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by Giacinto Micucci and Paola Rossi

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The purpose of the Temi di discussione *series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.*

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DEBT RESTRUCTURING AND THE ROLE OF LENDING TECHNOLOGIES

by Giacinto Micucci* and Paola Rossi**

Abstract

The literature on debt restructuring usually assumes that banks behave in a uniform way towards firms in distress. Using a recent survey of Italian banks, we show that banks follow different strategies when they decide whether to take part in the workout process, in that some of them do restructure their debt claims towards small and medium-sized enterprises in distress, while others do not. We explain this heterogeneity by considering the role of banks' internal organization and lending technologies, which the literature has shown to be strictly tied to the type of relationship developed with the borrower (transactional versus relationship lending). We find that the probability of debt restructuring is higher when the bank: *i)* is geographically closer to borrowing firms; *ii)* relies more on soft than hard information; and *iii)* adopts a decentralized structure with more power allocated to local managers. However there are important complementarities among organizational variables: the adoption of credit scoring increases the likelihood of restructuring if banks also use these techniques systematically in the monitoring process and if they adopt more decentralized structures. Bank size *per se* is not able to fully explain this heterogeneous behaviour, as organizational forms and lending technologies may also have important consequences on bank decisions.

JEL Classification: G21, G33, L2, O3.
Keywords: financial distress, debt restructuring, small and medium-sized enterprises (SMEs), bank heterogeneity, bank organization, lending technologies.

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1. Introduction [*]

Debt restructuring may preserve the ongoing concern of firms facing financial distress but which still have profitable investment projects. It is a complex bargaining process which involves the firm and its lenders. When a borrower faces financial distress, the lender bank has to decide whether to take part in the workout process or not. We study this decision, taking into account banks' heterogeneity in terms of organization and lending technologies.

Most of the existing literature on this argument considers bank debt easier to renegotiate than public debt, because banks are better able to produce and process information on firms' economic prospects, especially in the case of small and medium-sized enterprises (SMEs). Banks may both mitigate information asymmetries and facilitate coordination among lenders (Bolton and Scharfstein, 1996; Bris and Welch, 2005). They decide whether to liquidate or to reorganize the firm by providing the extra funds needed to ensure that the firm stays in operation. However, there is wide cross-country evidence that firms maintain relationships with many banks.[1] In a multiple banking framework, banks may behave differently as regards workout decisions, i.e. some banks decide to restructure their loans to financially distressed firms, while others do not. To the best of our knowledge, so far heterogeneity in restructuring has received little attention in the literature.

Recent theoretical and empirical literature have highlighted the role of different organization and lending technology adopted by the bank in shaping the type of relationship developed with the borrower (Stein, 2002; Berger and Udell, 2002; Berger *et al*., 2005a; Berger, Frame and Miller, 2005b). We expect these factors to be especially important in the renegotiation process, when coordination problems arise and information asymmetries become even more relevant. Using a recent survey about Italian banks, we are able to link

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The views expressed in this paper are our own and do not necessarily reflect those of the Bank of Italy.

[1] According to Ongena and Smith (2000), large firms located in 22 countries have an average of 5.6 banking relationships.

the choice to restructure the debt of a financially distressed firm to a series of variables that pin down organizational factors within the lending banks. Thus, this paper connects the literature on bank organization with the literature on debt restructuring.

In order to evaluate the restructuring decision, we perform an econometric analysis on Italian firms and their lending banks. The Italian case is particularly interesting to analyse: multiple banking relationships are widespread among SMEs (Detragiache, Garella and Guiso, 2000), while a harsh bankruptcy regime and the inefficiencies of the judicial system imply that reorganizations are better done privately. We use loan-level data, with the addition of information on both borrowing firms and lending banks. Starting from firms' financial statements (*Cerved*), we select those firms that faced financial distress (that is, whose cash flows fell below their net financing costs) at least once between 2002 and 2004. Balance-sheet data have been combined with information concerning relations with the banking system (*Central Credit Register*) and with a special survey carried out in 2007 by the Bank of Italy on the organization and technology used in lending activities by Italian banks (*Bank organization survey*). The survey investigates the degree of bank decentralization and the comparative relevance of soft and hard information (credit scoring) in assessing credit risk. Thus we have a sample of about 30,000 loan-level observations (bank-firm relations), relating to more than 9,000 distressed Italian firms and 300 Italian banks.

These data allow us to evaluate the divergent strategies followed by banks when a borrowing firm becomes financially distressed. We define the restructuring decision either as the rescheduling of bank loan maturity or the extension of new loans to a firm in distress. These interventions loosen the borrower's financing constraints. They are economically significant: in our sample, among the firms that were able to renegotiate outstanding debt with at least one of the lending banks, only 8 per cent leaves the market, against 30 per cent among those firms that did not renegotiate their debt. Therefore, even if we do not address the default issue, we are confident that studying banks' decisions has an important economic motivation.

When we study this decision, we have to take into account the sample selection issue. While we have a representative sample of firms in distress, we only observe the banks which actually lent to those firms: firms choose the banks from which they borrow and banks decide whether to lend or not. This selection process, clearly endogenous, may bias the

results. It is related to firm characteristics, such as size, risk and location, and, more importantly, to the credit policy of the bank. These elements are likely to influence, *ex-ante*, the characteristics of lending banks – in terms of size, technology, etc. – and, *ex-post,* the restructuring decision. We address this issue by estimating a probit model with sample selection. In the selection equation, we consider as potential lenders all those intermediaries that have at least one branch in the province where the firm is located. In this way, we study the restructuring decision which all the banks operating in the local credit market could have taken with respect to the firms in distress.

We find that bank heterogeneity accounts for the decision to restructure credit to SMEs in distress. While one third of the firms can restructure outstanding debt with at least one bank, it never happens that all the lending banks decide to restructure simultaneously. The probability of restructuring is higher when a lending bank relies more on soft information (relationship lending) rather than on hard information (transactional lending) and adopts a decentralized structure with more power allocated to local managers. The bank's restructuring decision also depends negatively on its distance from borrowing firms.

However there are significant complementarities among organizational variables: the adoption of credit scoring increases the likelihood of restructuring if banks also use these techniques systematically in the monitoring process and if they adopt more decentralized structures.

From a methodological point of view, our results emphasize the importance of taking bank heterogeneity into account when analysing the restructuring process. From a policy point of view, we argue that even if bank consolidation and the increasing use of credit scoring may raise concerns for SMEs in distress, the enhanced implementation of statistical techniques and effective decentralization of decision-making can offset their effects.

The paper is organised as follows. Section II contains a brief review of the theoretical background. Section III describes data sources and introduces some descriptive statistics. The empirical results are reported in Sections IV and V. Section VI concludes.

2. Literature review

This paper is rooted in two different strands of literature. The first analyses the bank-debt restructuring in the event of financial distress. The second studies the role of different

bank organizations and lending technologies in company financing. To our knowledge, so far these two strands have followed different tracks. In recent years research assuming banks' heterogeneity has blossomed – at least when analysing variables such as credit availability, its price and risk, and market entry decisions – while the empirical literature dealing with financial restructuring has continued to assume that bank behaviour is homogenous.

According to Jensen (1989), as long as the going-concern value of the distressed firm exceeds the liquidation value, its debt will be renegotiated to assure survival. Moving from this statement, a well-developed body of literature has focused on the borrower-lender bargaining process in the design of debt contracts (Hart and Moore, 1998). With complete contracts, *ex ante* bargaining makes renegotiation in cases of distress unnecessary. On the contrary, when contracts are incomplete there is room for *ex post* renegotiation. Nonetheless, renegotiation is hampered by information problems, causing both coordination failures and difficulties in evaluating company prospects. More in general, the literature focuses on three aspects that may affect debt restructuring: *i)* the coordination between lenders; *ii)* the evaluation of firms' prospects after the occurrence of the financial distress (information asymmetries); and *iii)* the lenders' incentives to restructure.

As regards coordination, the presence of many lenders may lead to liquidation even if this is economically inefficient (White, 1989). Most of the theory assumes that coordination failures arise when debt is public or, at least, highly dispersed, while privately-held debt – mostly bank loans – is easier to renegotiate (Brown, James and Mooradian, 1993; Bolton and Scharfstein, 1996; Bolton and Freixas, 2000). If creditors do not coordinate their responses to a renegotiation offer or to a default threat, a single creditor will prefer to free-ride on the debt restructuring offer.[2] An increase in the number of lenders reduces the incentive of the borrower to repudiate debt payments (strategic default incentive), since contracts are more difficult to renegotiate (Bergloef and von Thadden, 1994; Bolton and Scharfstein, 1996; Manove, Padilla and Pagano, 2001). In a recent paper, however, Bris and Welch (2005) reach the opposite conclusion on the optimal number of creditors: since creditors recover less when they are dispersed, a firm that opts for multiple creditors *ex ante* has a better bargaining position in the case of financial distress *ex post.* Therefore, a good quality firm may choose just one house bank to signal its confidence it will not go bankrupt, while a risky

[2] Small lenders have an incentive to hold out, even if restructuring would be in the general interest (Bergman and Callen, 1991; Gertner and Scharfstein, 1991; Rajan, 1992).

firm will tend to increase the number of lenders. Similarly, Carletti, Cerasi and Daltung (2007) predict a greater use of multiple-bank lending when firms are less profitable and monitoring costs are high. Coordination may be achieved by means of a formal contract among the creditors, such as bank pools (Brunner and Krahnen, 2008). However, large pools (i.e. pools with many member banks) have a negative impact on the likelihood of a successful turnaround.[3] Again, the evidence is against a simple trade-off between the number of banks and the borrower's ability to obtain a debt renegotiation.

It is particularly difficult to evaluate firm prospects when financial distress occurs, because of lower reliance on hard information about a firm's records (Giammarino, 1989; Boot, 2000; Davydenko and Franks, 2008). Relationship lending is assumed to help to restructure the outstanding debt of firms facing financial distress (Longhofer and Santos, 2000; Hoshi, Kashyap and Scharfstein, 1990). It is worth mentioning that in this situation creditors could prefer to postpone the liquidation decision, leaving the debt high and waiting for more information about the firm's viability. This is what Kahl (2002) calls 'controlled liquidation'. Liquidation is assumed to be a dynamic process, in which postponing the decision could be economically efficient for the bank. In fact, it may limit the downside risk; if assets lose value, creditors may proceed with an informed liquidation decision later on. This strategy comes at the cost of inducing less efficient investment decisions on the part of distressed firms. Therefore, it is an optimal choice only when there is a fair degree of uncertainty about a firm's recovery prospects.

In the literature on financial restructuring, creditors within the same category or seniority are commonly assumed to behave uniformly. While dispersed publicly-owned debt is considered separately from more concentrated bank debt (Bolton and Freixas, 2000), it is frequently assumed that banks will follow similar strategies, with few exceptions.[4] Detragiache, Garella and Guiso (2000) also consider the possibility that different banks may behave in different ways according to their liquidity problems. Moreover, according to Manove, Padilla and Pagano (2001) well secured banks may under invest in project

[3] Using Italian data, Carmignani and Omiccioli (2007) evaluate the conflicting effects of the concentration of creditors, showing that the overall effect of a high concentration of bank credit is a higher probability of financial distress but a lower probability of liquidation.

[4] In Bulow and Shoven (1978), three classes of claimants are analysed: bondholders, bank lenders and equity holders. Bondholders are assumed to be a non-cohesive group of lenders; therefore, to avoid bankruptcy, the main bank must provide the extra funds necessary to pay other creditors. Small banks are not included in the model, while their loans are placed with the bondholder claims. Therefore, bank heterogeneity is not analysed in the model.

screening activities (the lazy bank hypothesis). Kordana and Posner (1999) suggest that the secured creditor's incentives are skewed towards liquidation over reorganization.

Banks have usually been thought of as single agents, thus neglecting the complexity of their organizational forms and the potentially diverging objectives of the agents inside them.[5] However, a more recent strand of literature, deriving from firm theory, has underlined the importance of banks' heterogeneity also in an organizational perspective (Stein, 2002). The adoption of different lending technologies is intrinsically related to the design of the proper incentives within the bank. According to Aghion and Tirole (1997), the amount of communication within an organization depends on the allocation of formal authority. Increasing the decision-making power at the lower level of the hierarchy fosters information gathering and initiative, the cost being a loss of control over local managers, who may pursue their own private interests. We believe that organizational schemes and lending technologies are also important when the bank has to decide whether to restructure its loans to a distressed firm.

Information on a firm's prospects is clearly related to lending technologies. The adoption of remote banking and credit scoring tends to enhance the use of impersonal methods of contact: transaction-based lending may substitute relationship lending and this could affect bank lending policy when it comes to restructuring decisions, since soft information may be less important. Mian (2006) finds that in Pakistan foreign banks are less prone to renegotiate bilaterally in the case of default than domestic banks, suggesting that relationship lending makes financial restructuring easier than transactional lending. On the other hand, the effect of credit scoring techniques is not obvious: improved accuracy in evaluating creditworthiness may allow the bank to expand its lending towards informationally opaque firms (Berger *et al.,* 2005a); it may also reduce moral hazard, a key factor in cases of distress.

Relationship lending is based on proprietary information collected, in particular, by the loan officer through repeated interaction over time with the firm (Berger and Udell, 2002). Decentralization increases the incentives to collect soft information, which is not wasted along hierarchical lines (Stein, 2002). It significantly alters the interaction between the bank's headquarters and its local branches and thus the decision-making process in the

[5] Rajan (1992) assumes that bank debt is easily renegotiated "because the bank is a monolithic, readily accessible creditor."

financial restructuring phase. Power delegation may convey stronger incentives towards debt restructuring; among the drawbacks, it may expose the loan officer to the risk of capture by the borrowing firm, delaying liquidation even when this is the most efficient solution. For many reasons, it may be in the loan officer's interest to conceal a deteriorating borrower's conditions, a problem that is exacerbated by delegating more authority to loan officers (Berger and Udell, 2002).

Agency costs to monitor local managers tend to increase with distance. The top management of the bank will be less familiar with the local economic and social environment. Greater physical and cultural distance makes it difficult to collect and communicate soft information and to monitor local managers (Degryse and Ongena, 2004; Alessandrini, Presbitero and Zazzaro, 2009). This could explain why the allocation of decision-making power to these officers tends to decrease with distance (Mocetti, Pagnini and Sette, 2010) and why foreign banks tend to be weaker at relational functions such as renegotiation and recovery of bad loans, functions that require strong information and control mechanisms (Mian, 2006).

More detailed measures of bank-organization heterogeneity have gradually begun to appear in the literature, recognizing the importance of the organizational schemes and technological progress (Berger, 2003; Berger *et al*., 2005a, 2005b; Degryse *et al.,* 2009; Frame *et al.*, 2001; Petersen and Rajan, 2002; Scott, 2006). However, studies adopting a bank heterogeneity perspective have focused on aspects such as credit availability, its price and risk, and market entry. To the best of our knowledge, so far the literature on debt restructuring has instead downplayed the role of bank organization and lending technology.

3. Data description and stylized facts

To perform the econometric analysis, we build a unique data set at the loan level, using three sources of information, respectively regarding firms, their lending banks, and the characteristics of bank-firm relations.

First we use a dataset from Cerved consisting of company accounts. Cerved is a reliable source of information on Italian companies. Information is drawn from official data recorded at the Italian Registry of Companies and from financial statements filed annually at the Italian Chambers of Commerce on a compulsory basis. Cerved provides information

nearly on the entire universe of Italian joint stock and public and private limited liability companies. The information provided includes company profiles and summary financial statements (balance sheets, income statements and financial ratios). We restrict the analysis to manufacturing firms or those offering private non-financial services, whose turnover before the occurrence of financial distress was between 1 and 50 million euros. Then we select those firms whose cash flows (earnings before provisions, interest and taxes) fell below their net financing costs at least once within the 2002-04 period (i.e. their coverage ratio became less than one).[6] In this situation, the firm is not able to meet its contractual repayment obligations. This is what we will call "financial distress" from here on. We consider only firms presenting this condition for the first time, in order to select those at the onset of the crises. We identify the distress event as the year in which this situation occurs for the fist time. We close the sample in 2004, in order to have three years after the distress event (up to 2007) to assess the result of the workout.[7] We do not include listed companies in the sample, nor companies with access to financial markets; for firms in the sample, bank debt is mostly the only source of external finance, if we exclude trade credit.

This first set of information has been matched with Central Credit Register data (*Centrale dei Rischi*; CR hereafter). The CR reports data on credit lines granted by every bank to each of the selected firms.[8] The CR also provides the number of banking relations and the quality of loans. For any distressed firm, data are taken at time *t* (the year of the distress event) and at time *t+3* (in order to evaluate the evolution of bank-firm relations and the result of the workout). We drop from the sample those firms that were classified as bad borrowers at the moment of the distress event by most of the lending banks, while we keep those that became non-performing in the following years. [9]

Then, we add additional information on lending banks, by using a Bank of Italy special survey conducted in 2007, which collected unique information on organization and technology used in lending activities by more than 300 Italian banks involved in the survey (Albareto *et al*., 2008). The survey focuses on two aspects. First, it explores the role of local branches in small business lending, reporting the limits assigned to local loan officers and

[6] We also tried using different thresholds without significantly altering the results.

[7] That is, if financial distress occurs in 2004, the three-year window after the distress event is 2005-2007.

[8] The CR records the exposures of banks for which the amount of credit granted or drawn or the guarantee provided exceeds the threshold of 75,000 euros.

[9] Since non-performing loans are assimilated to defaults in Italian supervisory regulation, these cases are similar to cross-defaults.

CEOs in extending credit to small businesses autonomously, the average turnover of local managers and the use of economic incentives to reward their activity. Second, it describes the diffusion of statistical models to manage credit risk: the year of introduction; their effective use in lending, pricing and monitoring the loan; and the importance the bank gives to other sources of information, such as personal knowledge. We also include other information from the Banking Supervision Reports.

Once all the sources of information have been matched, the sample numbers 9,150 firms facing financial distress and more than 300 banks. Our unit of observation is defined by a unique bank-firm pair. Since we observe about 3.5 banks for each borrowing firm, we have about 30,000 bank-firm observations. The econometric analysis has been conducted at this loan (bank-firm relationship) level.

Between 2002 and 2004, the average share of firms in financial distress in the total population was 5 per cent (Table 1). The share was higher for the service sector than for manufacturing; inside manufacturing, it was higher in traditional industries, such as textiles, clothing and footwear.

At time *t+3,* about one fifth of the distressed firms has exited the market, while almost 80 per cent still survive, in most of the cases no longer in financial distress (53 per cent; Table 2).

As far as the restructuring process is concerned, slightly more than one third of the firms is allowed to restructure outstanding debt by at least one bank (Table 3). Among the firms that have restructured their debt, exits are less than 10 per cent, against 30 per cent for the others. By and large, only some of the lending banks agree to restructure, while others do not. Thus, when computed at bank-firm level, the incidence of debt renegotiation goes down to 16 per cent. More specifically, in 23.5 per cent of cases only one bank restructures; two or more banks are found to restructure in the remaining cases (13 per cent; Table 3). Apart from one-to-one banking relationships, it never happens that all the lending banks decide to restructure simultaneously: in a nutshell, banks show heterogeneous lending behaviour.

Table 4 gives some descriptive statistics on the evolution of the main bank aggregates over the three-year window following the financial distress. From *t* to *t+3,* the credit used (considering only firms that have survived) increased at a yearly rate of about 4 per cent, while a higher growth rate was recorded for the economy overall. The increase in short-term lending was lower than in longer maturity exposure, whose incidence thus increased, from

45 to 48 per cent. The average number of lending banks and the credit concentration index remained substantially stable over the sample period. The incidence of bad debts on the sum of performing and non-performing loans (considering both exits and survivors) consistently increased, from 0 to 23 per cent.

4. The probability of bank debt restructuring

4.1. The model

When a borrower faces financial distress, the bank has to decide whether to take part in workout activities (*occurrence of workout*). Workout activities consist of rescheduling loan maturity and/or extending new credit; it may also encompass the arrangement of a lender syndicate, the provision of consultancy services, debt equity swaps and other kinds of involvement of the bank in restructuring (Elsas and Krahnen, 2002). Some time after this decision, we observe if the firm still survives (*success of workout*) or has been liquidated. The bulk of the existing empirical literature is concerned with the success of workout.[10] In our analysis we depart from the prevailing literature as we observe every single bank–firm relationship (loan-level data) and report bank features such as organization and lending technologies, while previous studies use mainly information on firms and on the type of relationship with the banking system.

We study how a single bank contributes to the workout, adopting credit decisions such as rescheduling a maturity or agreeing a new credit extension. Following the taxonomy introduced by Brunner and Krahnen (2008), bank debt is restructured if one of the following two conditions are present in the three years after the crisis:

a) long term debt has increased while total loans have stayed the same or decreased only slightly (no more than 10 per cent);

b) total loans have increased.

Therefore, our dependent variable (*RESTR)* is a dummy that is equal to 1 if the bank provides a maturity extension (option *a*) or an increase in total credit during the three years after the crisis (option *b*), 0 otherwise. With these interventions, the bank is loosening the borrower's financing constraints, most likely because it is willing to continue the

[10] At least in the short run. As usual in the related empirical literature, we follow the firms' history for 3 years after the occurrence of financial distress.

relationship with the firm.[11] Consistently with our purpose, we also consider as non-restructured (*RESTR*=0) those firms that run into voluntary or forced liquidation, or are classified as bad borrowers by their lenders.[12] As a robustness check, in Section 5 we explore different definitions of the dependent variables. First, we consider the two previous conditions separately. We control for the cases in which restructuring is approved before time *t+3* (i.e. t+1 or t+2), but this decision is reversed afterwards.[13] Lastly, we define the restructuring operation in terms of the amount of new credit extended.

We estimate the probability that a bank restructures loans to a firm in distress as a function of balance-sheet data, relationship lending information and data on the organization and technology used by lending banks.

As a first step, we estimate a simple probit model of the type:

(1) $$y = 1(x\beta + \varepsilon > 0),$$

where 1(.) is equal to 1 if the relation inside the brackets is true.

The log likelihood is:

$LL = \sum_{y=1} \ln\{\Phi(x\beta)\} + \sum_{y=0} \ln\{1 - \Phi(x\beta)\}$, where Φ denotes the standard cumulative normal distribution.

Still, this method does not address the primary concern which may bias our results: firms choose the banks from which they borrow and banks decide whether or not to lend (Berger *et al*., 2005a; Guiso and Minetti, 2007). As a consequence, while we have a representative sample of firms in distress, we observe only those banks which actually lent to those firms, i.e. only the selected banks.

This selection process is clearly endogenous: it is related to firm characteristics, such as size, risk and location, and, more important to our purposes, to the credit policy followed by the bank. This process is of prime importance in the case of a firm which is small and

[11] We do not consider other types of restructuring, such as debt equity-swaps, lender syndicates or others, which are very uncommon for SMEs in distress.

[12] Due to inefficiencies in the Italian judicial system, the length of bankruptcy procedures often exceeds that of the analysed period (3 years after the occurrence of financial distress). Therefore the bad loan classification is usually a preliminary phase leading to liquidation.

[13] The previous definition classified these cases as non-restructured firms.

risky. In facts, firms may decide to have relations with those banks they believe more willing to restructure outstanding debt in case of distress. On the contrary, they may just want to conceal the situation, moving to banks they think have more difficulties in detecting the real prospects of investment projects. Furthermore, according to Bris and Welch (2005), the entrepreneur will try to enlarge the number of creditors to gain a better bargaining position in case of distress. All these elements are likely to influence, *ex ante*, the characteristics of lending banks – in terms of size, technology, etc. – and, *ex-post,* the restructuring decision.

To address this issue, we estimate a probit model with sample selection (Heckman, 1979) by means of maximum-likelihood estimation method, of the type:

(2) Sample selection: $y_1 = 1(x_1\beta_1 + \varepsilon_1 > 0)$

Restructuring equation: $y_2 = 1(x_2\beta_2 + \varepsilon_2 > 0)$ observed if $Y_1=1$

$\varepsilon_1, \varepsilon_2 \sim N(0, 1)$, $\text{corr}(\varepsilon_1, \varepsilon_2)=\rho$

where 1(.) is equal to 1 if the relation inside the brackets is true. The main variable is observed only if the first equation is verified. The log likelihood is then:

$$LL = \sum_{y1=1;y2=1} \ln\{\Phi_2(x_1\beta_1, x_2\beta_2, \rho)\} + \sum_{y1=1;y2=0} \ln\{\Phi_2(x_1\beta_1, -x_2\beta_2, -\rho)\} + \sum_{y1=0} \ln\{1-\Phi(x_1\beta_1)\}$$

In the sample selection equation, we consider as potential lending banks all those intermediaries that have at least one branch in the province in which the firm is located. By controlling for the selection of the lending banks, our aim is to study the restructuring decision which all the banks operating in the local credit market could have taken with respect to the firm facing distress.

The number of observations increases to more than 340,000 in the selection equation. Obviously, at this stage we do not introduce any information regarding bank-firm relations (which only exist for those banks actually selected). Our identification variable is the market share of the bank, computed on the number of branches. This variable has a univariate correlation of 0.33 with the selection variable (Table 6) against a correlation of 0.04 with the restructuring variable. The choice of this variable is based on the idea that if the bank has a widespread presence in the area, most likely the firm will select it. If the bank is not selected, this might be because the firm did apply for a loan but the bank rejected it, or because the firm did not apply for a loan in the first place, expecting the bank to be "tough" i.e. not

willing to help in case of distress. We tried to capture the latter hypothesis by means of the second identification variable, which is the average collateral over total loans the bank requires in the same area from its business clients. Even if the correlation of this variable with the selection variable is statistically weak, we think it has important economic significance.

* * *

To control for the anticipated going-concern value of the firm, we introduced various balance-sheet indices, such as the ratio of financial liabilities on total liabilities (*leverage*), return on assets (*ROA)* and net interest payments over total assets (*financing costs over assets*); we also introduce the firm size (*log of total assets*), as well as sector (two-digit Ateco code) and regional dummies. The balance-sheet variables are calculated as an average of the three years before the crisis.

To capture the concentration of lending across banks, we consider two variables: the first is a dummy (*Single*), equal to 1 if the firm has just one lending relationship; the second is the share of the bank over the total outstanding debt. We follow previous studies (Detragiache, Garella and Guiso, 2000; Guiso and Minetti, 2004 and 2007), in which multiple lending is a two-step decision: first, the firm decides whether to borrow from one or more banks; then it decides how concentrated its bank debt should be. The share of collateral over total credit extended by each bank is then introduced to control for the guarantee posted by the firm to the lending bank.

Our key variables are those capturing the heterogeneity among banks. All these regressors come from the special survey carried out by the Bank of Italy.

We first consider the lending technology used by the bank. We follow the conceptual framework described by Berger and Udell (2006). We introduce a dummy variable indicating whether a bank has adopted credit scoring techniques in small business lending (*Scoring*). According to Berger and Udell (2006), credit scoring is a transaction technology based primarily on hard information. Moreover, in the survey, banks are asked to evaluate how important they regard soft information in the lending process; therefore, we are able to add a dummy if the bank has stated that qualitative information is an important element in assessing the credit worthiness of SMEs (*Soft information*). We also use two dummy variables to capture the differences between banks that use credit scoring only as a decision-making rule and those also using the scores in the monitoring process.

We deem the degree of decentralization of the lending decision to be very important on bank behaviour (Stein, 2002). Delegation improves incentives to gather soft information and encourages initiative on the part of local managers. Using data from the survey, we computed a delegation index as the amount of credit the local branch manager of the bank can extend autonomously to small businesses, with respect to the amount the CEO himself can grant without referring to the bank's board (*Delegation*). To verify the soundness of our results, we also use the index in absolute terms, as the amount (in logs) of credit that a local branch manager can autonomously extend to a small firm.

Decentralized banks may partially offset the different objectives of local and central managers by designing appropriate incentives. To ensure local managers apply the appropriate effort in obtaining and processing information, their remuneration is usually linked to the economic performance of the branch they manage: we introduce a dummy for the existence of economic incentives to remunerate local managers (*Incentives*). On the other hand, to avoid excessive involvement in local economies, branch managers are commonly moved on a regular basis. In the estimates, we also add the average length of tenure (in months) of these managers (*Turnover*).

Finally, the size of the bank and its distance from the borrower may be important factors in influencing the decision whether to support a firm in distress. Therefore, we introduce dummies for the type and dimension of the bank and we measured the physical distance between bank headquarters and the location of the firm (*Distance*). A growing number of contributions address this issue.[14] Distance is related to the type of relationship with the firm. Larger banks tend to use transactional technology in lending to firms located far away (Berger, Frame and Miller, 2005b). Monitoring costs tend to increase with borrower-lender distance. Furthermore, intermediaries lending at a greater distance are less involved in local economies than smaller banks, which are part of the community and have fewer ways of diversifying their assets. Mian (2006) finds that geographical and cultural distance is an important attribute in explaining the lending, recovery and renegotiation differences between domestic and foreign banks.

Table 5 reports some descriptive statistics about the main variables used in the estimates, including balance-sheet indices and bank organization variables. At this

[14] On the effects of the physical and functional distance of a lending bank from a borrowing firm, see Alessandrini, Presbitero and Zazzaro (2009) and Degryse and Ongena (2004) for a review.

descriptive stage, we just note that in the case of a bank-firm restructured relationship (observations for which *RESTR*=1), the average value is higher for *Roa* and *Size*, and lower for *Scoring* and *Distance*, that is restructured firms are larger, more profitable and the lending banks are geographically closer and make less use of credit scoring. Finally, Table 6 shows the cross-correlations between variables.

4.2. The results

Table 7 reports the results of the econometric analysis. The first two columns report the restructuring equation and the selection equation from our baseline specification; we compare these results with a restructuring equation estimated by means of a simple probit (Col. 3). Then, we introduce some extensions for credit scoring techniques, by controlling if they are used in the lending decision and monitoring procedures (Col. 4). Additional specifications are reported in the following columns of Table 7.

As far as the Heckman procedure is concerned, in the selection equation (Col. 1) the two identification variables are strongly significant and they show the expected signs: banks with a higher market share in the province are more likely to be picked up; the same is true when they ask for a lower level of collateral. The selection process is an important issue to address, as suggested by the significance of the estimated ρ. Furthermore, most of the effects in the restructuring equation (Col. 2) are stronger when estimated by the Heckman procedure than when a simple probit is used (Col. 3), confirming that we need to correct for sample selection.

In the restructuring process (Cols. 2-8), our results related to balance-sheet variables seem to point to consistent outcomes. The more favourable the financial position of the firm (lower interest payments and leverage), the higher the likelihood of restructuring. This is also true for firm profitability (measured by *ROA*), which increases the probability of restructuring outstanding debt. On the other hand, debt restructuring is more frequent for smaller firms.

Moving to variables related to bank concentration, the econometric analysis provides new insights on the recent theoretical and empirical literature on credit concentration. Our results show that a non-linearity does exist, which in turn may support the theory put forward in Detragiache, Garella and Guiso (2000) and Guiso and Minetti (2004 and 2007), in which multiple lending is modelled as a two-step decision: first, the firm decides whether

to borrow from one or more banks; then it decides how concentrated its bank debt should be. In our results, single banking helps to restructure outstanding debt: the estimated coefficient for *Single* is positive and significant. On the other hand, once multiple banking is chosen, it is rational for a risky firm to spread its debt: the probability of obtaining debt restructuring in the case of distress decreases with the size of the lending share of each bank.[15] An alternative specification (not reported) in which we use the Herfindahl concentration index points in the same direction.

We introduce the share of the bank over the total outstanding debt separately for the leading bank, i.e. the bank which has extended the higher share (*Share of the main bank*), and the other intermediaries (Col. 6). The effect of lending shares is lower for the main bank than for the other intermediaries – the test that the two variables have the same coefficient is rejected at 1% – but it is still detectable in the data.[16] Thus, banks tend to limit further increases in their exposure towards risky business when it is already high. As described in more detail in the next section, this interpretation is further improved by comparing the results in relation to the type of restructuring: it becomes more and more difficult to get further credit as the share of the bank increases, while it has no effect on the likelihood of obtaining a maturity extension for outstanding debt.

This evidence can add a further rationale to the findings of Ongena, Tümer-Alkan and von Westernhagen (2007), who show that firms with a higher probability of default are expected to have a larger number of banks and a significantly lower degree of credit concentration. It is also shown that the usual imitative behaviour of small banks with respect to the main bank applies to a lower extent in the case of a firm in distress, which borrows more from other banks rather than from the main bank. Our result is also consistent with the theory stated in Detragiache, Garella and Guiso (2000), since the risk of fund withdrawal because of a bank liquidity shock is more difficult to balance for a firm in distress. Furthermore, according to Bris and Welch (2005), a firm that opts for multiple creditors *ex ante* assumes a better bargaining position in the case of financial distress *ex post* (Guiso and Minetti, 2004 and 2007; Ongena, Tümer-Alkan and von Westernhagen, 2007).

The coefficient estimated for *Collateral* is negative and significant, suggesting that banks restructure less when bank credit is better secured. This finding appears to be

[15] Since the variables *Single* and *Bank share* are correlated (Table 6), we also introduced them separately. The above described results are confirmed.

[16] Nearly the same result is obtained in a specification (not reported) which excludes the dummy *Single*.

consistent with some explanations proposed in the theoretical literature. According to the *lazy bank* hypothesis (Manove, Padilla and Pagano, 2001), in the case of distress, well secured banks may free-ride on screening activities and other initiatives aiming at preserving a firm's operations. In addition, it should be more difficult to reconcile divergent borrowers' preferences when borrowers are endowed with different seniorities (Bolton and Scharfsten, 1996). This finding is also consistent with the asset-based lending theory, where collateral is the primary source of repayment (Berger and Udell, 2006).

With regard to the variables capturing bank heterogeneity, the dummies for the type of bank maintain some explanatory power. It is worth noting that small cooperative banks tend to restructure more than large and medium banks (our benchmark), while other small banks do not. Therefore, we believe that cooperative banks do follow different strategies when dealing with small firms in distress, even after controlling for their lending technology and organization. Most likely, this result is related to their nature as cooperatives rather than to their size: the other small banks in the sample do not show any detectable difference in restructuring propensity.

While controlling for bank size, the type of organization and lending technology still explain the restructuring decision. The estimated sign of the variable *Scoring* is negative and very significant, i.e. the introduction of credit scoring techniques reduces the probability that a bank will restructure credit to firms in distress (Table 7, Col. 1).

Since this issue is of great interest, we have explored in detail the role of credit scoring techniques, exploiting more comprehensive information on how credit scoring is actually implemented by banks.

Banks were asked to assess whether credit scoring techniques were important both in the loan decision and in the monitoring process. In the restructuring equation, we introduced two dummies, to control for the use of scores in credit-extension decisions (*Score_Decision*) and in the monitoring process (*Score_Monitoring*), respectively.[17] The estimates in Column 4 report our preferred specification. It turns out that the estimated coefficient is negative for *Score_Decision*; on the contrary, it assumes a positive sign for *Score_Monitoring*. Note that banks use credit scoring techniques more frequently in the decision-making process to

[17] We did not change the selection equation in the first step, since we believe that is difficult for the borrower to know the way these techniques are implemented by the lending bank. However, the results are very similar considering these variables in the selection equation.

extend credit, rather than in the monitoring process, thus explaining the overall negative effect of *Scoring*. In our view, the opposite signs estimated for the two dummies suggest that the use of credit scoring is not by itself an obstacle to restructuring, while the way it is implemented matters. In the monitoring stage, the use of statistical techniques signals a continuous process of gathering and analysing information over the entire life cycle of the firm-bank relationship, rather than an episodic application of automatic techniques. Most likely, the use of these methods reduces monitoring costs, thus helping debt renegotiation for firms in a very crucial phase of their life.

We further investigate the use of credit scoring by defining this variable differently. Since we know the year of adoption of these techniques by banks, we can exploit this information. The credit scoring dummy is now equal to 1 if credit scoring was adopted before the restructuring decision but after the distress event; 0 otherwise. In doing so, we are now sure the variable is completely exogenous with respect to the selection process. Our results are qualitatively and quantitatively confirmed (Col. 7).

The decentralization-degree variable (*Delegation*) positively affects the probability of restructuring. This result is also confirmed when we introduce the variable in absolute terms (column 5 of table 7). Being closer to SMEs and having more power in the decision-making process, local managers may use personal relations to collect soft information. This helps the restructuring process. Of course, we cannot rule out that local managers have the incentive to hide a deteriorating borrower's condition or that they are looking for private benefits (Aghion and Tirole, 1997; Berger and Udell, 2002). We will come back to this point later on. It is worth mentioning that when *Scoring* and *Delegation* are interacted, the resulting interaction effect assumes a positive value, indicating that the use of credit scoring increases the probability of restructuring if banks also adopt more decentralized structures (Col. 8). The mean of the interaction effect is equal to 0.176, with a standard error of 0.0649; for the sake of simplicity, it is calculated with a simple probit estimation, using the 'inteff' procedure proposed by Norton, Wang and Ai (2004). This result is consistent with the hypothesis that even when accomplished by larger banks, decentralization may counterbalance the effects of a rigid implementation of automatic techniques.

The *Turnover* variable is never significant. This may attenuate the possible concern about the estimated (positive) coefficient of the *Delegation* variable. In fact, more delegation may entail better incentives and information for local loan officers, thus allowing a proper

selection of better firms; on the other hand, it may introduce the risk that credit is allocated to unworthy borrowers, because of agency problems between the loan officer and his bank. In any case, this risk should increase with the length of tenure of the local officer. To disentangle the hypothesis of more accurate information from that of capture, we therefore interact *Turnover* and *Delegation*. Since the interaction variable turns out to be always insignificant, this gives some further support to the improved information explanation.[18]

The bank-firm distance is a measure for both the type of lending relationship and information about the overall economic conditions of the area where the firm is located. However, this variable is obviously linked both to bank size and the type of bank organization.[19] Therefore we add it only at the end, in order to analyse whether it affects the results or not. We find that lending at a greater distance significantly decreases the probability of restructuring. In the meantime, our main results remain stable. It is also worth mentioning that the coefficient for *Cooperative banks* decreases, suggesting that part of its effect depends on a very close proximity to distressed firms; at the same time, the coefficient for *Cooperative banks* remains highly significant – while we do not detect any effect on restructuring likelihood as far as other small banks are concerned, supporting the hypothesis that the effect comes from the cooperative form rather than size.

5. Robustness check

5.1 Sample splits and different definitions of the dependent variable

In this section, starting from our preferred specification (Spec. 4 of Table 7) we perform some robustness checks. The results are reported in Table 8.

In the first place, we split the sample by considering separately: small firms with total sales lower than 10 million euros (Tab. 8, Col. 1); and medium–sized businesses with sales of 10 to 50 million euros (Col. 2). Our results remain generally unchanged. In line with the theory, soft information and economic incentives are (only slightly) significant for small firms, while they are insignificant for medium-sized businesses; this is true both in the selection and the restructuring equations. In the latter, the distance seems to play a role only

[18] At the same time, we think that this issue is sufficiently important to merit further analysis, in future research work.

[19] For the sake of simplicity, we do not report the various steps in which we progressively add the variables.

for smaller firms, while it loses significance as firm size increases. As far as credit scoring in lending and monitoring is concerned, the two variables have the same sign but the marginal effect for medium-sized firms is more than twice that of smaller firms.

Then we explore different definitions of the dependent variables (in the table we report only the second stage, since the selection equation remains unchanged).

First, we define the restructuring in terms of credit *granted* instead of credit actually *used* (Col. 3). Then we control for the cases in which the concessions – rescheduling or new finance – are approved before time *t+3* (that is t+1 or t+2), but this decision is reversed afterwards in the three-year window (Col. 4).[20] Next, we split the variable, considering separately the cases in which only the maturity is rescheduled (point *a* in the previous definition; Col. 5), from cases in which the firm obtains new finance (point *b* in previous definition; Col. 6). In the next paragraph we will also define the restructuring in terms of the quantity of new credit extended.

However, through these various definitions of the dependent variable, the estimated results for the regressors of interest remain mostly unchanged. As further evidence, we signal that banks are more prone to reschedule maturity rather than to extend new credit towards highly leveraged firms. As a matter of fact, the marginal effects of balance-sheet variables are much higher when banks decide to allow new credit lines rather than to extend loan maturity. This evidence is consistent with the idea that banks tend to postpone the liquidation decision by rescheduling their debt claims if there is increasing uncertainty about a firm's prospects (Kahl, 2002).

Disentangling the type of restructuring also improves our understanding of the credit concentration effect: as a bank's lending share increases, it tends to avoid the extension of new loans, while its share has no effect on the likelihood of maturity rescheduling.

Finally, we focus our attention on the eventuality that the restructuring process is an inefficient economic outcome. To ensure economic efficiency, only the debt of firms with positive investment opportunities should be renegotiated, while non-viable firms are better liquidated.

In the previous estimates, we controlled for the expected net present value of distressed firms by introducing the average balance-sheet indexes computed before the

[20] The previous definition classified these cases as not restructured firms.

crisis. This is a backward looking strategy, since we do not have the proper variable to split viable from non-viable firms according to their future prospects; nevertheless we can presume that the most likely candidates to exit the market in the near future are those firms still in distress at *t+3* (about one-fourth of the sample; Table 2). Thus, we conduct an econometric analysis considering only those firms which are no longer in financial distress at *t+3*. When we replicate the econometric exercise with reference to these firms (Col. 7 of Table 6), our previous results are confirmed. This evidence provides some support to the hypothesis of more efficient restructuring of distressed firms, but the issue would require further analysis and is left for further research.

5.2 More on the endogeneity of organizational variables

Indeed, most of the organizational variables are likely to be endogenous. If incentive schemes, decentralization and use of technology are properly designed and implemented, one would expect them to lead to the selection of better firms. Thus, the bank should be keener on renegotiating the debt of these firms since they are good clients that have been hit by bad luck and the bank wishes to maintain the relationship. In other words, proper organizational schemes could promote an ex-ante selection (at the very first credit decision) of better firms. If this is the case, firms will obtain debt renegotiation irrespective of the actual importance of the organization variables.

Note that we have already tackled this issue, by controlling for the matching of the bank-firm relationship in the first stage, when our key variables are used in the selection equation. Furthermore, we introduced the financing position and profitability of the firm (*leverage*, *ROA*, *financing costs on assets*) before the occurrence of the distress. These controls allow us to distinguish between ex-ante better firms (those suffering distress only after a period of good profitability) and riskier firms (for which distress occurs in unfavourable economic conditions).

Notwithstanding these controls, a sceptic could still argue that residual borrower-level variation is spuriously correlated with firms' quality. To further address this concern, following Mian (2006), we add firm-level fixed effects to the estimated equation, thus controlling for all possible borrower-specific variations. For the sake of simplicity, we use a simple linear probability model, but we obtain similar results when a conditional logit model is used. Obviously we drop all firms with just one lending relation (*Single*=1). This

methodology emphasizes the heterogeneous behaviour of different lending banks towards the same firm in distress.

The estimated coefficients (see Table 9) regarding our main organizational variables (*distance*, *scoring*, *soft information*, *incentive*, *delegation*) remain mainly unaffected, suggesting that our results are not driven by unobserved borrower characteristics since they are robust to the inclusion of borrower fixed effects. Thus, we are more confident of the relevance of lending technologies and banks' organizational schemes for the financial-restructuring process.

Lastly, we introduced fixed effect by banks. In this way we can test whether there is some time-discontinuity in the behaviour of the same bank towards different firms before and after introducing credit scoring techniques. We know the year of adoption of these techniques and we can exploit this information.[21] Thus, we redefined the credit scoring dummy: it is now equal to 1 if it was adopted before the restructuring decision; 0 if it was adopted afterwards. We can see how the implementation of credit scoring changes the probability after the introduction. Again the result points to a harsher regime following the adoption of credit scoring, in line with our previous results.

5.3. The intensity of bank debt restructuring

So far, the results discussed in the previous section are robust to different specifications of the dependent variable and to different estimation methods.

We further check the robustness of these estimates using an alternative definition of the restructuring process. First, we try to capture the intensity of bank involvement towards the distressed firm. More in detail, we assess the extent by which a bank makes further concessions, by using the log of new credit extended in the three years following the crises. We use this information as a new definition of our dependent variable. Obviously, we should again address a selection problem. As a matter of fact, we have to take into account that: *i)* the observed bank-firm relationship is the result of a self selection process; *ii)* only the subgroup of restructured firms had the chance to obtain new finance. It is worthwhile recalling here that one condition we used to define debt restructuring is actually an increase in credit extended in the case of distress (option *b* in our definition). These aspects call for an

[21] From the survey, we know the year of adoption only for credit scoring, not for other variables.

appropriate technique to solve this double-selection problem. To this purpose, we adopt a standard bivariate decision problem as proposed by Meng and Schmidt (1985) and Tunali (1986).[22] This method allows us to control for the fact that a firm may agree on a restructuring plan and obtain new credit only after a two-stage participation decision, i.e. the firm's decision to participate in the credit market and the bank's decision to extend credit to that firm. Therefore in the first stage we estimate these two equations by a bivariate probit with partial observability:

(3) $y_{1ij} = x_{1ij}\, b_1 + e_{1ij}$ (firm i applies for credit to bank j if $y_{1ij} > 0$)

(4) $y_{2ij} = x_{2ij}\, b_2 + e_{2ij}$ (bank j decides to restructure the debt of firm i if $y_{2ij} > 0$)

We include in $x_{1,ij}$ and $x_{2,ij}$ a set of variables aimed at capturing all the economic and financial determinants of the credit decision. We also include the two identification variables already discussed in the previous section: the bank market share in the province, measured by the number of branches, and the average collateral requested by the bank from firms in the same province.

In the second step of the analysis, we estimate a restructuring equation for the borrowing firms only, where the dependent variable, Y_i^m , is the new credit extended; we use OLS and add the two corrections for the self-selection bias:

(5) $$y_i^m = x_{3i} b_3 + c_{13}\lambda_{1i} + c_{13}\lambda_{2i} + u_i$$

Where:

$$Y_i^m = log\ loans_{\,t+3} - log\ loans_{\,t}\,, \qquad u_i = \varepsilon_i - c_{13}\lambda_{1i} - c_{23}\lambda_{2i}\,,$$

$$\lambda_{1i} = \frac{\phi(x_{1i}b_1)\Phi\left(\dfrac{x_{2i}b_2 - \rho x_{1i}b_1}{\sqrt{1-\rho^2}}\right)}{F(x_{1i}b_1, x_{2i}b_2, \rho)} \qquad \lambda_{2i} = \frac{\phi(x_{2i}b_2)\Phi\left(\dfrac{x_{1i}b_1 - \rho x_{2i}b_2}{\sqrt{1-\rho^2}}\right)}{F(x_{1i}b_1, x_{2i}b_2, \rho)}$$

ϕ and Φ represent, respectively, the density and the cumulative function of a standard normal distribution, while ρ is the correlation of the error terms in the bivariate probit.

Table 10 reports the estimated results using the method discussed above (Col. 2), compared with those obtained by an estimation without sample-selection correction (Col. 1).

[22] For an application to the labour market analysis, see Mohanty (2005).

By applying this method, our results appear to be unaffected or, in some cases, even strengthened.

As an alternative estimation technique, we considered a Tobit model,[23] whose dependent variable is zero in the case where no restructuring is recorded (if *RESTR*=0) and it is equal to the growth of credit in the three years after the crises (log loans $_{t+3}$- log loans $_{t}$) in the case of restructuring (if RESTR=1). The (log) likelihood function is:

$$LL = \sum_{y_i>0} \ln \frac{1}{\sigma}\phi\left(\frac{y_i - x_i\beta}{\sigma}\right) + \sum_{y_i=0} \ln\left[1 - \Phi\left(\frac{\beta' x_i}{\sigma}\right)\right],$$

The results, reported in the last column of Table 10, confirm our previous evidence.

6. Concluding remarks

In this paper we have studied the bank-debt restructuring process of SMEs in financial distress, taking bank heterogeneity into account thanks to a survey conducted by the Bank of Italy on bank organization and lending technology. Our results show that banks follow heterogeneous strategies when facing financially distressed firms, in that they may behave very differently according to their organization and lending technologies. While bank size seems far less important, in line with the literature on lending technologies we show that more impersonal bank-firm relations, lending at a great distance and relying on credit scoring techniques (transactional lending) may decrease the likelihood of bank debt restructuring, compared with cases where there is relationship banking.

However, we show that technological and organizational arrangements may balance the effects of transactional lending. Decentralization of decision-making and a more systematic use of statistical techniques, especially in the monitoring process, can facilitate financial restructuring. In particular, the use of credit scoring is associated with a higher probability of debt restructuring when a bank also adopts a more decentralized structure and also uses these methods to monitor the lending relationship.

From a policy perspective, better understanding of the mechanisms behind banks' decisions towards firms in distress is economically significant. The restructuring decision is

[23] The hypothesis underlying the Tobit model was that the explanatory variables would influence in the same way both the probability of restructuring and the quantity of credit extended. This hypothesis may be too restrictive, in that the explanatory variables may affect the two phenomena in different ways or may be relevant in only one of the decisions.

a crucial step in preserving the continuation of a firm in distress but still with profitable investment opportunities. While consolidation and the increasing use of credit scoring may raise concerns for SMEs in distress, our results suggest that enhanced implementation of statistical techniques and effective decentralization of decision-making may offset these effects. At the same time, the growing emphasis of regulators on bank organization appears to be consistent with our results. Our work also suggests that the common assumption of uniform bank behaviour in the case of distress should be reconsidered; at the same time, that bank size *per se* cannot fully explain this heterogeneity among banks, as individual choices relating to strategies, organizational forms, and lending technologies may have important consequences on banks' behaviour.

Definition of variables

Dependent variables (Source: Central Credit Register)

RESTR: binary variable equal to 1 if at least one of these two conditions has occurred: *i)* long-term debt has increased while total loans stayed the same or decreased only slightly (no more than 10 per cent); *ii)* total loans have increased. Firms in voluntary or forced liquidation, and those classified as bad borrowers are considered as non-restructured.

Firm variables (Source: Cerved)

Financing cost on assets: ratio of net interest expenses to total assets.
Leverage: Ratio of financial debts to the sum of financial debts and net equity.
Size: (Log of) total assets.
ROA: Return on assets
Coverage: ratio of earnings before interests, taxes and depreciation to net interest expenses. [This variable has been used to select firms facing financial distress]

Bank-firm relationship variables (Source: Central Credit Register)

Distance: distance (Log of KMs) between the bank's headquarters and the location of the borrowing firm.
Bank share: share of the bank over total outstanding debt
Share of the main bank: share of the main bank over total outstanding debt, when the bank is the principal one (with the larger position); 0 otherwise.
Share of other banks: share of the bank over total outstanding debt, when the bank is *not* the principal one; 0 otherwise.
Collateral: ratio of collateralized loans to total loans.
Single: binary variable equal to 1 if there is just one lending bank.

Bank organization variables (Source: Bank of Italy, Survey on bank organization)

Scoring: binary variable equal to 1 if a bank uses scores in 2003 as a rule in the decision-making process, instead of adopting a more flexible approach.
Score_decision: binary variable equal to 1 if a bank uses credit scoring techniques in 2003 and these are considered as an important instrument when deciding new credit extension.
Score_monitoring: binary variable equal to 1 if a bank uses credit scoring techniques in 2003 and these are considered as an important instrument in the monitoring process.
Delegation: index of delegation in favour of local managers, computed as the amount of loans to SMEs that they can extend autonomously with respect to the amount the CEO of the bank can extend.
Soft information: binary variable equal to 1 if a bank has stated that qualitative information is important in credit decisions.
Incentive: binary variable equal to 1 if local managers are compensated by means of a performance-related wage.
Turnover: average length of tenure of the local loan officer (in months).

Time: time (in years) since the adoption of credit-scoring techniques in 2003.

Other bank variables (Source: Bank of Italy, Banking Supervision Reports).

Small banks in groups: binary variable equal to 1 if a bank is both small in size and a member of a banking group.
Small banks: binary variable equal to 1 if a bank is small and it is *not* member of a banking group.
Cooperative banks: binary variable equal to 1 if a bank is both small and a cooperative ("Banca di Credito Cooperativo", according to the Italian banking law).

Tables

Table 1

FIRMS IN DISTRESS

(% of firms)

Firms in distress for the first time in the year considered (% of firms)	2002	2003	2004	Average
Total	3.7	6.4	5.0	5.0
by sector				
Manufacturing	3.2.	5.8	4.4	4.5
Services	4.2	7.1	5.5	5.6
by area				
North	3.5	6.4	4.7	4.8
Centre	3.7	6.6	5.4	5.2
South	4.8	6.6	5.5	5.6
by size				
1-10 million euros	3.5	6.7	5.1	5.1
10-50 million euros	5.0	5.1	4.2	4.8

Source: Cerved. Simple frequencies on the number of firms not in distress at the beginning of the period.

Table 2

SITUATION AT *t+3* OF FIRMS IN DISTRESS IN *t*

(% of firms)

Situation at *t+3* (% of firms)	By sector		By area			By size *(million euros)*		Total
	Manuf.	Serv.	North	Centre	South	1-10	10-50	
Exits	19.8	22.4	20.5	20.9	24.4	21.7	18.3	21.1
Survivors	80.2	77.6	79.5	79.1	75.6	78.3	81.7	78.9
Still in distress	*22.3*	*28.5*	*25.2*	*26.5*	*25.3*	*24.2*	*31.7*	*25.5*
Out of distress	*57.9*	*49.1*	*54.2*	*52.6*	*50.3*	*54.1*	*50.0*	*53.4*
Total	100	100	100	100	100	100	100	100

Source: Cerved, Central Credit Register. Simple frequencies on the number of firms in distress in *t*.

Table 3

FINANCIAL RESTRUCTURING OF FIRMS IN DISTRESS

(% of firms)

Situation at *t+3* (% of firms)	By sector		By area			By size *(million euros)*		Total
	Manuf.	Serv.	North	Centre	South	1-10	10-50	
Exits	19.8	22.4	20.5	20.9	24.4	21.7	18.3	21.1
Survivors	80.2	77.6	79.5	79.1	75.6	78.3	81.7	78.9
At least one bank restructures (*a*+*b*)	40.4	33.7	37.1	39.8	32.0	34.7	48.2	36.4
Only one bank	24.9	22.7	23.5	25.3	22.2	23.9	22.6	23.5
2 banks	9.3	7.3	8.6	8.2	6.5	7.4	12.5	8.0
3 banks	3.8	2.4	3.0	3.8	2.4	2.4	6.3	3.0
4 or more banks	2.5	1.4	2.02	2.4	0.9	1.0	6.7	1.9
All the banks restructure (*a*)	2.0	4.1	2.8	3.3	4.4	3.4	1.4	3.1
Some banks restructures, others do not (*b*)	38.4	29.6	34.3	36.5	27.6	31.3	46.8	33.3
Less than half of banks	33.8	25.1	29.7	31.4	24.0	27.0	40.8	28.7
More than half	4.6	4.5	4.6	5.1	3.6	4.3	6.0	4.6
Financially restructured (1)	16.1	16.6	16.3	17.1	the 15.5	15.9	17.9	16.4

Source: Cerved, Central Credit Register. All the statistics refer to the simple frequencies of firms on the total of distressed firms, except (1), which refers to the number of bank-firm relationships.

Table 4

MAIN CREDIT VARIABLES

Variables	*t* *(year of financial distress)*	*t+3*
Bank credit (1)		13.3
Number of banks	4.7	4.7
Herfindhal index, computed on bank credit	0.47	0.48
Long-term bank credit (% share of bank credit)	44.8	47.8
Collaterals (% share of bank credit)	17.6	18.7
Bad loans (% share of bank credit) (2)	0.0	23.0

Source: Cerved, Central Credit Register. All the statistics refer to the survivor firms, except (2), which refers to all distressed firms in the sample.
(1) Growth rate of bank credit between *t* and *t+3*.

Table 5

SAMPLE STATISTICS

(bank-firm relationships)

Variables	All the sample of distressed firms (RESTR=0;1)					Only the non-restructured firms (RESTR=0)	Only the restructured firms (RESTR=1)
	Mean	Standard Deviation	Median	1st quartile	3rd quartile	Mean	Mean
Dependent variable							
Restructuring	0.16	0.37	0.00	0.00	0.00	0.00	1.00
Firm variables							
Leverage	0.74	2.05	0.79	0.60	0.91	0.74	0.74
Size (log of total assets)	8.35	1.10	8.30	7.53	9.10	8.30	8.40
ROA	-0.05	0.13	-0.02	-0.07	0.00	-0.05	-0.03
Financing cost on assets	0.03	0.02	0.02	0.01	0.04	0.03	0.03
Bank relationship variables							
Herfindhal	0.58	0.29	0.52	0.34	0.90	0.59	0.53
Distance	1.60	1.92	0.89	0.24	2.26	1.60	1.50
Bank organization variables							
Scoring	0.25	0.43	0.00	0.00	1.00	0.26	0.21
Score_decision	0.23	0.42	0.00	0.00	0.00	0.23	0.19
Score_monitoring	0.16	0.37	0.00	0.00	0.00	0.16	0.16
Soft Information	0.54	0.50	1.00	0.00	1.00	0.54	0.52
Delegation	0.07	0.09	0.03	0.01	0.09	0.07	0.08
Incentive	0.84	0.37	1.00	1.00	1.00	0.83	0.87
Turnover	31.7	11.5	30.0	24.0	36.0	31.8	31.0

Source: Cerved, Central Credit Register, Bank of Italy Survey on bank organization. All the statistics refer to the bank-firm relationships.

Table 6

CORRELATIONS BETWEEN VARIABLES

	RESTR	selection	Finan. costs /assets	roa	leverage	size	collateral (bank-firm level)	single	bank share	scoring	score decision	score monitor	Delega-tion	soft informa-tion	incentive	turnover	distance	share (bank branches)
RESTR	1																	
Selection	.	1																
Finan. costs /assets	-0.027	0.062	1															
ROA	0.042	0.001	-0.038	1														
Leverage	-0.014	0.058	0.143	-0.016	1													
size (log of total assets)	-0.050	0.116	-0.134	-0.035	0.062	1												
collateral (bank-firm level)	-0.087	0.289	0.023	-0.002	0.033	0.046	1											
Single	-0.011	0.158	-0.030	0.005	-0.023	-0.025	0.075	1										
bank share	-0.051	.	-0.120	-0.010	-0.128	-0.356	0.228	0.635	1									
Scoring	-0.019	-0.013	0.002	0.003	-0.002	-0.007	-0.009	-0.002	-0.016	1								
score_decision	-0.019	0.015	0.002	0.003	-0.002	-0.006	-0.006	0.006	-0.012	0.840	1							
Score_monitoring	0.018	-0.002	0.004	0.003	0.001	-0.005	-0.007	-0.004	-0.040	0.733	0.608	1						
delegation	0.025	-0.066	0.001	-0.001	0.001	-0.001	0.002	-0.021	-0.005	0.100	0.075	0.139	1					
soft information	0.000	-0.018	-0.001	0.000	0.003	0.002	0.001	-0.006	0.009	0.070	0.036	-0.037	0.100	1				
incentive	0.010	0.048	0.011	0.007	0.001	-0.005	0.007	0.012	-0.002	-0.079	-0.082	-0.139	-0.156	-0.091	1			
turnover	0.013	-0.090	0.004	0.004	0.009	0.000	-0.014	-0.023	0.013	0.023	0.014	0.031	0.260	0.023	-0.254	1		
distance	-0.037	-0.043	-0.004	0.008	-0.021	-0.023	-0.003	-0.011	-0.047	0.084	0.132	0.087	-0.074	-0.071	0.046	-0.178	1	
share of bank branches in the prov.	0.042	0.328	0.016	0.010	0.004	-0.008	0.084	0.119	0.169	0.035	0.085	-0.035	-0.154	-0.030	0.097	-0.121	-0.126	1
avg. collateral, by bank in the prov.	-0.011	-0.010	-0.005	0.005	-0.001	-0.016	0.056	0.003	0.115	-0.037	-0.074	-0.089	0.164	-0.024	-0.112	0.194	-0.086	0.050

Source: Cerved, Central Credit Register, Bank of Italy Survey on bank organization.

PROBABILITY OF RESTRUCTURING OUTSTANDING BANK DEBT Table 7

(Heckman and simple probit regressions; marginal effects for the restructuring equations)

	1	2	3	4	5	6	7	8
	baseline heckprob		probit of baseline	preferred heckprob	delegation (absolute)	share of the main bank	Scoring exogenous	scoring * delegation
	Selection	Restruct.	Restruct.	Restruct.	Restruct.	Restruct.	Restruct.	Restruct.
Financing costs/assets	7.492***	-1.311***	-0.881***	-1.341***	-1.366***	-1.348***	-1.395***	-1.299***
	[19.73]	*[5.88]*	*[5.99]*	*[5.99]*	*[6.10]*	*[6.02]*	*[5.83]*	*[5.941]*
ROA	0.152	0.399***	0.361***	0.401***	0.397***	0.393***	0.400***	0.389***
	[1.58]	*[4.41]*	*[5.18]*	*[4.41]*	*[4.38]*	*[4.35]*	*[4.43]*	*[4.289]*
Leverage	0.173***	-0.027*	-0.019**	-0.028**	-0.029**	-0.029**	-0.026**	-0.028*
	[22.9]	*[1.86]*	*[2.02]*	*[1.95]*	*[2.01]*	*[1.97]*	*[1.84]*	*[1.940]*
Size (log of tot. assets)	0.230***	-0.040***	-0.027***	-0.042***	-0.043***	-0.044***	-0.038***	-0.039***
	[36.04]	*[8.82]*	*[9.03]*	*[9.31]*	*[9.55]*	*[9.56]*	*[8.51]*	*[9.032]*
Collateral (single firm)	---	-0.189***	-0.172***	-0.193***	-0.182***	-0.195***	-0.192***	-0.190***
		[9.89]	*[9.97]*	*[10.05]*	*[9.33]*	*[10.14]*	*[10.05]*	*[10.011]*
Single (1 / 0)	---	0.070***	0.058***	0.071***	0.073***	0.063***	0.068***	0.070***
		[3.42]	*[3.17]*	*[3.48]*	*[3.56]*	*[3.08]*	*[3.31]*	*[3.417]*
Bank share	---	-0.190***	-0.157***	-0.190***	-0.194***	---	-0.189***	-0.188***
		[10.48]	*[10.02]*	*[10.49]*	*[10.67]*		*[10.44]*	*[10.463]*
Share of the main bank	---	---	---	---	---	-0.192***	---	---
						[10.59]		
Share of other banks	---	---	---	---	---	-0.277***	---	---
						[7.19]		
Scoring (1 / 0)	-0.163***	-0.029***	-0.027***	---		---	---	-0.046***
	[22.51]	*[3.69]*	*[3.76]*					*[4.459]*
Score_decision (1 / 0)	---	---	---	-0.087***	-0.070***	-0.087***	---	---
				[8.28]	*[6.43]*	*[8.25]*		
Score_monitoring (1/0)	---	---	---	0.115***	0.099***	0.116***	---	---
				[8.48]	*[7.34]*	*[8.46]*		
Score exogenous						---	-0.027***	---
							[3.61]	
Delegation (relative)	0.409***	0.258***	0.209***	0.122***	---	0.121***	0.208***	0.153***
	[10.49]	*[6.12]*	*[5.57]*	*[2.72]*		*[2.71]*	*[5.09]*	*[2.798]*
Delegation (absolute)	---	---	---	---	0.018***	---	---	---
					[7.15]			
Scoring*delegation						---	---	0.204***
								[2.725]
Soft information (1 / 0)	0.015**	0.011	0.003	0.018***	0.013*	0.019***	-0.002	0.011*
	[2.59]	*[1.59]*	*[0.56]*	*[2.75]*	*[1.95]*	*[2.75]*	*[0.34]*	*[1.672]*
Incentive (1 / 0)	0.009	0.025**	0.023**	0.040***	0.031**	0.040***	0.029**	0.018*
	[0.90]	*[2.46]*	*[2.49]*	*[3.81]*	*[2.87]*	*[3.78]*	*[2.77]*	*[1.749]*
Turnover	-0.007***	0.000	0.000	0.000	0.000	-.0001	0.000	0.000
	[23.44]	*[0.64]*	*[0.32]*	*[0.37]*	*[1.37]*	*[0.40]*	*[0.33]*	*[0.214]*
Distance	-0.054***	-0.009***	-0.015***	-0.009***	-0.010***	-0.009***	-0.011***	-0.008***
	[25.13]	*[3.65]*	*[7.95]*	*[3.88]*	*[4.02]*	*[3.91]*	*[4.80]*	*[3.381]*
Small banks in groups	-0.332***	-0.003	-0.023***	-0.001	0.018*	-0.001	-0.014	-0.007
	[38.86]	*[0.73]*	*[2.80]*	*[0.12]*	*[1.79]*	*[0.12]*	*[1.49]*	*[0.754]*
Small banks	-0.372***	0.015	-0.016	0.012	0.037*	0.012	-0.002	0.020
	[20.17]	*[0.71]*	*[0.90]*	*[0.54]*	*[1.69]*	*[0.56]*	*[0.12]*	*[0.951]*
Cooperative banks	-0.543***	0.068***	0.018	0.087***	0.139***	0.086***	0.057***	0.072***
	[35.45]	*[3.88]*	*[1.29]*	*[4.93]*	*[8.20]*	*[4.90]*	*[3.21]*	*[4.187]*
Bank share in the prov.	7.173***	---	---	---				---
	[163.23]							
Avg. collateral	-0.122***	---	---	---				---
	[6.94]							
Rho		-0.151***		-0.165***	-0.169***	-0.166***	-0.143	
Uncensored and total obs.	29,491 340,736		29,491	29,491 340,736	29,515 340,960	29,491 340,736	29,491 340,736	29,491 340,736

The regressions also include the constant as well as regional, sector and year dummies. Robust z statistics are in brackets. Standard errors are adjusted for clustering in firms. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 8

RESTRUCTURING AND FINANCIAL DISTRESS: ROBUSTNESS CHECK

(Heckman selection estimation, restructuring equations. Marginal effects)

	1	2	3	4	5	6	7
	sample up to 10 million	sample 10 to 50 million	restructuring on credit granted	restructuring before *t+3*	restructuring only maturity extension	restructuring with new finance	only firms out of distress at *t+3*
Financing costs on assets	-1.417**	-1.253**	-1.637***	-1.573***	-0.601***	-1.465***	-0.402
	[5.96]	*[2.26]*	*[7.34]*	*[6.98]*	*[3.13]*	*[6.48]*	*[-1.31]*
ROA	0.350***	0.509*	0.448***	0.433***	0.280***	0.379***	0.475***
	[3.75]	*[1.74]*	*[4.59]*	*[4.25]*	*[3.31]*	*[4.17]*	*[4.01]*
Leverage	-0.043***	-0.023	-0.009	-0.039**	0.017*	-0.041***	-0.009
	[2.67]	*[1.29]*	*[0.70]*	*[2.33]*	*[1.84]*	*[2.76]*	*[-0.70]*
Size (log of total assets)	-0.049***	-0.077***	-0.025***	-0.049***	-0.007*	-0.044***	-0.033***
	[8.15]	*[5.32]*	*[5.61]*	*[-10.81]*	*[1.90]*	*[9.54]*	*[-5.63]*
Collateral (bank-firm level)	-0.185***	-0.188***	-0.203***	-0.188***	-0.106***	-0.160***	-0.227***
	[8.66]	*[4.36]*	*[10.95]*	*[9.16]*	*[6.19]*	*[8.31]*	*[-8.41]*
Single (1 / 0)	0.068***	0.001	0.004	0.066***	-0.030*	0.124***	0.068**
	[3.14]	*[0.02]*	*[0.23]*	*[3.43]*	*[1.84]*	*[5.90]*	*[2.42]*
Bank share	-0.178***	-0.245***	-0.057***	-0.209***	0.012	-0.261***	-0.223***
	[9.13]	*[5.24]*	*[3.20]*	*[11.76]*	*[0.85]*	*[13.93]*	*[-8.96]*
Score_decision (1 / 0)	-0.070***	-0.160***	-0.060***	-0.108***	-0.082***	-0.080***	-0.088***
	[5.97]	*[6.82]*	*[5.67]*	*[10.19]*	*[8.90]*	*[7.65]*	*[-6.07]*
Score_monitoring (1 / 0)	0.092***	0.204***	0.083***	0.134***	0.099***	0.111***	0.118***
	[5.88]	*[7.46]*	*[6.04]*	*[10.48]*	*[6.93]*	*[7.94]*	*[6.40]*
Delegation (relative)	0.089*	0.230**	0.209***	0.082*	0.189***	0.094**	0.070
	[1.76]	*[2.41]*	*[4.71]*	*[1.86]*	*[4.71]*	*[2.13]*	*[1.15]*
Soft information (1 / 0)	0.024***	-0.001	0.019**	0.006	0.011*	0.018***	0.023**
	[3.04]	*[0.08]*	*[2.92]*	*[0.88]*	*[1.85]*	*[2.71]*	*[2.48]*
Incentive (1 / 0)	0.053***	-0.006	0.039***	0.036***	0.053***	0.034***	0.042***
	[4.37]	*[0.29]*	*[3.71]*	*[3.49]*	*[5.71]*	*[3.29]*	*[2.81]*
Turnover	0.000	-0.001	-0.001**	0.000	-0.001***	0.000	0.000
	[0.18]	*[1.23]*	*[2.17]*	*[0.30]*	*[3.36]*	*[0.18]*	*[-0.79]*
Distance	-0.012***	-0.006	-0.008***	-0.010***	-0.008***	-0.008***	-0.011***
	[4.09]	*[1.21]*	*[3.51]*	*[4.08]*	*[3.74]*	*[3.30]*	*[-3.15]*
Small banks in groups	-0.007	0.019	-0.009	-0.008	-0.030***	0.004	-0.011
	[0.66]	*[0.94]*	*[0.95]*	*[0.88]*	*[3.62]*	*[0.39]*	*[-0.79]*
Small banks	0.014	0.009	-0.027	0.009	-0.015	0.012	-0.026
	[0.60]	*[0.18]*	*[1.29]*	*[0.42]*	*[0.83]*	*[0.59]*	*[-0.86]*
Cooperative banks	0.083***	0.101**	0.050***	0.056***	0.023	0.091***	0.077***
	[4.21]	*[2.61]*	*[2.92]*	*[3.35]*	*[1.39]*	*[5.12]*	*[3.25]*
Rho	-0.137***	-0.281***	-0.180***	-0.153***	-0.170***	-0.161***	-0.1461***
Uncensored	22,285	7,241	29,491	29,491	29,491	29,491	14,857
and total obs.	285,496	55,240	340,736	340,736	340,736	340,736	172,605

The regressions also include the constant, as well as regional, sector and year dummies. Robust z statistics are in brackets. Standard errors are adjusted for clustering in firms. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9

RESTRUCTURING AND FINANCIAL DISTRESS: FIXED EFFECTS FOR FIRMS OR BANKS

(Linear probability models)

Fixed effects for firms	
Collateral (bank-firm level)	-0.130***
	[6.11]
Bank share	-0.128***
	[6.37]
Scoring (1 / 0)	-0.033***
	[3.49]
Delegation (relative)	0.135***
	[2.81]
Soft information (1 / 0)	0.013*
	[1.71]
Incentive (1 / 0)	0.022*
	[1.78]
Turnover	-0.000
	[0.80]
Distance	-0.014***
	[5.52]
Small banks in groups	-0.016
	[1.53]
Small banks	-0.011
	[0.45]
Cooperative banks	0.044**
	[2.43]
n. observation	22,250
n. of groups	7,702
The regressions also include the constant.	

Fixed effects for banks	
Financing cost on assets	-0.933***
	[6.46]
ROA	0.294***
	[4.93]
Leverage	-0.019**
	[2.33]
Size (log of total assets)	-0.027***
	[9.56]
Collateral (bank-firm level)	-0.114***
	[7.40]
Single (1 / 0)	0.065***
	[3.83]
Bank share	-0.172***
	[11.46]
Scoring in the year of restructuring	-0.0533***
	[2.96]
Distance	-0.019***
	[8.85]
no. observations	29,491
n. of groups	270
The regressions also include the constant, as well as regional, sector and year dummies.	

T- statistics are in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 10

NEW CREDIT TO FIRMS IN DISTRESS

(bivariate probit and Tobit estimation)

	1	2	3	4
	new credit without sample selection correction	new credit with sample selection - baseline specification	new credit with sample selection - preferred specification	tobit estimates (marginal effects)
Financing cost on assets	-9.162***	-31.579***	-29.153***	-2.584***
	[8.93]	*[5.75]*	*[5.53]*	*[11.33]*
ROA	0.387	7.306***	6.430***	0.522***
	[0.94]	*[3.95]*	*[3.87]*	*[4.78]*
Leverage	-0.522***	-0.991***	-0.946***	-0.129***
	[3.26]	*[5.04]*	*[4.92]*	*[7.93]*
Size (log of total assets)	-0.123***	-0.812***	-0.763***	-0.059***
	[6.98]	*[4.64]*	*[4.59]*	*[12.66]*
Collateral (bank-firm level)	0.112*	-3.347***	-2.947***	-0.210***
	[1.64]	*[3.84]*	*[3.71]*	*[7.45]*
Single (1 / 0)	1.898***	3.119***	2.982***	0.384***
	[18.37]	*[9.40]*	*[9.69]*	*[13.33]*
Bank share	-2.561***	-5.858***	-5.434***	-0.628***
	[25.98]	*[6.97]*	*[7.16]*	*[23.97]*
Scoring (1 / 0)	-0.046	-0.554***	---	---
	[1.26]	*[4.07]*		
Score_decision (1 / 0)	---	---	-1.482***	-0.124***
			[4.18]	*[7.93]*
Score_monitoring (1 / 0)	---	---	1.861***	0.144***
			[4.08]	*[7.52]*
Delegation (relative)	0.097	4.465***	1.762***	0.133**
	[0.50]	*[4.02]*	*[3.52]*	*[2.16]*
Soft information (1 / 0)	0.026	0.212***	0.315***	0.019**
	[0.80]	*[3.69]*	*[3.91]*	*[1.98]*
Incentive (1 / 0)	0.086	0.529***	0.704***	0.054***
	[1.96]	*[4.49]*	*[4.31]*	*[3.55]*
Turnover	0.000	0.003**	-0.002*	-0.000
	[0.01]	*[2.01]*	*[1.35]*	*[0.99]*
Distance	0.006	-0.142***	-0.132***	-0.017***
	[0.60]	*[3.62]*	*[3.48]*	*[5.89]*
Small banks in groups	0.020	-0.038	-0.001	-0.026**
	[0.46]	*[0.80]*	*[0.03]*	*[2.04]*
Small banks	-0.071	0.200*	0.076	-0.043
	[0.83]	*[1.80]*	*[0.76]*	*[1.49]*
Cooperative banks	-0.083	1.056***	1.188***	0.024
	[1.31]	*[3.56]*	*[3.56]*	*[1.09]*
Blamda1	---	-1.019***	-0.977***	---
		[3.96]	*[3.87]*	
Blamda2	---	9.329***	8.153***	---
		[3.98]	*[3.86]*	
Observations	9,117	9,117	9,117	29,491
R-squared	0.125	0.127	0.127	0.026

The regressions also include the constant as well as regional, sector and year dummies. Robust z statistics are in brackets. Standard errors are adjusted for clustering in firms. * significant at 10%; ** significant at 5%; *** significant at 1%.

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