

# Do Bankruptcy Codes Matter? A Study of Defaults in France, Germany, and the U.K.

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## ABSTRACT

Using a sample of small firms that defaulted on their bank debt in France, Germany, and the U.K., we find that large differences in creditors' rights across countries lead banks to adjust their lending and reorganization practices to mitigate costly aspects of bankruptcy law. In particular, French banks respond to a creditor-unfriendly code by requiring more collateral than lenders elsewhere, and by relying on collateral forms that minimize the statutory dilution of their claims in bankruptcy. Despite such adjustments, bank recovery rates in default remain sharply different across the three countries, reflecting very different levels of creditor protection.

*Keywords:* Default; Reorganization; Bankruptcy code; Recovery rate.

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How do bankruptcy codes affect distressed reorganizations, and can lenders overcome the lack of creditor protection by adjusting their lending practices at loan origination? Using a large sample of defaulted small-to-medium-size firms from ten banks in France, Germany, and the U.K. to address these questions, and find country bankruptcy codes to be important determinants of outcomes of distress, despite significant adjustments in banks' practices in response to particular provisions of their respective codes.

With flexibility in writing and renegotiating debt contracts, the effect of state-imposed bankruptcy law on lending and distress is an empirical question. On the one hand, one might expect different outcomes of default depending on the level of creditor protection provided by the bankruptcy code. For example, in debtor-friendly countries, where creditors have little control in bankruptcy, their recovery rates may be lower than in creditor-friendly jurisdictions. On the other hand, lenders may anticipate this and adjust the terms of the loan contract by, for example, requiring more collateral or increasing the interest rate on loans. This paper studies empirically the nature of such adjustments and the extent to which they mitigate the effect of the bankruptcy code on the outcome of default.

We focus on three European countries that have very different bankruptcy codes: France, Germany, and the U.K. In the creditor-unfriendly code of France, the state imposes court-administered procedures in bankruptcy with the explicit objective of preserving the firm as a going concern and maintaining employment. To achieve these goals, French bankruptcy courts are given control of the bankruptcy process and are not mandated to sell firm assets to the highest bidder. The role of creditors is reduced to an advisory function, and their approval is not required by the court in determining a reorganization plan. By contrast, in the U.K., although the state provides court-administered bankruptcy procedures, secured creditors can veto them and enforce the default provisions as specified in the debt contract. In the principal bankruptcy procedure used for small firms in the U.K. at the time of our study, known as administrative receivership, secured lenders have full discretion to sell the defaulted firm's assets as they choose in order to ensure repayment of their claims, without much interference by the courts. Germany provides an intermediate level of creditor protection, where collective court-administered procedures are imposed on the parties in bankruptcy, but creditors retain significant control over the restructuring process and their agreement is required to approve any reorganization plan. These differences across the three countries are reflected in the creditors' rights scores of La Porta et al.(1998, LLSV), which range from a minimum of 0 for France, to 3 for Germany, and to a maximum of 4 for the U.K.

To study the effects of these differences in bankruptcy codes, we construct a unique data set of 2,280 small-to-medium-size firms in France, Germany, and the U.K., almost all of them privately owned, that have

defaulted on their bank debt. Under the initiative of Standard and Poor's Risk Solutions, the data have been collected specifically for this study from the private records of ten commercial banks, each with a significant market share in its country. The data include detailed information on the terms of the loan contracts, the event of default and its resolution (either bankruptcy or workout), collateral values and the proceeds from asset sales, and banks' recovery rates.

Our main findings can be summarized as follows. First, we find that banks significantly adjust their lending and reorganization practices in response to the country's bankruptcy code. In particular, collateral requirements at loan origination directly reflect the bank's ability to realize assets upon default. Thus, because the proceeds from collateral sales are lower in France, at loan origination French banks demand higher levels of collateral per dollar of debt. Moreover, the composition of different types of collateral reflects their expected value in default. While real estate collateral is the most important source of banks' recovery in Germany and the U.K., it is far less valuable in France, both because sales proceeds there are diluted by preferential creditors such as employee wages and bankruptcy fees, and because French bankruptcy courts tend to sell assets below their potential market prices in order to preserve employment. By contrast, accounts receivable and personal guarantees can be realized by French banks directly, and the proceeds are not subject to dilution by preferential creditors. As a result, these collateral types are used more often than real estate at loan origination in France.

Second, the observed adjustments mitigate but do not eliminate the effect of bankruptcy codes on outcomes of default. Banks' losses in default remain sharply different, with median undiscounted recovery rates of 92% in the U.K., 67% in Germany, and 56% in France. Notwithstanding these differences, they would have been even larger in the absence of endogenous adjustments. The differences in recoveries are due to very different outcomes of bankruptcy, where the influence of the bankruptcy code is greatest. By contrast, recovery rates in workouts are very similar across the three countries.

Third, differences in practices across countries do not always conform to expectations. For example, it is often argued that defaulted firms are less likely to survive as going concerns in creditor-friendly countries such as the U.K., where secured creditors have wide discretion to sell their collateral (Hart (2000), Acharya, Sundaram, and John (2006)). Contrary to this prediction, however, we find that the proportion of going-concern reorganizations is actually higher in the U.K. than in France, where the primary stated objective of insolvency is to ensure the survival of the troubled firm. The explicit preference of U.K. banks for going-concern reorganizations and the willingness of U.K. banks to go to great lengths to turn around the ailing firm (Franks and Sussman (2005)) is consistent with the fact that they are often residual claimants in default,

and therefore have strong incentives to maximize the total recovery. Moreover, in response to large losses in the early 1990s, most U.K. banks have switched to managing distressed firms through centralized “business support units” in order to improve coordination and avoid oversupply of bankrupt firm assets in the resale market (Armour, Cheffins, and Skeel (2002), Franks and Sussman (2005)). By contrast, the deprivatized nature of bankruptcy in France provides few economic incentives to reorganize the firm in an efficient manner.

Finally, our findings underscore the importance of understanding broader institutional considerations in discerning the effects of bankruptcy legislation. For example, we find that loan spreads charged by U.K. banks are similar to those in France, notwithstanding higher U.K. loan recovery rates combined with similar default probabilities in the two countries. The ability of U.K. banks to charge high interest rates despite relatively low expected losses is consistent with higher industry concentration and lower levels of competition in the banking industry in the U.K., with its market-oriented financial system, compared with the bank-oriented systems in Germany and France.

Our paper contributes to the strand of the literature studying the influence of creditors’ rights on debt contracts and distressed reorganizations. Claessens and Klapper (2005) analyze how legal origins and creditor protection affect the incidence of formal bankruptcy procedures at the country level, Qian and Strahan (2007) examine their influence on the terms and pricing of bank loans, and Bae and Goyal (2004) focus on the effect of property rights on loan spreads across countries. These papers find that differences in creditors’ rights, particularly relating to the treatment of collateral, significantly influence the terms of loan contracts.<sup>1</sup> Djankov et al.(2006) use survey responses from insolvency practitioners in 88 countries for a hypothetical insolvency case to study how default outcomes and the overall efficiency of the reorganization process depend on the country’s characteristics, including the provisions of its bankruptcy code. Unlike these papers, we use firm-level data to conduct a detailed study of bankruptcy laws in a small number of countries, instead of a limited number of metrics of creditors’ rights in a wider cross-section of countries. This approach allows us to relate differences in debt contracts and outcomes directly to particular provisions of a set of bankruptcy codes and procedures, such as the dilution of collateral sale proceeds by preferential creditors in France. This also allows us to take into account institutional differences across countries that may attenuate the effects of bankruptcy law.

We know of no other paper that provides a comparative study of defaults in different countries while strictly controlling for data comparability. Most available evidence on financial distress comes from large

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<sup>1</sup>Several papers, including La Porta et al. (1998) and Djankov, McLiesh, and Shleifer (2007), study at the country level the link between the development of debt markets, investor protection, and the country’s legal origin.

U.S. corporations.<sup>2</sup> Studies of other jurisdictions include papers on bankruptcy auctions in Finland by Ravid and Sundgren (1998), and in Sweden by Strömberg (2000) and Thorburn (2000). Data limitations usually restrict available evidence to formal bankruptcies. An exception is Franks and Sussman (2005), who study the reorganization of small firms in the U.K., although the lack of country comparisons makes it more difficult for them to study the impact of bankruptcy rules on the outcome of default and bankruptcy.

The remainder of the paper is organized as follows. Section I briefly outlines the main features of the bankruptcy codes in France, Germany, and the U.K., and provides a discussion of our hypotheses concerning the effects of bankruptcy codes on debt contracts and outcomes of default. Section II describes our data set and reports firm characteristics, recovery rates, and statistics on levels and types of collateral. Section III provides regression results concerning cross-country comparisons of default outcomes, recovery rates, and interest spreads at loan origination. Section IV concludes. Further details on the bankruptcy codes in the three countries are provided in the Appendix.

## **I. Bankruptcy Codes and Testable Hypotheses**

### *A. Bankruptcy Codes in the Three Countries*

Bankruptcy laws and procedures in France, Germany, and the U.K. are significantly different. The French and German codes require both collective procedures and court supervision, while that in the U.K. requires neither. The French code emphasizes the preservation of the going concern and employment, while the code in the U.K. leaves the contracting parties to the debt contract largely free to implement the procedure stipulated in the contract. These differences are reflected in the very different LLSV (1998) scores of creditors' rights cited earlier.

Table I summarizes the main features of the principal bankruptcy procedures of the three countries, and also those of the U.S. for comparison; more information is provided in the Appendix.<sup>3</sup> In the U.K., in the event of bankruptcy control rights pass to the creditors. In the principal procedure used for small-to-medium-size enterprises (SMEs) at the time of our study, namely, administrative receivership, a secured creditor (designated in the debt contract) appoints a registered insolvency practitioner (called "an administrative receiver") to assume all the powers of the company's board of directors, with the sole purpose of realizing

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<sup>2</sup>See Asquith, Gertner, and Scharfstein (1994), Baird, Bris, and Zhu (2006), Franks and Torous (1994), and Gilson, John, and Lang (1990), among others.

<sup>3</sup>Our description pertains to the codes that were in effect in the three countries at the time when our data set was collected. Some changes to the French and U.K. codes have been enacted since then, but they do not affect our sample firms.

sufficient funds to repay the debts owing to the secured creditor. The receiver does not need to consider the interests of other creditors, in particular unsecured lenders, and has full discretion over whether to sell the firm as a going concern, or to close it and liquidate its assets piecemeal. However, he must respect the security rights of other lenders and the order of priority of their claims, as provided for in the loan contracts.

[ TABLE  
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In the French bankruptcy procedure called *redressement judiciaire*, the court appoints an administrator who takes control of the company. The objectives of the administrator, as specified by statute, are to maintain the firm as a going concern, preserve employment, and satisfy creditors' claims, in that order. The court decides whether the firm should be liquidated or preserved as a going concern, and in the event of firm sale the court can choose a low-value bid if it provides for better prospects of employment preservation.<sup>4</sup> Creditors cannot veto the decision of the administrator, and can only communicate their concerns through nonbinding recommendations of a court-appointed creditor representative.

In Germany, the current bankruptcy code took effect in 1999, although it was passed in 1994. Under the current code, a court-appointed administrator supervises the bankrupt company and formulates a reorganization plan. The current code introduced for the first time an automatic stay of three months on creditors' claims, the potential for super-priority finance that ranks above all pre-bankruptcy debt, and majority voting rules for approving the reorganization plan. A majority of secured creditors is required for the plan to be approved; otherwise the firm must be sold. The principal pre-1999 procedure subjected the bankrupt firm to a compulsory auction, where the priority of claims and collateral rights were strictly respected. Discussions with German bankers indicate that because the 1999 rules were passed in 1994, they influenced procedures prior to the law's 1999 effective date. As a result, for practical purposes the degree of creditor protection allowed in the German pre- and post-1999 codes is likely to be very similar.

The differences in the three bankruptcy codes are best seen from the perspective of a secured creditor. In the U.K., upon default secured creditors are firmly in control of the company. There is no automatic stay against creditors' claims nor are there provisions for super-priority finance. Unsecured creditors have few control rights and do not participate in the sale of the firm's assets. They do not, as a matter of contract and practice, obtain any payout unless secured creditors' claims have been completely satisfied. As a result, there are no deviations from strict absolute priority, and recovery rates for junior creditors are negligible (Franks and Sussman (2005)).

In Germany, the position of secured creditors is a little weaker, since a collective procedure is imposed on the parties, with a three-month automatic stay on all claims. Although voting procedures can dilute the

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<sup>4</sup>Blazy and Combier (1997) provide evidence that indeed, French bankruptcy courts often fail to sell assets to the highest bidder.

rights of dissenting creditors, the approval of a majority of secured creditors is required for any plan to be passed by the court.

In France, the rights of secured creditors are most at risk, as their approval is required neither for the sale of their collateral, nor for confirmation of a reorganization plan. In addition, the state places its own claims and those of employees first in priority when collateral is sold in bankruptcy. An exception occurs in the case of some types of “cash” collateral, such as guarantees and debtors (accounts receivable), which can be realized directly by the secured creditor and are not diluted by preferential creditors. The administrator in bankruptcy can raise super-priority financing without the approval of creditors, thereby further reducing the priority of their claims on the firm’s assets. Super-priority financing is also available in Germany, but creditors’ approval is required. It is not available in receivership in the U.K.

The LLSV creditors’ rights score for Chapter 11 of the U.S. code is only slightly above that of France (1 vs. 0). However, the two codes are fundamentally different. Whereas in the U.S. the bankruptcy court performs the role of a referee between the different creditors and the debtor as they work out a reorganization plan, the French court both supervises and controls the bankruptcy process, determining the outcome. By statute the French court can choose a plan that reduces the value and redistributes the proceeds of bankruptcy, in the name of employment preservation, without any requirement for creditors’ approval. Such a process is equally “unfriendly” to both the debtor and the creditors.

## *B. Testable Hypotheses*

Coase’s theorem suggests that private contracts will adjust to minimize costs and inefficiencies of any bankruptcy code. In creditor-unfriendly jurisdictions such adjustments should help market participants overcome, at least partially, constraints on lending. Djankov, McLiesh, and Shleifer (2007) argue that banks may respond to poor creditor protection by screening and monitoring borrowers more carefully at loan origination. Qian and Strahan (2007) study how creditor protection affects loan characteristics at origination, while Bae and Goyal (2004) focus on loan pricing. Acharya, Sundaram, and John (2006) predict that the allocation of control rights in bankruptcy should affect the firm’s choice of optimal capital structure.

In this paper, we use a sample of defaulted firms to study how lending and reorganization practices are modified depending on the country’s bankruptcy code, and the extent to which such adjustments allow banks to mitigate creditor-unfriendly provisions of the code and hence reduce their losses in default. Our first hypothesis predicts that for similar firms across the three countries, banks’ recovery rates in formal

bankruptcy increase with the level of creditors' rights, implying the lowest recovery rates in France and the highest in the U.K. Since French bankruptcy courts are not obliged to sell bankrupt concerns to the highest bidder, the value of the firm's assets will be reduced on average even in the absence of direct bankruptcy costs. These lower sales proceeds will be further diluted by preferential creditors, which should result in lower recovery rates for secured creditors. By contrast, German banks retain significant control over the bankruptcy process, while U.K. banks have virtually all the control rights to recover their claims, and therefore are likely to realize higher recovery rates.

It is important to stress that this hypothesis is expected to hold only for *similar* firms in formal bankruptcies. In general, recovery rates will be affected by the endogenous adjustment of the characteristics of firms in default. One such adjustment could be through the levels of collateral and other contractual loan characteristics. Also, firms typically have latitude in the timing of default, in that they can declare default earlier or later in distress. Cross-country differences in the timing of the default decision may affect default outcomes. For example, the "alert" procedure specified in the French code subjects managers to criminal penalties for failing to report liquidity problems promptly to the Banque de France. If in response to the bankruptcy code firms default early in distress, this may allow lenders to take remedial action and increase their recovery rates.<sup>5</sup>

Our second hypothesis concerns how bankruptcy codes affect the relative incidence of formal versus informal procedures.<sup>6</sup> Since banks in France have limited control rights in bankruptcy, resulting (as we show) in low recovery rates, they should have a stronger incentive to restructure in workouts and avoid bankruptcy. However, other factors may also affect the incidence of workouts. For example, the much greater control rights that U.K. banks enjoy in bankruptcy procedures may potentially increase their bargaining power outside bankruptcy, making workouts easier to negotiate with firm owners. Also, borrowing from multiple banks is much more common in France and Germany than in the U.K., increasing renegotiation costs and making workouts more difficult. Which of these effects dominates is an empirical question.

While the above two hypotheses are related to default outcomes and preferred reorganization procedures, the third concerns the effect that bankruptcy codes have on the terms of the debt contract at origination, and in particular, those related to collateral. If, as we expect, secured creditors' lack of control rights over the sale of assets and the dilution of their claims decrease the value of collateral for French banks, then

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<sup>5</sup>Because of data limitations, we do not study whether firms in different countries default at different stages of economic distress, implying differences in firm market values on entering default. See Davydenko (2007) for U.S. evidence on the determinants of the timing of default.

<sup>6</sup>Claessens and Klapper (2005) study how the proportion of firms that file for bankruptcy each year depends on creditors' rights. However, since they have no data on workouts, it is unclear whether the differences they report across countries are due to different default rates, or to the relative incidence of workouts conditional on default.

banks may respond by demanding more collateral per dollar of debt to ensure the same level of security protection. Moreover, we expect French banks to rely more on particular types of “cash” collateral specified in the bankruptcy code that are not subject to dilution by preferential creditors.

Finally, we hypothesize that loan interest rates will reflect banks’ expected losses from default in each country. In particular, if low recovery rates for banks in France result in greater overall expected losses from SME portfolios, then loan spreads in France should be higher than in other countries. This need not be the case, of course, if higher losses conditional on default in France are offset by lower default rates. Indeed, if overall loan portfolio quality is better in France due to more efficient screening and monitoring, then for new loans expected default losses may actually be lower than in other countries, despite high loss rates for firms that do default (and end up in our sample). To estimate banks’ expected losses, we look at recovery rates in conjunction with default rates, and also at the banks’ aggregate loss provisions reported on their balance sheets. We then investigate whether loan spreads across countries reflect the ranking of expected losses.

## **II. The Data**

### *A. Data Sources and Sampling Procedures*

Ten banks participated in this study: three in France, three in Germany, and four in the U.K. Each observation in the sample corresponds to a particular firm that defaulted during the sample period. In the large majority of cases our bank was the borrower’s main bank. For each firm, we collect detailed data on loan terms at origination, the default event and its resolution, recovery rates for creditors, the different types of collateral at default, and the proceeds from collateral sales. Where the banks provided us with names of the companies, we use public data sources to supplement bank records on balance sheet and P&L account information and details of reorganization proceedings.

We focus on small-to-medium-size enterprises (SMEs), applying the following selection criteria. (1) We include in our sample firms with annual sales turnover below 75 million Euros and total debt outstanding with the participating bank in excess of 100,000 Euros. (2) We use the Basel II definition of default as our criterion for including a particular firm in our sample. According to this definition, a company is considered in default if any of the following conditions are present: The bank’s loan is more than 90 days past due on a scheduled debt payment, formal insolvency proceedings have been initiated against the borrower, a specific loss provision has been raised by the bank against the exposure, or the bank’s officers have indicated that a

material loss was likely, using an internal rating.<sup>7</sup>

To monitor the quality of data collection, particularly in light of differences of language and institutions, in each of the three countries we employed scholars and practitioners who have knowledge of the local bankruptcy code and familiarity with data collection for distressed firms. For each country, a template was designed to collect data on a company-by-company basis. A similar template was used for all banks within a country to ensure data comparability. We conducted numerous interviews with authorities in the banks responsible for managing distressed firms, and in many cases we were allowed unrestricted access to the banks' original files. We also held extensive conversations with insolvency practitioners and judicial authorities in the three countries in order to improve our understanding of bankruptcy laws, procedures, and practices.

## *B. Summary Statistics*

Panels A and B of Table II reports the number of companies in our sample by year of default and by broad industry group. The U.K. and German samples are concentrated in the years 1996 to 2003, while the French sample is spread over the period 1993 to 2003. In each of the three countries, the defaulted SMEs are most frequently found in wholesale/retail trading and less frequently in the construction business. There are very few utilities or financial firms of this size.

Since our sample is conditional on default, we do not have independent data that would allow us to estimate default rates for SMEs in the three countries. Instead, we report default probabilities for private companies provided by the rating agencies Moody's and Standard and Poor's.<sup>8</sup> Similar to our sample selection criteria, both agencies use the Basel II definition of default, including workouts as well as formal bankruptcies. Both agencies focus on private companies with annual sales turnover in excess of €500 thousand, but do not filter out large private firms.<sup>9</sup> Standard and Poor's estimates for the U.K. and France are based on historical default frequencies between 1998 and 2004 obtained from private bank records; they do not report statistics for Germany. Moody's arrive at their estimates using several different approaches, including the use of private bank data. The default probability statistics are reported in Panel C of Table II. For France and the U.K. the two agencies' estimates are similar, between 2.0 and 2.2% per year. For

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<sup>7</sup>Our conversations with banks' officers indicate that in practice, in the great majority of cases it is the last three criteria that were important for the selection of the sample, but that it was unlikely that an officer would downgrade a borrower to default unless a scheduled payment was more than 90 days overdue or the loan limit had been persistently exceeded.

<sup>8</sup>Estimates by Moody's are obtained from technical reports *Moody's RiskCalc<sup>TM</sup> for Private Companies* for the U.K., France, and Germany, available at [www.mkmv.com](http://www.mkmv.com). Standard & Poor's estimates are from *Credit Risk Tracker Technical Documentation* reports for the U.K. and France, downloadable from [www.creditrisktracker.com](http://www.creditrisktracker.com).

<sup>9</sup>In addition, Moody's excludes start-up firms, financial firms, subsidiaries, and public sector firms, while S&P excludes firms with fewer than 10 employees.

Germany, Moody's reports the baseline default probability of 1.6% per year, but stresses that this figure corresponds to a boom period with relatively few defaults.

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Company characteristics are summarized in Table III. Accounting data are taken from the last accounting statement (audited or managerial) available prior to default. Average sales turnover before default is €17.4 million in the U.K., €18.6 million in France, and €23.8 million in Germany. Median book leverage at default is 66% in the U.K., 63% in France, and 79% in Germany. These numbers are high compared with those for nondistressed listed firms reported by Rajan and Zingales (1995), which are, respectively, 18%, 25%, and 16%. A second measure of distress, the current ratio (current assets/current liabilities), suggests higher liquidity for French firms at 1.35, compared with only 1.05 in the U.K.; both are well below the benchmark level of 2.00 generally considered the minimum level for healthy firms. The higher ratio for French companies may be affected by the legal provision that compels French managers to inform officials of difficulties in paying suppliers, and subjects them to criminal penalties in the event of noncompliance. Overall, high leverage and low current ratios confirm that firms in all countries are seriously distressed.

Defaulted SMEs in the sample are rarely start-up firms, with the median age at default varying from seven years in the U.K. to more than 15 years in Germany. They have long-standing relationships with the main bank, with medians ranging from 3.8 to 4.9 years. Table III shows that the proportion of defaulting firms reorganized in a formal bankruptcy, as opposed to a workout, is similar in the U.K. and France, at 75.4% and 78.0%, but higher in Germany at 86.9%. Thus, contrary to our expectations, we do not find a lower incidence of bankruptcies in France, even though French banks do not control the bankruptcy process and therefore should have a strong incentive to reorganize in a workout. Also contrary to expectations, the proportion of piecemeal liquidations (where the firm is closed and assets are sold, either in bankruptcy or in a private sale), reported in the last column, is not lowest in France, despite the explicit commitment in the bankruptcy code toward preserving the troubled firm as a going concern. In fact, the incidence of liquidations is much lower in the U.K., at 42.9%, than in France (62.0%) or Germany (56.9%). These results may be surprising in the light of Hart's (2000) argument that, because senior secured creditors are in control of the U.K. bankruptcy process, they will have less interest in the going concern value, and as a result there will be more (inefficient) piecemeal liquidations. However, this argument assumes that the senior creditor is not impaired in default and therefore is not the residual claimant. By contrast, our evidence and that reported in Franks and Sussman (2005) imply that, in fact, upon default U.K. banks are often residual claimants, and therefore have a strong incentive to maximize the total recovery. We analyze the determinants of the incidence of bankruptcies and liquidations in Subsection III.A, and discuss factors that may be affecting our

cross-country comparisons.

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III HERE ]

The incidence of formal bankruptcy conditional on Basel II default in the SME sector that we document is relatively high. For the U.K., it is significantly higher than the 31.5% reported in Franks and Sussman (2005). However, their firms are considerably smaller (sales turnover of €1.2 million vs. €5.5 million in our sample), and their sample consists of firms that banks place in their “intensive-care” units. Those firms have not necessarily defaulted, but they give the bank cause for concern.<sup>10</sup> By contrast, firms in our sample have all defaulted, and therefore are likely to be considerably more distressed on average. We know of no reliable statistics on the incidence of formal bankruptcies in default for small unlisted firms in France or Germany. In the U.S., for a sample of large publicly listed firms, Gilson, John, and Lang (1990) report that about 53% of distressed U.S. firms end up in a Chapter 11 bankruptcy, while 47% successfully restructure out-of-court. Baird, Bris, and Zhu (2006) find that the large majority of Chapter 11 cases are small companies that do not survive as going concerns.

### *C. Debt Contract Characteristics*

For each firm in the sample, we analyze all loans and overdrafts (credit lines) that were outstanding at the time of default with the bank that provided data for this study.<sup>11</sup> For 96% of the firms in the U.K. sample, our bank is the main bank lending to the firm. For the French sample the equivalent figure is only 56%, reflecting the fact that multiple bank lending to an individual firm is more frequent than in the U.K. For a small sample of German firms for which these data are available, our bank is the main bank in about 62% of the cases. In a majority of our tests, we aggregate all loans and overdrafts, calculating the firm’s total debt outstanding at default and total resulting losses, and report the bank’s overall recovery rate for the firm.<sup>12</sup> This approach allows us to avoid the issue of the arbitrary allocation by banks of recovery proceeds to different loans of the same firm, and to focus on the bank’s total losses.

Table IV summarizes the characteristics of bank debt at default. The table shows that the mean total debt outstanding at default with the participating bank, which we refer to as Exposure at Default (EAD), is €960,000 in the U.K., €600,000 in France, and €2.41 million in Germany. The medians are smaller, at €244,000, €269,000, and €1.23 million, respectively. These statistics confirm that German firms in the

<sup>10</sup>Franks and Sussman (2005) report that U.K. banks may transfer a firm to their intensive-care unit because they do not approve of the management’s strategy and therefore require specialized monitoring, rather than because they expect the firm to default in the foreseeable future.

<sup>11</sup>Although some firms may have banking relationships with several banks, we only have information from participating banks on their own debt facilities.

<sup>12</sup>In addition to loans and overdrafts, banks may provide firms with “noncash” facilities, including performance bonds, bank guarantees, and interest rate swaps. We exclude such facilities from the study, since our analysis suggests that banks’ losses on these facilities are typically quite low, even in formal bankruptcy.

sample are larger than those in the U.K. and France on the basis of debt exposure as well as sales turnover. In the analysis below we use EAD as a measure of the company's size.

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The second column in Table IV reports the proportion of outstanding debt that is secured (collateralized) at the time of default. This is the ratio of the last available pre-default estimate of the value of collateral, divided by the EAD. The table shows substantial differences in the levels of collateral across the three countries. While the median value of collateral is only 41% of the total debt outstanding in Germany, it is 62% in the U.K., and as high as 104% in France. Thus, German firms are able to borrow without posting as much collateral as U.K. or French firms. This ordering of countries is consistent with Qian and Strahan (2007), who find that the proportion of (mostly large and syndicated) loans that are secured by collateral is 53% for Germany, 57% for the U.K., and 67% for France. Since, as we show below, collateral has a major impact on creditors' recovery rates, high levels of collateral in France may provide a means to allow banks to mitigate the effects of creditor-unfriendly provisions of the French bankruptcy code. The differences in levels of collateral may also reflect differences in valuation methods, such as the degree of conservatism shown by the banks in valuation, and the timing of revaluations. For example, U.K. banks tend to formally update their collateral value estimates for distressed companies, whereas French banks do not. We also find that our German banks are often conservative in their valuations, often placing zero value on personal and company guarantees. Finally, some banks use the original cost or (written down) book values, rather than the open market values, for particular types of collateral. These differences in practices may have important implications. For example, more frequent revaluations of collateral may lead banks to demand more collateral in distress if there is a decline in asset values, and this practice may improve recovery rates. We later investigate whether the frequency of collateral revaluations affects collateral recovery.

Table IV also provides statistics on the average number of loans per distressed company, the proportion of loans that are long-term (defined as more than one year to maturity at origination), and the proportion of overdrafts (credit lines), which are typically subject to repayment on demand. Long-term financing is more common for defaulted firms in France (43%), and less common in Germany (19%). Much of the lending in France (52% of the total) is at fixed interest rates, while as much as 94% of U.K. lending is contracted at variable rates. These comparisons are consistent with the fact that the median defaulted firm is 100% overdraft-financed in both Germany and the U.K., while in France almost two-thirds of debt is in term loans, which are more likely to be long-term fixed-rate facilities. The average maturity of long-term loans calculated at loan origination is between 6.5 and 8.8 years, depending on the country. Overall, debt characteristics in the three countries differ significantly along a number of dimensions.

The last column of the table reports statistics on the interest rate spread stipulated in the loan contract at its origination. For floating-rate loans, this is the loan spread specified in the loan contract, adjusted for the difference between the reference rate (such as the Bank of England base rate) and the applicable LIBOR rate. For fixed-rate loans, it is the difference between the loan rate and the level of the reference rate in the respective country on the date of loan origination, adjusted by the applicable fixed-to-LIBOR swap spread. Table IV shows that interest spreads for our sample firms are very similar in France and the U.K., and highest in Germany. The mean spread is 224 basis points in France, 223 in the U.K., and 290 in Germany, whereas the median is the lowest in France at 202 basis points, compared with 217 in the U.K. and as much as 321 in Germany. This ranking is not consistent with the levels of creditor protection in the three countries, nor with the evidence we report below regarding expected losses on bank loans in different countries. We discuss these issues in detail in Subsection III.C.

#### *D. Banks' Recovery Rates*

We calculate the bank's recovery rate for the firm as one minus the ratio of the total final loss (write-off)<sup>13</sup> to *Exposure at Default* (EAD), which is the total debt amount on all loans outstanding with the bank at default. We focus on nominal (undiscounted) recovery rates, because information on the timing of cash flows is only rarely available. The median total length of reorganization proceedings between default and case closure for sample firms is 1.45 years in the U.K., 3.05 years in France, and 3.82 years in Germany.<sup>14</sup> However, in many cases most of the bank's cash flows are received shortly after default. For a subsample of firms for which the data are available, the median *duration* of cash flows from the date of default is 0.78 years in the U.K., 1.81 years in France, and 3.58 years in Germany. Looking at discounted recoveries for these firms, we find that for discount rates of around 15%, longer reorganization periods in Germany make economic recovery rates closer to those in France, but for lower discount rates the ordering of countries is the same as that for nominal recoveries, which we focus on below.

Table V summarizes undiscounted recovery rates for defaulted firms in the three countries. Consistent with the LLSV ranking of creditors' rights, median recovery rates for all firms, reported in Panel A, are lowest in France (56%) and highest in the U.K. (92%), with Germany in between (67%). The differences across countries are significant, both economically and statistically, despite possible adjustments in banks' lending and reorganization practices designed to mitigate the effect of creditor-unfriendly provisions of their

<sup>13</sup>Less than 10% of the cases were still open when we collected the data, and final write-offs were not yet available. In those cases we use the latest available provisions as an estimate of future losses on resolution.

<sup>14</sup>For comparison, for middle-market firms in the U.S., Araten, Jacobs, and Varshney (2004) report mean recovery periods of 2.15 years.

country's bankruptcy code. Using regression analysis, we show in Subsection III.B that in the absence of such adjustment the differences that we document would have been even larger.

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It is interesting to compare these recovery rates with those in the U.S., where the bankruptcy code is usually considered to be relatively creditor-unfriendly. For large U.S. corporations, Gupton, Gates, and Carty (2000) estimate average recovery rates on traded senior secured bank loans of 70%; this number falls to 52% for senior unsecured loans. For the middle-market segment in the U.S., Araten, Jacobs, and Varshney (2004) document bank recovery rates of 70%, while for all loans in their sample the average is slightly higher at 73%. These recovery rates are higher than what one might expect given that the LLSV index of creditors' rights for Chapter 11 of the U.S. code is 1, compared with 0 for France, 3 for Germany, and 4 for the U.K. The small difference in the scores between France and the U.S. fails to reflect the substantive differences in bankruptcy procedures in the two countries. The former provides for explicit court intervention that reduces the value of secured creditors' claims by subordinating them to preferential claims and by the courts' ability to sell the firm below the market price to preserve employment. By contrast, creditors have significantly more power to influence reorganization in the U.S., and the role of the bankruptcy court there is solely to obtain agreement between the different creditors and the debtor on a reorganization plan. The extent of the control that senior creditors are now able to exercise in bankruptcy leads Baird, Bris, and Zhu (2006) to argue that "changes in Chapter 11 practice over the last 15 years close the gap between Chapter 11 and other regimes that make explicit use of the market and grant senior creditors greater control" (p. 8). Thus, notwithstanding the low LLSV creditor protection score, recoveries for secured creditors in the U.S. may be expected to be closer to those in the U.K. and Germany than in France.<sup>15</sup>

It may also be the case that Chapter 11 and its associated provisions are more widely used for larger companies (the subject of most existing studies of recovery rates) than for the small-to-medium size unlisted companies, which comprise our sample. Baird, Bris, and Zhu (2006) state that while two-thirds of all corporate Chapter 11 filings are either converted to Chapter 7 liquidations or dismissed altogether, these outcomes are far more likely for very small firms. To the extent that firms can also file for Chapter 7 directly, Chapter 7, rather than Chapter 11, may provide an important benchmark procedure for SMEs in the U.S.

Figure 1 shows the distributions of recovery rates by country. In Germany and the U.K., the most common outcome is full recovery for the bank. By contrast, a distinct feature of the French distribution is its bimodal shape, with zero recovery being the second-most common outcome.<sup>16</sup> To understand the reasons

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<sup>15</sup>Consistent with the above evidence on recovery rates, for a hypothetical insolvency case Djankov et al.(2006) estimate that reorganization preserves 86% of the firm value in the U.S., compared with 92% in the U.K., 57% in Germany, and 54% in France.

<sup>16</sup>This bimodal shape of the distribution of recovery rates is not exclusive to France. Araten, Jacobs, and Varshney (2004)

for this bimodal distribution, we look at all individual zero-recovery cases in our sample for which verbal case descriptions were provided by the banks. In France, in 20% of the zero-recovery cases the bank's debt was secured, but collateral realization proceeds were fully diluted by preferential creditors or other banks ranking higher in priority. In a further 64% of the cases the bank either had no collateral, or its security could not be realized (for example, when the owner of the firm disappeared). In these cases the bank either made no attempt to pursue its claims, or received nothing due to its low ranking relative to other claimants. Thus, the large number of zero-recovery cases in France appears attributable to the banks' low priority in many defaults, coupled with generally low values of assets in bankruptcy, which may be insufficient to satisfy the claims of preferential and other senior creditors. In the U.K., the incidence of multibanking in the SME sector is much smaller, and preferential creditors cause little dilution of senior creditors' claims (Franks and Sussman (2005)); as a result, zero-recovery cases are rare.

[ FIGURE  
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The impact of the bankruptcy code on default outcomes should be most pronounced in formal bankruptcy and when assets are liquidated. Panel B of Table V reports recovery rates by the type of reorganization procedure (bankruptcy or workout) and by outcome (piecemeal liquidation or going concern). As expected, recovery rates are lower and cross-country differences are more pronounced for formal bankruptcies and for piecemeal liquidations, compared with workouts and going-concern reorganizations. The median recovery rate in bankruptcy is 82% in the U.K., 61% in Germany, and only 39% in France. This country ranking coincides with that for all defaulted firms in Panel A, and reflects differences in creditor protection in the three countries.

In contrast to formal bankruptcies, average recovery rates in workouts are between 76% and 83%, and are not statistically different across countries. Thus, large differences in bankruptcy outcomes do not translate into similar differences in workouts. Our case-by-case analysis of workouts for which case descriptions were available suggests that in all three countries banks are willing to renegotiate outside of bankruptcy only when little or no loss is likely. For example, when the personal guarantee of the owner-manager is valuable, a mere threat of enforcement of that guarantee is often enough to ensure full repayment of the firm's loan. Nonbankruptcy defaults may also involve sales of "cash" collateral directly by the bank, repayments from asset sales and friendly liquidations, or cases in which the firm is simply allowed to trade out of trouble or re-bank. Cases in which high recovery in a workout is unlikely are usually transferred to bankruptcy. In this sense, asking why recovery rates in workouts are similar in the three countries is equivalent to asking why higher expected losses from bankruptcy in France do not make banks more willing to accept write-downs in report a similar distribution of loan recoveries in the U.S., albeit with a more pronounced tilt toward full recovery, and less toward full loss. Hu (2006) finds that "in bankruptcy settlements, obligors tend to either suffer complete loss or are able to obtain total recovery" (p. 43).

renegotiations. A similar question arises in Franks and Sussman (2005), who find that U.K. banks almost never forgive debt, even though forcing bankruptcy may result in even larger losses. They argue that by consistently refusing to forgive debt, U.K. banks effectively commit to being tough in renegotiations, which in turn ensures that borrowers do not default strategically in order to secure debt concessions. Our finding that write-downs in workouts are rare not only in the U.K. but also in France and Germany lends additional support to this hypothesis.

Panel B of Table V also compares recovery rates for firms reorganized as going concerns with those liquidated piecemeal. In all countries going-concern recovery rates are significantly higher than those in liquidation. The difference between the two varies across countries, reflecting the degree of creditor protection. In France, median recovery rates for liquidated firms are less than one-third of those for going concerns (31% vs. 96%), while in the U.K. the difference is much smaller, at 22%. Still, this difference is economically important, providing U.K. banks an incentive to preserve the firm as a going concern. This contrasts with the common wisdom that banks with strong control rights will have incentives to sell the firm's assets piecemeal quickly. Table V further shows that banks' recovery rates in liquidation are only slightly higher in Germany than in France, and that both realize only about half of what U.K. banks are able to recover.

Panel C of Table V reports recovery rates by industry. In the U.K., they are very similar across industries, with medians all between 81% and 94%. In France and Germany some cross-industry differences are economically large, but typically statistically insignificant. Recovery rates in construction and light manufacturing are higher than average, and in retail/wholesale they are smaller. However, collateral accounts for much of the difference in recoveries. For example, in Germany levels of collateral in the construction industry amount to 95% of the loan, while in wholesale/retail they represent only 53%. Regression analysis, reported below, shows that industry is insignificant in explaining recovery rates once the levels of collateral are controlled for. This raises the interesting question as to whether differences in levels of collateral across industries are due to constraints on supply, related to asset characteristics in a particular industry. Studies of recovery rates in the U.S. typically also find cross-industry differences to be insignificant, except for utility firms, which recover significantly more (Acharya, Bharath, and Srinivasan (2007), Araten, Jacobs, and Varshney (2004), Gupton, Gates, and Carty (2000)). For small-to-medium-size private firms the importance of the firm's industry for recovery rates is likely to be reduced by the common use of industry-insensitive types of collateral, such as personal guarantees and real estate.

Our data on recovery rates in default can be used in conjunction with default probabilities in the three countries to estimate banks' expected losses from their SME loan portfolios. Since differences in recovery

rates are much higher than potential differences in default rates (see Panel C of Table II), the ranking of total losses across countries mirrors that of recovery rates, reflecting differences in creditor protection in the three countries. We discuss this question in more detail in Subsection III.C.

### *E. The Use of Collateral*

Panel D of Table V reports recovery rates by the fraction of debt that is secured by collateral at default. For all three countries, recovery rates increase (almost) monotonically with the percentage of the loans secured. In the U.K., the large majority of the sample firms have collateral in excess of 80% of the loans outstanding. There are few companies with collateral below 40%, and even for these, recovery rates are almost 60% or more of the loan's face value. This suggests that the few firms that are able to obtain loans without providing significant collateral are of high quality, implying effective screening of unsecured borrowers by the bank. In France, the proportion of defaulted firms with high levels of collateral is also quite high. However, for defaulted firms with collateral below 40%, median recovery rates are below 20%, contributing to the spike at zero on the distribution of recovery rates presented in Figure 1. In Germany, unsecured lending is relatively more common, and there are few firms with collateralization levels above 80%, in part reflecting more conservative valuation policies. For comparison, in the U.S. Araten, Jacobs, and Varshney (2004) report recovery rates of about 72% for secured loans, and close to 60% for unsecured loans, once again suggesting that despite the low LLSV creditor protection score, recovery rates in the U.S. are among the highest of the four countries.

In response to particular provisions of the bankruptcy code, banks may adjust not only the total amount of collateral, but also the *composition* of collateral they require. Table VI presents statistics on the importance of different collateral types at default (Panel A), and on the net proceeds that banks receive when the collateral is sold (Panel B). Columns (1) to (3) of Panel A show the composition of collateral by type (for secured borrowers only), whereas columns (4) to (6) report the ratio of the value of each type of collateral to debt outstanding at default (including both secured and unsecured borrowers). In both the U.K. and Germany collateral is dominated by commercial and residential real estate, whose value exceeds that of all other types combined. By contrast, real estate is far less important in France, where it amounts to only 11% of total collateral in default. The most often-used collateral types in France are guarantees and debtors (accounts receivable), which in default can be realized directly by the bank without suffering dilution by preferential claimants even when the company is in formal bankruptcy.

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Panel B of Table VI illustrates that banks' collateral requirements at loan origination, documented in

Panel A, reflect differences in expected proceeds in the event of default. Columns (1) to (3) of Panel B show the ratio of the bank's proceeds (net of costs) from the realization of collateral expressed as a proportion of its estimated value recorded at default. With the exception of personal and firm guarantees, which on average recover between one-quarter and one-third in all three countries,<sup>17</sup> in the U.K. almost all collateral types are very effective, recovering for all secured loans on average 76.3% of the estimated collateral value. Collateral recovery is also similar in Germany, at 72.9% of the estimated value. By contrast, in France secured lenders in default may expect to recover only 34.5% of the value of their collateral. This makes collateral much less valuable in France, and explains why French firms need to provide more collateral per dollar of debt to obtain lending.

Comparisons of different collateral types are also revealing. Sales of real estate provide 72% of the estate's estimated value in Germany, and as much as 97% in the U.K. Columns (4) to (6) of Panel B, which report the contribution of different collateral types to the bank's total secured and unsecured proceeds, show that real estate sales are the most important source of recovery from collateral in those two countries. In France, only 4% of the total recovery comes from real estate, and sales proceeds for the bank amount to only 30% of the value pledged.

In untabulated tests, we explore the effectiveness of collateral in France using a sample of 243 collateral items for which we know both the gross realization of collateral and the net proceeds received by the bank. We find that for collateral types not subject to dilution by preferential creditors, such as guarantees and debtors, the bank receives almost all of the proceeds. In contrast, for real estate only 59% of the total sales' proceeds accrue to the bank. Thus, as much as 41% of proceeds either cover the costs of sale or are diluted by preferential creditors. Moreover, *gross* proceeds from "non-cash" collateral, such as real estate, inventories, and plant and machinery, are also lower in France than in other countries, consistent with the tendency of French bankruptcy courts in asset sales to favor buyers who promise to preserve employment, rather than the highest bidder (Blazy and Combier (1997)). As Table VI demonstrates, anticipating the lack of ex-post efficiency of these collateral types, French banks tend to require relatively less of them at loan origination.

Comparisons of collateral are affected by a number of different factors. For example, German banks are not allowed to accept real estate collateral in excess of the value of the loan, and are generally conservative in valuing many collateral types, such as personal guarantees. Also, once the loan has been extended, French banks appear to update their estimates of the value of collateral less frequently than U.K. or German

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<sup>17</sup>The statistics on the effectiveness of guarantees on realization are likely to be biased downwards because of their residual nature in high-recovery cases, as banks will not enforce the guarantee if the loan is already fully repayed from other sources. Similar considerations also apply to other collateral types when banks obtain full recovery.

banks. Due to such factors, data on collateral values and realizations are inherently noisy. This caveat notwithstanding, Table VI clearly shows that both the amount and the composition of collateral required by banks in France is different from those in the U.K. and Germany, consistent with banks making endogenous adjustments to their lending practices in direct response to particular provisions of the bankruptcy code. Nevertheless, these adjustments are not sufficient to produce recovery rates in France close to those in the U.K. or Germany.<sup>18</sup>

### III. Regression Analysis

In this section we study factors that affect the choice of the reorganization procedure in default, recovery rates, and interest spreads at loan origination. Due to data limitations, we do not attempt to build comprehensive models explaining the variation of the dependent variables *within* each country, as our focus is on international comparisons.<sup>19</sup> Our tests on a subsample of firms for which accounting data are available suggest that our conclusions regarding the significance of *country dummies* in reported regressions are not altered by the presence of additional controls.

Our firm-specific control variables include the amount of debt outstanding at default with the participating bank (EAD) as a proxy for firm size,<sup>20</sup> characteristics of debt and collateral, and industry dummy variables. We also use the age of the firm at default (from incorporation) as a proxy for the possible effects of relationship banking and information asymmetry. To capture variations in the general level of economic activity across different stages of the business cycle, we include the country's GDP in the year of default. We normalize the country's GDP by its value in 1991, and we subtract the exponential time trend, estimated for each country between years 1991 and 2003.

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<sup>18</sup>Given the importance of collateral for recovery rates, we investigate whether the "staleness" of collateral values in France might potentially affect our results by comparing realizations of collateral with recent versus stale value estimates. We find that staleness of estimates rarely affects the effectiveness of collateral significantly. The only exception is receivables in France, for which items valued more than 18 months prior to default realize 24% less of their estimated value. However, in our sample only 15% of receivables in France have such stale valuations. Overall, stale collateral valuations appear unimportant.

<sup>19</sup>For (mostly large) U.S. firms, a number of papers study the choice of formal bankruptcy vs. workouts, the determinants of recovery rates, and interest rate spreads on bank loans. See, for example, Gilson, John, and Lang (1990), Asquith, Gertner, and Scharfstein (1994), and Yost (2002) on the choice of the reorganization procedure in default, and Altman, Resti, and Sironi (2001) and Acharya, Bharath, and Srinivasan (2007) on recovery rates.

<sup>20</sup>Where the firm has accounts with several banks (more typical of France and Germany than the U.K.), EAD may understate the firm's total debt and thus its size. Nevertheless, we prefer EAD to accounting-based measures of size, as using the latter would dramatically reduce our sample.

### *A. Bankruptcy and Liquidation*

Univariate statistics reported in Table III suggest that the percentage of workouts is the lowest in Germany, and the percentage of piecemeal liquidations is the lowest in the U.K. Using regression analysis, we now reexamine this result and study the factors that affect whether the defaulted firm is reorganized in a formal bankruptcy procedure or a workout, and whether the outcome is a sale as a going concern or a piecemeal liquidation. Country bankruptcy codes provide different incentives to choose a particular form of reorganization. For example, French banks may have incentives to rely more on informal procedures than banks elsewhere, because they have no control over the bankruptcy process. In the U.K., the concentration of control rights in the hands of the most senior creditor may result in more piecemeal liquidations, as predicted by Hart (2000) and Acharya, Sundaram, and John (2006). In France, we could expect fewer liquidations, since the proclaimed objective of bankruptcy is to preserve the firm as a going concern.

These questions are addressed in logit regressions reported in Table VII. In regressions (1) and (2), the dependent variable equals one if the defaulted firm is reorganized in a formal bankruptcy, and zero if there is a successful workout. The dependent variable in regressions (3) to (4) equals one if the firm is eventually closed and liquidated piecemeal (which may or may not be in formal bankruptcy), and zero if it is preserved as a going concern. Consistent with the univariate analysis, these regressions show that the U.K. has both the lowest proportion of formal bankruptcies and the lowest proportion of piecemeal liquidations (although few of the differences are statistically significant).

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The control variables have the expected effects. Larger firms are more likely to be reorganized out-of-court and preserved as going concerns, although the effect is statistically insignificant when we control for collateral levels. Higher levels of collateral imply a significantly higher incidence of bankruptcies and a somewhat higher probability of liquidation, suggesting that banks use formal procedures to force a sale of collateral. We do not find that the stage of the economic cycle, as proxied by GDP, affects reorganizations. This may reflect the importance of specific forms of collateral, whose value may have low correlation with general levels of economic activity as captured by GDP. There are few discernible industry patterns of reorganization for firms of this size.

Of particular interest is the strong correlation of the choice of the reorganization procedure with the age of the firm. We hypothesize that for older firms the uncertainty about the asset value is smaller due to the bank's knowledge of management and the firm, making the bank more willing to make concessions in an informal renegotiation than to seek repayment through formal bankruptcy. Consistent with this hypothesis, regressions in Table VII show that banks are more willing to engage in workouts with older firms, which

are also less likely to be liquidated piecemeal. These findings are consistent with Giammarino (1989), who argues that information asymmetry is an important factor for the bankruptcy decision, and with evidence in Chen (2003), who shows that in the U.S. information asymmetry is higher for Chapter 11 firms than for those in workouts. The importance of firm age in regressions (1) and (2) allows us to use it in subsequent analysis as an instrument for the decision to reorganize in bankruptcy.

Why does the U.K. have the highest percentage of workouts and the lowest percentage of piecemeal liquidations, particularly given its high level of creditors' control rights? There are several potential factors that might increase bankruptcy rates in France and decrease them in the U.K. First, borrowing from multiple banks is much more common in France and Germany than in the U.K., potentially increasing renegotiation frictions and making workouts more difficult.<sup>21</sup> Second, the greater control rights that U.K. banks enjoy in bankruptcy procedures may increase their bargaining power outside bankruptcy, making workouts easier to negotiate with firm owners on terms acceptable for the bank; these agreements will be made easier by the prevalence of single-bank relationships. Third, the structure of the banking industry may play a role. The recession of the early 1990s in the U.K. resulted in large loan losses and precipitated a switch by U.K. banks towards centralized management of distressed firms, improving coordination between different branches of the same bank (Armour, Cheffins, and Skeel (2002), Franks and Sussman (2005)). Previous lack of coordination within banks was perceived to have resulted in an oversupply of assets of bankrupt firms in the resale market. Because a few large banks dominate the U.K. market, centralization of the management of distressed firms may have allowed them to reduce any excess supply of bankrupt assets. By contrast, such oligopolistic behavior may not be feasible in France or Germany, where coordination failures between *banks* are more likely, due to their greater number and the decentralized process of managing distressed companies.<sup>22</sup>

The smaller incidence of multibanking in the U.K. may also be contributing to the higher fraction of defaulted firms that survive as a going concern. More importantly, Hart's (2000) argument that secured creditors in control of bankruptcy will quickly sell their collateral, resulting in a large number of liquidations, assumes that they are not the residual claimants who bear the costs of such actions. Contrary to this assumption, Franks and Sussman (2005) show that unsecured and preferential creditors in the U.K. receive virtually nothing in formal procedures, implying that banks are in fact residual claimants in many cases. Our own evidence in Table V suggests that recovery rates in U.K. liquidations are on average 22 percentage points

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<sup>21</sup>Brunner and Krahen (2005) study credit pools in Germany for unsecured bank creditors, which are often provided for in loan contracts. These help to resolve some of the coordination problems arising from multiple lending in Germany.

<sup>22</sup>For the U.K., Franks and Sussman (2005) provide a detailed description of these centralized "business support units." Our own data collection experience suggests that French and German banks usually manage distressed firms on a regional rather than centralized basis.

lower than in going-concern reorganizations, explaining the banks' strong preference for going concerns. By contrast, the deprivatized nature of bankruptcy in France provides few economic incentives to reorganize the firm in an efficient manner.

The high proportion of going concerns in the U.K. that we document corroborates the survey-based evidence in Djankov et al.(2006) that suggests that in countries where floating charge collateral over the whole firm is permitted, and where secured creditors can seize and sell assets without much court intervention, going concern outcomes are more likely and the overall efficiency of the reorganization process is improved. Specifically, for our three countries their hypothetical insolvency case results in inefficient piecemeal liquidations in both Germany and France, whereas in the U.K. (and overall in 80% of English legal origin countries) the firm is preserved as a going concern. Interestingly, Djankov et al.'s (2006) also find that the legal requirement that reorganization be attempted in bankruptcy before liquidation, which is more prevalent in civil law countries, actually reduces the probability of a going concern outcome.

### *B. Recovery Rate Regressions*

Under what conditions are cross-country differences in recovery rates most pronounced? Table VIII addresses this questions using regressions of recovery rate across countries. Regressions (1) through (4), estimated using OLS for all defaulted firms, introduce progressively more controls for collateral, which can be adjusted endogenously in response to the bankruptcy code. They show that, as we increase the number of controls for collateral, the difference between France and other countries generally widens (with the exception of regression (4)), while that between Germany and the U.K. remains roughly constant. Regressions (1) to (4) confirm the univariate results that for the overall sample, recovery rates are the highest in the U.K. and the lowest in France. In particular, recoveries for similar firms are 6% to 8.8% higher in the U.K. than in Germany, and 11.5% to 16.4% lower in France than in Germany, and the differences across countries are statistically significant. This ordering of recovery rates across countries is consistent with differences in creditor protection. The regressions confirm that, despite any adjustments the banks make to mitigate the effects of country codes, the differences in outcomes documented in our univariate analysis remain, and are both statistically significant and economically large.

Regressions (3) and (4) allow for varying contributions in the three countries of the two principal collateral types, debtors (accounts receivable) and real estate. Regression (3) controls only for debtors, which is the most important collateral type in France. The difference in recovery rates between France and Germany increases from 14.1% to 16.4%, and between France and the U.K., from 20.1% to 24.1%. This

illustrates that by requiring more receivables as collateral French banks are able to reduce the differences in recoveries. Conversely, regression (4), which controls for real estate (important in the U.K. and Germany but less so in France), shows that the gap between France and other countries increases once we account for the fact that German and U.K. banks take more real estate as collateral, which produces much higher realizations in these countries than in France.

The overall recovery rate in Germany is depressed by the lowest level of collateral of the three countries, coupled with the highest incidence of bankruptcies. When we control for collateral characteristics in regressions (2) to (4), the differences between Germany and the U.K. do not change much, while those with France, where the levels of collateral are the highest, generally increase.

Regressions (5) and (6) are for bankruptcies and workouts, respectively. These regressions address the question of how different recovery rates are across countries, given a particular choice of reorganization procedure. We expect the impact of the bankruptcy code to be most pronounced for similar firms in bankruptcy. Since firms are assigned to the subsamples of bankruptcies and workouts endogenously, we employ the Heckman (1979) two-step procedure to control for self-selection in these regressions, with firm age as an instrument for the choice of procedure. Specifically, the first-stage regression uses specification (2) of Table VII to predict whether the firm will file for bankruptcy.

Regression (5) demonstrates that, controlling for the endogeneity of bankruptcy and for differences in collateral, recovery rates in Germany and the U.K. are virtually identical. In contrast, recoveries in bankruptcy are as much as 22% lower in France than in Germany, compared with only 11.5% for the overall sample in regression (1). Thus, by increasing collateral levels, relying on appropriate collateral types, and using informal bankruptcy procedures, French banks are able to limit the damage caused by the creditor-unfriendly code, and as a result mitigate the differences in outcomes with other countries. Furthermore, regression (6) confirms the univariate result that, in contrast with bankruptcies, recovery rates in workouts are similar in all three countries.

The effect of control variables in Table VIII is consistent with expectations. The level of collateral is one of the most important determinants of recovery rates, retaining its significance in all specifications and subsamples. It is the only significant variable in workouts (regression (6)). A detailed look at the importance of particular collateral types in regression (4) confirms our earlier finding that real estate is a significant contributor to recovery rates in the U.K. and Germany, but not in France. Conversely, the coefficient for debtors is significant in France but not in Germany, and is negative and significant in the U.K.<sup>23</sup> Recovery

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<sup>23</sup>The negative coefficient sign in the U.K. may reflect the fact that when debtors are part of the “floating charge” (rather

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rates are higher for older firms, in particular because they complete workouts more frequently. Firm size (proxied by the amount of debt outstanding) and industry are unimportant for our sample.

The stage of the economic cycle, as measured by the level of GDP at default, is not a significant determinant of recovery rates for our sample. In untabulated tests, we investigate this issue further by studying the influence of GDP within country subsamples. We conjecture that the level of economic activity is less important at default than when assets are sold. For the U.K., where reorganization periods are short and asset sales quickly follow the default event, we find that the level of GDP does indeed significantly influence recovery rates. By contrast, GDP at default appears to be negatively, if insignificantly, correlated with recoveries in Germany and France, where realizations take several years and default and recovery may occur at different stages of the economic cycle. To examine the determinants of proceeds from collateral sales, we use a sample of collateral items with known realization dates. We find that collateral realizations are strongly related to GDP at the time of collateral sale (rather than at the time of default) in all three countries. Thus, while collateral realizations depend on the business cycle, the same cannot be said about recovery rates, due to differences in timing.

Finally, to check the robustness of our results, we explore whether the observed differences in recovery rates are driven by differences across our sample banks within the same country rather than by differences across countries. We investigate this issue by performing pairwise comparisons of recoveries on individual banks' subsamples in different countries. Specifically, we use data for the seven banks that provided the largest samples (two U.K., three French, two German), reestimate regression specification (4) from Table VIII for different pairs of individual banks in different countries (16 regressions in total), and focus on bank dummies. The results of these tests can be summarized as follows. Recovery rates in France and Germany, but not in the U.K., vary significantly with the bank. Nevertheless, both U.K. banks recover more than each of the three French banks, suggesting that U.K.–France comparisons are insensitive to the particular banks studied. Comparisons with Germany may be more bank-specific: While one of the German banks has recovery rates quite similar to those in the U.K. and significantly higher than in France, another is similar to the three French banks, and significantly below U.K. banks. Apart from this one German bank, the conclusion that recovery rates are similar in the U.K. and Germany and significantly lower in France appears to be robust.

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than part of a “fixed charge,” which is typical for real estate) preferential creditors such as the tax authorities rank ahead of the bank. More details on the difference between fixed and floating charges are given in the Appendix.

### *C. Interest Spreads*

Credit spreads in different countries should reflect the banks' expected losses from default, which depend on the probability of default and on the expected recovery rate. For our three countries, recovery rates are the lowest in France and the highest in the U.K. Estimates of default rates for private companies provided by rating agencies are generally similar for France and the U.K. (see Panel C of Table II). Ignoring the correlation between the two, the average expected loss can be roughly estimated by multiplying the probability of default by the loss in default. Using mean recovery rates of 74% in the U.K., 54% in France, and 61% in Germany, this amounts to expected losses of 0.52% to 0.56% per year for the U.K., 0.91% to 1.01% for France, and 0.62% for Germany.

An alternative way to estimate expected losses is to rely on banks' total provisions for bad loans. Using OECD (2004) data on bank profitability in different countries, the average ratio of total net provisions to total loans between 1994 and 2003 is 0.46% for the U.K., 0.82% for France, and 0.78% for Germany. In the long run, actual losses should converge to cumulative aggregate provisions. Using both metrics, expected losses are the lowest in the U.K. and the highest in France, with Germany in between, reflecting the ordering of recovery rates and creditor protection scores. We would therefore expect loan spreads in France to be considerably higher than in the U.K. and at least as high as those in Germany. Univariate statistics presented earlier suggest that this is not the case. We now examine whether the comparisons of interest rate spreads across the three countries are robust to controls for loan characteristics.

Table IX reports regression results for interest rate spreads on individual loans within each country and across countries. The dependent variable is the pre-default interest rate spread (margin) on the loan over the country's 3-month LIBOR rate. For floating-rate loans, this is the loan spread reported in the loan contract, adjusted for the difference between the loan contract's reference rate (such as the Bank of England base rate) and the applicable LIBOR rate. For fixed-rate loans, it is the difference between the loan rate and the level of the reference risk-free rate in the respective country at the time of spread measurement, adjusted by the applicable fixed-to-LIBOR swap spread.<sup>24</sup>

We regress the interest rate spread on loan characteristics and on proxies for the default risk of the firm at the time when the loan contract was signed. Unfortunately, we do not have very good controls for the riskiness of the loan at origination, since the accounting information we observe is for a small subsample

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<sup>24</sup>When converting the interest rate on a risky fixed-rate loan into an equivalent floating-rate loan, the swap rate in theory should be adjusted to reflect the firm's default risk. However, Duffie and Liu (2001) show that this adjustment is likely to be quantitatively inconsequential.

of firms and only at the time of default.<sup>25</sup> To proxy for credit risk, we use *time to default*, which is the time period between loan origination and subsequent default. The rationale for this variable is that if the firm defaults soon after loan origination, then it probably was distressed when the loan contract was signed, and the spread is likely to reflect that higher risk. Our other variable, firm age at loan origination, is used as an indicator of the uncertainty regarding the firm's quality. We control for size using the outstanding loan balance at default. We also include dummy variables to control for whether the loan is secured,<sup>26</sup> and whether it is an overdraft (credit line) as opposed to a term loan. We obtain similar results if, instead of the overdraft dummy, we use a dummy variable for short-term loans, defined as a loan with a maturity of one year or less. Finally, we control for the level of interest rates, which credit risk studies show to be an important determinant of corporate bond spreads (see Duffee (1998)).

Regressions (1) to (6) of Table IX report the determinants of loan spreads for individual country subsamples, while regressions (7) and (8) are for all loans. Specifications (1) to (3) and (7) control for loan size, firm risk, and the risk-free rate. In addition, regressions (4) to (6) and (8) include controls for whether the facility is an overdraft and whether it is secured. Controlling for these two loan characteristics (which can be chosen endogenously) allows us to compare spreads on *similar* loans, as opposed to *all* loans, whose mix may depend on the country's bankruptcy code.

The regressions show that, for the U.K. and, especially, Germany, spreads are lower for firms with greater *time to default*, implying that banks require higher spreads for firms that are closer to default. The high significance of the time-to-default variable for Germany suggests that German banks may be more active in monitoring and repricing distressed loans, facilitated by wider use of short-term borrowing by distressed German SMEs documented in Table IV. In both Germany and the U.K., spreads are lower for larger loans and also when interest rates are high. Firm age is unimportant.

[ TABLE  
IX HERE ]

Regressions (4) to (6) show that secured loans usually have higher spreads, although the difference is not statistically significant. It is likely that firms that are able to borrow without posting collateral are considered safe by the bank and therefore have somewhat lower spreads.<sup>27</sup> The most robust explanatory variable in these regressions is the overdraft dummy in Germany. Overdraft spreads in Germany are as much as 315 basis points higher than those for term loans. The corresponding difference for the U.K. is 12 basis

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<sup>25</sup>In unreported regressions on the subsample for which the data are available, we find that at-default leverage is a significant predictor of spreads, while at-default liquidity ratios are not. Including these controls does not influence our conclusions regarding cross-country differences.

<sup>26</sup>Since this analysis is at the loan rather than firm level, we cannot use the amount of collateral per dollar of debt, as this in many cases would require arbitrary allocation of collateral to individual loans of the same firm.

<sup>27</sup>Bradley and Roberts (2004) show that the positive relationship between loan yields and the presence of covenants, which they also find in single-equation models, disappears when they control for the simultaneity of loan pricing and contract structure.

points, and for France, 55 basis points. Conversations with German bankers suggest that firms that use overdrafts are perceived to have exhausted other means of financing and are likely to be of higher risk. This result is also consistent with the high significance of the time-to-default variable in Germany.

Regressions (7) and (8) allow us to compare spreads across countries. Comparisons of Germany with other countries are affected by whether we control for debt characteristics. Regression (8) shows that spreads on similar loans in Germany are about 58 basis points lower than in France. However, in regression (7), which does not control for the loan type, average spreads are 35 basis points higher in Germany than in France, although the difference is not statistically significant. Thus, even though similar loans are cheaper in Germany, the mix of different loans for each country results in higher average spreads in Germany than in France. This reflects the more extensive use of expensive overdrafts by distressed German SMEs; the proportion of overdrafts in our sample is the highest in Germany at 75%, compared with only 55% in the U.K. and 47% in France (see Table IV).

The most surprising result in Table IX is that spreads are higher in the U.K. than in France, although the difference of 16 basis points is not economically large or statistically significant. Contrary to our expectations, lower expected losses in the creditor-friendly U.K. do not translate into lower loan spreads; in fact, U.K. spreads on average are similar to or slightly higher than those in France. Why does the raking of spreads fail to reflect that of expected losses across the three countries?

Our findings regarding loan spreads may potentially be biased due to the nonrandom nature of our sample, which consists of firms that have defaulted. Moreover, if the terms of loan agreements are renewed more frequently in the U.K. and Germany, then banks in these countries may be in a better position to identify a deterioration in the credit quality of firms that subsequently default (and end up being in our sample), and to adjust required interest spreads to compensate for the higher probability of default. To investigate the robustness of our conclusions, we compare spreads on loans included in the Loan Pricing Corporation's *DealScan* database for the three countries (these results are available upon request). *DealScan* is comprised of loans at origination, which are mostly large and syndicated.<sup>28</sup> For the sample of *DealScan* loans originating between 1992 and 2003, we find that the average all-in drawn spread in basis points is 159 in the U.K., 160 in France, and 169 in Germany. However, these comparisons are affected by a bigger proportion of large loans in the U.K., which usually have lower spreads. For loans smaller than \$40 million (which roughly corresponds to the largest loans in our sample), average spreads are 232 basis points in the U.K., 205 in France, and 225 in Germany, and the medians are 225, 200, and 225 basis points, respectively.

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<sup>28</sup>Bae and Goyal (2004) and Qian and Strahan (2007) study the cross-country determinants of loan spreads in the *DealScan* database for a broad panel of countries. In these tests, we use the same data, but focus on our three countries.

Regression analysis suggests that, controlling for loan size and the level of interest rates, spreads in the U.K. are 44 basis points higher than in France (significant at the 1% level) and 12 basis points higher than in Germany (significant at the 10% level). Of note, our finding that spreads on overdrafts for defaulting SMEs in Germany are much higher than on term loans does not hold for the broad *DealScan* sample of loans at origination, which is consistent with overdraft repricing in Germany when the firm becomes distressed. Overall, *DealScan* tests provide an independent confirmation that the ranking of loan spreads across the three countries does not reflect the ranking of expected default losses.

What could explain these findings? One hypothesis is that banks in France and Germany derive more compensation from noninterest income, for example, from arrangement and renewal fees. However, this explanation cannot account for the results of our *DealScan* comparisons, since spreads in *DealScan* are inclusive of all fees. Moreover, OECD (2004) statistics suggest that fees contribute a higher, not lower, proportion of banks' total income in the U.K. than in France (29% vs. 22%).

Instead, there is suggestive evidence that the high level of spreads in the U.K. may be attributable to the lower level of competition in the U.K. banking sector. In the U.S., Berger and Hannan (1989) and Hannan (1991) find that loan rates are higher in areas where credit markets are concentrated and less competitive. Of our three countries, concentration in the banking sector is the highest in the U.K. and the lowest in Germany. Cetorelli and Gambera (2001) estimate that between 1989 and 1996 the market share (by total assets) of the three largest banks was 50% in the U.K., 28% in France, and 27% in Germany, while for the top five banks it was 65%, 44%, and 39%, respectively. Consistent with lower levels of competition, statistics suggest that U.K. banks are more profitable than those in the other two countries. Using OECD (2004) data on bank profitability for the period 1994 to 2003, the average ratio of net total income to total assets is 0.79% in the U.K., compared with 0.29% in France and only 0.19% in Germany. In a recent U.K. government report, Cruickshank (2000) documents that the top four U.K. banks control 83% of SME lending in the U.K., and cites low rates of bank switching by customers. He points out that bank shareholders' returns substantially exceed those on other comparable-risk investments, and concludes that U.K. banks "make substantial excess profits from services provided to SMEs" (p. 162).

Thus, viewed in isolation, levels of creditor protection and expected loan losses cannot explain differences in loan spreads for our three countries. These comparisons underscore the importance of considering a broad range of institutional factors in cross-country studies of the bankruptcy legislation.

## **IV. Summary and Conclusions**

The paper analyzes a database of 2,280 SMEs that defaulted on their bank debt in France, Germany, and the U.K. We find that, in response to the French bankruptcy code, which limits creditor control rights and dilutes the value of collateral, banks in France require more collateral and rely on particular collateral types that avoid the dilution of their claims. Despite these endogenous adjustments to the bankruptcy law, recovery rates for banks in France remain significantly below those in the U.K. and Germany. We also find that the differences in aggregate recovery rates for banks are confined to formal bankruptcies. By contrast, recovery rates in workouts are similar in all three countries. Finally, the ranking of loan spreads does not reflect these differences in recovery rates and expected losses, suggesting the importance of other factors, such as differences in the competitive environment. Overall, our findings strongly suggest that bankruptcy codes matter, but also underscore the importance of considering other institutional factors in cross-country studies.

Our paper raises a number of interesting questions regarding the influence of bankruptcy codes on institutions. For example, there is a strong perception of significant country differences in the way banks manage distress. In the U.K., in the wake of disastrous losses in the early 1990s, banks centralized the way they reorganize distressed firms to avoid uncoordinated “dumping” of bankrupt assets on the market, which was perceived to have depressed asset prices and recovery rates (Armour, Cheffins, and Skeel (2002), Franks and Sussman (2005)). Given that a few large banks control most of SME lending, such centralization may have allowed the banks to restrict the supply of bankrupt firms when asset markets are weak, increasing recovery rates. Other institutional differences may also be at work. Asset sales of bankrupt firms in France are arranged in the public domain by the bankruptcy court, whereas in the U.K. they are made by the private sector, under the direction of the main bank lender. The efficiency enhancement through the reliance on private markets may have led to the development of a wider market for distressed assets. Studying such institutional adjustments may contribute to the debate on the optimality of a particular bankruptcy code.

## **Appendix: Details of Bankruptcy Codes in the Three Countries**

### *A. United Kingdom*

The legal regime in the United Kingdom is generally regarded as very creditor-friendly. In many circumstances a secured creditor can sell the company and its assets without heeding the interests of other claimants, and his actions, unless negligent or fraudulent, cannot be challenged in the courts.

There are two types of security in the U.K.: Fixed and floating charge. A fixed charge corresponds to collateral over fixed assets, whereas a floating charge is given over the whole pool of a company's assets, except those subject to fixed claims. While upon default creditors secured with either type of charge have wide-ranging powers in enforcing their claims by realizing the collateral, the floating charge allows the creditor to take control of the whole company. If the company defaults, the holder of the floating charge has the right to appoint an administrative receiver (henceforth a receiver), who assumes all the powers of the company's board of directors. The receiver exercises these powers for the sole purpose of realizing sufficient funds to repay the debt of the floating charge holder. His responsibility is limited to protecting the interests of the security-holder who appointed him. He has only a weak duty of care to consider the interests of other lenders, in particular the unsecured lenders. Specifically, the receiver has full discretion as to whether to sell the firm as a going concern or liquidate it piecemeal. This discretion cannot be challenged in the courts on the grounds that the receiver has, for example, underestimated the firm's prospects of recovery.

While the powers of the floating charge place the unsecured creditors in a weak position, they do have some liquidation rights that can be used to enforce their claim against the company. In the event of non-payment, they can apply for a winding up order. Unlike receivership, a winding up is court-supervised and is undertaken by a liquidator. Although the liquidator operates on behalf of both the secured and unsecured creditors, he is obliged to pay the lenders in the order of their seniority. Crucially, the holder of a floating charge can always pre-empt a winding up order by appointing a receiver. After the secured lenders have been fully repaid, the unsecured lenders are paid on a pro rata basis according to the size of their loans.

Two rescue procedures have been introduced by the Insolvency Act of 1986: Administration and Company Voluntary Arrangement (CVA). Both of these procedures are court-administered and provide the company with temporary protection from creditors' actions. However, the holder of the floating charge has the power to veto both procedures and appoint a receiver instead. These procedures therefore do not put any restriction on the rights of the creditor with the floating charge.

The Enterprise Act 2002, which came into force shortly after our sample was collected, abolished administrative receivership for loans made after September 15, 2003, and substituted it with Administration. Under the Act, the Administrator can be appointed by the holder of the floating charge, but his duty of care now extends to all creditors.

## *B. France*

In France, the bankruptcy code in effect at the time of this study was enacted in 1985 and refined in 1994. The objectives of the insolvency proceedings stated in the law are, in the order of priority, to maintain firms in operation, preserve employment, and satisfy creditors' claims. As a result of this emphasis on preserving operations and employment, creditors cannot influence the process of distressed restructuring other than through nonbinding recommendations of a court-appointed creditor representative.

A firm is classified as distressed upon "cessation of payments," defined as the inability to meet its outstanding liabilities with its current assets such as cash and cash equivalents. There is an "alert" procedure, whereby the Banque de France must be informed about a cessation of payments. Failure to comply potentially subjects firm managers and other parties to criminal liabilities. This procedure is designed to help firms reorganize early in their distress. The Code provides for several reorganization procedures.

### *Amicable settlement*(*réglement amiable*)

Unique to France is the possibility to restructure liabilities in an amicable settlement (*réglement amiable*) under the court's supervision. This procedure is designed to facilitate workouts by providing an independent court-appointed conciliator with expertise in resolving such disputes. There is no automatic stay on claims, and the fact that this procedure is undertaken is kept confidential. Not all creditors may choose to participate in the amicable settlement. If the firm defaults during the settlement, the creditors can move it to an official bankruptcy procedure called judicial arrangement (*redressement judiciaire*).

### *Judicial arrangement*(*redressement judiciaire*)

In the judicial arrangement, management of the firm is supervised by a court-appointed judicial administrator whose duty is to assess the viability of the firm and propose a reorganization plan, and to replace or (more commonly) supervise the existing management before the firm is reorganized. Where the existing management is retained, the administrator's agreement is required concerning important decisions such as

the disposal of assets. He also decides whether to continue or terminate existing contracts. The administrator does not represent the creditors, although his decisions may be challenged in court.

Crucially, there is a stay on claims originated before the initiation of the insolvency procedure until resolution. Interest on most claims ceases to accrue when the procedure is initiated. Moreover, the only way for creditors to convey their concerns is through nonbinding recommendations to a court-appointed creditor representative, who may make nonbinding recommendations to the court. There is a possibility of super-priority financing after entree into the judicial arrangement, which will be senior to all secured and unsecured pre-filing claims except for uninsured employment salaries and court fees.

If the court does not perceive going concern to be a viable option, the company may be liquidated immediately in judicial liquidation (*liquidation judiciaire*). Alternatively, the judicial arrangement starts with an “observation period” of several months, during which time the administrator, working with the judge, assesses the viability of the firm and decides how it should be reorganized. After the observation period, the firm may be liquidated. If a continuation plan is adopted, the firm is kept as a legal entity, and a plan of debt repayment based on a reasonable financial forecast must be proposed. The court cannot force the creditors to write down their claims, but it can redefine the terms of the debt contract, including the maturity. In practice, then, creditors may either accept writedowns with a quick repayment or opt for long-delayed repayment in full.

If the court determines that the sale of the firm is the best available option, it must choose the offer that ensures the best prospects for continuing employment and repayment of credit. The buyer of the business must assume all employment contracts, all secured debt collateralized by the purchased assets, and in addition all ongoing contracts the court deems necessary for the preservation of the business. The sale price does not necessarily have to be commensurate with the indebtedness of the company.

Even secured creditors in France have little confidence in recovering their debts. They usually cannot seize the security even when the firm is solvent. In bankruptcy, they do not control either the timing or the method of collateral realization, and the stay on claims introduces uncertainty with regards to the timing of possible repayments. Finally, preferential creditors, such as employee salaries and bankruptcy and administration fees, are ranked above secured creditors at distribution. However, exceptions are provided for some “movable” collateral types, such as the assignment of accounts receivable and cash and near-cash collateral, over which the secured creditor has priority and which he may refuse to surrender before liquidation until his claims are paid in full.

Overall, bankruptcy procedures in France at the time of our study were regarded as very cumbersome

and costly. For example, Fried Franks's (2005) memorandum notes that "[The French] system was widely criticized as overly rigid and time-consuming. Nine out of ten bankruptcies in France resulted in the liquidation of the debtor." In response to such criticisms, the Business Safeguard Act (*La loi de sauvegarde des entreprises*) was enacted and became effective in January 2006. This new bankruptcy code has introduced a number of changes to the existing bankruptcy procedures, and has provided for a new "safeguard" (*sauvegarde*) procedure, which is designed to facilitate going-concern reorganizations and resembles Chapter 11 bankruptcy in the U.S.

### *C. Germany*

The current bankruptcy code in Germany, *Insolvenzordnung*, came into force in 1999. It has introduced important differences compared with the old code, *Konkursordnung*. Since a significant fraction of our sample of German firms were reorganized prior to 1999, it is important to understand both codes. In addition, because the new law had not been in effect for a sufficient period of time as at the time of our study, practitioners generally agree that one could rely to a great extent on the earlier case law to determine how the courts will operate under the new regime.

Under the German bankruptcy code, a reorganization plan is worked out by a court-appointed receiver, possibly in cooperation with the creditors. The approval of the creditors' meeting is required for acceptance of the plan. For the first time, the new code limits the rights of the secured creditors by providing for an automatic stay on their claims for three months.

#### *The pre-1999 code (Konkursordnung)*

Two formal insolvency procedures existed under the old German bankruptcy code, namely, court composition (*Vergleichsordnung*) and compulsory liquidation (*Konkursordnung*). Composition is a restructuring procedure designed to turn the company around by restructuring its unsecured debt.

The firm is classified as distressed either when it defaults, or when its liabilities exceed the market value of its assets ("overborrowing"), or when the firm deems that the inability to service its debt is imminent. In the case of overborrowing, the firm must file for bankruptcy within 15 days. If the debtor intends to request composition, it must propose a full restructuring plan together with the bankruptcy filing. The plan must provide for a minimal cash payment to unsecured creditors of between 35% and 40%, depending on maturity. There is no provision for replacing the debt with new claims. There is an automatic stay on unsecured claims

in composition. Secured and preferred creditors are not affected by the composition proceedings, and may continue legal action to satisfy their claims.

In composition, the court appoints a receiver (*Regelinsolvenzverfahren*) who oversees the company's operations, approves important decisions, and assesses the viability of the composition. The receiver does not represent any one group of creditors, but is bound by the resolutions of the creditors' meeting, which he must implement. The receiver prepares a plan of reorganization in cooperation with a creditors' committee, if one is formed, which is more typical in larger cases. The plan is then voted in a creditors' meeting, where the simple majority of the voting creditors (three-quarters majority by value) is required to accept the plan. If the plan is accepted, it will normally be approved by the court.

In compulsory liquidation, the control over the assets is transferred to an insolvency administrator. Although the administrator's objective is to sell the assets for cash, this can be a lengthy process if the economic conditions are deemed unfavorable for a sale. New senior financing can be raised during the proceedings. Unsecured claims are stayed until the assets are sold.

In reality, many filings for compulsory liquidation failed because the assets remaining after secured creditors' collateral was seized were deemed insufficient to cover the costs of the proceedings. The use of the composition proceedings was even more difficult because it required submission of a complete plan within 15 days of learning about the company's insolvency, imposed a minimum cash payment requirement, and did not restrict in any way the ability of the secured and preferential creditors to realize their claims. Therefore, a private workout could be the only potential alternative to whole or piecemeal liquidation.

#### *The 1999 code (Insolvenzordnung)*

The new German code recognizes only one form of insolvency proceedings. Its introduction purported to increase the probability of the firm's survival by limiting the ability of secured creditors to strip the firm of its essential assets. First, there are no longer any preferred creditors. Second, upon entering reorganization an automatic stay on the secured creditors is imposed for up to three months. Thus, no creditor can now seek to satisfy his claim while the administrative receiver determines whether the firm should be turned around and proposes a reorganization plan.

As before, the acceptance of the creditors' meeting is required to pass the plan. However, secured creditors now also have to vote in the meeting, and the decision of the meeting is binding, even if it prevents them from realizing their security. In situations in which the proposed plan adversely affects the secured

creditors, they must vote separately, with half of the votes in number (three-quarters in value) required to accept the plan. Thus, a creditor holding more than 50% of secured claims can veto the reorganization plan that impedes the rights of secured creditors. On the other hand, a secured creditor can find himself bound to accept concessions and forgive debt if he is outvoted by other secured creditors. Once approved by the court, the plan becomes effective.

All assets are subject to enforcement by the receiver, except movable assets in possession of the secured creditors. Thus, collateral only defines the priority of payments but not the right of realizing the value. The receiver's fees for realizing the collateral are paid out of the proceeds from the sale; it is common that the fees are as high as 9% of the security value, which is the maximum normally allowed by law. Although the consent of a majority of secured creditors is needed to approve a reorganization plan, the security cannot be realized prior to the plan's approval, and the minority of creditors can be forced to accept concession in the vote.

## References

- Acharya, Viral V., Sreedhar T. Bharath, and Anand Srinivasan, 2007, Does industry-wide distress affect defaulted firms? - Evidence from creditor recoveries, *Journal of Financial Economics*, forthcoming.
- Acharya, Viral V., Rangarajan K. Sundaram, and Kose John, 2006, Cross-country variations in capital structures: The role of bankruptcy codes, Working paper, London Business School.
- Altman, Edward I., Andrea Resti, and Andrea Sironi, 2001, Analyzing and explaining default recovery rates. A report submitted to the International Swaps & Derivatives Association.
- Araten, Michel, Michael Jacobs Jr., and Peeyush Varshney, 2004, Measuring LGD on commercial loans: An 18-year internal study, *RMA Journal* May, 28–35.
- Armour, John, Brian R. Cheffins, and David A. Skeel, Jr., 2002, Corporate ownership structure and the evolution of bankruptcy law: Lessons from the United Kingdom, *Vanderbilt Law Review* 55, 1699–1785.
- Asquith, Paul, Robert Gertner, and David Scharfstein, 1994, Anatomy of financial distress: An examination of junk bond issuers, *Quarterly Journal of Economics* 109, 625–658.
- Bae, Kee-Hong, and Vidhan K. Goyal, 2004, Property rights protection and bank loan pricing, Working paper, Queen's University.
- Baird, Douglas, Arturo Bris, and Ning Zhu, 2006, The dynamics of large and small Chapter 11 cases, Working paper, University of Chicago Law School.
- Berger, Allen N., and Timothy H. Hannan, 1989, The price-concentration relationship in banking, *Review of Economics and Statistics* 71, 291–299.
- Blazy, Régis, and Jerome Combier, 1997, La défaillance d'entreprises: Causes économiques, traitement judiciaire et impact financier, *INSEE Méthodes* 72.
- Bradley, Michael, and Michael R. Roberts, 2004, The structure and pricing of corporate debt covenants, Working paper, Duke University.
- Brunner, Antje, and Jan Pieter Krahen, 2005, Multiple lenders and corporate distress: Evidence on debt restructuring, Working paper, Center for Financial Studies.
- Cetorelli, Nicola, and Michele Gambera, 2001, Banking market structure, financial dependence and growth: International evidence from industry data, *Journal of Finance* 56, 617–648.

- Chen, Nan, 2003, An empirical study of a firm's debt restructuring choices: Chapter 11 vs. workouts, Working paper, Columbia University.
- Claessens, Stijn, and Leora F. Klapper, 2005, Bankruptcy around the world: Explanations of its relative use, *American Law and Economics Review* 7, 253–283.
- Cruikshank, Don, 2000, Competition in U.K. banking. A report to the Chancellor of the Exchequer.
- Davydenko, Sergei A., 2007, When do firms default? A study of the default boundary, Working paper, University of Toronto.
- Djankov, Simeon, Oliver Hart, Caralee McLiesh, and Andrei Shleifer, 2006, Debt enforcement around the world, Working paper, The World Bank.
- Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer, 2007, Private credit in 129 countries, *Journal of Financial Economics* 84, 299–329.
- Duffee, Gregorie R., 1998, The relation between Treasury yields and corporate bond yield spreads, *Journal of Finance* 53, 2225–2241.
- Duffie, Darrell, and Jun Liu, 2001, Floating-fixed credit spreads, *Financial Analysts Journal* 57, 76–87.
- Franks, Julian R., and Oren Sussman, 2005, Financial distress and bank restructuring of small to medium size U.K. companies, *The Review of Finance* 9, 65–96.
- Franks, Julian R., and Walter N. Torous, 1994, A comparison of financial recontracting in distressed exchanges and Chapter 11 reorganizations, *Journal of Financial Economics* 35, 349–370.
- Fried Frank, 2005, Reform of French bankruptcy law - Adoption of the Business Safeguard Act, Memorandum, Fried Frank Harris Shriver & Jacobson.
- Giammarino, Ronald M., 1989, The resolution of financial distress, *Review of Financial Studies* 2, 25–47.
- Gilson, Stuart C., Kose John, and Larry H. Lang, 1990, Troubled debt restructuring: An empirical study of private reorganization of firms in default, *Journal of Financial Economics* 27, 315–353.
- Gupton, Greg M., Daniel Gates, and Lea V. Carty, 2000, Bank loan loss given default, Moody's Investors Service.
- Hannan, Timothy H., 1991, Bank commercial loan markets and the role of market structure: Evidence from surveys of commercial lending, *Journal of Banking and Finance* 15, 133–149.
- Hart, Oliver, 2000, Different approaches to bankruptcy, Harvard Institute of Economic Research Paper.

- Heckman, James J., 1979, Sample selection bias as a specification error, *Econometrica* 47, 153–161.
- Hu, Yen-Ting, 2006, PhD Dissertation, Birkbeck College.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.
- OECD, 2004, Bank profitability: Financial statements of banks 1994-2003, OECD Publishing.
- Qian, Jun, and Philip E. Strahan, 2007, How law and institutions shape financial contracts: The case of bank loans, *Journal of Finance*, forthcoming.
- Rajan, Raghuram G., and Luigi Zingales, 1995, What do we know about capital structure? Some evidence from international data, *Journal of Finance* 50, 1421–1460.
- Ravid, Abraham S., and Stefan Sundgren, 1998, The comparative efficiency of small-firm bankruptcies: A study of the U.S. and Finnish bankruptcy codes, *Financial Management* 27, 28–40.
- Strömberg, Per, 2000, Conflicts of interest and market illiquidity in bankruptcy auctions: Theory and tests, *Journal of Finance* 55, 2641–2692.
- Thorburn, Karin S., 2000, Bankruptcy auctions: Costs, debt recovery, and firm survival, *Journal of Financial Economics* 58, 337–368.
- Yost, Keven, 2002, The choice among traditional Chapter 11, prepackaged bankruptcy, and out-of-court restructuring, Working paper, University of Wisconsin-Madison.

**Table I**  
**Bankruptcy Procedures in France, Germany, the U.K., and the U.S.**

The table lists principal bankruptcy procedures in the U.K., France, Germany, and the U.S., and compares their main characteristics. The bottom row reports creditor protection scores given by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

<i>Main procedure</i>	U.K.	France	Germany	U.S.	
	Administrative receivership	Redressement judiciaire	Insolvenzordnung (the 1999 code)	Chapter 11	Chapter 7
Bankruptcy trigger	Default (covenant breach)	Cessation of payments (inability to meet current liabilities)	Cessation of payments or over-borrowing	No objective test. Solvent firm may enter Chapter 11	No objective test
Control rights	Secured creditor	Court-appointed administrator	Creditors under court supervision (secured creditors have more power)	Debtor, creditors collectively, bankruptcy court supervision	Trustee
Automatic stay	None	Unlimited	3 months	Unlimited	None
Super-priority financing	None	Yes	Creditors' approval required	Yes	None
Dilution of secured claims	None	Significant	Limited	Limited	None
LLSV creditors' score (max=4)	4	0	3	1	N/A

**Table II**  
**Sample Description and Default Probability Estimates**

Panel A reports the number of firms in the sample in each of the three countries by year of default. Panel B reports the number of firms in the sample by broad industry group. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M. The default event is defined according to Basel II criteria as described in Section II. Panel C presents estimates of the probability of Basel II default in the three countries by rating agencies Moody's and Standard & Poor's. Estimates by Moody's are reported in technical reports *Moody's RiskCalc<sup>TM</sup> for Private Companies*, for the U.K., France, and Germany. Standard & Poor's estimates are reported in *Credit Risk Tracker Technical Documentation* reports for the U.K. and France.

Year	U.K.	France	Germany	Total
Panel A: Number of defaults in the sample				
1984-1992	1	64	2	67
1993	0	94	0	94
1994	4	88	3	95
1995	2	79	6	87
1996	18	80	25	123
1997	80	52	54	186
1998	102	31	68	201
1999	129	18	37	184
2000	332	29	8	369
2001	410	27	28	465
2002-2003	339	21	28	388
N/A	1	3	17	21
Total	1,418	586	276	2,280
Panel B: Industry classification of sample firms				
Construction	84	25	25	134
Heavy manufacturing	135	82	43	260
Light manufacturing	143	107	33	283
Services	155	47	11	213
Wholesale/retail trade	230	159	57	446
Other business activities	202	90	47	339
Total	949	510	216	1675
Panel C: Default probability estimates				
Moody's	2.0%	2.2%	1.6%	
Standard & Poor's	2.15%	1.97%	N/A	

**Table III**  
**Firm Characteristics**

The table reports sample statistics for the firms in the sample. *Turnover* is sales turnover before default. *Leverage* is the ratio of total debt to the sum of total debt and shareholder equity. *Current ratio* is the ratio of current assets to current liabilities. *Age* is the age of the company from incorporation to default. *Years with the bank* is the age of the relationship with the participating bank at default. *Formal bankruptcy* and *Piecemeal liquidation* are the proportions of defaulted firms in each country that were reorganized under formal bankruptcy vs. liquidated piecemeal (in or out of bankruptcy), respectively. *Turnover*, *Leverage*, and *Current ratio* are as of the date of the last pre-default audited accounts dated no more than 12 months before default, if available, or management accounts otherwise. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria.

		Turnover (€ M.)	Leverage	Current ratio	Age (years)	Years with the bank	Formal bankruptcy	Piecemeal liquidation
U.K.	Mean	17.37	0.61	1.05	14.0	7.3	75.4%	42.9%
	Median	5.460	0.66	0.85	7.3	4.3		
	St.Dev.	34.27	0.74	1.53	16.8	8.0		
	N	195	209	226	915	955	863	266
France	Mean	18.56	0.65	1.35	18.6	9.3	78.0%	62.0%
	Median	5.738	0.63	1.01	8.6	4.9		
	St.Dev.	48.95	0.36	1.29	23.9	14.2		
	N	209	57	60	218	504	533	347
Germany	Mean	23.81	0.87	N/A	24.8	7.7	86.9%	56.9%
	Median	11.72	0.79		15.4	3.8		
	St.Dev.	39.39	0.94		26.8	13.2		
	N	67	60		80	256	267	51

**Table IV**  
**Bank Debt Characteristics**

The table reports sample statistics by company on loans, overdrafts, and other cash facilities outstanding with the bank at default date. *Exposure at Default (EAD)* is the total debt amount outstanding on cash facilities owed to the participating bank at the date of default. *Fraction secured* is the value of collateral and guarantees at default as a percentage of exposure. *No. of loans* is the number of cash facilities at default. *Long-term* is the value-weighted fraction of facilities with initial maturity more than one year. *Fixed-rate* is the value-weighted fraction of facilities with a fixed interest rate. *Overdrafts* is the value-weighted fraction of overdrafts among all facilities. *Maturity if long-term* is the average initial lending term for facilities with maturity exceeding one year. *Interest spread* is the equivalent floating-rate loan spread over the 3-month LIBOR rate in each country at loan origination, measured in percentage points. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria.

		EAD (€ M.)	Fraction secured	No. of loans	Long- term	Fixed- rate	Over- drafts	Maturity if long-term	Interest spread
U.K.	Mean	0.960	85%	3.51	31%	2.8%	55%	8.77	2.23
	Median	0.244	62%	3	0%	0%	100%	7.25	2.17
	St.Dev.	2.657	104%	2.80	39%	12%	37%	4.57	0.63
	N	1418	816	1386	275	291	315	183	568
France	Mean	0.600	124%	2.20	43%	52%	47%	6.48	2.24
	Median	0.269	104%	2	21%	75%	36%	5.01	2.02
	St.Dev.	1.382	108%	1.40	44%	48%	44%	3.48	1.53
	N	586	513	586	578	248	583	562	263
Germany	Mean	2.412	60%	1.88	19%	21%	75%	8.50	2.90
	Median	1.231	41%	1	0%	0%	100%	6.52	3.21
	St.Dev.	3.594	80%	1.34	34%	33%	35%	5.10	2.16
	N	276	259	72	67	70	67	44	93

Table V  
**Company Recovery Rates by Country, Type of Reorganization, Industry, and Collateralization**

The table reports global undiscounted recovery rates by firm, defined as one minus the ratio of the bank's total final loss to the total debt exposure at default, for the participating banks. Panel A reports the statistics for all firms. Panel B reports recovery rates for informal renegotiations, formal bankruptcies, and for firms eventually liquidated piecemeal (in or out of bankruptcy). Panel C reports recovery rates by broad industry group. Panel D reports recovery rates by *fraction secured*, the value of collateral and guarantees at default as a percentage of exposure. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria.

	U.K.			France			Germany					
	Mean	Median	St.Dev.	N	Mean	Median	St.Dev.	N	Mean	Median	St.Dev.	N
Panel A: Recovery for all firms												
All firms	0.74	0.92	0.34	1405	0.54	0.56	0.40	575	0.61	0.67	0.34	226
Panel B: Recovery by type of procedure and outcome												
Informal renegotiation	0.78	1.00	0.34	199	0.83	1.00	0.28	115	0.76	0.79	0.26	26
Formal bankruptcy	0.69	0.82	0.35	645	0.47	0.39	0.39	460	0.59	0.61	0.35	198
Going concern	0.78	1.00	0.33	149	0.74	0.96	0.36	132	0.70	0.79	0.34	22
Piecemeal liquidation	0.68	0.78	0.34	110	0.40	0.31	0.37	245	0.40	0.41	0.37	27
Panel C: Recovery by industry												
Construction	0.70	0.90	0.38	84	0.62	0.70	0.38	25	0.68	0.75	0.28	22
Heavy manufacturing	0.73	0.89	0.35	130	0.56	0.57	0.36	81	0.55	0.50	0.34	37
Light manufacturing	0.76	0.94	0.31	142	0.56	0.61	0.41	106	0.64	0.75	0.33	29
Services	0.71	0.88	0.36	153	0.57	0.63	0.40	47	0.80	0.91	0.24	9
Wholesale/retail trade	0.66	0.83	0.38	227	0.50	0.44	0.41	153	0.49	0.46	0.38	53
Other business activities	0.69	0.81	0.35	200	0.56	0.55	0.40	87	0.69	0.74	0.32	41
Panel D: Recovery by fraction of debt secured												
0.0% (unsecured)	0.58	0.71	0.39	41	0.35	0.14	0.40	44	0.50	0.50	0.35	59
0-40%	0.58	0.59	0.36	61	0.36	0.19	0.36	50	0.58	0.54	0.32	31
40-80%	0.59	0.62	0.33	133	0.42	0.39	0.35	56	0.64	0.69	0.31	95
80-120%	0.78	0.93	0.31	191	0.62	0.76	0.38	111	0.79	0.86	0.29	18
120%+	0.86	1.00	0.27	465	0.58	0.63	0.38	232	0.74	0.80	0.29	18
All secured	0.76	0.94	0.32	1049	0.54	0.57	0.38	507	0.64	0.72	0.32	171

**Table VI**  
**Collateral Value at Default and on Realization**

The table summarizes the relative importance of different collateral types in the three countries. Panel A reports for each firm the value of collateral at default, expressed in columns (1)–(3) as a fraction of total collateral (only for firms that post collateral), and in columns (4)–(6) as a fraction of the total debt exposure at default (for all firms, both with and without collateral). Panel B shows the effectiveness of different collateral types on realization, by collateral item. It reports the bank’s undiscounted net realized proceeds from collateral realization, expressed in columns (1)–(3) as a fraction of the item’s estimated value at default, and in columns (4)–(6) as a fraction of the bank’s total undiscounted recovery for the firm. All ratios are given in percentage points. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria.

	U.K. (1)	FR (2)	GE (3)	U.K. (4)	FR (5)	GE (6)
Panel A: Estimated collateral value at default, by firm						
	As % of total collateral			As % of EAD		
Real estate	64	11	55	53	18	27
Guarantees (indiv. or firm)	17	35	4.4	13	44	12
State/bank guarantees	3.6	4.5	14	2.1	4.9	8.2
Debtors	8.6	19	7.9	8.7	18	3.8
Stock	2.9	1.7	6.2	2.8	1.8	2.4
Plant & machinery	2.7	8.9	7.0	3.4	13	4.5
Cash & marketables	0.5	2.3	2.0	0.6	2.4	1.7
Other	1.6	17	0	1.4	23	0
<i>N</i>	458	440	164	793	507	239
Panel B: Bank’s realization of collateral, by collateral item						
	As % of estimated value			As % of total recovery		
Real estate	97	30	72	37	3.8	24
Guarantees (indiv. or firm)	25	25	32	7.1	10.4	1.7
State/bank guarantees	94	60	89	6.3	3.7	8.7
Debtors	92	66	50	5.3	23	3.6
Stock	121	47	9	2.4	0.8	1.0
Plant & machinery	125	14	49	1.9	2.8	2.8
Cash & marketables	79	82	88	0.7	1.5	0.4
Other	87	34	N/A	0.7	10.6	0.0
All types combined	76.3	34.5	72.9	60.9	56.4	42.3
<i>N</i>	387	364	120	1245	543	146

**Table VII**  
**Determinants of Restructuring Procedure and Outcome**

The table reports results of logit regression analysis of the determinants of the type of reorganization upon default and the eventual decision to liquidate the firm piecemeal. In regressions (1)–(2) the dependent variable is the dummy that equals one if a formal bankruptcy was initiated in the course of restructuring, and zero if the firm was reorganized in a workout. In regressions (3)–(4) the dependent variable is the dummy that equals one if the firm was eventually liquidated piecemeal, and zero if it was preserved as a going concern. *U.K.* and *GE* are country dummies. *EAD* is Exposure at Default, the total debt amount outstanding on cash facilities owed to the participating bank at the date of default, measured in million Euros. *Collateral* is the last available estimate of the value of collateral before default. *Firm age* is the age of the firm from incorporation to the default date. *GDP* is the detrended normalized level of the firm's country GDP in the year of default. Other variables are industry dummies. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria. Coefficients significant at the 1%, 5%, and 10% levels are indicated by \*\*\*, \*\*, and \*, respectively. Standard errors are reported in parentheses.

	Formal bankruptcy		Piecemeal liquidation	
	(1)	(2)	(3)	(4)
U.K.	-0.178 (0.206)	-0.228 (0.251)	-0.451** (0.213)	-0.271 (0.255)
GE	0.945*** (0.272)	0.979*** (0.297)	0.042 (0.350)	0.328 (0.397)
EAD	-0.050** (0.021)	-0.026 (0.034)	-0.054* (0.029)	-0.057 (0.051)
Collateral/EAD		0.282*** (0.110)		0.124 (0.094)
Firm age	-0.009** (0.004)	-0.013*** (0.005)	-0.010** (0.005)	-0.006 (0.006)
GDP	-0.090 (7.403)	2.95 (8.36)	3.84 (7.66)	1.65 (8.30)
Industry: Construction	0.018 (0.453)	0.404 (0.587)	1.02** (0.46)	1.05* (0.55)
Industry: Trading	-0.248 (0.326)	0.056 (0.385)	0.473 (0.316)	0.671* (0.367)
Industry: Light Manufact.	-0.058 (0.342)	0.075 (0.402)	0.054 (0.333)	0.389 (0.385)
Industry: Heavy Manufact.	0.099 (0.359)	0.111 (0.416)	0.863** (0.352)	0.912** (0.410)
Industry: Other	-1.01*** (0.34)	-0.824** (0.391)	0.702* (0.377)	0.829** (0.419)
const.	1.77*** (0.31)	1.40*** (0.38)	0.020 (0.300)	-0.347 (0.372)
$R^2$	5.38%	6.44%	4.16%	2.77%
$N$	972	771	601	451

**Table VIII**  
**Determinants of Company Recovery Rates**

The table reports results of regression analysis of the bank's recovery rate by company. Regressions (1)–(4) are for all firms, while regressions (5) and (6) are restricted, respectively, to firms reorganized in formal bankruptcies and workouts. Regressions (1)–(3) are estimated using OLS. Regression (4) is estimated using *Firm age* as an instrument for *Formal bankruptcy*. Regressions (5) and (6) are estimated with the Heckman two-step estimation procedure to correct for self-selection, using all variables of regression (2) as predictors of *Formal bankruptcy*. The dependent variable is the undiscounted recovery rate, defined as one minus the ratio of the bank's final write-off to *EAD*, which is the total debt amount outstanding on cash facilities owed to the participating bank at default, measured in millions of Euros. *U.K.*, *FR*, and *GE* are country dummies. *Firm age* is the age of the firm from incorporation to the default date. *Collateral*, *Real estate*, and *Debtors* are the last available pre-default estimate of the value of all collateral and the two respective collateral types. *GDP* is the detrended normalized level of firm's country GDP in the year of default. Other variables are industry dummies. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria. Coefficients significant at the 1%, 5% and 10% levels are indicated by \*\*\*, \*\*, and \*, respectively. Standard errors are reported in parentheses.

	All firms				Bankruptcies	Workouts
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) Heckman	(6) Heckman
U.K.	0.076** (0.036)	0.060* (0.035)	0.077** (0.036)	0.088** (0.041)	-0.005 (0.066)	0.050 (0.111)
FR	-0.115*** (0.036)	-0.141*** (0.036)	-0.164*** (0.037)	-0.114*** (0.041)	-0.220*** (0.055)	0.057 (0.103)
Firm age	0.002*** (0.001)	0.002*** (0.001)	0.002** (0.001)	0.002*** (0.001)		
EAD	0.005 (0.005)	0.006 (0.005)	0.007 (0.005)	0.005 (0.005)	0.005 (0.007)	-0.007 (0.008)
Collateral/EAD		0.058*** (0.011)	0.066*** (0.012)	0.038*** (0.015)	0.063*** (0.019)	0.057* (0.031)
Debtors/EAD * U.K.			-0.123*** (0.044)	-0.084* (0.046)	-0.062 (0.046)	-0.418 (0.298)
Debtors/EAD * FR			0.081* (0.042)	0.099** (0.043)	0.163*** (0.043)	0.076 (0.272)
Debtors/EAD * GE			-0.042 (0.129)	-0.006 (0.128)	-0.010 (0.129)	-1.18 (1.31)
Real estate/EAD * U.K.				0.087*** (0.029)	0.083*** (0.031)	0.020 (0.054)
Real estate/EAD * FR				0.040 (0.036)	0.003 (0.046)	-0.004 (0.047)
Real estate/EAD * GE				0.173** (0.069)	0.163** (0.074)	0.115 (0.166)
GDP	-0.902 (1.095)	-0.289 (1.087)	-0.265 (1.084)	-0.143 (1.079)	1.04 (1.28)	0.592 (1.883)
Industry: Construction	-0.031 (0.059)	-0.012 (0.059)	-0.024 (0.059)	-0.024 (0.058)	0.003 (0.069)	0.063 (0.134)
Industry: Trading	-0.083* (0.043)	-0.068 (0.043)	-0.070* (0.042)	-0.065 (0.042)	-0.099* (0.051)	0.005 (0.082)
Industry: Light Manuf.	-0.010 (0.046)	0.005 (0.046)	-0.001 (0.046)	-0.0001 (0.0453)	-0.004 (0.055)	-0.009 (0.085)
Industry: Heavy Manuf.	-0.006 (0.048)	0.008 (0.047)	0.003 (0.047)	0.003 (0.047)	0.009 (0.055)	-0.024 (0.099)
Industry: Other	-0.011 (0.046)	0.005 (0.045)	0.005 (0.045)	0.006 (0.045)	-0.097 (0.077)	-0.148 (0.102)
const.	0.634*** (0.048)	0.581*** (0.048)	0.581*** (0.048)	0.554*** (0.051)	0.501*** (0.070)	0.908*** (0.297)
<i>Adj. R</i> <sup>2</sup>	6.20%	8.74%	9.61%	10.70%		
<i>Wald</i> $\chi^2$					170.25	58.48
<i>N</i>	930	930	930	930	751/930	179/930

Table IX  
Determinants of Loan Interest Spreads

The table reports results of OLS regression analysis of loan interest spreads, by loan. The dependent variable is *Interest spread*, the equivalent floating-rate loan spread over the 3-month LIBOR rate in each country at loan origination, measured in percentage points. *U.K.* and *Germany* are country dummies. *Loan size* is the outstanding amount at the date of default, measured in million Euros. *Firm age at origination* is the age of the company from incorporation on the date when the loan interest rate was negotiated. *Time to default* is the time period in years between the date when the loan rate was negotiated and the date of subsequent default. *Risk-free rate* is the 3-month LIBOR rate in the respective country on the date when the loan rate was negotiated, measured in percentage points. *Overdraft* is a dummy variable that equals one if the facility is an overdraft (credit line), and zero otherwise. *Secured loan* is a dummy that equals one if there is specific or general collateral attached to the loan. The sample consists of loans of firms with total debt exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria. Coefficients significant at the 1%, 5% and 10% levels are indicated by \*\*\*, \*\*, and \*, respectively. Standard errors are reported in parentheses.

	Regressions by country				Regressions for all countries			
	U.K.	France	Germany	U.K.	France	Germany	(7)	(8)
U.K.							0.158 (0.155)	0.163 (0.147)
Germany							0.354 (0.223)	-0.576*** (0.224)
Loan Size	-0.041*** (0.013)	0.096 (0.136)	-0.053 (0.230)	-0.041*** (0.013)	0.117 (0.137)	-0.236 (0.157)	-0.041 (0.027)	-0.035 (0.025)
Firm age at origination	-0.004 (0.003)	0.001 (0.007)	0.012 (0.017)	-0.004 (0.003)	0.0001 (0.0073)	-0.009 (0.012)	0.003 (0.004)	-0.0004 (0.0036)
Time to default	-0.043** (0.019)	-0.076 (0.095)	-0.262* (0.140)	-0.042** (0.019)	-0.080 (0.099)	-0.250*** (0.094)	-0.107*** (0.032)	-0.097*** (0.029)
Risk-free rate	-0.080** (0.033)	0.009 (0.055)	-0.537*** (0.174)	-0.081** (0.033)	0.002 (0.055)	-0.285** (0.121)	-0.100*** (0.035)	-0.083*** (0.032)
Overdraft				0.118 (0.261)	0.551 (0.592)	3.15*** (0.37)	2.05*** (0.22)	2.05*** (0.22)
Secured loan				0.362 (0.404)	0.450 (0.362)	0.714 (0.505)	0.425** (0.214)	0.425** (0.214)
const.	2.93*** (0.21)	2.12*** (0.48)	5.53*** (0.79)	2.57*** (0.46)	1.79*** (0.53)	2.55*** (0.71)	3.00*** (0.29)	2.42*** (0.30)
Adj. $R^2$	6.99%	-2.77%	20.95%	6.71%	-2.56%	64.69%	6.89%	23.23%
N	224	106	63	223	106	63	393	392

**Figure 1. Distributions of company recovery rates by country.** These graphs show the distributions of undiscounted recovery rates by firm, defined as one minus the ratio of the total final loss to the total debt exposure at default, for the participating banks in the three countries. The distributions are truncated to be between zero and one. The sample consists of firms with loan exposure at default to the participating bank greater than €100 K. and with annual turnover less than €75 M., that defaulted on their bank debt according to Basel II criteria.

