observe any advantage in recovery rate for the UK in comparison with France, in opposition with former reports showing a greater efficiency of bankruptcy procedures in the UK.

In the second model, we investigate the differences among procedures. We observe that three procedures have a significantly greater recovery rate than the British liquidation: the French continuation, the British receivership, and the German one. French liquidation and British administration do not provide different recovery rates than the British liquidation. The flexibility of the French continuation procedure seems to have a considerable positive influence on the recovery rate. This indicates that the court's choice to set up a continuation plan is not solely guided by a higher level of available assets but could be based on a thorough analysis of the continuation potential of the firm. This result could also be related to a higher coordination potential of a centralized procedure under the court's authority.

These results also corroborate those observed at the country level, as the hierarchy between the liquidation procedures, representing most bankruptcy cases, is in line with the hierarchy for countries.

The comparison of mean recovery rates above has shown a greater recovery rate for the French liquidation than for the British liquidation, which is not observed anymore in the regression. This means that this result may have been notably influenced by the differences in quality of assets between both countries.

We now turn to the analysis of control variables. As expected, the coverage rate exerts a positive and significant influence on the recovery rate. The weight of senior creditors in due amounts has also a positive impact on recovery rates. This could be related to the existence of assets that could be pledged as collateral. Indeed, the presence of senior creditors may be directly related to the existence of assets whose quality make them eligible as collateral. These assets could then have a higher value

in the liquidation process, leading to higher recovery rates. Moreover, the share of new money claims in due amounts has also a positive effect on recovery rates. This suggests that creditors benefit from the existence of new money during the procedure. Moreover, the weight of new money creditors could also be considered as an effect of the procedure, i.e. as an aspect of its ex post efficiency. Otherwise, the only significant control variables are the cause of default "Management" and the limited liability which is negatively associated with the recovery rate. This latter finding can be explained by the fact that limited liability enhances the incentives to do some moral hazard behaviour for managers.

At this stage, both models show that after having controlled for differences in asset quality and the structure of claims, there remain significant differences across countries and procedures in their ability to increase recovery rates.

However, as shown in table 5, there are also sizeable differences in recovery rates when comparing recovery rates of different creditors across countries and procedures. In order to test for differences in the recovery rates among creditor classes are different, we to adopt a different methodology, as recovery rates for one creditor class can be influenced by those for others. More specifically, following the priority rules, recovered amounts by junior creditors are influenced by those obtained by senior and new money creditors, whereas those for new money creditors matter for senior creditors. Therefore, we estimate a simultaneous equations model incorporating interdependencies between recovered amounts for creditor classes.

The model includes three equations all explaining the recovered sums for one class of creditors. The results are displayed in table 9. The key explanatory variables are the due sums for the classes of creditors. In order to investigate the differences across bankruptcy paths, we model their ability to achieve higher recoveries given due amounts. At this aim, we introduce interaction terms between due amounts and path dummies. For instance, when investigating the impact of the procedure on recovered sums for junior creditors, we create the variable *Lduejuniorfrliq* which are the product of the due sums to junior creditors multiplied by a dummy variable equal to one whether the procedure was a French liquidation. We similarly create a variable for each procedure. As we consider the log values of due and recovered amounts for the different categories of creditors, the regression coefficients measure the elasticity of recovered amounts with regard to due amounts. Thus, the regression coefficients

measure the ability of a bankruptcy procedure (in a country) to provide higher recoveries given the structure of liabilities. A higher (and statistically significant) coefficient is then associated to a higher ex post efficiency level. Table 10 complements the regression results by providing difference tests between procedures for each category of creditors.

In addition to the due amounts of claims, we introduce the recovered amounts by other potentially competing creditors as additional explanatory variables: this links the three equations of the econometric model. More specifically, new money creditors generally enjoy a super-priority over other creditors. However, as senior creditors have commonly a right to separately realize the assets underlying their seniority, potential competition exists between senior and new money creditors on recovered amounts. However, these two classes are not in competition with residual junior creditors. Thus, we introduce the logarithm of recovered amounts of senior and new money creditors in the junior creditors equation as additional variables. Moreover, only the logarithm of recovered amounts of senior (respectively new money) creditors are introduced in the new money (respectively senior) creditors equation.

The estimations bring several results. Our first comments refer to the interactions between each class of creditors, when focusing on the amounts they recover. Junior and senior creditors are not affected by the amounts recovered by new money creditors. Moreover, new money creditors are negatively (but weakly) affected by the amounts recovered by senior creditors. This suggests that despite their super priority, new money creditors are in competition with senior creditors. Finally, senior and junior creditors clearly compete together for being the residual claimant.

Now, turning to the interaction terms between the due claims and the procedure leads to interesting conclusions. First, the results for junior creditors show a clear hierarchy with, by decreasing order, the French continuation, the German procedure, the British liquidation, and then the three other procedures the French liquidation, the British administration, and the British receivership. This result first confirms the efficiency of the French continuation observed in the tobit regressions. It also suggests that the UK liquidation is more ex post efficient than the French liquidation procedure when considering junior creditors. Thus, the French bankruptcy code may lead to invest more resources in the elaboration of continuation plans to some extent at the expense of liquidations. On this particular aspect, the UK bankruptcy code

appears more ex post efficient than the French law. However, the German bankruptcy code is the most efficient for junior creditors (excluding French continuation). Although we have controlled for available assets at the beginning of the procedure, there remains a significant difference between the German and the two other liquidation procedures when considering junior creditors. However, the opening decision in German law could be related to other non observable factors such as the complexity of the creditors' pool or the type of assets. These factors may lead to the selection of bankrupt firms that are most likely to benefit of the coordination and information gains of a collective procedure, thus leading to ex post efficient outcomes.

When turning to senior creditors, and consistent with the results for junior creditors, the French continuation and the German procedure bring the greatest recovered sums. Moreover, the UK is the worst country for recovery rates for senior creditors, as the three British procedures are those providing the smallest recovered sums for a given level of due sums with by decreasing order the receivership, the administration, and the liquidation, whereas the French liquidation is between both groups of procedures. Indeed, when considering the three UK procedures, the receivership appears to be the most ex post efficient procedure for senior creditors (table 10 shows that the differences are statistically significant at the 10% level). This is consistent with the fact that the receivership procedure was designed for the benefit of the floating charge holder. Moreover, the relative ex post efficiency of the UK liquidation for junior creditors disappears when considering senior creditors. Indeed, it appears to be the less efficient path, in particular when compared to French liquidation. Third, in line with the almost 100% recovery rate observed before, the British procedures are those providing the highest recovered sums for the new money creditors. However, table 6 showed that new money claims are scarce in the UK. This could be interpreted as a very conservative use of additional finance in bankruptcy resolution in the UK. Moreover, the elasticity of recovered amounts to due amounts for new money claims are statistically higher in the UK than in Germany. Table 6 also indicates that Germany is the country where new money financing is most important (about 10% of total claims at the end of the procedure). This could also suggest that one explanation of the observed efficiency of the German bankruptcy code could be related to the decision to take benefit from the temporary continuation of the firm. However, this is achieved to some extent at the expense of new money claims for

which the German procedure is less ex post efficient. Finally, the French liquidation is the least efficient path for new money claimants, although they remain, as in the UK, scarce in the procedure. This could be related to the fact that in France, new money claimants have the possibility to require cash payments from the debtor. This may explain the low level of new money claims and as well low recovery rates. Indeed, French new money creditors are those who did not obtain cash payments.

To sum it up, this model investigating the efficiency ex post of procedures by controlling for all characteristics confirms that when comparing liquidation procedures, the German one is the best for junior and senior creditors, while the French one is better for senior creditors than the British one even if the order is reversed for junior creditors. These results then provide additional support to our main finding of the greater efficiency of the German procedure in value creation than the equivalent British and French ones.

V. Conclusion

This paper has presented new evidence on the value creation by bankruptcy codes through a comparison of the laws in France, Germany, and the UK. Our investigation leads to the following conclusions.

First, France and Germany have quite similar overall recovery rates which exceed the British one. This finding is partly explained by the better quality of assets at the beginning of the procedure in France than in both other countries. We also observe that the structure of claims strongly differs among countries with notably a more important share of senior claims in France. Regressions controlling for these factors then show that recovery rates are not significantly different between France and the UK, while they are greater for German companies. Consequently, we provide support to the fact that the French bankruptcy code creates as much value as the British one, while the German one is more efficient in that dimension.

Second, claimants do not recover the same sums in all countries, with recovery rates for senior and junior creditors higher in Germany than in both other countries, and greater recovery rate for new money creditors. Regression models controlling for other influences confirm that the German bankruptcy code is the best for junior and senior creditors.

Third, the comparison of procedures shows that the French bankruptcy code provides the procedure with the highest recovery rate (the French continuation) while, among the liquidation procedures, the German one is associated with the greater recovery rate.

Thus, when looking for evidence on the ex-post efficiency of bankruptcy codes, the main conclusion of our analysis is that the French one creates as much value as the British one, while the German one is the most efficient. This finding may appear at first glance antagonistic with former studies supporting notably the view that claimants recover more in the UK than in France (World Bank, 2009; Davydenko and Franks, 2008). However our investigation is the first one to our knowledge providing recovery rates on a large set of collected bankruptcy files with information for all categories of claimants for these three European countries. Therefore, our methodology differs than the Doing Business Report based on the opinion of local insolvency practitioners. Furthermore our results corroborate in fact those from Davydenko and Franks (2008) focusing on one class of claimants, banks. Thus, our study suggests developing new research on collected bankruptcy files to have a wider view of the value creation of the bankruptcy code.

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Table 1 The six paths of bankruptcy

This table shows the legal characteristics that are likely to impact on the creditors' recovery rates. These features are splitted into six paths of bankruptcy laws, country per country: French liquidation, French continuation, German bankruptcy, UK liquidation (compulsory and voluntary), UK administration, and UK administrative receivership.

	Triggering	Management	Outcome
Path n°1: France: continuation (*1994 law*)	- The triggering criteria rely on cash shortage. - The Court can summon the managers of firms having first signs of difficulties. - The bankruptcy procedure can follow a Court-supervised renegotiation attempt (*règlement amiable*). - The debtor must fill for bankruptcy within 15 days. - Both debtor and creditors can trigger bankruptcy.	- The firm is supervised by an administrator during an "observation period" (up to 20 months). - The purpose of this period is to prioritize continuation over liquidation (social objectives). - Stay of claims and of individual legal proceedings. - To be valid, any claim must be declared to the Court within 2 months. - Previously sold assets can be recovered by the Court (*période suspecte*). - In case of pricemeal liquidation: firms with no asset can be liquidated immediately.	- No debt relief allowed. - The claims should be paid at their normal term, but delays can be imposed by the Court (<10 years). - ".Superprivilège" repayment cannot be delayed.
Path n°2: France: liquidation and sale (*1994 law*)			- The outcomes of liquidation and/or sale are the definitive basis for the creditors' repayment. - Rival Buyout offers can be proposed to the Court. - In case of piecemeal liquidation: long-term secured creditors have priority over new money.
Path n°3: German bankruptcy (1994 law, effective from 1999)	- Triggering criteria based on illiquidity, insolvency and potential insolvency - The bankruptcy is triggered provided the value of the debtor's assets exceeds the expected legal costs. - Both debtor and creditors can trigger bankruptcy.	- The firm is managed by the administrator - Stay of claims and of individual legal proceedings. - The procedure is stopped if assets turn out to be insufficient to cover legal costs - The final decision is submitted to a vote of creditors.	- The outcomes of liquidation and/or sale are the definitive basis for the creditor's repayment. - A continuation plan can be elaborated by the administrator.
Path n°4: U.K.: Liquidation (voluntary or compulsory) (*2002 law*)	- Depending on the type of liquidation, the procedure can be triggered by either the debtor of the creditors. - Depending on the type of liquidation, the triggering criteria is either free of relies on specific criteria (illiquidity, no activity, less than 2 associates).	- The firm is managed by the liquidator. - The liquidator checks the value of the assets and of the various claims.	- The outcomes of liquidation and/or sale are the definitive basis for the creditors' repayment. - The firm may be either piecemeal liquidated and/or sold as a going concern (partially or not).
Path n°5: U.K.: Administration (*2002 law*)	- Both debtor and creditors can trigger bankruptcy. - The bankruptcy can be triggered when the debtor faces present and/or future difficulties. - No other procedure can be triggered simultaneously.	- The firm is managed by the administrator. - Stay of claims and of individual legal proceedings. - Depending on his/her initial mission, the administrator prepares either a CVA, or a reorganization plan, or a liquidation/sale.	- The administrator proposes a plan (CVA / reorganization or liquidation) that is voted by the pool of creditors (in case of refusal, the debtor is likely to be liquidated). - Finally, the debtor turns to a CVA, is reorganized, or liquidated.
Path n°6: U.K.: Administrative Receivership (*until 2003*)	- The procedure starts when a secured creditor in possession of a floating charge appoints the receiver. - There is no specific triggering criteria (freely assessed by the appointer).	- The firm is managed by the administrative receiver. - The firm's management prioritizes the appointer's interests over the other creditors' ones.	- Finally, the debtor is reorganized, or (more likely) liquidated. - The secured creditors are prior to the appointer in possession of a floating charge.

Table 2
Time distribution of the sample

This table provides the number of files and the weight used for each procedure. Year is defined as the opening year of the bankruptcy file.

Year	France	Germany	United-Kingdom
1993	6	-	-
1994	3	-	1
1995	11	-	-
1996	20	-	-
1997	31	-	-
1998	48	-	24
1999	19	27	27
2000	38	32	29
2001	36	23	34
2002	38	25	37
2003	6	14	102
2004	2	5	150
2005	1	-	92
Total	259	126	495

Table 3
Descriptive statistics

This table provides the means / frequencies of the main variables by country. For the default causes, we provide the mean number of the different causes (out of 52). For the frequency of default causes, the frequency of dummy variables is equal to one when there is at least one identified cause within a given category. The frequencies are computed on the sole cases where there is at least one identified cause of default.

Variable	France	Germany	United Kingdom
Due liabilities (k€)	1370.97	1435.73	2065.14
Age (years)	14.59	10.01	13.54
Default causes [1)]	1.91	1.97	2.26
Frequency of default causes categories [2)]			
Strategy	0.15	0.23	0.27
Production	0.24	0.33	0.26
Finance	0.25	0.18	0.17
Management	0.13	0.22	0.12
Accident	0.25	0.14	0.30
Outlets	0.54	0.68	0.73
Macro	0.35	0.18	0.42
Limited liability (%)	91	94	98
Duration (months)	8.37	5.16	18.2

Table 4
Distribution of bankruptcy courses and regression weights

This table provides the number of files and the weight used for each procedure.

	Number of files	Individual weight
French liquidation (FRLIQ)	188	0.975
French continuation (FRCON)	76	0.025
German procedure (GER)	126	1
UK liquidation (UKLIQ)	106	0.85
UK Administration (UKADM)	195	0.05
UK Receivership (UKREC)	193	0.10

Table 5
Recovery Rates

This table provides the mean recovery rate for each procedure and for each class of creditors. N is the number of observations.

	France			**Germany**	**UK**			
	Contin.	Liq.	Total	Total	Rec.	Adm.	Liq.	Total
Global	74.79	20.11	20.67	21.46	29.95	20.59	9.64	13.82
Junior	73.08	5.04	5.82	10.10	1.61	3.54	7.05	6.03
Senior	75.50	34.87	35.28	76.71	40.76	37.19	25.27	30.84
New Money	87.72	53.16	53.34	78.58	100.00	98.64	100.00	99.75
N	76	188	264	126	193	195	106	493

Table 6
Structure of claims

This table presents the breakdown of claims by class of creditors in percentage. N is the number of observations.

	France	**Germany**	**UK**
Junior	41.63	81.02	74.18
Senior	56.19	9.81	23.24
New Money	2.18	9.48	2.58
Total	100.00	100.00	100.00
N	264	124	493

Table 7
Coverage rates

This table provides the mean coverage rate by procedure and by country in percentage. N is the number of observations.

	France		**Germany**	**United Kingdom**		
	Continuation	Liquidation	Total	Receivership	Administration	Liquidation
Global	74.04	53.00	27.38	36.28	31.39	17.37
N	76	188	126	193	195	106

Table 8
Determinants of Recovery Rates at the global level

Double Censored Tobit regression. The dependent variable is the overall recovery rate. Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for industries are included in the regressions but are not reported.

	Estimation			
Explanatory variables	**Model (1)**		**Model (2)**	
	Coefficient	**t-value**	**Coefficient**	**t-value**
Intercept	0.109	1.33	0.092	1.14
Coverage	0.159***	7.05	0.156***	7.04
France	0.004	0.11	-	-
Germany	0.073*	1.85	0.095**	2.34
Frliq	-		0.032	0.82
Frcon	-		0.556***	3.67
Ukadm	-		0.063	0.91
Ukrec			0.105*	1.92
Weight Due Senior	0.197***	4.57	0.170***	3.81
Weight Due New Money	0.969***	7.79	0.932***	7.55
Age	0.016	1.45	0.015	1.45
GDP growth	0.160	0.17	0.175	0.19
Limited Liability	-0.186***	3.91	-0.181***	3.89
Duration	-0.013	1.03	-0.013	1.05
Strategy	-0.005	0.20	-0.009	0.33
Production	-0.040*	1.65	-0.038	1.61
Finance	0.038	1.42	0.036	1.37
Management	0.058**	2.12	0.062**	2.32
Accident	0.016	0.63	0.018	0.73
Outlets	-0.015	0.66	-0.016	0.72
Macro	-0.025	1.05	-0.030	1.26
N	869		869	

Table 9
Estimations by categories of creditors

Three-stage least squares. The dependent variable is on the top of the column. It is the logarithm of the recovered sums for each category of creditors (respectively junior, senior, and new money creditors). Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level. Dummy variables for industries are included in the regressions but are not reported. System weighted R^2: 0.7333. N=867

	Key variable					
	LRECJUNIOR		**LRECSENIOR**		**LRECNEWMONEY**	
Explanatory variables	**Coefficient**	**t-value**	**Coefficient**	**t-value**	**Coefficient**	**t-value**
Intercept	-0.172	0.41	-0.998***	3.43	-0.002	0.01
Lduejuniorger	0.192***	5.76	-	-	-	-
Lduejuniorfrliq	-0.005	0.15	-	-	-	-
Lduejuniorfrcon	0.755***	4.80	-	-	-	-
Lduejunioruкliq	0.079*	1.83	-	-	-	-
Lduejuniorukadm	-0.042	0.66	-	-	-	-
Lduejuniorukrec	-0.036	0.69	-	-	-	-
Ldueseniorger	-	-	0.738***	23.38	-	-
Ldueseniorfrliq	-	-	0.615***	26.46	-	-
Ldueseniorfrcon	-	-	0.737***	6.79	-	-
Ldueseniorukliq	-	-	0.343***	10.31	-	-
Ldueseniorukadm	-	-	0.508***	10.70	-	-
Ldueseniorukrec	-	-	0.603***	18.71	-	-
Lduenewmoneyger	-	-	-	-	0.870***	46.73
Lduenewmoneyfrliq	-	-	-	-	0.613***	23.14
Lduenewmoneyfrcon	-	-	-	-	0.954*	1.69
Lduenewmoneyukliq	-	-	-	-	1.016***	17.41
Lduenewmoneyukadm	-	-	-	-	0.974***	18.31
Lduenewmoneyukrec	-	-	-	-	1.005***	27.94
Lrecnewmoney	0.027	0.61	0.023	0.73	-	-
Lrecsenior	-0.296***	5.85	-	-	-0.048*	1.89
Lassets	0.348***	7.55	0.212***	7.74	0.055**	2.39
Age	0.097*	1.72	0.157***	3.87	0.027	0.88
GDP growth	7.598	1.52	3.325	0.94	4.551*	1.73
Limited Liability	-0.261	1.01	-0.506***	2.77	-0.115	0.84
Duration	-0.052	0.75	-0.062	1.27	-0.039	1.01
Strategy	-0.134	0.96	0.082	0.81	-0.085	1.13
Production	0.145	1.12	-0.008	0.08	-0.041	0.59
Finance	0.192	1.37	0.215**	2.13	-0.054	0.72
Management	0.142	0.98	0.238**	2.27	-0.078	1.01
Accident	-0.018	0.13	0.101	1.03	-0.045	0.61
Outlets	-0.279**	2.32	0.007	0.08	-0.117*	1.81
Macro	-0.300**	2.35	-0.102	1.10	-0.121*	1.74

Table 10
Significance tests between procedures for estimations by categories of creditors

Three-stage least squares. The dependent variable is on the top of the column. It is the logarithm of the recovered sums for each category of creditors (respectively junior, senior, and new money creditors). Table reports coefficients with t-statistics in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level.

	LRECJUNIOR		**LRECSENIOR**		**LRECNEWMONEY**	
	F value	p-value	F value	p-value	F value	p-value
Ger vs. Frliq	40.59***	0.01	19.77***	0.01	79.21***	0.01
Ger vs. Frcon	12.78***	0.01	0.01	0.99	0.02	0.88
Ger vs. Ukliq	8.28***	0.01	94.59***	0.01	6.07***	0.01
Ger vs. Ukadm	15.37***	0.01	21.07***	0.01	3.61*	0.06
Ger vs. Ukrec	21.70***	0.01	13.81***	0.01	12.14***	0.01
Frliq vs. Ukliq	4.44**	0.03	59.36***	0.01	44.60***	0.01
Frcon vs. Ukadm	23.04***	0.01	3.82**	0.05	0.01	0.97
Frcon vs. Ukrec	23.88***	0.01	1.43	0.23	0.01	0.93
Ukrec vs. Ukadm	0.01	0.94	3.48*	0.06	0.26	0.61
Frliq vs. Frcon	24.12***	0.01	1.29	0.26	0.36	0.55
Frliq vs. Ukrec	0.38	0.54	0.12	0.73	88.68***	0.01
Frliq vs. Ukadm	0.35	0.55	4.83**	0.03	39.78***	0.01

Appendix: Brief description of all variables and their sources

Variable	Description
Variables referring to bankruptcy procedures and hypotheses	
France	=1 if the bankruptcy case is French
Germany	=1 if the bankruptcy case is German
Frliq	=1 if the bankruptcy case is a French liquidation
Frcon	=1 if the bankruptcy case is a French continuation
Ukadm	=1 if the bankruptcy case is a UK administration
Ukrec	=1 if the bankruptcy case is a UK receivership
Lduejuniorger	Log of the due sums to junior creditors × a dummy variable equal to 1 if German case
Lduejuniorfrliq	Log of the due sums to junior creditors × a dummy variable equal to 1 if French liquidation
Lduejuniorfrcon	Log of the due sums to junior creditors × a dummy variable equal to 1 if French continuation
Lduejuniorukliq	Log of the due sums to junior creditors × a dummy variable equal to 1 if UK liquidation
Lduejuniorukadm	Log of the due sums to junior creditors × a dummy variable equal to 1 if UK administration
Lduejuniorukrec	Log of the due sums to junior creditors × a dummy variable equal to 1 if UK receivership
Ldueseniorger	Log of the due sums to senior creditors × a dummy variable equal to 1 if German case
Ldueseniorfrliq	Log of the due sums to senior creditors × a dummy variable equal to 1 if French liquidation
Ldueseniorfrcon	Log of the due sums to senior creditors × a dummy variable equal to 1 if French continuation
Ldueseniorukliq	Log of the due sums to senior creditors × a dummy variable equal to 1 if UK liquidation
Ldueseniorukadm	Log of the due sums to senior creditors × a dummy variable equal to 1 if UK administration
Ldueseniorukrec	Log of the due sums to senior creditors × a dummy variable equal to 1 if UK receivership
Lduenewmoneyger	Log of the due sums to new money creditors × a dummy variable equal to 1 if German case
Lduenewmoneyfrliq	Log of the due sums to new money creditors × a dummy variable equal to 1 if French liquidation
Lduenewmoneyfrcon	Log of the due sums to new money creditors × a dummy variable equal to 1 if French continuation
Lduenewmoneyukliq	Log of the due sums to new money creditors × a dummy variable equal to 1 if UK liquidation
Lduenewmoneyukadm	Log of the due sums to new money creditors × a dummy variable equal to 1 if UK administration
Lduenewmoneyukrec	Log of the due sums to new money creditors × a dummy variable equal to 1 if UK receivership
Coverage	Ratio of assets at the opening of the procedure to due claims
Weight Due Senior	Weight of senior creditors in total due amounts
Weight Due New Money	Weight of new money creditors in total due amounts
Lrecnewmoney	Log of recovered sums by new money creditors
Lrecsenior	Log of recovered sums by senior creditors
Control variables	
Lassets	Log of total assets
Age	Age of the company
GDP growth	Log of GDP per capita growth
Limited liability	=1 if the legal status of the company includes limited liability
Duration	Duration of the procedure…
Strategy	=1 if one cause of default is “Strategy”
Production	=1 if one cause of default is “Production”

Finance	=1 if one cause of default is “Finance”
Management	=1 if one cause of default is “Management”
Accident	=1 if one cause of default is “Accident”
Outlets	=1 if one cause of default is “Outlets”
Macro	=1 if one cause of default is “Macro”

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