Do bankruptcy codes matter? A study of defaults in France, Germany, and the UK

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ABSTRACT

This paper studies how bankruptcy codes and creditors' rights affect distressed reorganizations in different countries, using a sample of 2280 small firms that defaulted on their bank debt in France, Germany and the UK. We find that in response to large differences in creditors rights in the three countries banks adjust their lending practices ex ante to mitigate the expected ex post deficiencies of bankruptcy law. In particular, French banks respond to a creditor-unfriendly bankruptcy code by requiring more collateral than lenders elsewhere, and relying on certain collateral forms that minimize the statutory dilution of their claims in bankruptcy. Despite such adjustments, bank recovery rates in default differ substantially across the three countries, with medians of 92% in the UK, 67% in Germany, and 56% in France. These differences are due to very different outcomes of formal bankruptcy procedures. By contrast, in informal renegotiations recovery rates are similar in all three countries. Finally, notwithstanding the low level of creditor protection, low recovery rates, and high historical bankruptcy rates in France, we find that loan interest margins there are not dissimilar to those in the creditor-friendly UK. We conclude that, despite significant adjustments in lending practices, bankruptcy codes still affect default outcomes.

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

JEL Classification Numbers: G21, G30, G33

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Introduction

This paper focuses on how bankruptcy codes influence distressed reorganizations and lending practices. We examine how banks respond to different levels of creditors rights embodied in bankruptcy laws, and the extent to which these adjustments influence eventual recovery rates for defaulted firms. Such adjustments include in particular the relative frequency of bankruptcies and informal workouts, the level and composition of collateral in reflection of the rights of secured creditors, and pre-distress loan interest rate margins.

We use data on small to medium-sized defaulted firms, collected from the private records of ten banks in three countries, France, Germany and the UK. These countries were chosen because their bankruptcy codes exhibit large differences in creditors rights reflected in La Porta *et al.* (1998) scores (LLSV) ranging from a minimum of 0 for France, to 3 for Germany, and a maximum of 4 for the UK. Given the large observed differences in bankruptcy codes, we might expect defaults in the three countries to result in very different outcomes for the banks. For example, higher recovery rates in default could be expected in countries with creditor-friendly codes such as the UK, compared with France, where the rights of secured creditors in bankruptcy are heavily diluted by statute. We might also expect banks in countries with less creditor-friendly codes to adapt their lending practices and restructuring procedures so as to mitigate some of the features of theirz bankruptcy codes.

The differences in the bankruptcy law of the three countries are indeed remarkable. In France, the State imposes court-administered procedures in bankruptcy with the objective to preserve the firm as a going concern and maintain employment. Creditors' role in these proceedings is very limited. By contrast, in the UK, while the State provides court-administered bankruptcy procedures, secured creditors can veto them and impose the privately-contracted procedure specified in the debt contract. Moreover, upon default UK lenders have full discretion to realize their collateral as they choose, without interference from the courts. In Germany, collective court-administered procedures are imposed on the parties in bankruptcy, although creditors retain significant control over the restructuring process and its outcome. Differences across jurisdictions also extend to the priority of claims enforced by the State in bankruptcy. French law dilutes the value of many types of collateral to secured lenders by making debts to the State and employees first in order of priority in bankruptcy. In contrast, UK commercial law gives secured lenders absolute priority in recovering their claims. The question we address is, how much do these differences matter to lenders' recovery rates, to the level and composition of collateral, and to loan spreads.

This paper uses a unique dataset of 2280 firms, almost all privately owned, which defaulted on their

bank debt. The data have been collected for this study under the initiative of Standard and Poor's Risk Solutions from ten commercial banks, each with a significant market share in their respective country. The data include detailed information on debt characteristics, default and its resolution, either bankruptcy or workout, collateral values and sale proceeds, and lender recovery rates.[1]

The main findings of the paper are as follows. First, in response to the large differences in creditors rights in the three countries, banks adjust both ex ante lending practices and reorganization procedures for defaulted firms ex post. For example, French banks mitigate the lack of control rights of secured creditors by demanding higher levels of collateral than banks in both Germany and the UK. French banks also rely on particular forms of collateral, such as accounts receivable and personal guarantees, which avoid adverse provisions of their code. Notwithstanding the lack of control rights of French banks in the bankruptcy process, we find that the incidence of formal procedures among defaulted firms is similar in France and the UK. A factor that may increase the level of bankruptcies in France is the provision in the French code that imposes severe (criminal) penalties on managers who do not report liquidity problems to the authorities in a timely fashion.

Second, despite these adjustments, we find that bank recovery rates in the three countries remain significantly different. Median undiscounted company recovery rates are 92% in the UK, 67% in Germany, and 56% in France. Regression analysis suggests that these differences would be significantly larger in the absence of endogenous adjustments to the level and types of collateral made to bank lending. Delays in the realization of assets in bankruptcy reduce economic recovery rates, and are largest in Germany, and smallest in the UK.

Third, the impact of bankruptcy codes on recovery rates across the three countries is much more pronounced in formal bankruptcy than in out-of-court workouts, in which recovery rates are similar in all three countries. Contrary to the common wisdom of the distressed bargaining literature, differences in outcomes in formal bankruptcies in these three countries do not translate into similar differences in out-of-court procedures.

Fourth, collateral is the most important determinant of recovery rates in this market segment. At loan origination, collateralization rates are highest in France and lowest in Germany. However, banks' realization proceeds per dollar of collateral are highest in the UK and lowest in France. The importance of particular types of collateral varies across countries depending upon the rights of secured creditors. While real estate

[1]Because our sample consists only of firms that defaulted on their bank debt, we have limited evidence on how a country's bankruptcy code influences banks' ex ante loan screening and lending decisions. Aggregate default rates in different countries documented in the literature (e.g. Claessens and Klapper, 2002) may be used in conjunction with our study of defaults to make inferences about aggregate loan portfolio losses.

is by far the most important type of collateral at default in Germany and the UK, it ranks only fourth in France. Moreover, on realization it contributes 22% of total recoveries to the bank in the UK and 17% in Germany, but only 5% in France. This is likely to be due to the dilution of proceeds from real estate sales by preferential creditors in France. In contrast, we find that realizations of receivables, which are not subject to such dilution, are the most significant contributor to banks' recovery in France.

Fifth, despite the lack of creditor protection in France, the lowest expected recovery rates, and the highest bankruptcy rates among the three countries, we find that pre-distress interest margins that French banks require from the firms in the sample are similar to those in the UK and actually lower than in Germany, controlling for particular loan characteristics.

We believe that this is the first large-scale international study of distressed reorganizations. Most available evidence on financial distress is related to large US corporations.[2] Evidence on reorganizations of small companies subject to other bankruptcy laws is limited. Thorburn (2000) examines Swedish auctions of bankrupt firms, which resemble English receiverships, and argues that they compare favorably with Chapter 11 reorganizations. The samples in such studies are confined to firms in formal bankruptcy, whereas our dataset includes defaults which did not result in formal proceedings. Brunner and Krahnen (2002) study the process of distressed reorganizations of large German firms. Franks and Sussman (2004) study a sample of small company reorganizations in the UK during 1997-1998, and find that the concentration of debt and liquidation rights prevents co-ordination failures and strategic default.

Empirical studies of recovery rates have also been largely focused on debt instruments of large US corporations.[3] Altman *et al.* (2002) find that recovery rates are negatively correlated with the aggregate default level in the economy. Acharya *et al.* (2003) find that variations in industry conditions are better predictors of bond recovery rates than measures of aggregate default frequency. Gupton, Gates and Carty (2000) study a sample of 121 defaults on traded bank loans of large US corporations. Araten *et al.* (2004) report results of an internal study by JP Morgan Chase which is perhaps the most closely related paper on US data. In particular, they report recovery rates for middle-market firms of about 70 percent, which is slightly above those we find for Germany.

The remainder of the paper is organized as follows. The next section briefly outlines the main features of bankruptcy codes in France, Germany, and the UK, and provides a discussion of our hypotheses concerning the effects of bankruptcy codes on debt contracts, distressed reorganizations, and their outcomes. Section III describes how our dataset was collected, and reports summary statistics, banks' recovery rates, and the

[2] See Asquith, Gertner and Scharfstein (1994), Franks and Torous (1994), Gilson, John and Lang (1990), and Weiss (1990).
[3] See, for example, Altman and Kishore (1996).

importance of both the level and types of collateral. Section IV provides evidence on the importance of codes to outcomes including reorganization procedures upon default, loan interest margins and recovery rates. Section V concludes. Further details on the bankruptcy codes in the three countries are provided in the Appendix.

II. Bankruptcy codes and testable hypotheses

A. Bankruptcy codes in the three countries

Bankruptcy laws and procedures in France, Germany and the UK are significantly different. Both the French and German codes require court supervision while that of the UK does not. The French code emphasizes the preservation of the going concern and employment, the German code imposes collective procedures while preserving the protection of creditors' rights, and the UK code does not impose collective procedures and leaves the contracting parties free to implement the procedure stipulated in the loan contract. These descriptions are reflected in the scores for creditor rights constructed by La Porta *et al.* (1998) (LLSV), where the UK scores 4 points out of 4, Germany 3, and France 0. Thus, the three countries in our study correspond to very different creditor protection environments, from very low in France to very high in the UK.

INSERT TABLE I HERE

Table I provides a summary of some of the main features of the principal bankruptcy procedures, also including US procedures for comparison. In the UK, in the event of bankruptcy control rights pass to the creditors. In the principal procedure, administrative receivership, a designated secured creditor appoints a registered insolvency practitioner (called "a receiver") to assume all the powers of the company's board of directors, with the sole purpose of realizing sufficient funds to repay the debt of the secured creditor. The receiver has no duty to consider the interests of other lenders, in particular the unsecured, and has full discretion over whether to sell the firm as a going concern or close it and sell it 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; for more details see Franks and Sussman (2004).

In France, in bankruptcy control rights pass to the court which appoints an administrator to take control of the company. The order of priority of the administrator, as specified by statute, is to maintain the firm as a going concern, preserve employment, and satisfy creditors' claims. The court decides whether the firm should be liquidated or preserved as a going concern, and in the event of a sale, the court can choose a bidder who

offers a lower price but provides better prospects for continuing employment. Evidence from Blazy (1989) suggests that the bankruptcy court frequently sells the company at a price below the highest bid. Creditors cannot veto the decision of the administrator and can only communicate their concerns through non-binding recommendations of a court-appointed creditor representative.

In Germany, the current bankruptcy code took effect in 1999. Under the new code, a court-appointed administrator supervises the bankrupt company and devises a plan of reorganization. The new code introduced for the first time an automatic stay of three months on creditors claims, and majority voting rules. The approval of creditors, including a majority of secured creditors, is required for the plan to be implemented.

The differences in the three bankruptcy codes are best seen from the perspective of a secured creditor. In the UK, upon default secured creditors are firmly in control of the company. Because there is no automatic stay against creditors' claims, the receiver is often under some pressure to sell the assets expeditiously. Unsecured creditors have few control rights and do not participate in the sale of the firm's assets, which severely limits their bargaining power. 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 on average very low.

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. Majority voting procedures can dilute the rights of dissenting creditors. Nevertheless, a reorganization plan requires the approval of a majority of secured creditors in order to be passed by the court.

In France, the rights of secured creditors are most at risk, as their approval is not required to confirm a reorganization plan nor to sell their collateral. In addition, the State places their own claims and those of employees first in priority when collateral is sold in bankruptcy. Some types of collateral, such as guarantees and receivables, avoid this dilution of the secured creditors' claims. In these cases the secured creditor is first in priority. The rights of secured creditors are further diluted by the ability of the administrator in bankruptcy to raise supra priority finance during the bankruptcy process without the approval of creditors. Supra priority is also available in Germany, but creditors' approval is required. In the UK supra priority is not available in administrative receivership, except by the consent of all affected creditors. Even in other collective procedures in the UK, it cannot be imposed without the agreement of secured creditors.

Compare these procedures with Chapter 11 of the US. Such provisions as automatic stay, debtor in possession and supra priority financing limit the rights of creditors in the US. The bankruptcy process is supervised by the court, but in general all creditor classes must approve the reorganization plan. Thus, the

US bankruptcy code is neither as creditor-friendly as that of the UK, nor as hostile as that in France, and of the three countries appears the most similar to the German code, even though there are very important differences between the two countries.

B. Testable hypotheses

A country's bankruptcy procedures provide a legal framework for how distressed or insolvent firms are reorganized. The need for a State-imposed code is based upon the assumption that market frictions preclude efficient recontracting of distressed firms, and that statutory constraints on the implementation of default clauses in debt contracts are necessary to overcome market failures. For example, Gertner and Scharfstein (1991) show how co-ordination problems arising from dispersed public bond ownership may result in investment distortions, and that efficiency is not restored when public bonds can be renegotiated by means of exchange offers. Webb (1991) argues that the UK's bankruptcy procedures give rise to co-ordination problems and as a result leads to premature and inefficient liquidations. However, concentration of lending can also result in market failures. For example, Berglöf and von Thadden (1994) and von Thadden, Berglöf, and Roland (2003) argue that small dispersed lenders can deter such strategic default. Acharya *et al.* (2004) show that creditor-friendly bankruptcy procedures tend to result in inefficient liquidations, whilst debtor-friendly codes are likely to lead to inefficient going concerns. Differences in bankruptcy codes might also be expected to have a significant impact on outcomes, for example in expected costs of financial distress, the incidence of out-of-court restructurings for defaulted companies, and in the size of creditors' recovery rates.

Coase's theorem predicts that private contracting should allow market participants to minimize the costs both of potential market failures and of bankruptcy procedures. We would expect markets to develop contracts which would allow for efficient reorganizations of distressed companies, even when contracts are incomplete and the country's bankruptcy code makes bankruptcy costly. These innovations should reduce, although probably not eliminate, differences in outcomes of default across countries. For example, in response to high costs of Chapter 11 reorganizations, US firms have developed such cost-reducing mechanisms as pre-packaged Chapter 11s. In a 'pre-pack' the principal creditors and the debtor submit a jointly agreed reorganization plan to the court on entry into Chapter 11, thereby paving the way for a speedy resolution of the bankruptcy with a consequent reduction in both direct and indirect costs. Such a procedure benefits from provisions of Chapter 11, such as its non-unanimity rules, but avoids many of its costs. The high costs of Chapter 11 have also led to the development of out-of-court restructurings, such as distressed exchanges of securities (see Gilson, John and Lang (1990), Asquith, Gertner, and Scharfstein (1994), Franks and Torous (1994), and James (1996)).

In this paper, we study how the three countries' bankruptcy procedures impact various aspects of reorganization. First, we examine how they affect recovery rates for secured creditors in the three countries, in both formal bankruptcies and in informal procedures. The LLSV scores for creditors' rights would suggest that creditors should fare best in the UK and worst in France, reflecting the strength of secured creditors' claims in the UK, and the much lower level of protection in France. Accordingly, one would expect that recovery rates for secured creditors in bankruptcy would be highest in the UK and lowest in France, with Germany in between.

Second, we expect these differences in procedures to affect the incentives of creditors to precipitate bankruptcy and therefore the incidence of formal procedures versus informal workouts. For example, in France banks and secured lenders have strong incentives to avoid court procedures because they have limited control rights and their claims are diluted by State-imposed preferential claims. However, there is an additional factor that is likely to increase the likelihood of a formal bankruptcy in France: French laws impose heavy civil penalties on managers for failing to inform creditors and the Bank of France when they face difficulties in meeting payments to creditors. The incidence of formal procedures therefore depends upon which of these two effects dominates. In the UK, banks may prefer to place a defaulting firm in formal procedures at an earlier stage of distress since they possess most of the control rights. Moreover, these control rights might encourage defaulting companies to comply with lender's advice out of court, thereby reducing the *need* for formal procedures. Our hypothesis is that the incidence of workouts in France is higher than in the UK. This will be the case if the reluctance of creditors to precipitate formal procedures dominates the managers' wish to avoid penalties from a failure to declare liquidity difficulties.[4]

Third, we would expect lenders and borrowers to respond ex ante in their debt contracting to these differences in the codes. We provide two illustrations related to collateral use. We would expect French banks to take more collateral than German and UK banks because of the lack of protection for secured creditors. Also, we may expect French banks to rely on particular types of collateral claims that minimize the dilution of their claims by statute.

Our fourth hypothesis concerns the impact on ex-ante loan spreads. The combination of the above effects is likely to affect outcomes of distress, such as the probability of default and creditors' recovery rates in default. If French banks cannot sufficiently mitigate the creditor-unfriendly nature of their code, we would expect to find higher loan margins in France than in the other two countries. To control for the ex ante risk

[4]This assumes that firms are at similar stages of distress when they initiate a formal procedure or a workout. An alternative is to have a workout at an earlier stage in distress, before the firm becomes insolvent and therefore without any need to formally disclose default or distress.

of the banks' loan portfolios, we later provide some evidence on aggregate default rates.[5]

III. The data

In this section, we describe our data sources and the sampling procedure. We provide statistics on the size of the sample, the time series, and industry classification, all partitioned by country. We also report measures of distress, the incidence of formal versus informal procedures, debt structure, and company recovery rates. We analyze the relation between bank recovery rates and both the level and different types of collateral taken as security by the bank.

A. Data sources and sampling procedure

Ten banks participated in this study, including three in France, three in Germany, and four in the UK. Each observation in the sample corresponds to a particular firm that defaulted during the sample period. In the large majority of the cases our bank was the borrower's main bank. We collect for each firm data on loan facilities, recovery rates for creditors, the different types of collateral at default and their realizations, and other details of the case. We compare these realizations with the value of the collateral on the books of the bank and with the loan outstanding. We also collect information on measures of distress, the default event and its resolution. Where the banks provided us with names of the companies, we use public data sources to complement bank records on balance sheet and P&L account information and details of reorganization proceedings.

Since this study was largely about small to medium-sized firms (SMEs), we include in our sample firms with annual sales turnover below 75 million Euro and total loan exposure to the participating bank in excess of 100 thousand Euro.[6] We applied Basel II default definitions to select companies in our sample. A company was considered in default and included in the sample if any of the following default conditions were present: the bank's loan was more than 90 day past due on a scheduled debt payment, formal insolvency proceedings were initiated against the borrower, a specific loss provision was raised by the bank against the exposure, or the bank's officers, using an internal rating, indicated that a material loss was likely.

To monitor the quality of data collection, particularly in the light of differences of language and institutions, we contracted with scholars and practitioners in each of the three countries who had local knowledge

[5] We do not address the important and interesting question whether lenders in different countries can be more selective in which firms they lend to, resulting in lower aggregate default rates for the pool of applicants.

[6] While Basel II accord defines the SME segment in terms of turnover, the requirement that profit and loss account be available for all companies in the sample would greatly reduce its size. We therefore defined the lower bound on firm size in terms of debt outstanding rather than turnover.

of the bankruptcy code and had familiarity with data collection of distressed firms. For each country, a template has been designed to collect data on a company basis. A similar template was used for each bank within a country to ensure comparability of data collection. We conducted numerous interviews with authorities in the banks who were responsible for managing the distressed firms, and in many cases we were allowed unrestricted access to the original banks' 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.

An important issue in our study is one of comparability of data across banks both within and across countries. We discuss these issues and explain how we control for any perceived differences.

B. Summary statistics

Table II reports the number of companies in our sample, recorded by the date of default and by country. The UK and German samples are concentrated in the years 1996-2003, while the French sample sample is more widely spread over the period 1993-2003. Table III shows the number of firms in each country by broad industry group. In each of the three countries, the defaulted firms are most frequently found in wholesale/retail trading and less frequently in the construction business. There are very few financial services or utility firms in the SME sector.

INSERT TABLES II and III HERE

Company characteristics are summarized in Table IV. The balance sheet statistics are taken from the last accounts published immediately prior to the default date. Average sales turnover before default is similar in the three countries, €17.4 million in the UK, €18.6 million in France, and €23.8 million in Germany. Average book leverage is 61% in the UK, 65% in France and 87% in Germany, all of which are relatively high compared with non-distressed firms. Rajan and Zingales (1995) report average leverage ratios for listed firms in France, Germany and the UK of 48%, 38%, and 28%, respectively. Another measure of distress, the current ratio (current assets/current liabilities), suggests higher liquidity for French firms at 1.35, compared with just 1.05 in the UK. Both countries' ratios are below the minimum ratio for a healthy firm of 2. The higher ratio for French companies may be affected by the criminal justice code that compels French managers to report when they are having difficulties paying suppliers. The requirement to report distress earlier may affect the proportion of distressed firms in France that are reorganized in formal procedures. High leverage and low current ratios confirm that firms in all countries are seriously distressed.

Defaulted firms in the sample are rarely start-up firms, with the median age at default varying from 7 years in the UK 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. The last but one column of Table IV shows the proportion of defaulting firms that enter formal bankruptcy procedures. The proportion of bankruptcies is similar in the UK and France, 75.4% and 78.0%, while in Germany it is higher at 86.9% of defaulted firms. Thus, the incidence of informal restructurings conditional on a Basel II default event in the SME sector is relatively low, especially in Germany. For comparison, Gilson, John and Lang (1990) report that only 53% of distressed US firms end up in Chapter 11, while about 47 percent successfully restructure outside of formal bankruptcy. However, their sample is dominated by large firms. Franks and Sussman (2004) report an average of 31.5 percent of distressed UK SME companies enter bankruptcy. While companies in their sample are of similar size, they include firms that were distressed but may not have defaulted according to the formal Basel II definition. This comparison suggests that bankruptcy is much more likely to follow bank default than distress.

INSERT TABLE IV HERE

Finally, the last column of the table reports the proportion of piecemeal liquidations in the three countries in our sample, where are companies are closed prior to sale. They include both those that are sold in formal procedures and those sold privately, although the latter are small in number. The proportions are similar in France and Germany, 62 and 56.9%, respectively, but lower in the UK at 42.9%. It has been suggested by Hart (1997) that because the most senior secured creditors are in control of the UK bankruptcy process, they will have less interest in the going concern value and as a result there will be more inefficient (piecemeal) liquidations. In contrast, in France the bias is towards preserving firms as going concerns, even when they would be better off sold piecemeal. Thus, we might have predicted a higher rate of piecemeal liquidation in the UK. Other factors may be important in determining the level of piecemeal liquidation, for example, macro-economic conditions which may affect the industry supply of buyers bidding for bankrupt firms as going concerns, and the design of insolvency practitioners' compensation scheme which may affect their incentives to maximize the proceeds of sale. Later we confirm the observed patterns of bankruptcy and liquidation across the three countries in regression analysis which takes into account particular firm characteristics that may influence the way the firm is reorganized.

C. Firm debt characteristics

Table V summarizes the characteristics of the debt outstanding with the bank, on the default date. Although some firms may have banking relationships with several banks, we have information from participating banks only on their own debt facilities. For more than 90% of firms in the UK sample, our bank is the main bank lending to the firm. For the French sample the equivalent figure is 59%.

Throughout our analysis, we consider all loans and on-demand overdrafts. We also have data on 'non-cash' facilities such as performance bonds, guarantees, and interest rate swaps; however, these are excluded from our analysis since our evidence suggests that that they do not involve significant credit risk for the bank even when the firm is in bankruptcy. In much of our analysis, we aggregate all cash facilities, and calculate total debt outstanding for the firm, as well as the total loss on such facilities, allowing us to report a company's global recovery rate.

Table V shows that the average total debt outstanding at default, called below Exposure at Default (EAD), is €960,000 in the UK, €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 sample are larger than those in the UK and France on the basis of sales turnover and debt exposure. In the analysis below we use total debt exposure to the reporting bank as a measure of a company's size.[7]

The second column in Table V reports the proportion of EAD that is secured (collateralized) at the time of default. The table shows very substantial differences in the levels of collateral across the three countries. While the median value of collateral in Germany is only 41% of the total debt outstanding, it is 62% in the UK, and as high as 104% in France. The figures suggest that German firms appear to be able to borrow without posting as much collateral as UK or French firms. Since we show that collateral has a major impact on creditors' recovery rates, high levels of collateral in France may suggest that banks can mitigate the effects of debtor-oriented provisions of the French bankruptcy code. However, these 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 the valuation. We find that UK banks tend to update their collateral values at default whereas French banks do not; German banks are more conservative in their valuations, placing zero value on personal and company guarantees; and some banks use the original cost or (written down) book values rather than open market values for particular types of collateral. Competition among banks across the three countries may also affect the ability of banks to demand collateral. These issues are important

[7] A potential problem may be that in cases where the firm has accounts with several banks (more typical of France and Germany than the UK) this size measure may be biased downwards.

when we consider the proceeds of sale of collateral and cross country comparisons.

INSERT TABLE V HERE

Table V also provides statistics on the average number of loans per distressed company, the proportion of loans that are long and short term, and those that are subject to repayment on demand (overdrafts). Long term loans are defined as those with a maturity of more than one year, and the proportions for each firm are calculated on a value weighted basis. The proportion of long term loans is highest in France at 43%, and lowest in Germany at 19%, where the use of overdrafts by defaulting companies is much more common. Where the lending is long term, the average maturity, calculated at loan origination, is between 6.5 and 8.8 years depending upon the country. Much of the lending in France (52% of the total) is at fixed interest rates, while as much as 94% of UK lending is contracted at variable rates.

The last column of the table reports statistics on the interest rate margin stipulated in the loan contract at its origination. For floating-rate loans, this is the loan margin reported in the loan contract, adjusted for the difference between the reference 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 on the date of spread measurement, adjusted by the applicable fixed-to-LIBOR swap spread. Interest margins are very similar in France and the UK and highest in Germany. The mean margin is 224 basis points in France, 223 in the UK, and 290 in Germany. We provide evidence below that loan margins depend on the type of debt instrument used. For example, German firms in our sample rely more on high-price short-term debt often originated around the distress event.

D. Company recovery rates

We calculate company recovery rates as one minus the ratio of total write-offs for the firm expressed as a proportion of exposure at default.[8] We only focus on nominal (undiscounted) recovery rates. For a subsample of firms, we have detailed information on the timing on cash flows that constitute the banks' recovery payments. We find that the median duration of the cash flows from the date of default is 0.78 years in the UK, 1.81 years in France, and as much as 3.58 years in Germany. The median *total length* of reorganization proceedings is 1.45 years in the UK, 3.05 years in France, and 3.82 years in Germany. By comparison, Araten *et al.* (2004) report mean recovery periods for a US bank for middle-market firms of 2.15 years. With these statistics in mind, we do not in what follows report discounted recovery rates, as

[8] A minority of the cases are still open as of the time of writing, and final write-offs are not yet available. In such cases we use latest available provisions as an estimate of future losses on resolution.

requiring data on the timing of cash flows would reduce our study sample considerably. Reorganization periods reported above suggest that discounting makes little difference for UK banks, which recover their loans quickly, but is more important for France, and especially for Germany. For high discount rates, longer reorganization periods in Germany make economic recovery rates closer to those in France, but the ordering of countries in term of economic losses remains the same for reasonable assumed discount rates.

Table VI summarizes undiscounted recovery rates for defaulted firms in the three countries. Recovery rates for the aggregated country sample, reported in Panel A, differ considerably across the three countries. Consistent with the LLSV rankings for creditor rights, median recovery rates are lowest in France (56%) and highest in the UK (92%), with Germany in the middle (67%). The differences across countries are significant, both economically and statistically, despite evidence (discussed below) that banks adjust their lending and reorganization practices to mitigate the creditor unfriendly nature of their country's bankruptcy code, particularly in France.

It is interesting to compare these recovery rates to those documented in previous studies. For a sample of small *bankrupt* firms in the UK, Franks and Sussman (2004) find mean recovery rates of 74–77 percent. Our figure is similar to theirs at 70 percent. Gupton, Gates and Carty (2000) estimate average recovery rates on traded senior secured bank loans for large US corporations of 70 percent; this number falls to 52 percent for senior unsecured loans. For the middle-market segment, Araten *et al.* (2004) also report recovery rates of about 70 percent, while for all bank loans it is 73 percent.

INSERT TABLE VI HERE

Figure I shows the distributions of recovery rates by country. In Germany and even more so in the UK the most common outcome by far is full recovery for the bank. By contrast, a distinct feature of the distribution for France is its bi-modal shape, with zero recovery being the second most common outcome. The distribution for France is hardly skewed, resulting in almost equal mean and median values of 54 and 56 percent. We find in our subsequent analysis that the bimodal distribution for France is largely explained by the fact that the median recovery of secured loans is 100%, while the median for the unsecured is zero; the combination of secured and secured lending produces two distinct peaks corresponding to full and zero recovery. In a US study, Araten *et al.* (2004) also report a bi-modal distribution of the bank's recovery with the higher mode at 100% recovery rate, which is not dissimilar to our French distribution, but has a somewhat more

pronounced tilt towards full recovery and less – towards full loss.

INSERT FIGURE I HERE

Panel B of Table VI reports recovery rates by the type of procedure. Recovery rates in formal bankruptcies are lower than those for all defaults in all three countries, without any change in ordering. The median recovery rate in formal bankruptcy proceedings is 39% in France, 61% in Germany, and 82% in the UK. Panel B also shows recovery rates for informal procedures and for piecemeal liquidations. As expected, recovery rates in informal renegotiations are higher than in bankruptcies for all three countries. In France, median recovery rates are 100% and the mean is 83%, which is substantially higher than in formal procedures. In the UK and Germany, although recovery rates are higher in workouts than in formal bankruptcy procedures the differences are much smaller than in France. This pattern is to be expected, since in the UK and Germany secured creditors have very significant control rights in bankruptcy, whereas in France they do not. Given that the proportion of informal reorganizations in France is similar to that in the UK, lower losses in informal reorganizations result in smaller differences in recovery rates, at least between France and the UK. Panel B also shows that for piecemeal liquidation banks in Germany are not in a much better position to recover their debt than French banks, and that both realize approximately only half of what UK banks are able to recover in liquidations. In part this may reflect the strong control rights that the UK bankruptcy procedures grant to secured creditors, but it also likely to reflect differences in the levels and quality of collateral, an issue addressed in Panel D of the table.

Panel C of Table VI reports recovery rates by industry. There are few visible differences in patterns of recovery rates across industries. Company recovery rates are higher for construction and services, but subsequent analysis reveals that the differences are not statistically significant. We find no evidence that industry patterns systematically influence recovery rates. The lack of industry significance is consistent with findings of Gupton, Gates, and Carty (2000) and Araten *et al.* (2004) for bank loans in the US, and differs from the patterns documented by Altman and Kishore (1996) for defaulted US bonds.

Panel D reports company loan recovery rates for different samples partitioned by the fraction of debt which is secured. For all three countries recovery rates increase (almost) monotonically with the percentage of the loans secured. In the UK the large majority of the sample have collateral in excess of 80% of the loans outstanding. There are only a very small number with collateral below 40%; even for these, recovery rates are almost 60% or more of the loan. This suggests that firms giving the bank low collateral are of high quality and have high resale value in the event of default. The results for France also show a larger higher

numbers of firms at relatively high collateral levels, but for those firms with collateral below 40% recoveries are small and below 20%. In contrast, for Germany, there are few firms with very high levels of collateral, above 80%; however, as described earlier this reflects in part more conservative valuations, a subject we return to below. For comparison, Araten *et al.* (2004) find that US bank recovery rates for secured loans is about 72%, while for unsecured loans it is 60%.

E. The use of collateral

Whereas previously we reported recovery rates by the fraction of the company's loans that were secured, in the following two tables we describe the relative importance of each type of collateral both at the time of default (ex ante collateralization, Table VII) and when the assets of the company are realized (ex post contribution to recovery, Table VIII). Panel A of Table VII shows the importance of collateral types in the three countries expressed as a proportion of total collateral value. In the UK, real estate, guarantees and debtors are the most important types; and the value of real estate exceeds that for the other two types combined. Panel B shows the same collateral types but with their values expressed as a proportion of debt outstanding. The relative importance of the three forms of collateral are unchanged in Panel B. In France, guarantees, debtors and real estate are the most important types of collateral, but in contrast to the UK, real estate comes a poor third contributing only 11 per cent of value. The figures in Panel B give a similar picture although real estate appears now slightly more important than in Panel A. The relative importance of debtors and guarantees confirms earlier claims that collateral which avoids the dilution caused by preferential claims plays an important role in France. In Germany, real estate is overwhelmingly important, with guarantees being a very distant second, reflected in the statistics in both Panels A and B.

INSERT TABLE VII HERE

In Table VIII, we report the proceeds from sale of different types of collateral. In Panel A the proceeds are expressed as a proportion of the estimated value of all collateral reported at default, and in Panel B as a percentage of total recovery of the bank. For the UK, the figures in Panel A show that the ratio of proceeds to valuation is very close to 100% for most types of collateral, reflecting in part more precise valuations by banks for distressed firms. The figures in Panel B give a different perspective, since they give the importance of collateral proceeds in terms of total cash flow recoveries to the bank.[9] Real estate is the most important contributor, accounting for 22% of total recoveries, with debtors accounting for another 13% and guarantees

[9]The percentages in Panel B of Table VIII for the different types of collateral add up to less than 100% since the proceeds of unsecured loans are included in total bank recoveries.

for 7%. This ordering is a little different from that based upon ex ante values reported in Table VII, where guarantees appeared more important than debtors.

INSERT TABLE VIII HERE

For France, proceeds of sale of collateral are on average 35% of valuation, compared to 83% in the UK. French banks do not often revalue their collateral with the onset of distress. The low level of realizations could be due to dilution of claims by preferential creditors or other higher priority claimants, or alternatively due to low proceeds. We examine the ratio of banks' realizations to total collateral proceeds for 243 collateral items of French firms. We find that for collateral types for which the State cannot dilute the bank's claims, such as guarantees or trade finance, almost all recoveries accrue to the bank. In contrast, for real estate, which is subject to such dilution, only 59% of the sales proceed accrues to the bank. Consistent with these observations, Panel B shows that in France debtors and guarantees are the most important contributors to the bank's total recoveries. No other type of collateral contributes more than 5% to total bank proceeds.

For Germany, Table VIII shows that the ratio of proceeds to collateral value is high for real estate, but very low for all remaining types. Real estate contributes 17% of all bank proceeds, and the next most important type, guarantees, contributes only 6%.

There is strong evidence that collateral matters for recovery rates. However, comparisons of collateral values across banks and across countries are distorted by different valuation methods. Our findings also suggest that banks choose types of collateral that avoid the more creditor unfriendly aspects of their bankruptcy code, such as dilution by preferential claims. However, the supply of these claims is limited, and therefore strong differences in recovery rates remain. These comparisons are complicated by differences in debt structure, and the next section controls for these variables in determining the importance of country codes.

IV. Regression analysis

A. The determinants of recovery rates

In Table IX we describe results of a regression analysis investigating the determinants of companies' (undiscounted) recovery rates in each of the three countries. We regress company recovery rates on various characteristics of the company and the collateral provided. Control variables include the type of reorganization procedure (a dummy equalling 1 for informal workouts and 0 for bankruptcies), and the proportion of

the debt secured by collateral, with real estate and debtors introduced as separate variables. To test whether large firms recover more in default, we control for firm size by including total debt exposure at default. The relationship banking literature suggests that the age of the relationship with the company may be predictive of how the company is treated by the bank. Longer term relationships are more likely to be of high quality. In contrast, new bank customers may be risky, accentuated by adverse selection problems arising when firms switch from another bank. For these reasons, we might expect that the age of banking relationship with the firm is positively correlated with subsequent recovery rates in default. Finally, we control for the general level of economic activity in the year of default by including the de-trended level of domestic GDP. Two specifications are reported for each of the three countries.

Regressions (1) to (3) show that for all three countries, recovery rates are significantly higher in informal procedures than in bankruptcies. Similarly, the level of collateral is positively and significantly related to recovery rates in all three countries, with higher levels of significance for France and Germany. The type of collateral is also important, with the coefficient for real estate being significant for the UK and Germany, and debtors for France (but not vice versa). These results confirm our univariate analysis that there are large differences in recovery rates depending upon the type of reorganization and the level and collateral held. However, banking relationships only show up as significant in the UK. This may be due to a greater discretion that UK banks may have at default in deciding how to reorganize companies of each type. GDP is significant for both the UK and Germany, although for Germany it has the wrong (negative) sign, implying that eventual recovery rates are lower when GDP at default is high. This counter-intuitive result reflects the fact that it is the level of economic activity at the time of asset sales that influences recovery rates, rather than at default. In the UK, where reorganization periods are short, these two events are close in time, and the coefficient for GDP is positive and significant. However, in Germany and France realizations take several years, and default and recovery may occur at different stages of the economic cycle. A separate regression of proceeds from collateral confirms that these are strongly related to the GDP at the time of collateral sale in all three countries.

Regressions (4) to (6) in Table IX are similar, except that a dummy for piecemeal liquidations is introduced. For the UK and France piecemeal liquidations imply significantly smaller company recovery rates. For Germany, the coefficient is positive but insignificant. Including this variable weakens the explanatory power of other variables especially for the UK. Coefficients for informal procedures and collateral levels are lower and are now insignificant at the 10% level.

INSERT TABLE IX HERE

Table X reports results for regressions that allow us to compare recovery rates across the three countries directly, controlling for the factors described above. As in the previous table, the dependent variable is the undiscounted firm recovery rate. Regressions (1) and (2) were estimated for all firms in the sample, while (3) and (4) are for subsamples of informal and formal reorganizations, respectively. We include dummies for each country as independent variables in all four regressions (the constant is omitted). Table IX suggests that the same variables may influence recovery rates in a different way depending upon the country. To control for this, we allow for different coefficients by multiplying some variables by the country dummies. In regressions (2) to (4) we also include interactive variables for collateral and particular types of collateral, such as real estate collateral and debtors (we combine the UK and Germany where they are very similar). In regression (2) we add a dummy for type of procedure and country.

The results show that after controlling for these variables, recovery rates remain very different across countries in at least three of the four regressions. Only in the case of recovery rates for informal renegotiation are the differences much smaller which is consistent with results for our univariate analysis. In regression (1), which does not control for endogenous adjustments in collateral and reorganization procedures, recovery rates in the UK are about 20% higher than in France and about 10% higher than in Germany. Compared to Germany, recoveries in France are about 11% lower. This strongly suggests that despite any Coasian adjustments the banks might make to mitigate the effects of country codes, the differences remain and are large indeed both economically and statistically. Regressions (2) and (4), which control for such adjustments, show if anything even larger differences across countries, especially between France and the UK. In regression (3) the differences narrow considerably, implying that recovery rates in informal reorganizations are not so dependent on the country code. As suggested previously by the univariate analysis, recovery rates outside bankruptcy for France are above that for Germany and not far below the UK.

As in Table IX, the total level of collateral is significant for France and Germany, but not for the UK. However, real estate which is the dominant form of collateral in both the UK and Germany, is significant for both countries. Debtors, but not real estate, is significant for France, as previous results indicated.

INSERT TABLE X HERE

B. The choice of the reorganization procedure

In this subsection, we establish what factors influence the probability that upon default the firm will be reorganized under formal bankruptcy, and/or eventually liquidated piece-meal. While the overwhelming

majority of liquidations occur under formal bankruptcy proceedings, not all bankruptcies lead to liquidations. In some cases the firm may be reorganized and emerge from bankruptcy; in others its assets may be sold as a going concern.

In Table XI we report the results of logit regressions of the probability of a formal bankruptcy, and that of eventual piece-meal liquidation. We relate these possible outcomes to the country the firm is in and its industry. The independent variables include country dummies, size proxied by loan exposure at default, the duration of the banking relationship, GDP and the proportions of debt that are secured and short term, respectively. One may expect that banks would be more willing to avoid formal procedures and renegotiate privately if their security is inadequate, reducing the likelihood of high recovery in bankruptcy. Finally, we include the age of the banking relationship with the firm to control for issues related to uncertainty about the value of the firm's assets at default. For firms that have been the bank's long-time customers this uncertainty is smaller, making the bank more willing to accept concessions in informal renegotiations rather than demand repayment through initiation of a formal bankruptcy.

Regression results are reported in Table XI. Regressions (1)–(3) address the choice between formal and informal reorganizations; the dependent variable in these regressions equals one if the case was reorganized in a formal bankruptcy, and zero otherwise. In regressions (4)–(6) the dependent variable equals one if the firm is eventually shut down and liquidated piece-meal, which may or may not be a result of formal bankruptcy, and zero if it was preserved as a going concern. The Table shows that German firms are significantly more likely than French firms to be reorganized in formal bankruptcy, while the difference between France and the UK is insignificant. By contrast, when it comes to liquidation it is the UK which is different, involving the highest proportion of piece-meal liquidations.

The differences in coefficients confirm that for two of the regressions the probability of formula procedures is highest in Germany and lowest in the UK, confirming the univariate results. Higher levels of collateral are related to a higher incidence of bankruptcies, suggesting that banks use formal procedures to force the sale of collateral. However, the coefficient for fraction secured is not significant suggesting that higher levels of collateral do not encourage banks to liquidate firms. The coefficient for short term debt is also significant, suggesting that greater short term debt increases the incidence of liquidation. More short term debt may indicate less collateral and therefore less going concern value for distressed firms. The age of the banking relationship is negatively related to the probability of both bankruptcy and liquidation, although the coefficient is not statistically significant. The table also shows that larger firms are less likely to either go into bankruptcy or be liquidated. Overall, we conclude that German firms are more often reorganized in

formal bankruptcy as well as liquidated piecemeal.

INSERT TABLE XI HERE

C. Interest margins

In this subsection, we compare loan interest rate margins across the three countries. Bank lenders respond in a variety of ways to low creditor protection in bankruptcy codes. There is evidence that French banks demand more collateral in aggregate and more of particular types of collateral that avoid the dilution of their claims in bankruptcy. In addition, they have incentives to increase their reliance on debt renegotiation outside formal procedures, which tend to produce much higher recovery rates. We would have expected these adjustments to narrow differences in expected outcomes considerably. However, we find that large differences in recovery rates remain after controlling for these ex ante adjustments.

Given that the price of credit in different countries should reflect the banks' expected losses from default, we might expect to find that lower recovery rates in France, compared to the UK and Germany, would be reflected in higher interest rate margins.

In Table XII we describe regression results for the determinants of interest rate spreads for each country. We regress the loan interest rate margin over a reference risk-free rate at loan origination on factors which are likely to influence the credit risk of the firm when the loan contract is signed and the margin is agreed. We control for the size of the loan exposure, as proxied by the outstanding loan balance at default. We include dummy variables to control for whether the loan is secured, and for whether it is short term, defined as an initial maturity of less than one year, and for whether it is an overdraft. Firm age at the initiation of the loan contract may be an indicator of the uncertainty regarding the firm's quality, as younger firms are more likely to prove risky. Finally, we include the level of the reference risk-free rate, as both theoretical and empirical research on credit risk predicts that the credit spreads should be negatively correlated with the risk-free rate.

INSERT TABLE XII HERE

The table shows that only the regressions for the German sample have much power. For Germany, short term debt and the risk free rate are significant variables. For France, there is no significant coefficient for

any of the variables. For UK loans, loan size, the presence of collateral, the age of the relationship and the level of the risk free rate are all significant variables, although the explanatory power of the regression is low.

Table XIII presents a pooled regression for all firms, with individual dummies for both short-term and long-term loans in each country. The main finding is the effect of the country dummies on loan margins, which are significant across all specifications. Loan interest margins for short-term loans, in Germany are found to be as much as 150 basis points or more higher than those in France. This difference is always significant at the 1% level. Average margins for short term loans are higher in France than in the UK with differences of up to 50 basis points for different specifications.

INSERT TABLE XIII HERE

For long-term loans, interest rate margins are much smaller in Germany than in France or the UK. Also, margins in France are lower than the UK for all specifications. Loan size is important in all the regressions and loan size is significant in regressions (3) and (4).

The Table shows that calculating interest rate margins across all loans does not tell a complete story. The size of margins and the ordering across countries is very sensitive to the maturity of the loans. Thus, in Germany short term loans are the most expensive in the three countries, while long-term loans are the cheapest. France, which has the least creditor friendly code and the lowest recovery rates, does not have the highest margins: it is usually ranked second.

What are possible reasons for these findings? First, it is possible that French banks may derive more compensation for their loans through other channels than interest payments; for example, through higher arrangement or renewal fees. Second, we have assumed that the state of banking competition is similar across all three countries. There is a recent UK government report that provides evidence that the banking market for SME loans in not competitive in the UK. Third, although recovery rates on loans in France are below that of the other two countries, it may be that the incidence of distress is higher in the UK than in France. In this event lower recovery rates in France could be compatible with lower aggregate loss rates. However, Claessens and Klapper (2002) report that annual rates of formal bankruptcy procedures are highest in France at 2.6% compared with 1.03% in Germany and 1.85% in the UK. Thus, it is unlikely that low interest margins in France reflect low aggregate losses on their loan portfolios. Because recovery rates in informal procedures are similar across countries, different proportions of workouts will not change this conclusion. Fourth, if the terms of loan agreements are renewed more frequently in the UK and Germany,

then banks in these countries may be in a better position to identify a deterioration in the credit qualities of companies which subsequently default and end up in our sample, and to increase the required interest margin to compensate for the higher probability of default. We think this is a likely explanation for the high apparent margins on German short term loans. This hypothesis is supported indirectly by the fact that the proportion of facilities with maturity longer than one year is the highest (50%) in France, compared to 69% in the UK and 63% in Germany (see Table V).

V. Summary and conclusions

The paper analyzes a database of 2280 SMEs that defaulted on their bank debt in France, Germany, and the UK. We find that French banks respond to features of their bankruptcy code which limit their control rights and dilute the value of their collateral by preferential creditors, by requiring more collateral, relying on particular types of collateral which avoid the dilution of their claims, for example receivables and guarantees. Despite these endogenous reactions to the bankruptcy law, recovery rates for banks in France remain significantly below those for distressed firms in the UK and Germany.

The differences in aggregate recovery rates for banks are largely confined to the sample of distressed firms that are reorganized in bankruptcy. For informal reorganizations, recovery rates are much less different across the countries. For France and the UK they are almost identical and a little lower for Germany. These findings do not support the view that large differences in outcomes in formal bankruptcy necessarily translate into similar differences in informal renegotiations.

Although there is strong evidence that banks in the three countries do respond ex ante to bankruptcy law in their countries in a Coasian manner, the measures they take far from neutralize the impact of the legislation. As a result, we would expect to find large differences in interest rate margins across countries. In fact we find that margins are very similar in France and the UK, despite large differences in outcomes, and they are highest in Germany. When we control for differences in debt structure margins in Germany do not remain high. The results of this paper strongly suggest that bankruptcy codes matter. If there is a puzzle it is that strong differences in outcomes are not reflected to a greater extending in interest rate margins.

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 may circumstances a secured creditor can liquidate the company and realize the collateral without heeding the interests of other claimants, and his actions cannot be challenged in the courts.

There are two types of security in the UK, fixed and floating charge. A fixed charge corresponds to collateral over fixed assets, whereas a floating charge is given over the whole pool of company's assets. While upon default creditors secured with either type of charge have vast 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-holders who appointed him. He has no duty to consider the interests of other lenders, in particular the unsecured lenders. Specifically, the receiver has full discretion on 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.

The powers of the floating charge put the unsecured creditors in a weak position. Yet 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. Hence, the law provides clear rules so as to prevent any single creditor from having a first mover advantage relative to other unsecured lenders at least once the firm is placed in bankruptcy.

Finally, the Insolvency Act of 1986 introduced two new rescue procedures: Administration and Company Voluntary Arrangements (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.

B. France

The current French bankruptcy code became effective in 1985, and was refined in 1994. The objectives of the insolvency proceedings stated in the law are, in order of priority, to maintain firms in operation, preserve employment, and to 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 non-binding recommendations of a court-appointed creditor representative.

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, whereas the authorities must be informed about a cessation of payments. This procedure is designed to help firms reorganize early in distress.

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 the official bankruptcy procedure called judicial arrangement (*redressement judiciare*).

In the judicial arrangement, management of the firm is supervised by a court-appointed judicial administrator (*administrateur judiciaire*), 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 the court.

Crucially, a stay on claims originated before the initiating of the insolvency procedure is imposed until either liquidation or a sale of the firm as a going concern. Interest on most claims ceases to accrue when the procedure is initiated. Moreover, the only way for creditors to convey their concerns is through non-binding recommendations to a court-appointed creditor representative, who may then make non-binding recommendations to the court. There is a possibility of super-priority financing after the entrance 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 a viable option, the company may be liquidated immediately. Alternatively, the judicial arrangement starts with an "observation period" of several months, during which the administrator working with the judge assess the viability of the firm and decide 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 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 write-downs with a quick repayment, or opt for a 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 which ensures 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 timing or the method of collateral realization. The stay on claims introduces further uncertainty with regards of the timing of possibly repayments. Finally, preferential creditors, such as employee salaries and bankruptcy and administration fees are ranked above the secured creditors at distribution. However, secured creditors can use the retention right over movable collateral, and especially posting of cash collateral and the transfer of title, such as the assignment of receivables, and may refuse to surrender the assets before liquidation until their claims are paid in full.

C. Germany

The current bankruptcy code in Germany, *Insolvenzordnung*, was made effective in 1999. It has introduced important differences compared to the old code, *Konkursordnung*. Since a significant part of our sample of German firms were reorganized prior to 1999, it is important to understand both codes. In addition, as the new law has not been in effect for a long time, practitioners generally agree that one can 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. The new code has for the first time limited the rights of the secured creditors by providing for an automatic stay on their claims for three months.

*C.1. The pre-1999 code (*Konkursordnung*)*

Two formal insolvency procedures existed under the old German bankruptcy code, 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 its liabilities exceed the market value of its assets ("over-borrowing"), or when the firm considers that the inability to service its debt is imminent. In case of over-borrowing the firm must file for bankruptcy within 15 days of learning about it. 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 between 35% and 40%, depending on maturity. No possibility to replace the debt with new claims is provided for. 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 overlooks the course of the company's operations, authorizes 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 has to 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 selling 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 remained 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 in 15 days after 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 irrespective of the company's restructuring efforts. Therefore, a private work-out could be the only potential alternative to whole or piece-meal liquidation.

*C.2. 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 the secured creditors to strip the firm of its essential assets. Firstly, there are no longer any preferred creditors. Secondly, 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 when the proposed plan adversely affects the secured creditors, they must vote separately, with half of the votes in number (three quarters in value) of the present creditors required to accept the plan. In other words, a creditor holding more than 50% of secured claims can veto the reorganization plan which impedes the rights of the secured. 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 nine percent of the security value, which is the maximum normally allowed by law. Thus, 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 approval, and the minority of creditors can be forced to accept concession in the vote.

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Table I. Bankruptcy procedures in France, Germany, UK and US

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

	UK	**France**	**Germany**	**US**	
Main procedure	Administrative receivership	*Redressement judiciare*	*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 overborrowing	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 size by year of default

The table reports the number of firms in the sample in each of the the three countries by year of default. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

Year	UK	France	Germany	Total
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
2002-03	339	21	28	388
N/A	1	3	17	21
Total	1,418	586	321	2,280

Table III. Industry classification of defaulted companies

The table 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 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

Industry	UK	France	Germany	Total
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

Table IV. Company statistics

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 shareholders equity. *Current ratio* is the ratio of current assets to current liabilities. *Age* is the age of the company from incorporation at 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 which were reorganized under formal bankruptcy and 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 defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

		Turnover (€ Mil.)	Leverage	Current ratio	Age (years)	Years with the bank	Formal bankruptcy	Piecemeal liquidation
UK	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 V. 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* 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 1 year. *Fixed-rate* is the value-weighted fraction of facilities with a fixed interest rate. *Maturity if long-term* is the average initial lending term for facilities with maturity exceeding one year. *Interest margin* 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 defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

		Exposure (€ Mil.)	Fraction secured	No. of loans	Long-term	Fixed-rate	Over-drafts	Maturity if long-term	Interest margin
UK	Mean	0.960	85%	3.51	31%	2.8%	54.7%	8.77	2.23
	Median	0.244	62%	3	0	0	1	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	1	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 VI. Company recovery rates by country, type of reorganization, industry, and collateralization

The table reports global undiscounted recovery rates by firm, defined as one minus total final loss divided by 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 defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

	UK				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												
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
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%	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

Table VII. Collateral value at default

The table summarizes the relative importance of different collateral types at default. Panel A reports the value of collateral of each type as a fraction of the total collateral value at default (for firms that do provide collateral). Panel B reports the value of collateral of each type as a fraction of the total debt exposure at default (for both firms with and without collateral). The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

	UK			France			Germany		
	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.
Panel A: Estimated collateral value as a fraction of total collateral value at default									
Real estate	0.46	0.47	0.41	0.11	0	0.27	0.55	0.64	0.42
Guarantees (indiv. or firm)	0.22	0.05	0.33	0.35	0.22	0.38	0.04	0	0.16
State/bank guarantees	0.02	0	0.07	0.05	0	0.16	0.14	0	0.29
Debtors	0.16	0	0.29	0.19	0	0.35	0.08	0	0.22
Stock	0.05	0	0.16	0.02	0	0.11	0.06	0	0.21
Plant & machinery	0.04	0	0.11	0.09	0	0.23	0.07	0	0.21
Cash & marketables	0.01	0	0.07	0.02	0	0.13	0.02	0	0.11
Other	0.03	0	0.12	0.17	0	0.31	N/A		
Panel B: Estimated collateral value as a fraction of total debt outstanding at default									
Real estate	0.55	0.30	0.72	0.18	0	0.52	0.27	0	0.45
Guarantees (indiv. or firm)	0.21	0	0.37	0.44	0	0.69	0.12	0	0.50
State/bank guarantees	0.02	0	0.10	0.05	0	0.23	0.08	0	0.24
Debtors	0.22	0	0.43	0.18	0	0.40	0.04	0	0.18
Stock	0.06	0	0.22	0.02	0	0.15	0.02	0	0.10
Plant & machinery	0.07	0	0.25	0.13	0	0.41	0.04	0	0.30
Cash & marketables	0.02	0	0.13	0.02	0	0.16	0.02	0	0.09
Other	0.04	0	0.16	0.23	0	0.56	N/A		

Table VIII. Collateral realizations

The table the effectiveness of different collateral types on realization. Panel A reports for each collateral type the bank's undiscounted net realized proceeds from realization as a fraction of the estimated value at default. Panel B reports for each collateral type the bank's undiscounted net realized proceeds from realization as a fraction of the total undiscounted amount recovered by the bank. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III.

	UK				France				Germany			
	Mean	Median	St.Dev.	N	Mean	Median	St.Dev.	N	Mean	Median	St.Dev.	N
Panel A: Net bank proceeds from collateral realization as a fraction of its estimated value at default												
Real estate	0.92	0.87	0.59	412	0.30	0.19	0.34	72	0.55	0.64	0.42	87
Guarantees (indiv. or firm)	0.23	0	0.42	358	0.25	0	0.37	213	0.04	0	0.16	14
State/bank guarantees	0.88	1.00	0.29	95	0.60	0.70	0.42	39	0.14	0	0.29	35
Debtors	0.86	0.92	0.58	101	0.66	0.92	0.41	153	0.08	0	0.22	20
Stock	1.14	1.00	1.02	60	0.47	0.21	0.59	15	0.06	0	0.21	13
Plant & machinery	1.18	1.00	0.76	76	0.14	0	0.27	73	0.07	0	0.21	24
Cash & marketables	0.74	1.00	0.41	17	0.82	1.00	0.33	18	0.02	0	0.11	11
Other	0.82	0.97	0.64	14	0.34	0.32	0.36	106	N/A			0
All collateral	0.83	0.79	0.70	306	0.35	0.22	0.39	364	0.73	0.77	0.55	120
Panel B: Net bank proceeds from collateral realization as a fraction of bank's total recovery												
Real estate	0.22	0	1.90	188	0.05	0	0.20	299	0.17	0	0.64	178
Guarantees (indiv. or firm)	0.07	0	0.30	202	0.13	0	0.30	266	0.02	0	0.10	187
State/bank guarantees	0.00	0	0.05	294	0.05	0	0.19	309	0.06	0	0.34	197
Debtors	0.13	0	0.96	272	0.28	0	0.40	315	0.03	0	0.17	185
Stock	0.05	0	0.59	289	0.01	0	0.09	315	0.00	0	0.08	180
Plant & machinery	0.05	0	0.19	285	0.04	0	0.17	307	0.02	0	0.09	212
Cash & marketables	0.01	0	0.07	296	0.02	0	0.12	314	0.00	0	0.02	193
Other	0.00	0	0.07	262	0.14	0	0.31	271	N/A			0

Table IX. Determinants of recovery rates by country

The table reports results of OLS regression analysis of the bank's recovery rate by company in each of the three countries. The dependent variable is undiscounted global company recovery rate. It is defined as one minus total final loss over *Exposure*, which is the total debt amount outstanding on cash facilities owed to the participating bank at the date of default, measured in million Euros. *Years with the bank* is the age of the relationship with the participating bank at default. *GDP* is the de-trended normalized level of firm's country GDP in the year of default. *Informal procedure* is a dummy variable that equals one if no formal bankruptcy procedures were involved in the course of restructuring, and zero otherwise. *Piecemeal liquidation* is a dummy that equals one if the firm was eventually liquidated piecemeal. *Collateral*, *Real estate*, and *Debtors* are the estimated values of all collateral and the two respective types of collateral. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III. ***,** and * indicates coefficients significant at 1%, 5% and 10% levels, respectively. Standard errors are reported in parentheses.

	UK	Fra	Ger	UK	Fra	Ger
	(4)	(5)	(6)	(7)	(8)	(9)
Informal procedure	0.170***	0.430***	0.160**	0.053	0.306***	0.408**
	(0.040)	(0.043)	(0.071)	(0.051)	(0.067)	(0.160)
Piecemeal liquidation				-0.156***	-0.212***	0.101
				(0.045)	(0.048)	(0.146)
Exposure	0.0003	-0.015	0.018***	-0.003	-0.031	0.039
	(0.0056)	(0.021)	(0.006)	(0.007)	(0.033)	(0.029)
Years with bank	0.007***	0.001	-0.002	0.006***	0.002	-0.001
	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.004)
GDP at default	14.8***	-0.864	-5.55*	12.3***	-0.803	-2.91
	(4.1)	(0.931)	(3.11)	(4.3)	(1.145)	(6.06)
Collateral/Exposure	0.043*	0.060***	0.075**	0.028	0.060***	0.111*
	(0.024)	(0.017)	(0.035)	(0.026)	(0.020)	(0.064)
Real estate/Exposure	0.098***	-0.0001	0.124*	0.094***	0.006	0.109
	(0.032)	(0.0346)	(0.066)	(0.034)	(0.039)	(0.218)
Debtors/Exposure	-0.029	0.185***	-0.003	-0.029	0.143**	0.159
	(0.048)	(0.046)	(0.114)	(0.049)	(0.061)	(1.181)
const.	0.512***	0.318***	0.474***	0.678***	0.487***	0.167
	(0.032)	(0.031)	(0.038)	(0.052)	(0.054)	(0.153)
Adj. R^2	16.35%	20.67%	15.48%	17.29%	23.52%	39.30%
N	358	473	190	324	317	37

Table X. Company recovery rates across countries

The table reports results of OLS regression analysis of the bank's recovery rate by company. Regressions (1) and (2) include all companies, while regressions (3) and (4) are restricted to informal renegotiations (formal bankruptcies, respectively).The dependent variable is undiscounted global company recovery rate. It is defined as one minus total final loss over *Exposure*, which is the total debt amount outstanding on cash facilities owed to the participating bank at the date of default, measured in million Euros. *UK*, *France*, and *Germany* are country dummies. *Years with the bank* is the age of the relationship with the participating bank at default. *GDP* is the de-trended normalized level of firm's country GDP in the year of default. *Collateral*, *Real estate*, and *Debtors* are the estimated values of all collateral and the two respective types of collateral. *Informal procedure* is a dummy variable that equals one if no formal bankruptcy procedures were involved in the course of restructuring, and zero otherwise. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III. ***,** and * indicates coefficients significant at 1%, 5% and 10% levels, respectively. Standard errors are reported in parentheses.

	All firms		Informal	Formal
	(1)	(2)	(3)	(4)
UK	0.678***	0.590***	0.779***	0.584***
	(0.022)	(0.027)	(0.044)	(0.030)
France	0.470***	0.301***	0.728***	0.300***
	(0.020)	(0.027)	(0.052)	(0.030)
Germany	0.584***	0.505***	0.682***	0.489***
	(0.029)	(0.034)	(0.077)	(0.037)
Exposure	0.008	0.008*	0.001	0.010**
	(0.005)	(0.004)	(0.008)	(0.005)
Years with bank	0.003***	0.002*	0.002	0.002
	(0.001)	(0.001)	(0.002)	(0.001)
GDP	-1.70***	-0.722	-0.045	-0.843
	(0.90)	(0.838)	(1.662)	(0.959)
UK * Collateral/Exposure		0.017	0.023	0.019
		(0.023)	(0.048)	(0.027)
FR * Collateral/Exposure		0.061***	0.073*	0.060***
		(0.016)	(0.040)	(0.018)
GE * Collateral/Exposure		0.080**	0.040	0.096**
		(0.032)	(0.054)	(0.039)
(UK or GE) * Real estate/Exposure		0.111***	0.072	0.114***
		(0.030)	(0.065)	(0.035)
FR * Real estate/Exposure		-0.001	-0.027	0.012
		(0.033)	(0.052)	(0.045)
(UK or GE) * Debtors/Exposure		-0.018	-0.268	-0.020
		(0.046)	(0.329)	(0.050)
FR * Debtors/Exposure		0.179***	0.237	0.181***
		(0.043)	(0.278)	(0.046)
UK * Informal procedure		0.164***		
		(0.042)		
FR * Informal procedure		0.421***		
		(0.040)		
GE * Informal procedure		0.114		
		(0.075)		
N	1021	1021	196	825

Table XI. 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)–(3) the dependent variable is a dummy that equals one if formal bankruptcy procedures were involved in the course of restructuring, and zero if the firm was reorganized in informal renegotiations. In regressions (4)–(6) the dependent variable is a dummy that equals one if the firm was eventually liquidated piecemeal during the reorganizations proceedings, and zero if it was preserved as a going concern. *UK*, *France*, and *Germany* are country dummies. *Exposure* is the total debt amount outstanding on cash facilities owed to the participating bank at the date of default, measured in million Euros. *Years with the bank* is the age of the relationship with the participating bank at default. *GDP* is the de-trended normalized level of firm's country GDP in the year of default. *Short-term lending* is the value-weighted fraction of facilities with initial maturity less than one year, including on-demand overdrafts. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III. ***,** and * indicates coefficients significant at 1%, 5% and 10% levels, respectively. Standard errors are reported in parentheses.

	Formal bankruptcies			Piecemeal liquidations	
	(1)	(2)	(3)	(4)	(5)
UK	1.27***	0.958***	0.432	0.506***	0.716**
	(0.15)	(0.221)	(0.313)	(0.190)	(0.318)
France	1.45***	1.21***	0.847***	1.06***	1.09***
	(0.14)	(0.18)	(0.256)	(0.16)	(0.22)
Germany	2.15***	1.97***	0.264	1.43***	2.03***
	(0.21)	(0.23)	(0.391)	(0.43)	(0.57)
Exposure	-0.039*	-0.012	-0.030	-0.019	0.010
	(0.020)	(0.032)	(0.040)	(0.033)	(0.073)
Years with the bank	-0.008	-0.011*	-0.007	-0.014*	-0.020*
	(0.006)	(0.006)	(0.007)	(0.008)	(0.010)
GDP	3.13	5.15	7.26	-9.72	-9.96
	(6.28)	(6.94)	(7.14)	(7.46)	(7.98)
Collateral/Exposure		0.287***	0.299***		-0.030
		(0.103)	(0.108)		(0.103)
Short-term lending			0.561**		
			(0.235)		
N	1075	872	643	499	390

Table XII. Determinants of loan interest margins in the three countries

The table reports results of OLS regression analysis of loan interest margins in the three countries, by loan. The dependent variable is *Interest margin*, the equivalent floating-rate-loan spread over the 3-month LIBOR rate in each country at loan origination, measured in percentage points. *Loan size* is the debt amount outstanding on the loan at the date of default, measured in million Euros. *Short-term* is a dummy that equals one for facilities with initial maturity less than one year, including on-demand overdrafts. *Overdraft* is a dummy variable that equals one if the facility is an overdraft, and zero otherwise. *Secured loan* is a dummy that equals one if there is specific or general collateral attached to the loan. *Age at review* is the age of the company from incorporation on the date or loan origination. *Risk-free rate* is the 3-month LIBOR rate in the respective country at loan origination, measured in percentage points. The sample consists of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III. ***,** and * indicates coefficients significant at 1%, 5% and 10% levels, respectively. Standard errors are reported in parentheses.

	UK	Fra	Ger	UK	Fra	Ger
	(1)	(2)	(3)	(4)	(5)	(6)
Loan size	-0.048***	0.133	-0.118	-0.045***	0.107	-0.134
	(0.013)	(0.136)	(0.162)	(0.008)	(0.135)	(0.173)
Short-term	-0.048	0.470	3.28***			
	(0.059)	(0.315)	(0.37)			
Overdraft				-0.086*	0.647	3.07***
				(0.050)	(0.576)	(0.39)
Secured loan	0.659**	0.461	0.564	0.862***	0.398	0.583
	(0.267)	(0.357)	(0.509)	(0.239)	(0.354)	(0.543)
Age at review	-0.007***	-0.002	-0.015	-0.008***	-0.0002	-0.014
	(0.002)	(0.007)	(0.012)	(0.002)	(0.0072)	(0.012)
Risk-free rate	-0.067***	-0.008	-0.326***	-0.061***	0.004	-0.363***
	(0.025)	(0.055)	(0.116)	(0.022)	(0.055)	(0.122)
const.	2.12***	1.60***	2.06***	1.90***	1.67***	2.35***
	(0.31)	(0.50)	(0.72)	(0.27)	(0.50)	(0.75)
Adj. R^2	6.23%	-1.20%	59.41%	9.50%	-2.15%	54.11%
N	418	107	74	544	107	74

Table XIII. Loan interest margins across countries

The table reports results of OLS regression analysis of loan interest margins, by loan. The dependent variable is *Interest margin*, the equivalent floating-rate-loan spread over the 3-month LIBOR rate in each country at loan origination, measured in percentage points. *UK*, *France*, and *Germany* are country dummies. *Short-term* is a dummy that equals one for facilities with initial maturity less than one year, including on-demand overdrafts. *Long-term* is equal to one minus *short-term*. *Loan size* is the debt amount outstanding on the loan at the date of default, measured in million Euros. *Secured loan* is a dummy that equals one if there is specific or general collateral attached to the loan. *Age at review* is the age of the company from incorporation on the date or loan origination. *Risk-free rate* is the 3-month LIBOR rate in the respective country at loan origination, measured in percentage points. The sample consists of cash facilities of defaulted firms with loan exposure at default to the participating bank greater than 100 thousand Euro and with annual turnover less than 75 million Euro. The default event is defined according to Basel II criteria as described in Section III. ***,** and * indicates coefficients significant at 1%, 5% and 10% levels, respectively. Standard errors are reported in parentheses.

	(1)	(2)	(3)	(4)
UK * Short-term	2.42***	2.50***	2.69***	2.27***
	(0.14)	(0.16)	(0.16)	(0.22)
France * Short-term	2.91***	2.67***	2.90***	2.63***
	(0.19)	(0.25)	(0.25)	(0.27)
Germany * Short-term	4.41***	4.48***	4.63***	4.28***
	(0.17)	(0.17)	(0.18)	(0.22)
UK * Long-term	2.43***	2.53***	2.75***	2.32***
	(0.15)	(0.16)	(0.17)	(0.23)
France * Long-term	2.19***	2.13***	2.51***	2.17***
	(0.16)	(0.20)	(0.21)	(0.24)
Germany * Long-term	1.12***	1.18***	1.27***	0.857***
	(0.20)	(0.20)	(0.20)	(0.251)
Loan size		-0.054***	-0.044**	-0.042**
		(0.019)	(0.019)	(0.019)
Secured loan				0.480***
				(0.170)
Age at review			-0.004	-0.005*
			(0.003)	(0.003)
Risk-free rate	-0.031	-0.035	-0.068***	-0.075***
	(0.021)	(0.024)	(0.025)	(0.025)
N	781	637	606	599

Figure I. Distributions of company recovery rates by country

These graphs show by country the distributions of undiscounted recovery rates by firm, defined as one minus total final loss divided by total debt exposure at default, for the participating banks. The distributions are truncated to be between 0 and 1.