

Joint size and ownership specialization in bank lending*[♥]

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Abstract

In this paper we study organizational diversity in size and ownership of Spanish banks that lend to non-financial firms. During the period 1996-2003 consolidation reduces size diversity but diversity in ownership forms increases. We find that size of the borrower-size of the bank specialization decisions follow a different pattern in savings banks than in commercial banks, suggesting lower organizational diseconomies of size in the former than in the latter, which helps to explain the increase in diversity over time. We also find that savings banks and cooperatives specialize relatively more in relational lending while commercial banks seem to favor transactional lending.

JEL classification: D23, G21

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1. Introduction

The banking industry involves banks of different size and ownership. One way to reconcile the persistent diversity in organizational forms with the presumption that size and ownership matter as organizational choices, is to recognize that banking services are not an homogeneous commodity and that diversity in organizational forms reflects opportunities for market segmentation and specialization. Previous research has focused in the size of the bank–size of the borrower specialization dimension, so that small banks tend to specialize in small and more opaque firms while large banks lend mostly to large and informational simpler firms (see Berger (2004) for a review¹). Some times the distinction is made between *relational lending*, where decisions on loan requests are based in soft information collected through close borrower-bank relationships, and *transactional lending*, where loan decisions are based in hard data and distant bank–borrower relationships². Much less is known about the possible specialization of banks of different ownership forms (some significant exceptions are Carey et al (1998), Esty (1997a,b)), while the joint specialization of banks by size and ownership form has not been investigated so far.

This paper studies diversity and specialization in the supply side of the market of bank credit to Spanish non-financial firms in the period 1996 to 2003, combining the two dimensions of size and ownership form of the banks. The case study is particularly relevant because in Spain, besides diversity in sizes of banks, there is also a significant diversity of forms of ownership (i.e. commercial for-profit banks, not-for-profit savings banks and credit cooperatives), with no clear dominance of one form over the others. In fact, during the period of study, not-for-profit savings banks increase their share in new loans to non-financial firms from 31.5% in 1996 to 44.9% in 2003, while credit cooperatives increase their share from 2.5% to 4.1% in the same time period (so commercial banks decrease their market share in new loans from 66% to 51%). The period 1996 to 2003 witnesses intense merger activity involving banks of all sizes, and in particular mergers among very large commercial banks, within a generalized process

¹ Within this literature one of the main concerns has been the potential contraction in bank lending to small and medium size firms resulting from bank mergers and acquisitions, Berger et al (1998), Strahan and Weston (1998), Sapienza (2002).

² The implications of transactional versus relational lending are evaluated in Sharpe (1990), Rajan (1992), Boot and Thakor (2000) and Berger and Udell (2002)

of market consolidation: in 1996 large and very large banks, those with 25,000 million euros in loans or more, granted 42% of the amount of new loans in the year but in year 2003 the share of these banks in new loans rose to 60%. This occurs at the same time that banks deploy an aggressive geographical expansion strategy, so in 1996 the average distance from the headquarters of the banks to the province where the headquarters of the firm that gets the loan is located was 266 Km, while in 2003 the average distance rose to 347 Km, which explains that bank consolidation left unchanged the level of competition in province market.

The revealed comparative advantage of savings banks and credit cooperatives in the market of credit to non-financial firms, in terms of increasing market shares in new loans over time at the expense of commercial banks in a period of intense competition and bank consolidation, poses a puzzle: Savings banks and cooperatives have looser property rights, compared with that of shareholder-controlled commercial banks, and the ex ante prediction would be that under full market liberalization, intense competition and low money market interest rates, commercial banks with tight property rights will competitively outperform banks with other ownership forms. Moreover, in the late eighties, when credit markets and retail banking in general were fully liberalized, savings banks and cooperatives did not have hardly any experience in business lending. So the ex post winners of the competitive race were in clear disadvantage at the start of the course. The investigation in size and ownership specialization of banks presented in this paper provides some light in understanding the recent evolution in organizational diversity within the Spanish market of credit to non-financial firms.

Bank specialization in business loans is studied through the combined dimensions of ownership form and size of the bank. Altogether, seven possible choices are identified, four size classes in commercial banks, two in savings banks and one in cooperatives. The credit market is described in terms of the likelihood of observing one alternative of the seven available in a particular loan decision, as a function of the characteristics of borrowers and loans and a set of control variables. We test whether commercial banks, savings banks and credit cooperatives of similar size lend differently to particular segments of borrowers, and whether within each ownership form, size matters as a specialization variable, and whether it matters in the same way for all ownership forms. Geographic expansion and growth during the period of study affect mainly to savings

banks. Large and geographically dispersed banks will be affected by agency costs of delegating loan decisions based on soft information to distant branch managers, Stein (2002), Brickley et al (2003). Our interest in the paper is to find out if organizational diseconomies of size in credit decisions affect differently or not to commercial and to savings banks.

Size and ownership can also account for possible differences in risk shifting behavior and reputation concerns among banks. The main hypothesis is that, within one size class, non-shareholder ownership forms, and, in particular, organizations with stronger workers' control, such as savings banks and credit cooperatives, as well as manager-controlled commercial banks, will be more conservative than shareholder-owned commercial banks in loan granting decisions, Jensen and Meckling (1976)³. Secondly, as in Carey et al (1998), we also test whether reputation affects the lending specialization of savings banks compared with commercial banks. Not-for-profit savings banks are expected to be more trustworthy than commercial banks, Hansmann (1996). To preserve a reputation of reasonableness in loan renegotiations (i.e. to make credible the promise not to extract maximum income in these renegotiations) savings banks are less likely than commercial banks to force defaulting borrowers into liquidation and, therefore, more likely to continue granting loans to borrowers with loans in default (ex post high risk borrowers).

The paper uses a unique database, the Credit Register (CIR) of Banco de España, which contains information on the whole population of loans (except those below 6,000 euros) granted to non-financial firms by any credit institution operating in Spain each year from 1996 to 2003⁴. Only Berger and Udell (1996), Carey et al (1998), and Cole et al (2004) use individual loan data in previous empirical work⁵. We focus on new loans granted during the period, instead of analyzing the whole stock of loans. This has important advantages in studying size specialization by banks and firms, since the flow of new loans captures changes more rapidly than the total stock of bank loans. For each

³ Risk shifting behavior, to increase shareholder value by undertaking risky projects that lower the economic value of debt under limited liability of the firm is more likely in highly leveraged firms such as banks.

⁴ A detailed analysis of the content of the CIR is in Jiménez and Saurina (2004) and Jiménez et al (2006).

⁵ We are unable to observe loan applications that have been rejected by banks so we cannot separate the application and the approval or rejection decisions of loans. Cole et al (2004) find similar results when the

loan granted we know the amount of the loan and the size of the borrower, so we can isolate the effects of both variables in the specialization decision.

We find that both size and ownership form are relevant dimensions to explain bank specialization. As commercial banks increase their size, they focus more on loans to larger borrowers (informational simple); but that is not the case for the largest banks. Among savings banks, the larger their size, the more likely they are to lend to borrowers of smaller size (informational complex). Overall, controlling for size, savings banks and credit cooperatives specialize more in small borrowers than commercial banks. Therefore, the ownership form of the bank affects in a different way the specialization decisions within the information-problematic borrower dimension (size of the borrower). Second, we find that medium size savings banks and credit cooperatives are more likely to lend to borrowers of observed ex ante low credit quality than commercial banks of the same size. The likelihood of granting a loan by savings banks and cooperatives, compared with commercial banks of equal size, is higher in loans with collateral than in loans with no collateral. These results are consistent with higher reputation concerns among savings banks and cooperatives than among commercial banks. However, no evidence is found to support the hypothesis that ownership form conditions lending specialization through different incentives for risk shifting behavior.

The evidence that the size of a savings bank increases the likelihood of lending to a small borrower, the opposite to what we observe among most of the commercial banks, suggests that savings banks have lower organizational diseconomies of size than commercial banks. This does not contradict with the hypothesis that savings banks can better pursue objectives different from profit maximization than shareholders controlled commercial banks. It only implies that whatever the objective function of the bank, maybe savings banks are more efficient in accomplishing the objective than commercial banks, presumably with higher internal agency and supervision costs. Moreover, the intense competition in the credit market, including competition of savings banks among themselves after their geographical expansion all over the country, may have forced savings banks to minimize costs in response to such competition.

approval-rejection decision is explained jointly with the application decision and when it is explained separately, which suggests that it is banks who choose the borrower they want to do business with.

The rest of the paper is organized as follows. Section 2 contains some stylized facts about new loans to Spanish non-financial firms and a summary of ownership characteristics of banks in Spain. Section 3 summarizes the literature and states the main hypotheses to be tested. Section 4 explains the variables and methodology used while section 5 presents the results of the empirical tests. Finally, section 6 presents the conclusions.

2. Institutional framework and credit market data

Among Spanish banks we have three forms of ownership, commercial banks, savings banks and credit cooperatives. Commercial banks are companies owned by shareholders. Savings banks are not-for-profit commercial organizations (Hansmann (1996)); commercial, because they are subject to the same regulatory and competitive conditions as other ownership forms; not-for-profit, because the profits they make go either retained earnings or are paid as a “social dividend” (for social or cultural programs to the benefit of the community). Credit cooperatives may be considered as mutual thrifts.

In commercial banks, residual decision rights belong to the shareholders who may in turn delegate them to the management team. In savings banks the decision rights are allocated to a General Assembly of representatives elected by public authorities (up to 50%), by depositors, by workers and by the founding entity (which may be a civic, religious or government-related organization). The General Assembly elects the Board of Directors, which in turn elects the management team. In credit cooperatives residual decision rights belong to the creditors. They are banks that were first created to lend to producer cooperatives in the agricultural sector and, at the same time, to provide banking services in rural areas. Farming cooperatives were the formal owners of the bank under limited liability, but with severe restrictions on the banking operations they were allowed to perform. In many cases, farming cooperatives and individual partners also held deposits in the bank. Therefore, the closest organization that credit cooperatives resemble to is a mutual company of borrowers. Today, credit cooperatives can perform the same banking operations as savings and commercial banks.

Banks also differ in size. For the purpose of this study we group banks into four size classes: Small, banks with €1,000 million in total loans or less; Medium, banks with between €1,000 and 25,000 million of loans; Large, with loans above €25,000 million, and Very large, banks that also have loans above € 25,000 million. The size class monetary limits are set in constant 2003 prices so that they are adjusted to account for inflation⁶. The distinction between the last two groups of banks is based on the fact that very large banks are those that in addition have been involved recently in mega-mergers. That is, four of the largest commercial banks in Spain in 1999 and 2000 entered into two merger processes that ended in two very large banks, well ahead in terms of total assets, customers, etc. of the following third and subsequent banks.

Loan data refers to the flow of new loans granted by any Spanish bank to non-financial firms each year from 1996 to 2003 registered in the CIR. For each loan, information is available about the size and ownership form of the lender; the size, credit quality, industry and region of the borrower; and about characteristics of the loan such as size, maturity and collateral. The interest rate charged on the loan is not available.

Volume and general characteristics of loans

In 1996 new bank loans of one year maturity or more, to non-financial firms amounted to € 36,239 million, approximately 7.8% of the Spanish GDP. Seven years later, in 2003, that amount was almost four times larger, €127,935 million, 17.2% of the GDP. In the same period, the number of new loans rose from 186,147 to 400,789, as well as the average size of the loan (from €195,000 to €319,000). By industry, Construction and Real Estate concentrates more than one third of the amount of new loans granted annually although less than one fourth of the number of loans. New loans to Retail industries (i.e. commerce, restaurants, ...), concentrate almost one third of the number of loans but only represent one fifth in amount. In the eight-year period 44.2% of the

⁶ In choosing size breakdowns we depart from the existing (US) literature in two aspects. First of all, given that we are analyzing loan specialization, we use the loan portfolio of the bank as the reference for the size breakdown. Two banks with the same size of loan portfolios may differ substantially in total assets if interbank positions are large and of opposed signs. Secondly, we adapt the cut off points to the Spanish market where we do not have unibranch banks and, thus, banks are not extremely small as implied by the breakdowns used in the US literature (Berger et al (2001, 2002), among others). On the other hand, we have some very large banks both in absolute and relative terms so that the limit of 10 billion of assets often used to separate small from large banks would not properly capture the size distribution of Spanish banks.

loans granted are short term (maturity up to three years), 22.2% are medium term (maturity between 3 and 5 years); and 33.6% are long term (maturity above 5 years). However, long term loans concentrate higher volume of total lending since the size of loans increases with maturity. Finally, 42% of the amount of new loans has been secured with collateral, slightly more than one fourth of the number of loans.

The distribution of credit across loan size groups (Table 1, Panel A) shows a steady relative decline in terms of amount for the two smallest size classes (below €100,000). Both concentrate almost 70% of the total number of loans but only 7.8% of the volume of credit. In 2003 the proportion of loans over €2 million, the largest size class, is 2.5% but 56.4% of the volume of credit. Borrowers of small and medium size (less than €1 million of total credit at 2003 prices) concentrate 87% of the loans but only 20.3% of the volume of new credit (Table 1, Panel B). Very large borrowers (those with a balance of over €20 million) concentrate 0.7% of the loans and 41.2% of the amount of credit.

In the period 1996 to 2003 the Spanish banking sector has experienced a consolidation process, so that in 1996 there are 277 active banks and in 2003, only 212 (Table 1, Panel C). The consolidation process has affected mostly small and very large banks. The number of large banks increases over time from just 3 banks in 1996 to 12 banks in 2003. This increase is the result of organic growth of medium size banks. From 1996 to 2000 large banks increase their market share (from 17.3% to 30.7%) mainly at the expense of medium and small size banks (from 58.1 to 48.1%). The expansion of large banks continues after 2000, but now more at the expense of very large banks, those that merge, whose market share in terms of volume of loans decreases from 21.2% in 2000 to 14.7% in 2003.

Market share across size classes of borrowers

Table 2 shows the time evolution of market share of banks in each size class across groups of borrowers of different size. In 1996, the amount of new credit to small and medium size borrowers originated in almost two thirds of cases in small and medium banks. On the other hand, the largest borrowers received more than 50% of the flow of new credit from small and medium banks and 20% and 26.2% from large and very large banks, respectively. Thus, small and medium size banks were relatively more important

in financing small and medium size borrowers. By 2003 the situation changed significantly. Small and medium size banks together supply less than 40% of the new credit to small and medium size borrowers. Moreover, large and very large banks provide around 60% of the new credit obtained by large and very large borrowers. Therefore, in 2003, within banks of a given size class, the share of credit is similar across borrowers of different sizes. Conclusions do not change when size of the borrower is substituted by size of the loan.

The relationship between size of banks and size of borrowers they lend to can also be seen from the distribution of credit to borrowers of different size for banks within a size class (Table 3). The group of very large banks shows the lowest percentage of all credit they grant concentrated in borrowers of small and medium size, and the proportion is lower after 2000. On the other hand, small and medium size banks tend to concentrate a higher proportion of their credit in smaller borrowers. However, after the year 2000, small banks increase the proportion of credit concentrated in very large borrowers, while very large banks decrease it. Therefore, there is a change towards a more homogeneous distribution of loans among borrowers of different size, in each size class of banks. So, larger banks tend to lend relatively more to larger companies, as in the U.S. empirical literature (Berger et al (1995), Berger and Udell (1996), Peek and Rosengren (1996) and Strahan and Weston (1996)), but in Spain the specialization effect is not so pronounced as in the US.

Market share across ownership form

In 1996 commercial banks have 66% of market share in new loans to non-financial firms; savings banks 31.5% and cooperatives 2.5% (Table 4). In 2003 commercial banks continue with the largest market share but the differences have been reduced: 51%, 44.9%, and 4.1%, respectively. The loss in market share of commercial banks is not so pronounced in terms of number of loans. Therefore, savings banks and cooperatives gain proportionally more market share in larger loans (and borrowers).

Commercial banks have the largest market share in any borrower class size in almost all the period (Table 4), although the differences with other ownership forms change over time. In 1996 small and medium size borrowers receive, on average, over 53% of the

amount of the new credit they get from commercial banks, 41% from savings banks and 6% from cooperatives. Very large borrowers get 74.1% of their credit from commercial banks, 25.2% from savings banks and 0.7% from cooperatives: Savings banks and cooperatives have a substantially higher market share among small and medium size firms than among very large ones. Seven years later the situation has changed and savings banks have a very similar market share across all borrowers size classes (around 45%), while dispersion of market shares of commercial banks across borrowers of different size is also significantly lower in 2003 than it was in 1996 (the range in 2003 goes from 46.6% of total loans to small borrowers, to 53.5% of loans to large ones); cooperatives continue their relative specialization in small borrowers. Overall, the conclusion is that during the time period considered any potential competitive advantage of ownership forms across borrowers of different size has been progressively reduced.

Table 5 shows the distribution of credit across borrower sizes for each form of bank ownership. Savings banks and cooperatives have a larger proportion of their new credit to firms concentrated in small and medium size borrowers than commercial banks. That pattern is maintained over time. However, the differences are progressively reduced and in the year 2003 commercial banks concentrate 43.3% of the volume of new loans in very large borrowers, while savings banks concentrate 41.3%. Savings banks and cooperatives increase over time the proportion of total new loans they grant to large and very large borrowers. Commercial banks maintain almost stable the proportion of total credit they grant to small and medium size borrowers, while they reduce their credit to very large borrowers and increase the proportion to large ones.

The preliminary evidence shown suggests that size and ownership form of the bank can affect bank specialization. Moreover, the pattern of specialization appears to be different from that observed in other studies from the U.S. The organization of American bank credit markets is different, more fragmented into a large number of small banks and with more homogeneous general intermediaries, in the language of Carey et al (1998). In Spain banking markets are more concentrated and the consolidation process has affected both small and very large banks. Liberalization of branch opening for savings banks in 1988, as the final step of a broad liberalization process, coincides with a period of increasing ownership differentiation in Spanish

credit markets, with savings banks and credit cooperatives increasing market share at the expense of commercial banks.

The rest of the paper will go into a deeper multivariate analysis of the bank specialization, after an overview of the main theoretical hypotheses on its determinants. The explanation of individual loan decisions will be made in terms of characteristics of banks, loans and borrowers, so that we can isolate the influence of each of them in the decision, controlling for given values of the others.

3. Literature review and general hypotheses

Previous research relates the size of bank/size of borrower specialization decision with the comparative advantage of banks of different size in using one of the two main lending technologies, transactional or relational. Much less is known about the comparative advantage of ownership in the use of one lending technology or the other. The ownership form of the bank, on the other hand, has been considered a relevant variable in explaining the risk exposure of banks as a consequence, partly, of risk taking behavior in lending decisions.

Transactional versus relational lending: specialization by lending technology

Banking literature has identified two basic lending technologies for banks: transactional lending, or arms-length contracts, and relational lending, implicit and long term contracts. Berger and Udell (2002) present a detailed review of the two⁷. Large banks tend to be recognized as having clear disadvantages when it comes to being involved in relational lending (Stein (2002)). Qualitative and contextual information used in a loan transaction flows at a high cost and with high control loss along hierarchical levels. Agency problems between branch managers (or loan officers) involved in the loan granting decision and profit oriented shareholders can be very severe and difficult to solve through managerial incentive contracts (Brickley et al (2003)). Large banks have to rely on hard, quantitative, data when dealing with borrowers, easy to verify by distant general managers who control branch officers and report to boards and shareholders. On

⁷ See also Sharpe (1990), Rajan (1992) and Boot and Thakor (2000).

the other hand, organizations with few hierarchical levels and short distance between residual claimants and decision-makers, such as small banks, can lower the loss of control in the hierarchy and for these banks concentrated ownership is expected to go together with broader decision making authority to local managers. If scale economies in transactional lending are modest, small banks can also be competitive in this technology, but if scale economies are large, small banks will have to limit their activity to relational lending. Moreover, regulations that limit the credit that a bank can concentrate in a single borrower curtail small banks to lend to large borrowers because the size of the loan is expected to increase with the size of the borrower.

In general, large firms are less opaque and informational simpler than small firms, in part because they tend to be older and have more accumulated trading experience. Small firms of high financial quality and low credit risk are likely to receive competitive loan offers from large banks with low operating costs⁸. Small borrowers of observable low credit quality may also have the opportunity to get involved in transactional lending with large banks, as long as the former are able to pledge easy-to-monitor collateral to secure the loan. Large, and small but transparent, firms are the borrowers most likely to be attracted by banks with transactional lending technologies.

Small firms without verifiable financial information, operating in local markets, physically and informational distant from the headquarters of a bank, become a segment of the credit market that can be left out of transactional lending. Small banks with low agency costs and low organizational diseconomies, but with potentially higher operating costs, have the opportunity to serve this segment of the market, investing in firm and product-market specific information and devoting resources to monitoring the value of collateral. This soft information is generated mostly through contact over time between bank loan officers and the firm, so relational lending is implemented through long and, often, exclusive relationships between the borrower and the lender.

⁸ Hannan (1991), Berger and Udell (1996) and Berger et al (2003) provide supporting evidence that large banks lend to small business at lower interest rates than small banks do. Berger and Udell (1996) for the US, Harhoff and Körting (1998) for Germany, and Jiménez et al (2006) for Spain, also find that the use of collateral is less likely among large banks than among small banks. This may be interpreted as evidence that large banks use cheaper transactional lending technologies to deal with relatively high quality small firms. We do not have information on interest rates of loans to test for this evidence.

The conclusion is that large banks will have lower market share than small banks in credit to small and medium size enterprises (SMEs) and larger market share than small banks in loans to large firms. If the size of the two markets, credit to opaque SMEs and credit to large firms and to transparent good quality small firms, are similar, large banks will have a lower proportion of loans to SMEs over total loans than small banks. The US empirical evidence supports this prediction (Berger et al (1995), Berger and Udell (1996), Strahan and Weston (1996), Cole et al (2004), Berger et al (2002), and Brickley et al (2003)).

Size related diversification may offset potential organizational diseconomies in relational lending. Large banks' superior ability to diversify credit risk across borrowers reduces the agency costs of lending to risky and opaque borrowers because diversification makes the bank (agent) more transparent to the depositor (principal), Diamond (1984), Strahan and Weston (1998). As we move from small to medium size banks, we can observe that banks increase their lending to smaller borrowers because the size-related diversification benefits dominate the negative effect from organizational diseconomies. However, beyond a certain size of the bank, the latter ones are expected to dominate and larger banks are more likely to specialize in larger borrowers.

H.1. Beyond a certain size of banks the comparative advantage of large (small) banks in transactional (relational) lending will make it more likely that large (small) banks lend to large (small) and informational simpler (opaque) borrowers.

Size and ownership form

An unexplored issue in the literature is the competitive advantage of using transactional or relational lending technologies by banks of equal size but different ownership forms. Spanish banking regulation put commercial, savings, and cooperative banks on a level playing field in 1989. Until then, savings banks had been banned from expanding beyond certain geographical and industry boundaries and for a long time their credit policies were dictated by public authorities. After full liberalization, savings banks and cooperatives compete openly with commercial banks in all business segments. The final result, that was difficult to predict years ago, has been a steady increase in market share in a profitable and solvent way.

It may be expected that not-for-profit savings banks with loose property rights as a consequence of their unique ownership, will have lower operating efficiency than for-profit shareholder-controlled banks, since managers and workers of these organizations do not face the supervision of profit motivated shareholders, as managers and workers of commercial banks do. But, at the same time, both forms of ownership are subject to strong product market competition and, since their geographical expansion savings banks compete among themselves in practically all local markets. Inefficient banks are forced out of the market, including savings banks for whom mergers with other savings banks is observed to be a more effective governance mechanism than in the case of commercial banks⁹.

Savings banks are close to workers' cooperatives in the sense that, together with managers, workers have almost absolute control over the assets of the bank. The bank provides life time employment, relatively high salaries and benefits, including retirement benefits and pensions, and high involvement in the management of the bank. Whatever the objectives of the organization might be (sound growth, higher wages and benefits per worker or higher profits to pay higher social dividend), one can believe that workers of savings banks are more motivated to pursue these objectives than workers of commercial banks (who work under more hierarchical structures, lower efficiency wages and higher risk of restructuring) are to maximize shareholders' profits.

Ownership form of the bank can imply differences in their respective organizational diseconomies, costs of delegated monitoring, and therefore, from H1, the likelihood of specialization in transactional or relational lending could be different across ownership forms of a given size. Looser property rights and potential conflicts between interested parties (workers and managers, public authorities, depositors, founding entities) in savings banks put them in comparative disadvantage relative to commercial banks in the use of relational lending technologies because they can derive into high control loss. On the other hand, if competition limits discretion of savings banks to deviate from profit maximization, and efficiency wages, specific human capital and worker participation

⁹ Crespí et al (2004) find that savings banks that merge have worse performance before the merger than those that do not merge. The propensity to merge for low performing savings banks is higher than for low

lower their agency costs compared with those in commercial banks, then relational lending will be more likely in savings banks than in commercial banks.

Given the conflicting arguments around the ownership form organizational diseconomies dimension, we formulate the hypothesis to be tested as if there is no difference in the size specialization hypothesis, H1, across ownership forms:

H.2. The size of the bank-size of the borrower specialization is the same across ownership forms.

Ownership form of the bank and risk taking

The payoffs of leveraged equity are equivalent to a call option on the assets of the firm (Black and Scholes (1973)). The value of the option increases with volatility in the value of the firm, so decisions that increase volatility and leave unchanged the expected value of the total assets imply a transfer of wealth from debt holders, mainly depositors in the case of banks, to residual claimants (Jensen and Meckling (1976)). Banks are highly leveraged and so their incentives to risk taking behavior may be higher than in other less leveraged firms. Incentives however may differ across forms of ownership if each form implies different alignment between the interests of those who hold control rights and interests of residual claimants. Saunders et al (1990) find that shareholder-controlled banks are riskier than manager-controlled banks because, in the former, residual claimants also hold decision rights. From the same reason, stock thrifts and stock insurance companies are expected to be riskier than mutual thrifts and mutual insurance companies (Esty (1997a, b), Lamm-Tennant and Starks (1993), Lee et al (1997)).

Among Spanish banks, commercial banks are the ones with the closest alignment between holders of control rights and residual claimants. Within commercial banks the alignment may be higher or lower depending upon the ownership structure of the commercial bank. Thus, banks under managers' control will have lower incentives to

performing commercial banks. On the other hand, the propensity of management and directors to leave the low performing banks is higher among commercial banks than among savings banks.

perform risk shifting practices than shareholder-controlled banks, since the former have control rights but no residual claims¹⁰.

Savings banks' managers and workers have control rights far beyond their ownership rights, mainly because representatives of depositors, of founding institutions and of public authorities, the groups in charge of monitoring managerial decisions nominating board's members, have neither the information nor the individual incentives (free riding behavior) to monitor managerial decisions and performance of the bank. To understand the risk taking behavior of the savings banks it is important to understand the incentives of workers and managers. Most of their current income comes in the form of salary, pension and other job-related benefits. These are fixed claims that align the interests of workers and managers with those of the depositors or other debt holders, so the incentives to get involved in risk shifting can be expected to be very low. Another moderating factor of risk taking behavior by savings banks is the fact that they cannot issue equity to compensate losses and comply with the minimum regulatory capital.

Individual borrowers of credit cooperatives may have incentives to free ride in taking risky loans, since the losses are shared by the rest of the members of the mutual company. However, knowing this, the other partners have incentives to closely monitor risky loans and avoid unsound risk taking. Since very often borrowers are also depositors of the bank, any potential gain from risk shifting behavior has to be weighted against the loss in the value of deposits. Credit cooperatives lack experience in open market competition, because regulation restricted their credit to some market segments (i.e. relatively small farming cooperatives operating in rural areas). For this reason, credit cooperatives are likely to be highly specialized in loans to relatively small borrowers. Credit cooperatives should be more conservative than commercial banks. The managerial teams have high discretion in making decisions but they are not residual claimants, and their human capital is highly specific.

In comparing the specialization of banks versus finance companies Carey et al (1998) raise the issue of reputation concerns when lending to borrowers of different ex ante

¹⁰ This is particularly true when the risk of bankruptcy is low. However, when the banking industry is in an "unhealthy" situation, Gorton and Rosen (1995) find that banks with entrenched managers make relatively riskier loans than shareholder-controlled banks.

observable credit risk. Since ex post loan renegotiation between banks and firms is very frequent even among good quality borrowers, in lending to ex ante risky borrowers banks will weight the benefits with the damage to the reputation of being fair in the ex post negotiation, which could cause the bank to be frequently involved in borrowers' liquidations. If reputation factors differ across banks depending on their ownership form then some specialization is expected so that those forms that value reputation most will tend to specialize in lower risk borrowers than those that value it least.

Savings banks and credit cooperatives are expected to have higher reputation concerns than commercial banks. Hansmann (1996) argues that not-for-profit banks may be explained as a way to restore trust in banking markets, so not-for-profit savings banks rely on trust as one of their comparative advantages. Second, boards of savings banks are filled with representatives of local and regional communities, especially those banks that concentrate most of their activity in a local or regional market, together with workers' representatives. Credit cooperatives are also mainly local banks. Therefore, savings banks and cooperatives face higher social pressure to take into account community interests in their credit decisions than commercial banks.

The public image of savings banks and credit cooperatives would be damaged, as well as their reputation of being gentle in loan renegotiations, if they frequently forced borrowers into liquidation. Public authorities often claim that savings banks have, as one of their missions, to contribute to the economic development of the region where they have banking activity. Political representatives ask savings banks to participate in projects of "social interest" and/or contribute to save jobs extending credit to local firms even though they have visible problems to repay the loans. Of course, the political pressure has to be compatible with the solvency requirements and risk taking constraints imposed by the regulator (Banco de España), but political interference adds pressure on savings banks and credit cooperatives to grant new loans to defaulting borrowers.

Being aware of concerns about reputation and social pressure to stop lending to ex post observable low credit quality borrowers, savings banks and credit cooperatives will try to limit their risk exposure ex ante, specializing in lower risk borrowers and/or will try to lower the incentives to moral hazard behavior of those borrowers that receive a loan by asking for more collateral. Therefore, reputation and social pressure concerns

increase the likelihood that loans with collateral will more often be granted by savings banks and credit cooperatives than by commercial banks.

H.3. Savings banks and credit cooperatives are less likely to lend to borrowers of ex ante low credit quality and more likely to lend to borrowers of observed low credit quality, for example, those that have loans in default, than commercial banks. Savings banks and credit cooperatives are more likely to grant a collateralized loan than commercial banks.

4. Variables and methodology

To test the hypotheses listed above we randomly select a stratified representative sample of loans out of the population of new loans to business firms. Sampling is needed to keep the number of observation within a manageable number. The stratification criteria are based on some variables used for the multivariate analysis, such as year, region, bank size classes and form of ownership, collateral, maturity, industry, etc. The final selected sample is around 10% of the total population (number and amount) of new loans to non-financial firms.

The dependent variable, *Type of lender*, is the choice of size and ownership of the lender for each loan granted to non-financial firms by Spanish banks every year from 1996 to 2003. Banks are grouped in size classes and ownership forms as reported in section 2. A closer look at the data reveals that in the group of small banks practically all of them are commercial banks. All the cooperatives concentrate in the medium size class, while savings banks are distributed in the size classes medium and large. Commercial banks are in all size classes and are the only ones included among very large banks. *Type of lender* is, thus, divided into seven classes. Class 1 includes small commercial banks, Class 2 medium commercial banks, Class 3 large commercial banks, Class 4 very large commercial banks, Class 5 medium savings banks, Class 6 large savings banks, and Class 7 medium cooperatives.

Size of the borrower and *Size of the loan* approximate the information complexity of the borrower. *Size of the borrower* is measured by the total bank debt of the borrower when

the loan is granted¹¹. Larger borrowers are better suited to be served by banks that specialize in transactional lending (i.e. large banks). *Size of the loan* is equal to the disposable value of the loan when it is granted.

Collateral takes the value of 1 if the loan is granted with collateral and 0 otherwise. Empirical evidence associates the use of collateral with borrowers of lower credit quality (Berger and Udell (1990), Jiménez et al (2006)). If banks with transactional lending technologies specialize in transparent and high quality borrowers, then we expect to find fewer banks with transactional lending technologies, large banks, in loans with collateral. Longer maturity implies more informational complex loans and, in general, higher risk for the lender. *Long Term*, that takes the value of 1 if the loan has maturity of five years or more and 0 otherwise. Controlling for the variable *Collateral*, we assume that *Long Term* loans are more informational complex and riskier than the rest of loans.

Under their request, the CIR informs banks about the current default status of their potential new borrowers. Borrowers of observed low credit quality at the time they receive a loan include those that have at least a loan in default at the time they receive a new one. The dummy variable *Default_{t-1}* (ex ante default) takes the value of 1 for those borrowers that get a loan being in default of previous ones, and 0 otherwise. We interpret that banks more willing to lend to borrowers with loans in default are also the banks more concerned with reputation or social pressure considerations.

Default_{t+1} (ex post default) is a dummy that takes the value of 1 for borrowers that default a year after they get the loan, not having defaulted the year before, and 0 otherwise. We assume that banks estimate a probability of ex post default for each borrower that gets a loan. To be among the banks that are more likely to lend to borrowers that default a year after, not having a loan in default when they receive the current one, will be interpreted as evidence that the bank is more willing to lend to borrowers of ex ante estimated higher risk, whatever the risk estimation method may be (i.e. hard or soft data).

¹¹ When the current loan is the first one, size of the borrower is set to 1 to avoid problems with the log transformation we use in the regression.

Several control variables account for other factors that can condition the specialization decision. The choice of the lender can be affected by the inclination of the borrower to stay loyal to a bank or to work with several banks at the same time. The control variable used in the empirical analysis is the *Share of Main Bank*, the proportion of total loans of the borrower granted by the largest lender, at the time the new loan is granted.

The specialization decision can also be affected by the interest rate of the loan. We do not observe the interest rate of the individual loan but we have data on interest rates charged by each bank in new loans to non-financial firms every year of the period. The variable *Interest rate* is equal to the average interest rate of all new business loans granted by a bank in a given year. The variable will take the same value for all loans granted by a bank in a given year, so it will control for bank specific factors common to all loans granted by the bank during the year. Differences in interest rates across banks can reflect different credit policies and when we compare risk taking behavior across banks the interest rate variable will control for differences in price behind the risk taking in a particular loan decision. Since the average interest rate charged by a particular bank can vary over time the variable controls for differences in policies across banks in a particular year but it allows for possible changes in policy over time.

An additional control variable is the distance between the province where the headquarters of the bank that grants the loan is located, and the province of the firm that gets the loan (distance in Km between the two capital cities of the respective provinces). The reputation concerns, together with social pressure from the local community, of savings banks and cooperatives are expected to be higher in loan decisions that involve borrowers closer to the location of the headquarter. At the same time, savings banks tend to be highly identified with the region they originally belong to since they spend in that region a high proportion of the distributed social dividends, and the regional public authorities have high influence in the nomination of members of their governance bodies. Regional commercial banks and cooperatives can also be affected by local community concerns in their loan decisions, although less intensively than savings banks. The *Distance* variable should control for potential effects of local constituencies in the loan decisions.

Other controls are dummy variables for industry, region and time. Non-financial firms are classified in seven different industries¹² which differ in credit risk because business opportunities are different depending on competition, growth and level of technological innovation. They will also differ in the value and easy to monitor of internal collateral. For instance, Mining and Manufacturing is expected to be riskier and with more informational complex assets than Utilities, but precise differences are difficult to establish for all industries. Local market conditions are measured by 17 dummy variables, *Region*. *Year* controls for changes in external conditions over time.

Table 6, Panel A (ownership forms) and Panel B (size classes) present descriptive statistics of the variables of the model. Commercial and savings banks have similar average sizes, around €10,000 million, while average size of cooperatives is ten times lower. The average size of borrowers from commercial and savings banks is similar and three times larger than those that borrow from cooperatives. However, median size of borrowers in savings banks and cooperatives are close. Panel A also shows that savings banks and cooperatives have higher proportions of long term (44% and 41%, respectively) and of collateralized loans (35% and 27%) than commercial banks (18% and 27%). Risk taking behavior is similar across ownership forms in both *ex ante* and *ex post* credit quality measures. This last result contrast with (Esty 1997a, b) for thrifts or with Lamm-Tenant and Starks (1993) for stock and mutual insurance companies, who find that banks and insurance companies with stock ownership take more risk in their investments than banks and insurance companies under mutual ownership. Borrowers that get loans from commercial banks borrow, on average, 72.3% from their main bank, while borrowers from savings banks borrow 79% and cooperatives 80.8%. Although borrowing is highly concentrated, the concentration is lower among commercial banks than for the rest of ownership forms, in particular, in median values. Interest rates are lower for savings banks and higher for cooperatives.

The average distance from headquarters of the bank and the location of the borrower is 445.8 Km in commercial banks, 224.5 Km in savings banks and only 62.4 Km in cooperatives (whose median is zero so 50% of the loans or more are made in the

¹² Agriculture and fishing; mining and manufacturing; utilities; construction and real estate; trade, leisure, transport and communications; computer services, R&D and other business services; and other industries.

province where the headquarters are located)¹³. To properly evaluate these figures account must be taken of the branch geographic expansion of Spanish banks. In year 2003 commercial banks have 83% of their total branches outside the province where they have the headquarters, savings banks 76% and cooperatives 34%, compared with 77%, 72% and 13%, respectively in 1996. The increase in distant lending in Spain cannot be explained in terms of the “information revolution” that Petersen and Rajan (2002) claim for the US. In particular, no evidence exists about the widespread adoption of small business credit scoring that make possible distant lending with no face to face interaction between borrower and lender, as it appears to be the case in US (Berger, Frame and Miller (2005)). Rather, in Spain, distant lending involves face to face interaction in the branch office opened in a town by a bank whose headquarter is located outside the province where the loan is granted. The branch manager can collect soft information about the borrower because both keep a close personal relationship, while the internal organization problem of the bank is to reduce control losses and agency costs of communicating and using such information¹⁴.

Table 6, Panel B presents similar descriptive statistics than those of Panel A, but now banks are classified according to size. Moving from lower to higher size classes we observe that the average size of borrowers and loans increase in parallel. A larger size of banks also tends to imply a higher proportion of loans with collateral and a higher proportion of long term loans, except for the very large banks (Size 4). However, among size classes 2, 3 and 4 the means of the former two variables are close, so only significant differences are detected relative to small banks. The proportions of loans granted to borrowers that default in t-1 or t+1 are similar across size classes while the share of total loans granted to borrowers by their respective main bank decreases, in average, with the size of the bank. Mean and median interest rates decrease with the size of the bank, consistent with the predictions from the transactional lending specialization hypothesis. As expected, average lending distance also increases with size of the bank,

¹³ The time evolution of *Distance* shows an increase in savings banks and a stable value for the other ownership forms. In 1996 the average distance of loans granted by savings banks was 150 Km and in 2003 goes up to 265 Km. Thus, the geographic branch expansion of savings banks explains the increase in the average lending distance.

¹⁴ No information is available about the distance between the location of the branch where the loan contract is initiated and the precise location of the borrower in the province, so we cannot go into competitive interactions with neighbor banks as in Degryse and Ongena (2005).

but notice that among banks of small and medium size (size classes 1 and 2) the median distance is zero, that is the majority of loans are granted to local borrowers.

Methodology

To test the hypotheses of bank specialization, we estimate a multinomial logit model,

$$\begin{aligned} \text{Type of Lender} = F(\text{Size of the borrower, Size of the loan, Collateral, Long term,} \\ \text{Default}_{t-1}, \text{Default}_{t+1}, \text{Share of main bank, Interest rate, Distance, Industry, Region, Year}) \end{aligned} \quad (1)$$

Model (1) will give the likelihood of a choice of a particular type of lender, relative to the choice of a type of lender that is taken as reference group and omitted in the estimation. The omitted group will be small commercial banks (Class 1), so a positive and significant coefficient for one explanatory variable in Class 3 (large commercial banks), for example, means that the likelihood that the loan is granted by a large commercial bank, relative to the likelihood of being granted by a small commercial bank, increases as the value of the explanatory variable also increases. The comparison of estimated coefficients for the same explanatory variable across classes determines if the relative effect in the choice decision of changes in the variable is higher or lower in one class versus the other.

5. Results

The results of the multinomial logit estimations are presented in Table 7. The column identified as Model 1 presents the estimation of equation (1) when the explanatory variables include only characteristics of the borrower together with the control variables. The column under Model 2 shows the results of the estimation with all explanatory variables except *Interest rate*. Given that interest rates control for bank specific characteristics, Model 2 will provide evidence of the relevance of these effects on the specialization decision. The column under Model 3 shows the multinomial logit estimation of the full model. This estimation is completed with the last column of the

table which shows the relative likelihood of choosing each combination of size-ownership for a given change in the values of the respective explanatory variables¹⁵.

The hypothesis of no bank specialization at all establishes that differences in the likelihood of choosing one class of lender or the other can be explained only by time invariant effects, such as economic conditions of the borrowers' market, captured by *Industry* and *Region*, by relational lending practices, *Share of the Main Bank*, by bank credit policies, *Interest rate*, by *Distance* and by time varying shocks common to all market participants, *Time*. This is equivalent to testing the null hypothesis that the coefficients of the explanatory variables, other than the control variables, are equal to zero. The likelihood ratio of estimating model (1) with this restriction on the coefficients of the variables gives LR = 691.54, with p-value 0.000. Thus, the null hypothesis of no specialization is rejected.

Second, we test the hypothesis that specialization responds only to the ownership form dimension or that it only responds to the size dimension. The no size specialization hypothesis is equivalent to say that coefficients of the respective explanatory variables in classes 1 to 4 are all equal, as well as those of Class 5 and 6. With these restrictions, the choice model is reduced to three alternatives: commercial banks, savings banks and cooperatives. On the other hand, the null hypothesis that there is no bank specialization along the ownership dimension implies that the parameters of Class 2 are equal to those of Class 5 and 7, and that parameters of Class 3 equal those of Class 6. After these restrictions the choice set is reduced to four size alternatives. The respective statistics from these restrictions are $\chi^2(148) = 90,806.75$, p-value=0.000, only ownership specialization, and $\chi^2(111) = 62,398.72$, p-value=0.000, only size specialization. Therefore, the two restrictions are rejected at high levels of statistical significance and the conclusion is that banks specialize in an interrelated way along the two dimensions of size and ownership form. This result justifies the joint analysis of size and ownership specialization presented in Table 7.

¹⁵ By differentiating the probabilities for each class, we find that the marginal effect of each explanatory variable on the probability is $\frac{\partial P_j}{\partial x_i} = P_j \left[\beta_j - \sum_k P_k \beta_k \right]$. To compare different marginal effects, we present them divided by the initial probability P_j . For more details, see Green (1993), chapter 12.

Model 1 estimation shows that the coefficient of *Size of the borrower* variable is positive and increasing from class 2 (0.107) to class 4 (0.149). Therefore, as size of the borrower increases the likelihood that the loan is granted by a small commercial bank decreases. Moreover, the difference in the relative likelihood is higher for commercial banks of the larger size class, very large commercial banks. For commercial banks, the size of the borrower-size of the bank correlation hypothesis (H1) is confirmed by the results of Model 1. The positive coefficient of the *Size of the borrower* variable in classes 5 to 7 implies that the likelihood the loan to a large borrower is granted by a small bank is relatively lower than the likelihood of being granted by savings banks or cooperatives. However the coefficient of this variable in class 6 (large savings banks) is lower than that of class 5 (medium savings banks), thus, the conclusion about relative differences in the likelihood increasing with size is reversed, compared with that of commercial banks. In savings banks the likelihood that a loan to a large borrower will be granted by a large savings bank is lower than the likelihood that is granted by a medium size savings bank. So, H1 does not hold for savings banks. Moreover, H2 is rejected as size of the borrower-size of the bank specialization dimension varies with the ownership form.

Model 1 also shows that the coefficients of $Default_{t-1}$ are significantly different from zero for banks in classes 4 to 7. Moreover the estimated coefficient is fairly similar across all classes¹⁶. Therefore, among borrowers in default when they get a new one, the likelihood that the new loan is granted by banks in classes 4 to 7 is higher than that of banks in classes 1 to 3, and fairly similar among all of them. Very large commercial banks, all savings banks and cooperatives, show relatively similar reputation concerns and higher than small, medium and large commercial banks. In this respect, very large commercial banks appear with reputation concerns more similar to those of savings banks and cooperatives than to those of other commercial banks. Very large commercial banks, class 4, are also the only ones that show higher willingness to lend to riskier borrowers, excluding those who already have loans in default, according to the evidence of a positive and significant coefficient for the variable $Default_{t+1}$ in class 4. This result

¹⁶ The multinomial logit provides p values for the tests of pair wise comparisons of the estimated parameters; in this particular case parameters of $Default_{t+1}$ for classes 4, 5, 6 and 7 are not statistically different at 5% level of significance.

is contrary to the hypothesis of risk shifting behavior since very large banks are those more likely to be manager-controlled banks.

Model 2 and Model 3 estimates show the results on the determinants of bank specialization decisions including loan characteristics, together with borrower characteristics, in the list of explanatory variables. Model 2 excludes the interest rate of the bank from the control variables to explore the sensitivity of the results to control or not for this variable that accounts for possible bank specific effects for all loans of the bank in a given year. When controlling for interest rates, Model 3, the coefficients of *Size of the loan* and *Default* variables reduce their absolute value and statistical significance. Thus, if *Interest rate* is excluded, the loan related variables capture some of the effects of the price in the specialization decision and the estimated parameters of the loan attributes are biased. For example, if size of the loan is negatively correlated with the interest rate of the loan¹⁷, then the evidence of strong specialization in small loans by small commercial banks that we observe in Model 2 is due to the fact that small commercial banks are also the banks that charge higher interest rate in average. After *Interest rate* is included, we observe the true effect of *Size of the loan* in the specialization decision, and among commercial banks only the very large (class 4) appear to specialize in large loans. The exposition below will focus on the results of Model 3, together with the column of relative marginal effects.

Including loan characteristics among the explanatory variables changes slightly the conclusions about the size of the borrower–size of the bank specialization dimension since in Model 3 the coefficients of *Size of the borrower* are more similar than in Model 1 within each ownership form. In fact among commercial banks the size of the borrower-size of the lender relationship breaks down when we reach class 4, very large banks, for which the marginal increase in the likelihood that they grant a loan when the size of the borrower increases, is lower than for the class of large banks (1.75% compared with 2.38%). This change has to do with the expected correlation between size of borrower and size of the loan and the fact that very large banks clearly specialize

¹⁷ Lower quality borrowers with relatively higher credit risk are more frequent among small and short term loans than among large and long term loans. Higher risk will go together with higher interest rate. So, banks that charge higher interest rates are more likely to grant relatively smaller loans than banks with lower interest rates. Controlling for differences in interest rates we isolate the size of the loan specialization effect from the quality of the borrower effect.

in larger loans, as the positive and significant sign of the coefficient of the variable *Size of the loan* in class 4 indicates. Not controlling for differences in size of the loan, together with the correlation between size of the loan and size of the borrower, distorts the results about specialization of commercial banks since the size of the bank-size of the borrower specialization evidence from Model 1 is in part the result of the relative specialization in large loans by very large banks.

Within savings banks, we observe that the “size” specialization dimension gives mixed results since large savings banks specialize relatively more than medium size ones in small loans: a marginal increase in *Size of the loan* has a marginal negative effect of 7.2% in the likelihood that the loan will be granted by a large savings bank, class 6, and a marginal positive effect of 8.3% in the likelihood that it will be granted by a medium size savings bank. Together with this, an increase in the size of the borrower reduces in a lower amount the likelihood that the loan will be granted by a large savings bank (-1%) than the likelihood of being granted by a medium size savings bank (-2.4%). So the conclusion changes with respect to that obtained from Model 1. In fact, in Model 3 the null hypothesis of equal coefficients for the *Size of the borrower* variable between medium and large savings banks is not rejected at 5% level of significance.

The likelihood that a loan is granted by a commercial bank is relatively higher among loans with no collateral than among loans with collateral, although differences in likelihood vary across size classes. In fact, the class of large commercial banks, class 3, has a 55.2% relatively lower probability of granting a loan with collateral than of granting a loan with no collateral, relative to the respective probabilities in the class of small banks. This result can be compared with the -16.5% probability in loans with collateral for medium size commercial banks. However, the trend changes with very large banks, where the likelihood of granting a loan is 30.5% relatively higher in loans with collateral than in loans with no collateral. Savings banks specialize relatively more in loans with collateral than commercial banks in the same size class (compare for example the marginal effects for the variable *Collateral* of classes 3, large commercial banks and class 6, large savings banks), but within savings banks, and between them and cooperatives, no economically significant differences exist in the effect of the *Collateral* variable on the specialization decision (marginal effect of 43% and 35.5% in classes 5 and 6 respectively, and 36.1% in class 7).

The results of Model 3 do not change substantially the conclusions about no evidence of risk shifting behavior (the relative marginal effect of the Default variables is lower for medium and large commercial banks, those potentially closer to shareholders controlled banks), and confirm the conclusion about higher reputation concerns of savings banks (in particular, of the smaller ones) and very large commercial banks than the rest of commercial banks and credit cooperatives: Higher marginal effect of the variable $Default_{t-1}$ in classes 4, 5 and 6 (hypothesis H3).

Aggregate comparison across ownership forms

Results from Table 7 justify the joint analysis of size and ownership specialization decision by banks, since within each ownership form there are significant differences in specialization decisions across size classes. The comparison between commercial banks and savings banks would involve a pair wise comparison of estimations corresponding to class 2 (3), medium (large) size commercial banks, with estimations of class 5 (6), medium (large) savings banks. The comparison makes clear that savings banks specialize relatively more than commercial banks in smaller and riskier borrowers and they are more likely to be present in loans with collateral and in long term loans than commercial banks.

In order to further validate these conclusions, results of Table 7 are complemented with those of Table 8, which shows the estimation of model (1) after size classes are collapsed and the specialization decision is limited to ownership forms. To take into account the effects of size of the bank in the ownership specialization decision, the variable *Size of the bank*, measured in terms of total loans (in logs) in the balance sheet of the bank in year t, is included in the model as an additional explanatory variable. The ownership form excluded to become the reference group is commercial banks, so we compare specialization of savings banks, class 2, and cooperatives, class 3, relative to that of commercial banks. Table 8 also shows the estimated coefficients for some of the control variables considered more relevant such as *Interest rate*, *Distance* and *Share of main bank*. Model 2 differs from Model 1 in that the former allows for differences in the size of the borrower specialization decision depending upon the size of the bank.

In Model 1 the *Size of the borrower* and *Size of the loan* variables have a negative estimated coefficient in both savings banks, class 2, and cooperatives, class 3. This indicates that savings banks and cooperatives, in aggregate, specialize relative more than commercial banks in small borrowers and small loans. The *Size of the bank* variable has a positive sign in savings banks and a negative one in cooperatives. Increases in bank size increase relatively more the likelihood of granting a loan (higher market share) if the bank is a savings bank than if it is a commercial bank.

Although not shown in Table 8, when the variable *Distance* is excluded from the model the results change and the coefficient of *Size of the bank* is negative for both, savings banks and cooperatives. Since *Size of the bank* and *Distance* are correlated and average distance is higher in commercial than in savings banks, when we do not control for *Distance* the *Size of the bank* variable captures the two effects, size and distance, and the net result is a negative coefficient for *Size of the bank* in the case of savings banks. However, for a given distance, larger savings banks gain market share relatively to large commercial banks, since the former have higher likelihood of granting a new loan than the later. As we indicated above, distance is increasing over time for savings banks and stays relatively stable for commercial banks. The negative coefficient of *Distance* in savings banks and cooperatives indicates that, overall, geographic dispersion of commercial banks is still significantly higher than that of the other ownership forms.

The estimated coefficient of $Default_{t-1}$ is positive for savings banks and not significant for credit cooperatives, which would confirm the higher reputation concerns of savings banks than the other forms of ownership. On the other hand the coefficient of $Default_{t+1}$ is positive for cooperatives and not significant for savings banks, so there is evidence of more risk taking behavior in credit cooperatives than in the rest of ownership forms. Savings banks and cooperatives are also more likely to grant loans when they are secured with collateral and in loans of longer maturity, an evidence already obtained in Table 7. Savings banks and cooperatives appear to specialize relatively more than commercial banks in complex borrowers and loans, which together with their relative specialization in smaller borrowers suggests that overall savings banks and cooperatives specialize in relational lending, while commercial banks would be more inclined for transactional lending.

Interest rate and *Share of the main bank* have estimated coefficients negative and positive, respectively, in both savings banks and cooperatives. To be a high interest rate bank lowers the likelihood of granting a loan if the bank is a savings bank or a cooperative than if it is a commercial bank. On the other hand, to have closer relations with the main bank, in the sense of concentrating higher percentage of loans in this bank, increases relatively more the likelihood of granting a new loan in savings banks and cooperatives than in commercial banks. So, closer bank-borrower relationships seem to pay off more in cooperatives and savings banks than in commercial banks.

Model 2 in Table 8 allows for differences in the coefficient of *Size of the borrower* variable depending upon the size of the bank. We see that, for savings banks, the estimated coefficient of *Size of the borrower* is now positive while that of the cross effect variable is negative. For cooperatives, the coefficients of the two variables are not statistically significant. The coefficient of the *Size of the borrower* variable decreases with the size of the bank in the ownership form of savings banks, ($0.254 - 0.017 \text{Ln Size of the Bank}$), and is positive for banks of size up to $\text{Ln Size of the Bank} = 0.254 / 0.017 = 14.94$ and negative beyond this size. The value 14.94 is approximately the percentile 20th of the distribution of *Ln Size of the Bank* in the sample data, so the coefficient of *Ln Size of the Borrower* would be positive for the 20% of the size observations in the lower tail of the distribution and negative for 80% of the bank-sizes in the upper tail; a result consistent with the negative coefficient obtained in Model 1 for the sample mean of size of the bank.

The most relevant conclusion of this result is that the relative specialization in small borrowers of savings banks, compared with that of commercial banks, is more pronounced as the size of the bank increases. Therefore, savings banks appear to have lower organizational diseconomies for distant lending to small borrowers than commercial banks. The size of the borrower-size of the bank specialization decision works differently in each ownership form and the empirical evidence from Spanish commercial and savings banks is that as savings banks increase in size the agency costs of lending to smaller, informational complex and opaque borrowers is kept relatively unchanged and, in any case, increase less than for the commercial banks.

6. Conclusions

Market competition limits or even reduces organizational diversity unless there are opportunities for differentiation and specialization. In the Spanish credit market to non-financial firms we observe a process of bank consolidation and a reduction in size diversity, together with an increase in diversity of ownership forms, where savings banks and credit cooperatives gain market share at the expense of commercial banks. This evidence offers a research opportunity to understand the specialization decision of banks in credit markets, together with potential advantages and disadvantages of different forms of bank ownership.

We find evidence in favor of transactional lending specialization of large commercial banks compared with smaller ones. For this form of ownership, the likelihood of choosing a larger bank increases with the size of the borrower up to the class of very large banks. The transactional lending specialization of large banks is confirmed by the lower likelihood that these banks grant loans with collateral, probably used in loans to more opaque borrowers. However, very large commercial banks depart from this pattern since they show a specialization model that does not fit well with existing theories, although they fit better within the size of the borrower–size of the bank specialization dimension if size of the loan replaces size of the borrower.

Among savings banks, the large ones are more likely to lend to small borrowers and equally likely to lend with collateral than medium size ones. Within a given size class, savings banks and cooperatives are more likely to specialize in relational lending than commercial banks. These results are consistent with the reality of lower organizational diseconomies in savings banks than in commercial banks. Apparently, the potential negative effect on organizational efficiency of loose property rights in not-for-profit stakeholder-oriented savings banks, is more than compensated by efficiency pressures coming from product market competition and lower agency costs from effective manager-worker control of the organizational resources. The apparent efficiency of large savings banks in lending to smaller borrowers may be a possible explanation of why in Spain the size of the bank/size of the borrower specialization is not so pronounced in aggregated terms, as it is in the US.

There is no clear evidence of risk shifting behavior in Spanish general intermediaries, in the sense that lending to borrowers of lower credit quality does not show a pattern consistent with the prediction that shareholder controlled banks will be more likely to make riskier loans to capture rents from depositors (and from the rest of the banks under deposit guarantees). Regulation and supervision of banks seems to be effective in preventing this behavior. Medium size savings banks lend in relatively higher proportion to borrowers of observed low credit quality at the time of granting the loan and, together with cooperatives, show higher likelihood of collateralized lending than commercial banks of equal size. We interpret this evidence as the result of considerations of reputation and social pressure mainly affecting to those banks with closer ties with their local communities.

The relative specialization in relational lending of savings banks and cooperatives, which hold almost half of the market share in new loans to non-financial firms, assures the availability of credit to small and medium size, more opaque, firms, even if consolidation of large commercial banks implies a shift towards more specialization in transactional lending. The current situation of credit availability for firms that depend on relational lending may continue after Basel II comes into effect, when large banks may find stronger incentives to deepen their transactional lending specialization.

In Spanish credit markets, ownership diversity has significantly increased in recent years, during a period of low real interest rates, low profit margins and intense competition. This paper explains that increase by the fact that savings banks, contrary to what might be expected given their loose property rights, have equal or lower organizational diseconomies than commercial banks. This, together with higher trustworthiness and close ties with local communities gives them a comparative advantage in long term loans, which showed the greatest increase on the period of study. One important conclusion from this study is that the link between ownership form and performance may be more complex than it is usually thought to be. Spanish savings banks offer an interesting example of a non-conventional institutional form that can take advantage of the scale economies of size in production without suffering with the same intensity as commercial banks do the organizational diseconomies of size.

Our paper also shows that specialization in lending to non-financial firms goes beyond the differences in lending policies between general intermediaries and special intermediaries due to reputation concerns, observed by Carey et al (1998), and beyond the size of the bank effect in the choice between transactional or relational lending technologies observed by Berger and Udell (2002). Within general intermediaries we also observe that diversity of organizational forms, such as savings banks, credit cooperatives and commercial banks, go together with specialization that crosses the dimensions of reputation and size. For example, within savings banks, the large ones specialize more than the medium size ones in lending to small borrowers, while they seem to be not so strongly affected by considerations of reputation as medium size savings banks seem to be.

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Table 1. Breakdown of the population of new loans to non-financial firms granted by Spanish banks, by loan size, borrower size and bank size. 1996-2003. All size brackets defined at constant 2003 prices.

Panel A. Loans

	No. of loans (%)					Amount of credit (%)				
	Loan size classes					Loan size classes				
	1	2	3	4	Total	1	2	3	4	Total
1996	40,3	33,1	25,0	1,6	186.147	2,4	7,2	36,2	54,2	36.238.512
1997	34,7	35,3	28,2	1,7	206.087	2,0	7,3	38,4	52,2	42.638.235
1998	33,9	34,7	29,5	1,9	220.500	1,8	6,6	38,1	53,5	50.053.783
1999	33,7	36,9	27,6	1,8	299.116	1,8	7,4	38,4	52,4	66.631.646
2000	32,8	36,1	29,0	2,1	315.798	1,6	6,4	37,6	54,4	78.852.473
2001	33,3	35,3	28,9	2,5	321.482	1,5	5,7	34,4	58,4	95.012.263
2002	33,4	34,1	29,9	2,6	323.043	1,4	5,4	35,2	58,0	101.212.480
2003	31,5	34,9	31,1	2,5	400.789	1,4	5,7	36,5	56,4	127.934.614
Mean	33,7	35,1	29,0	2,2	2.272.962	1,6	6,2	36,6	55,6	598.574.006

Breakdown for loans: 1: less than € 25 thousand; 2: more than € 25 thousand and less than € 100 thousand; 3: more than € 100 thousand and less than € 2 million; 4: more than € 2 million.

Panel B. Borrowers

	No. of borrowers (%)					Amount of credit (%)				
	Borrower size classes					Borrower size classes				
	1	2	3	4	Total	1	2	3	4	Total
1996	46,1	42,8	10,6	0,6	139.768	4,0	18,4	31,6	46,0	36.238.512
1997	42,9	45,6	11,0	0,5	153.669	3,8	19,9	33,9	42,4	42.638.235
1998	41,3	46,5	11,7	0,6	163.874	3,3	18,9	35,1	42,7	50.053.783
1999	42,2	45,7	11,5	0,6	206.883	3,4	19,0	36,5	41,1	66.631.646
2000	40,6	46,7	12,1	0,6	218.602	2,9	18,0	37,3	41,8	78.852.473
2001	41,1	45,7	12,5	0,7	225.881	2,6	16,1	36,6	44,6	95.012.263
2002	39,6	46,7	13,0	0,7	227.727	2,5	16,6	38,7	42,2	101.212.480
2003	39,4	47,2	12,7	0,7	273.355	2,6	17,7	38,5	41,2	127.934.614
Mean	41,3	46,1	12,0	0,6	1.609.759	2,9	17,7	36,8	42,5	598.574.006

Breakdown for borrowers: 1- less than € 100 thousand; 2- more than € 100 thousand and less than € 1 million; 3- more than € 1 million and less than € 20 million; 4- more than € 20 million

Panel C. Banks

	No. of banks					Amount of credit (%)				
	Entity size classes					Entity size classes				
	1	2	3	4	Total	1	2	3	4	Total
1996	170	98	3	6	277	7,7	50,4	17,3	24,6	36.238.512
1997	163	100	4	7	274	6,3	49,9	20,0	23,8	42.638.235
1998	144	105	5	6	260	4,6	47,7	25,1	22,7	50.053.783
1999	123	114	8	4	249	3,0	44,8	32,4	19,8	66.631.646
2000	114	111	8	2	235	2,5	45,6	30,7	21,2	78.852.473
2001	107	111	10	2	230	1,7	43,5	35,8	19,0	95.012.263
2002	100	110	11	2	223	2,1	42,9	38,4	16,6	101.212.480
2003	95	103	12	2	212	1,8	38,4	45,2	14,7	127.934.614
						3,0	43,9	34,1	19,0	598.574.006

Breakdown for banks: 1- less than € 1,000 million; 2- more than € 1,000 million and less than € 25,000 million; 3- more than € 25,000 million; 4- banks involved in mega-mergers above € 25,000 million

Table 2. Market share by size of bank and size of borrower. Population of new loans to non-financial firms granted by Spanish banks. 1996-2003. All size brackets defined at constant 2003 prices.

	No. of loans (%)					Amount of credit (%)				
	Borrower size				Total	Borrower size				Total
	1	2	3	4		1	2	3	4	
1- Small size banks										
1996	8,5	7,3	5,8	10,2	7,6	8,1	6,7	5,5	9,5	7,7
1997	8,4	6,7	5,0	9,3	7,0	7,7	6,0	4,5	7,8	6,3
1998	7,7	6,4	4,3	5,8	6,4	7,0	5,6	3,6	4,8	4,6
1999	4,6	3,7	2,4	3,5	3,8	4,3	3,7	2,4	2,9	2,9
2000	3,9	3,4	2,4	2,7	3,3	3,7	3,5	2,5	1,8	2,4
2001	3,3	2,8	1,7	2,1	2,7	3,1	2,8	1,4	1,5	1,7
2002	2,8	2,4	1,7	2,1	2,4	2,5	2,3	1,6	2,4	2,1
2003	1,8	1,8	1,3	2,2	1,7	1,8	2,1	1,4	2,0	1,8
2- Medium size banks										
1996	59,7	58,7	56,2	52,4	58,5	58,8	58,3	53,8	44,3	50,4
1997	52,1	51,0	50,8	53,9	51,4	52,4	51,7	52,6	46,6	49,9
1998	51,2	50,7	50,0	52,5	50,8	52,1	52,3	52,2	41,6	47,7
1999	45,4	43,0	42,7	51,9	43,9	46,2	44,7	45,4	41,0	43,5
2000	41,0	39,2	38,2	50,2	39,8	41,4	40,6	43,5	46,1	44,0
2001	40,3	40,5	40,3	48,7	40,6	41,2	41,7	43,1	44,6	43,5
2002	45,0	44,1	43,0	47,9	44,2	44,5	43,4	43,8	41,8	42,9
2003	37,6	36,5	36,0	43,3	36,9	36,8	37,2	40,4	37,0	38,4
3- Large size banks										
1996	16,6	15,2	14,6	17,6	15,7	17,6	15,2	14,5	20,0	17,3
1997	23,3	22,7	20,2	17,7	22,4	23,8	22,7	18,3	19,8	20,0
1998	25,6	23,7	21,6	22,1	23,9	25,2	22,9	19,2	30,8	25,1
1999	35,5	35,5	32,1	24,8	34,7	34,1	32,9	28,8	33,8	31,8
2000	37,7	36,2	33,6	28,2	36,0	35,7	33,0	29,7	28,6	30,0
2001	44,3	41,8	39,7	35,7	42,0	42,6	38,9	35,1	34,8	35,8
2002	44,2	43,3	42,3	39,4	43,3	44,2	41,3	37,9	37,4	38,4
2003	51,0	49,7	48,1	44,0	49,6	50,6	46,3	41,7	47,5	45,2
4- Very large size banks										
1996	15,2	18,8	23,4	19,7	18,2	15,6	19,8	26,2	26,2	24,6
1997	16,2	19,7	24,0	19,1	19,2	16,1	19,6	24,6	25,8	23,8
1998	15,5	19,3	24,0	19,6	18,9	15,7	19,3	25,0	22,8	22,7
1999	14,4	17,7	22,8	19,9	17,6	15,4	18,7	23,4	22,3	21,8
2000	17,5	21,2	25,8	18,9	20,9	19,2	22,9	24,2	23,6	23,6
2001	12,1	15,0	18,3	13,5	14,6	13,2	16,6	20,4	19,1	19,0
2002	8,0	10,2	13,0	10,5	10,0	8,8	12,9	16,7	18,3	16,6
2003	9,6	12,0	14,7	10,5	11,8	11,4	16,5	18,4	19,4	14,7

Breakdown for borrowers: 1- less than € 100 thousand; 2- more than € 100 thousand and less than € 1,000 thousand; 3- more than € 1,000 thousand and less than € 20 million; 4- more than € 20 million
 Breakdown for banks: 1- less than € 1,000 million; 2- more than € 1,000 million and less than € 25,000 million; 3- more than € 25,000 million; 4- banks involved in mega-mergers above € 25,000 million

Table 3. Distribution of business loans of banks of different size across classes of borrower size. Population of new loans to non-financial firms granted by Spanish banks. 1996-2003. All size brackets defined at constant 2003 prices.

	No. of loans (%)					Amount of credit (%)				
	Borrower size					Borrower size				
	1	2	3	4	Total	1	2	3	4	Total
1- Small size banks										
1996	42,6	42,2	12,2	3,0	14.080	4,2	16,1	22,5	57,2	2.785.077
1997	41,5	43,8	11,9	2,8	14.489	4,6	18,9	24,1	52,4	2.692.691
1998	39,7	46,4	11,9	2,0	14.217	5,0	22,9	27,2	44,8	2.294.776
1999	39,9	46,2	12,0	2,0	11.527	5,0	24,0	30,8	40,3	1.988.272
2000	36,1	48,2	13,9	1,8	10.994	4,5	26,7	39,2	29,6	1.973.753
2001	38,4	47,7	12,0	1,9	8.751	4,7	26,3	30,1	38,9	1.617.868
2002	36,2	48,0	13,6	2,1	7.717	3,1	18,4	29,0	49,5	2.097.793
2003	32,3	49,8	14,6	3,3	6.753	2,5	20,6	30,1	46,7	2.269.997
2- Medium size banks										
1996	38,9	44,0	15,1	2,0	108.985	4,6	21,3	33,7	40,4	18.276.713
1997	35,3	45,9	16,5	2,2	105.893	4,0	20,6	35,8	39,6	21.257.864
1998	33,6	46,7	17,4	2,3	111.928	3,6	20,7	38,5	37,3	23.872.840
1999	33,9	45,6	18,0	2,5	134.197	3,6	19,5	38,4	38,5	29.537.846
2000	32,2	46,6	18,4	2,8	131.005	2,8	16,9	37,4	42,9	35.616.441
2001	31,9	46,0	19,1	3,0	130.494	2,5	15,4	36,3	45,8	41.302.088
2002	31,6	46,9	18,9	2,6	142.940	2,6	16,8	39,5	41,1	43.456.621
2003	30,8	47,4	18,9	2,9	147.895	2,5	17,2	40,5	39,8	49.070.625
3- Large size banks										
1996	40,3	42,5	14,7	2,5	29.235	4,0	16,2	26,4	53,3	6.265.622
1997	36,4	46,9	15,1	1,7	46.147	4,5	22,6	31,0	42,0	8.543.880
1998	35,7	46,3	15,9	2,1	52.782	3,3	17,3	27,0	52,5	12.540.564
1999	33,6	47,8	17,1	1,5	105.956	3,6	19,6	33,4	43,5	21.602.387
2000	32,7	47,7	17,9	1,7	118.517	3,5	20,2	37,4	39,0	24.322.162
2001	33,9	45,8	18,2	2,1	135.161	3,1	17,5	36,0	43,4	33.992.957
2002	31,7	47,2	19,0	2,2	139.940	2,9	17,9	38,2	41,1	38.902.882
2003	31,1	47,9	18,8	2,2	198.943	2,9	18,2	35,5	43,4	57.767.479
4- Very large size banks										
1996	32,0	45,3	20,3	2,5	33.847	2,5	14,8	33,7	49,0	8.911.100
1997	29,4	47,5	21,0	2,1	39.558	2,6	16,4	35,1	45,9	10.143.800
1998	27,4	47,8	22,5	2,3	41.573	2,3	16,0	38,7	43,0	11.345.603
1999	26,8	46,9	23,9	2,4	53.846	2,4	16,3	39,6	41,8	14.788.188
2000	26,2	48,1	23,7	2,0	68.757	2,4	17,8	38,9	40,9	19.110.047
2001	26,6	47,1	24,0	2,3	47.076	1,8	14,1	39,3	44,9	18.099.350
2002	24,6	47,7	25,2	2,5	32.446	1,3	13,0	39,1	46,6	16.755.184
2003	24,7	48,9	24,2	2,2	47.198	1,9	17,3	43,2	37,6	18.826.513

Breakdown for borrowers: 1- less than € 100 thousand; 2- more than € 100 thousand and less than € 1,000 thousand; 3- more than € 1,000 thousand and less than € 20 million; 4- more than € 20 million
 Breakdown for banks: 1- less than € 1,000 million; 2- more than € 1,000 million and less than € 25,000 million; 3- more than € 25,000 million; 4- banks involved in mega-mergers above € 25,000 million

Table 4. Market share by ownership form and borrower size class. Population of new loans to non-financial firms granted by Spanish banks. 1996-2003. All size brackets defined at constant 2003 prices.

	No. of loans (%)					Amount of credit (%)				
	Borrower size				Mean	Borrower size				Total
	1	2	3	4		1	2	3	4	
Comm. banks										
1996	53.5	58.0	66.9	70.1	58.0	50.8	54.0	63.1	74.1	66.0
1997	49.1	54.5	64.1	68.2	54.5	46.6	50.2	57.9	69.1	60.7
1998	47.5	53.3	62.2	62.3	53.1	45.4	49.6	56.3	59.7	56.1
1999	57.3	62.5	67.8	65.2	61.8	54.2	56.1	57.1	57.2	56.9
2000	50.3	56.9	61.8	56.4	55.8	48.1	51.6	51.0	56.8	53.4
2001	43.9	50.0	56.1	53.6	49.3	43.5	47.0	49.2	55.6	51.6
2002	44.9	50.1	55.5	51.1	49.6	42.3	45.2	46.0	53.0	48.7
2003	50.3	54.4	58.5	53.0	53.9	47.6	48.9	49.5	53.5	51.0
Savings banks										
1996	40.6	36.9	30.4	27.9	37.1	42.9	40.3	34.2	25.2	31.5
1997	43.9	39.9	32.5	30.3	39.8	46.2	43.8	39.0	30.3	36.5
1998	45.0	40.4	34.0	35.4	40.7	46.9	43.9	40.3	39.7	40.9
1999	36.3	32.0	28.8	32.1	32.8	39.0	37.8	39.6	42.0	40.2
2000	43.4	37.4	34.3	40.7	38.8	45.1	41.9	44.8	42.3	43.2
2001	48.7	43.1	39.0	43.4	44.2	48.8	45.8	46.0	43.3	44.8
2002	45.9	41.8	38.9	45.1	42.6	48.4	46.6	48.4	45.7	46.9
2003	42.4	38.7	36.3	42.4	39.5	45.0	43.5	45.4	45.0	44.9
Cooperatives										
1996	5.8	5.1	2.8	2.0	4.9	6.3	5.7	2.7	0.7	2.5
1997	7.0	5.7	3.4	1.5	5.6	7.2	6.0	3.1	0.6	2.8
1998	7.5	6.4	3.8	2.3	6.2	7.8	6.5	3.3	0.6	2.9
1999	6.4	5.5	3.3	2.6	5.3	6.9	6.1	3.3	0.7	2.9
2000	6.3	5.7	3.9	2.9	5.5	6.8	6.5	4.2	0.9	3.3
2001	7.4	6.8	4.9	3.0	6.5	7.8	7.2	4.8	1.0	3.6
2002	9.2	8.1	5.6	3.8	7.9	9.3	8.3	5.6	1.4	4.3
2003	7.3	6.9	5.2	4.6	6.6	7.4	7.5	5.1	1.5	4.1

Breakdown for borrowers: 1- less than € 100 thousand; 2- more than € 100 thousand and less than € 1,000 thousand; 3- more than € 1,000 thousand and less than € 20 million; 4- more than € 20 million

Table 5. Distribution of business loans of banks of different ownership form across classes of borrower size. Population of new loans to non-financial firms granted by Spanish banks. 1996-2003. All size brackets defined at constant 2003 prices.

	No. of loans (%)					Amount of credit (%)				
	Borrower size					Borrower size				
	1	2	3	4	Total	1	2	3	4	Total
Comm. banks										
1996	35.2	43.8	18.2	2.7	107,888	3.1	15.1	30.2	51.7	23,924,029
1997	31.4	46.3	19.7	2.6	112,353	2.9	16.4	32.3	48.3	25,871,197
1998	29.8	46.9	20.7	2.6	117,136	2.7	16.7	35.2	45.4	28,099,883
1999	30.5	47.2	20.0	2.2	184,902	3.2	18.7	36.7	41.4	37,895,320
2000	28.3	48.3	21.0	2.3	176,112	2.6	17.4	35.6	44.5	42,139,303
2001	28.6	46.8	21.9	2.7	158,511	2.2	14.7	35.0	48.2	49,006,451
2002	28.1	47.6	21.8	2.5	160,163	2.2	15.4	36.6	45.9	49,309,987
2003	28.2	48.3	21.1	2.4	216,086	2.4	17.0	37.3	43.3	65,272,383
Savings banks										
1996	41.8	43.6	12.9	1.7	69,056	5.4	23.6	34.2	36.8	11,420,695
1997	38.4	46.3	13.7	1.6	82,100	4.8	23.9	36.2	35.1	15,580,698
1998	36.9	46.4	14.8	1.9	89,707	3.8	20.2	34.6	41.4	20,493,834
1999	36.4	45.5	16.0	2.0	98,216	3.3	17.8	36.0	42.9	26,810,921
2000	35.2	45.7	16.8	2.4	122,461	3.0	17.4	38.7	40.9	34,088,459
2001	35.5	45.1	17.0	2.5	141,956	2.8	16.4	37.6	43.1	42,606,726
2002	33.4	46.3	17.8	2.5	137,486	2.6	16.5	39.9	41.1	47,503,079
2003	32.5	47.0	17.9	2.7	158,123	2.6	17.2	38.9	41.3	57,410,366
Cooperatives										
1996	45.0	45.2	8.9	0.9	9,203	10.2	42.6	34.8	12.4	893,788
1997	43.1	46.4	10.0	0.6	11,634	9.8	43.1	37.8	9.2	1,186,340
1998	40.3	48.2	10.7	0.8	13,657	8.8	42.1	40.2	9.0	1,460,066
1999	39.6	47.9	11.4	1.0	15,998	8.0	40.2	41.3	10.5	1,925,405
2000	36.0	49.4	13.4	1.2	17,225	5.9	35.1	47.1	11.9	2,624,711
2001	36.2	48.3	14.4	1.2	21,015	5.7	32.2	49.2	12.9	3,399,086
2002	36.2	48.7	13.9	1.2	25,394	5.3	31.5	49.8	13.3	4,399,414
2003	33.3	49.9	15.1	1.7	26,580	4.6	32.5	47.9	15.0	5,251,865

Breakdown for borrowers: 1- less than € 100 thousand; 2- more than € 100 thousand and less than € 1,000 thousand; 3- more than € 1,000 thousand and less than € 20 million; 4- more than € 20 million

Table 6. Descriptive statistics of the variables used in the regression analysis. 1996-2003. Stratified sample of the whole population of new loans to non-financial firms granted by Spanish banks. The stratified sample is around 10% of the total population.

Panel A. Type of bank.

	Commercial banks	Savings banks	Cooperatives	Total
Average size of the banks (1)	9,333,828	10,800,000	971,206	6,712,732
Median size of the banks (1)	2,040,839	5,188,326	390,308	1,439,381
Average size of borrowers (2)	2,774	2,437	853	2,517
Median size of borrowers (2)	204	153	132	174
Average size of loans (1)	217	268	161	236
Median size of loans (1)	36	43	37	40
% of total loans of the bank that have collateral	18%	35%	27%	26%
% of total loans which are long term	27%	44%	41%	36%
% of total loans with default t-1	0.9%	1.1%	1.1%	1.0%
% of total loans with default t+1	1.9%	1.7%	1.6%	1.8%
% of loans to Construction and Real State	27%	36%	23%	30%
Average Share of main bank (3)	72.26%	79.04%	80.84%	75.74%
Median Share of main bank (3)	74.14%	89.47%	92.40%	81.48%
Average Interest rates	6.22%	5.96%	6.60%	6.13%
Median Interest rates	6.13%	5.47%	6.23%	5.73%
Average Distance	445.86kms	224.45kms	62.41kms	323.80kms
Median Distance	395 kms	65kms	0kms	166kms

1) Thousands of euros

2) Weighted average by number of operations. Thousands of euros

3) Weighted average by number of operations.

Panel B. Size of bank.

	Size 1	Size 2	Size 3	Size 4
Average size of banks (1)	350,861	5,125,076	48,500,000	75,900,000
Median size of banks (1)	292,095	3,461,488	38,300,000	49,600,000
Average size of borrowers (2)	1113	2,121	2,813	3,021
Median size of borrowers (2)	108	156	177	251
Average size of loans (1)	102	216	235	321
Median size of loans (1)	24	38	36	54
% of total loans of the bank that have collateral	18%	26%	26%	28%
% of total loans which are long term	24%	35%	38%	32%
% of total loans with default t-1(6)	1.1%	1.1%	0.9%	1.1%
% of total loans with default t+1(6)	2.0%	1.9%	1.7%	2.0%
% of loans to Construction and Real State	24%	32%	30%	30%
Average Share of main bank (3)	77.38%	77.81%	74.59%	72.97%
Median Share of main bank (3)	83.33%	86.33%	78.84%	75.46%
Average Interest rates	11.49%	6.71%	5.65%	4.93%
Median Interest rates	8.53%	6.24%	5.47%	5.16%
Average Distance	151.08kms	126.34kms	398.05kms	724.75kms
Median Distance	0kms	0kms	352kms	620kms

1) Thousands of euros, for the period 1996-2003

2) Weighted average by the number of operations. Thousands of euros, for the period 1996-2003

3) Weighted average by the number of operations

Breakdown for banks: 1- less than 1,000 m€; 2- more than 1,000 m€ and less than 25,000 m€; 3- more than 25,000 m€; 4- banks involved in mega-mergers above € 25,000 million

Table 7. Multinomial logit model of lender choice

$$P(\text{Class } i) = f(\text{Size of borrower } ; \text{Size of the loan } ; \text{Collateral } ; \text{Long term } ; \text{Ex - ante default } ; \text{Ex - post default } ; \text{Share of main bank } ; \text{Interest Rates } ; \text{Distance } ; \text{Time } ; \text{Region } ; \text{Industry })$$

The dependent variable takes values 1 to 7 depending on the type of bank granting the loan: value 1 for small commercial banks; 2 for medium size commercial banks; 3 for large commercial banks; 4 for very large commercial banks; 5 for small and medium size savings banks; 6 for large savings banks; and 7 for cooperatives. Size of the borrower is the log of the total amount of credit a given firm has at the beginning of the period the loan is granted. Size of the loan is the log of the loan size. Collateral is a dummy variable worth 1 if the loan has any kind of collateral and 0 otherwise. Long term is a dummy variable worth 1 if the maturity of the loan is longer than 5 years and 0 otherwise. Ex ante default (Ex post default) is a dummy variable worth 1 if the borrower has defaulted more than 5% of its total amount of credit the year before (after) the loan is granted, and 0 otherwise. Share of main bank is the higher percentage a bank represents in the total amount of credit for a borrower. Interest rate is the average annual interest rate that the bank charges to new loans to non-financial firms. Distance is a continuous variable that measures the distance, in kilometres, between the province where the firm that gets the loan is located and the province where the headquarters of the lender bank is situated. Time, region and industry are different groups of dummies for every period (7 dummies), region (16 dummies) and industry (6 dummies) considered.

	Model 1	Model 2	Model 3	Relative Marginal effects Model 3
2 Size of borrower	0.107 ***	0.129 ***	0.102 ***	0.477
Size of loan		0.239 ***	0.012	0.782
Collateral		-0.159	-0.211	-16.538
Long term		1.322 ***	0.963 ***	-20.304
Default t-1	0.218	0.257	0.144	-32.476
Default t+1	0.011	0.191	0.032	-20.530
3 Size of borrower	0.127 ***	0.147 ***	0.121 ***	2.385
Size of loan		0.234 ***	0.006	0.250
Collateral		-0.638 ***	-0.598 ***	-55.182
Long term		1.487 ***	1.075 ***	-9.059
Default t-1	0.551	0.603 **	0.476	0.734
Default t+1	0.279	0.453 ***	0.289	5.187
4 Size of borrower	0.149 ***	0.136 ***	0.114 ***	1.752
Size of loan		0.402 ***	0.117 ***	11.321
Collateral		0.380 ***	0.259 **	30.551
Long term		0.976 ***	0.601 ***	-56.492
Default t-1	0.750 **	0.612 **	0.667 *	19.799
Default t+1	0.341 *	0.407 ***	0.400 **	16.304
5 Size of borrower	0.095 ***	0.097 ***	0.072 ***	-2.460
Size of loan		0.332 ***	0.087 ***	8.315
Collateral		0.466 ***	0.384 ***	43.015
Long term		1.455 ***	1.104 ***	-6.189
Default t-1	0.827 **	0.741 ***	0.660 *	19.151
Default t+1	0.258	0.412 ***	0.296	5.910
6 Size of borrower	0.075 ***	0.105 ***	0.087 ***	-1.019
Size of loan		0.199 ***	-0.069 **	-7.233
Collateral		0.512 ***	0.309 **	35.532
Long term		1.830 ***	1.516 ***	35.013
Default t-1	0.781 **	0.549 *	0.576	10.774
Default t+1	0.272	0.304 **	0.290	5.249
7 Size of borrower	0.038 **	0.055 ***	0.030 *	-6.705
Size of loan		0.229 ***	0.011	0.723
Collateral		0.316 ***	0.315 **	36.149
Long term		1.672 ***	1.308 ***	14.284
Default t-1	0.664 *	0.561 *	0.477	0.853
Default t+1	0.283	0.448 ***	0.306	6.884
Control variables				
Time	yes	yes	yes	
Region	yes	yes	yes	
Industry	yes	yes	yes	
Interest rates	yes	no	yes	
Share of main bank	yes	yes	yes	
Distance	yes	yes	yes	
Log likelihood	-283,724.42	-321,606.19	-279,517.00	
R squared	0.3353	0.2496	0.3451	
N	243,710	244,397	243,710	

The symbol ***/**/* indicates the coefficient is significantly different from zero at the 1%/5%/10% level. Relative marginal effects are defined as $\Delta p/p$, where p is the probability of every class.

Table 8. Multinomial logit model of lender choice limited to ownership form of the bank

$$P(\text{Class } i) = f(\text{Size of borrower} ; \text{Size of the loan} ; \text{Collateral} ; \text{Long term} ; \text{Ex - ante default} ; \text{Ex - post default} ; \text{Share of main bank} ; \text{Interest Rates} ; \text{Distance} ; \text{Time} ; \text{Region} ; \text{Industry})$$

The dependent variable takes values 1 to 3 depending on the type of bank granting the loan: value 1 for commercial banks; 2 savings banks; and 3 for cooperatives. Size of the borrower is the log of the total amount of credit a given firm has at the beginning of the period the loan is granted. Size of the loan is the log of the loan size. Collateral is a dummy variable worth 1 if the loan has any kind of collateral and 0 otherwise. Long term is a dummy variable worth 1 if the maturity of the loan is longer than 5 years and 0 otherwise. Ex ante default (Ex post default) is a dummy variable worth 1 if the borrower has defaulted more than 5% of its total amount of credit the year before (after) the loan is granted, and 0 otherwise. Share of main bank is the higher percentage a bank represents in the total amount of credit for a borrower. Interest rate is the average annual interest rate that the bank charges to new loans to non-financial firms. Distance is a continuous variable that measures the distance, in kilometres, between the province where the firm that gets the loan is located and the province where the headquarters of the lender bank is situated. Time, region and industry are different groups of dummies for every period (7 dummies), region (16 dummies) and industry (6 dummies) considered.

	Model 1	Model 2
2 Size of borrower	-0.033 ***	0.254 ***
Size of loan	-0.037 ***	-0.036 ***
Size of bank	0.118 ***	0.186 ***
Size borrower * Size of bank		-0.017 ***
Collateral	0.648 ***	0.649 ***
Long term	0.373 ***	0.370 ***
Default t-1	0.189 ***	0.186 ***
Default t+1	0.036	0.031
Interest rate	-0.367 ***	-0.366 ***
Share of main bank	0.004 ***	0.004 ***
Distance	-0.003 ***	-0.003 ***
3 Size of borrower	-0.065 ***	-0.080
Size of loan	-0.041 ***	-0.041 ***
Size of bank	-1.418 ***	-1.423 ***
Size borrower * Size of bank		0.002
Collateral	0.483 ***	0.486 ***
Long term	0.686 ***	0.683 ***
Default t-1	-0.037	-0.037
Default t+1	0.160 *	0.159 *
Interest rate	-0.117 ***	-0.116 ***
Share of main bank	0.005 ***	0.005 ***
Distance	-0.003 ***	-0.003 ***
Control variables		
Time	yes	yes
Region	yes	yes
Industry	yes	yes
Log likelihood	-156,776.23	-156,692.54
R squared	0.2574	0.2578
N	243,710	243,710

The symbol ***/**/* indicates the coefficient is significantly different from zero at the 1%/5%/10% level. Relative marginal effects are defined as $\Delta p/p$, where p is the probability of every class.