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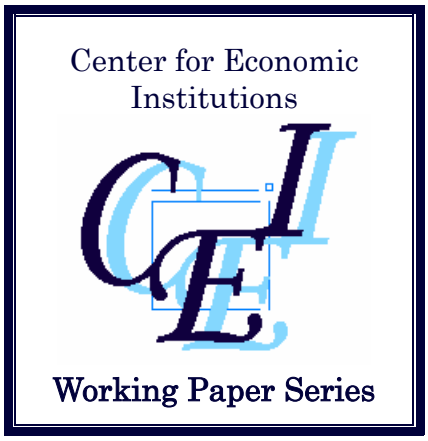

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Does Market Size Structure Affect Competition? The Case of Small Business Lending

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Market size structure refers to the distribution of shares of different size classes of local market participants, where the sizes are inclusive of assets both within and outside the local market. We apply this new measure of market structure in two empirical analyses of the U.S. banking industry to address concerns regarding the effects of the consolidation in banking. Our quantity analysis of the likelihood that small businesses borrow from large versus small banks and our small business loan price analysis that includes market size structure as well as conventional measures yield very different findings from most of the literature on bank size and small business lending. Our results do not suggest a significant net advantage or disadvantage for large banks in small business lending overall, or in lending to informationally opaque small businesses in particular. We argue that the prior research that excluded market size structure may be misleading and offer some likely explanations of why our results differ.

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Does Market Size Structure Affect Competition?
The Case of Small Business Lending

I. Introduction

This paper contributes to the discussion on the effects of market structure on performance with a specific application to banking. Researchers and regulators are interested in market structure because of the extensive evidence linking higher prices to more concentrated markets. We argue that there is another potentially important aspect of market structure that has been substantially overlooked in the literature. We examine how **market size structure** affects the way that participants compete. Market size structure, as we define it, refers to the distribution of market shares of different size classes of firms in a local market, whether or not that size is achieved entirely in that local market. For example, a single, small Citibank branch in any local market would contribute to the local market share of large banks because the entire bank is large. This accounts for the possibility, if not the likelihood, that large regional or nationwide organizations may compete in different ways than small, local institutions, even when the large and small organizations have similar local market shares.

We examine the effects of market size structure in banking, an industry in which consolidation is having substantial effects on both the structure of the industry and the organization of the institutions that comprise it. Mergers and acquisitions (M&As) have reduced the number of small banks and the proportion of assets they control. There is concern that the changing nature of banks and banking markets might result in reduced credit availability or higher interest rates for some small business borrowers. Small businesses are often informationally opaque and may have few external financing alternatives other than loans from commercial banks.

To illustrate the importance of changes in banking market size structure, note that as banks in the U.S. have become larger, local market concentration has increased only slightly. From 1984 – 1998, the average size of a U.S. bank more than tripled from $174 million to $584 million and the median size more than doubled from $34 million to $69 million. However, the average local market Herfindahl index of concentration, which is typically used in research and antitrust analysis to summarize the state of competition, increased by less than 3% from 0.225 to

0.231 over the same time interval. These data suggest that the conventional measure of market structure may be missing an important component of banking consolidation – the change in local market size structure that results from bank M&As between institutions in different local markets. These market-extension M&As do not significantly change local market concentration, but they do shift the ownership of the local banking resources into the hands of larger banking organizations. This raises the possibility that bank customers such as small businesses may be affected by changes in the banking market size structure of their local market. We ask whether it matters if small banks are replaced with large banks, even if there is little or no change in local market concentration.

Our empirical analysis examines the important question of how market size structure affects the supply of credit to small businesses both in terms of quantity and prices. To put these issues into context, previous research has suggested that large banks may have a disadvantage in small business lending overall. This research is based in significant part on common findings that 1) large banks tend to have a lower ratio of small business loans to assets than do small banks, and 2) this ratio tends to decline further after these banks are involved in M&As. Some also argue that large banks may be particularly disadvantaged in lending to opaque small businesses. This argument is often based on a common finding that large banks tend to charge relatively low interest rates to the small businesses to which they provide credit. It is assumed, in effect, that the lower rates represent more transparent borrowers. As well, the argument is also sometimes based on a common finding in the literature that large banks are disadvantaged in relationship lending. In effect, it is assumed that relationship lending is a superior technology for providing credit to opaque small businesses than the transactions lending technologies in which large banks have a comparative advantage.

Our results are **not** consistent with these conclusions in the previous literature, and we suggest some reasons why this prior research might be misleading. The previous approaches using the small-business-loan-to-asset ratio do not account for the possibility that a large bank or recently consolidated bank may have a low small business loan ratio not because the numerator is contracted, but because the denominator of the ratio is expanded. This may occur because large

banks make large business loans or other investments that expand their assets, loans which small banks are unable to make because of legal lending limits or problems in diversifying the risks of large credits.

We also look at this issue from the perspective of the small business, rather than from the bank's perspective as most other studies do. In our quantity analysis, we examine how the market size structure affects the probability that a small business has a line of credit (LC) from a bank of a particular size class. We find that the likelihood of having an LC from a bank in a given size class is **not** declining with bank size, but instead is roughly proportional to the market share of that size class. This is consistent with the possibility that prior results on the small-business-loan-to-asset ratio of large banks and banks involved in M&As may have been driven primarily by the increases in the assets denominator, rather than decreases in the small business loans numerator.

Prior analyses of small business loan pricing have examined the effects of bank size, concentration, and other variables, but have not included banking market size structure.[1] When we include size structure, we find that interest rates are significantly affected by banking market size structure, but not by the size of the bank making the loan. Thus, the results suggest that both large and small banks have lower interest rates on small business LCs in markets where large banks have a greater share, consistent with more aggressive competition for small business credits in these markets. The earlier findings that the size of the bank extending the loan affects pricing may have been due in part to a correlation of size with excluded market size structure variables.

Thus, our findings do **not** suggest that large banks are disadvantaged in small business lending overall, **nor** do our findings suggest that large banks are disadvantaged in lending to opaque small businesses in particular. We argue that our findings are not inconsistent with the common finding in the literature that large banks are disadvantaged in relationship lending. We simply disagree with the inference often drawn that this suggests that large banks are disadvantaged in lending to opaque small businesses. Our results are consistent with the hypothesis that large banks use their advantage in some of the transactions lending technologies to

[1] Some recent papers that reference earlier drafts of this paper examined the effects of size structure on deposit pricing (e.g., Park and Pennacchi 2004, Rosen 2004).

lend to opaque small businesses. Specifically, new research suggests that the existing paradigm that focuses on just two types of lending, soft-information-based relationship lending and hard information-based transactions lending is incomplete and misleading (Berger and Udell forthcoming). This research suggests that there many different types of transactions lending beyond just financial statement lending and that most of them are well-suited for opaque small businesses including, for example, asset-based lending, leasing, and, in recent years, small business credit scoring**.** Thus, our results are consistent with the idea that any disadvantage for large banks in lending to opaque borrowers using relationship lending is essentially offset by an advantage in these transactions technologies for which large banks may be quite well suited.

Our approach is also more comprehensive than most prior studies in both the small business credit availability and pricing literatures because we match banks with the small businesses to which they lend. Most prior studies used either bank data or firm data, but not both. Studies of the effects of bank size and market concentration often used bank data, but did not have information on individual small businesses borrowers, which are important to credit and pricing decisions. Conversely, studies of the effects of banking relationships on loan prices have often employed information on small businesses, but were unable to match the firms with their banks and local markets. These studies were unable to account for banking market size structure, individual bank size, market concentration, and other bank and market characteristics that may be important to the effects of banking relationships and the treatment of small businesses. Of the few relevant studies that did match small business data with bank data, none evaluated and compared the effects of both banking market size structure and individual bank size.

Section II discusses some of the related literature and Section III describes our data and methodology. Section IV gives our empirical results and Section V concludes.

II. Related literature

Our paper is closely related to the three strands of the banking literature. The quantity strand examines the effects of bank size on the ratio of small business loans to assets. The price strand examines the determinants of small business loan prices. The third strand focuses on the

comparative advantages of large and small banks in transactions lending technologies versus relationship lending.

A number of studies testing the effect of bank size on the supply of small business credit found that large banks allocate a much lower proportion of their assets to small business loans than do small banks (e.g., Berger, Kashyap, and Scalise 1995, Keeton 1995, Strahan and Weston 1996). In addition, a number of studies found that the ratio of small business loans to assets declines after large banks are involved in M&As (e.g., Berger, Saunders, Scalise, and Udell 1998, Peek and Rosengren 1998, Strahan and Weston 1998). Some of the M&A studies also found significant "external effects" or general equilibrium effects in the local market in which other banks respond by increasing their supplies of small business lending credit. These increases come from both incumbent banks (e.g., Berger, Saunders, Scalise, and Udell 1998, Avery and Samolyk 2004) and from increased entry of newly chartered banks (e.g., Berger, Bonime, Goldberg, and White 2004).

We take issue with the methodology typically used in analyzing the association between small business lending propensities and either bank size or M&As. One potential problem with this approach is that it explicitly or implicitly assumes that bank assets are fixed, and does not allow for the possibility that large banks or recently consolidated banks may expand their assets to take advantage of their greater opportunities to make other investments such as large business loans. Because of legal lending limits and problems of diversification, small banks have fewer opportunities to make large business loans than do large banks. It is possible that large banks or banks engaged in M&As make small business loans in proportion to or more than in proportion to their local market presence, but simply have lower ratios of small business loans to total assets because these banks expand their assets by making more large business loans. That is, large banks or banks involved in M&As may have low ratios of small business loans to assets because the denominator of the ratio is expanded, rather than because the numerator is contracted.

A second potential problem with this approach is that it explicitly or implicitly ignores the distribution of potential small business loan customers in the markets in which the banks are

present. For example, some large banks make have low small business loan ratios because there are proportionately fewer positive net present value small business loan opportunities in the markets in which they compete. Previous studies often did not have access to information on the small businesses to which the banks in their studies made loans, and so were unable to account for firm risk, opacity, and other characteristics that may be important to credit decisions. The exclusion of firm-specific information may have resulted in biases if large and small banks tend to lend to different firms, which does tend to occur, as discussed below.

The approach taken in this paper avoids these potential problems by looking at lending from the perspective of the small business, rather than from that of the bank. We ask whether the chances of obtaining a loan from a large bank versus a small bank is roughly in proportion to the market presence of large versus small banks. Our approach embodies no assumption of bank assets being fixed and we account for the presence of banks of different sizes in the firm's local market. We also include firm characteristics to control for the possibility that large and small banks tend to lend to different types of small business borrowers.[2]

Only one prior study to our knowledge has considered the impact of market size structure on small business lending. It found that the probability of having an LC and dependence on trade credit were not related to the presence of small banks in the market (Jayaratne and Wolken 1999). However, that study did not account for the size of the individual banks making the loans and did not address the issue of whether banks of a given size tend to lend to small businesses in proportion to their market presence. Thus, the study cannot distinguish the comparative advantage in lending from the "external effect" noted above – it may be either the large banks or the small banks in the same markets making the loans. In our analysis, we specifically address this issue in a model of the probability of having an LC from a bank of a given size class based on the presence of banks in that size class in the market and other factors.[3]

[2] Another potential problem with studies that rely only on bank data is that small business lending is typically defined in terms of the size of the loan or LC, rather than the size of the business. Our study, in contrast, focuses only on small businesses as defined by Small Business Administration guidelines.

[3] One study examined the effect of size structure at the state level (rather than at the local market level) on total loan supply in the state (not just to small businesses). It found that loan supplies in states with high

The second strand of related literature focuses on the determinants of the prices of small business loans. To our knowledge, none of this literature has incorporated market size structure. Studies that examined the effects of the lending bank size on small business loan pricing generally found that large banks tend to charge lower interest rates and earn lower risk-adjusted yields on small business loans than small banks (e.g., Hannan 1991, 1997, Berger and Udell 1996, Carter, McNulty, and Verbrugge 2004, Berger 2006).[4] These findings are often used to support the argument that large banks are generally disadvantaged in lending to opaque small businesses. The argument is that opaque firms typically have higher loan rate premiums because of their opacity and generally higher risk.

We argue here that this result in the literature instead could be due to the exclusion of some important variables in the empirical analyses. Previous studies did not include measures of banking market size structure, and so may suggest that bank size matters because the size of the bank that lends to a small business and the market size structure in that firm's local market are highly correlated. That is, large banks may charge lower rates on average because they tend to be in local markets with high market shares for large banks. These studies also typically did not have access to firm-specific information on the small businesses to which the loans were extended, and so were unable to account for the effects of firm risk, opacity, and other characteristics that may affect loan rates. As argued above, large and small banks may not face the same distribution of potential small business loan customers in their markets, and so biases may result when firm-specific information is excluded.

There are also many studies of the effects on pricing of banking market concentration, which is related to issues of banking market size structure. Studies generally found that banks in more concentrated markets charge higher rates on small business loans (e.g., Hannan 1991, Berger and Hannan 1997, Corvoisier and Gropp 2002). However, as with most of the other research reviewed here, these studies neither examined banking market size structure nor had information

proportions of small banks depend procyclically on banks' internal generation of capital more than in states with low proportions of small banks (Ostergaard 2001).

[4] There is also some evidence that within the category of large banks, larger institutions tend to charge a lower rate than smaller institutions when controls for bank risk and monitoring effort are included (Coleman, Esho, and Sharpe 2004).

on individual small businesses and other retail customers, and so were unable to account for risk, opacity, and other characteristics that affect prices.

Some research has also directly examined the effects of banking relationships on small business loan prices. The empirical evidence usually suggests that stronger relationships (with strength measured in various ways) are empirically associated with lower loan interest rates (e.g., Berger and Udell 1995, Harhoff and Körting 1998, Degryse and van Cayseele 2000) and greater smoothing of loan interest rates over the interest rate cycle (e.g., Berlin and Mester 1999, Ferri and Messori 2000).[5] These studies were often unable to match the firms with their banks and local markets. As a result, they were often unable to account for bank size, banking market size structure, market concentration and other bank and market characteristics that may be important to the effects of banking relationships and the treatment of small businesses. These exclusions may have created biases if, for example, the strength of the relationship is correlated with bank size or market size structure.

Our analysis of small business loan prices is more comprehensive than the prior studies of the effects of bank size, concentration, or relationships. We match the bank and firm data and use some potentially important control variables not in earlier studies. To our knowledge, this is the first pricing study to include banking market size structure. We also include variables measuring bank size, market concentration, firm characteristics, the strength of the bank-borrower relationship, and other factors to avoid the potential biases created by their exclusion in prior research.

The third strand of the literature on bank size and small business credit supply focuses on the comparative advantages of large and small banks in using different technologies to lend to small businesses. Large banks are hypothesized to have a comparative advantage in transactions

[5] A growing body of research has also investigated the link between market concentration and relationship lending. Some theoretical works argue that market power is necessary for relationship lending in order to provide the incentive to invest in soft information, while others argue that competitive markets may be more conducive to relationship building (e.g., Petersen and Rajan 1995, Boot and Thakor 2000). Recent empirical literature on this link has provided mixed results (e.g., Cetorelli and Gambera 2001, Zarutskie 2003, Scott and Dunkelberg 2004, Elsas 2005, Fisher 2005, Karceski, Ongena, and Smith 2005). One difficulty in interpreting the results is that the lending technology is often not identified, so some of the observations are on loans made using technologies other than relationship lending.

lending technologies that are based primarily on the analysis of "hard" quantitative information and small banks have a comparative advantage in relationship lending that is based primarily on "soft" qualitative information. The disadvantages of large banks in extending relationship loans may arise because of Williamson-type organizational diseconomies of providing relationship lending services along with providing transactions lending services to their large corporate customers (Williamson 1988), because soft information that may be difficult to transmit through the communication channels of large organizations (Stein 2002), and/or because dealing with this soft information may create agency problems that require a closely-held organizational structure (Berger and Udell 2002).[6]

A number of empirical studies provide support for these comparative advantages. Findings include that large banks tend to base lending decisions more on financial ratios than on prior relationships (e.g., Cole, Goldberg, and White 2004) and that large banks tend to have temporally shorter, less exclusive, less personal, and longer-distance associations with small business borrowers than small banks (e.g., Berger, Miller, Petersen, Rajan, and Stein 2005). Although similar findings are present in many empirical studies, a significant caveat to this literature is that in most cases, the lending technology is not observed, but is inferred from the loan contract terms or the characteristics of the small business borrower (Berger and Udell forthcoming).

The finding of a disadvantage for large banks in relationship lending is often used to suggest that large banks are also disadvantaged in lending to opaque small businesses. Such a conclusion is based on the assumption that relationship lending is superior to transactions lending technologies in meeting the credit needs of opaque small businesses. However, this assumption may not be justified. Large banks often use some of the transactions technologies to lend to opaque small businesses. To illustrate, large banks have used asset-based lending for many decades to lend to opaque firms without strong financial statements on the basis of their assets,

[6] There may also be differences in the ability of large and small banks in generating information on small businesses through monitoring cash flows on deposit accounts at the lending bank (see Nakamura 1993a,b, Akhigbe and McNulty 2003, Mester, Nakamura, and Renault 2004).

rather than on their ability to repay on the basis of future cash flow. These firms pledge accounts receivable, inventory, or equipment to obtain credit based on the liquidation value of their collateral (Udell 2004).[7] Large banks also use leasing, which is based on fixed assets held directly by the bank that may be sold or re-leased to other businesses easily. Similarly, over the last decade, large banks have used small business credit scoring. This is a transactions-based lending technology that has been found to have allowed large banks to expand their lending to relatively opaque small businesses – credits under $100,000 that are rated as relatively risky, have high interest rates, and are often located outside of the banks' local markets (Frame, Srinivasan, and Woosley 2001, Frame, Padhi, and Woosley 2004, Berger, Frame, and Miller 2005).[8,9]

III. Data and methodology

Our data source for small businesses is the National Survey of Small Business Finance (NSSBF), which queried firms about their status as of 1993. It has information on a sample of small businesses, defined as companies with fewer than 500 full-time equivalent employees. This data set contains information about the firm, its financial condition, its organizational structure, its financial contracts, and the banks from which it purchases financial services.

We confine attention to the firms whose most recent loan was an LC from a commercial bank. We focus on the most recent loan because this is the only loan on which the NSSBF collects detailed information on pricing and other contract terms. We use LCs because they are generally the best indicators of credit availability, and are reasonably comparable across firms.

We match the firm's information with bank balance sheet and income statement data from the Call Reports, the locations of bank branches and deposits from the Summary of Deposits, and data about the firm's market environment from other sources. Following prior research, we define

[7] Asset based lending to businesses of all sizes is quite substantial in the U.S. – a total stock of about $300 billion – mostly by large banks and commercial finance companies (Commercial Finance Association 2003).

[8] Consistent with the rise in small business credit scoring by large banks, one recent study found that over the period 1993-2001, large banks improved their net returns on small business loans under $100,000 relative to small banks (Carter and McNulty 2005).

[9] See Berger and Frame (2006) for more details on small business credit scoring and its effects on credit availability.

a firm's local market as the Metropolitan Statistical Area (MSA) or non-MSA rural county in which the small business is located.[10] Table 1 gives the definitions and summary statistics for the variables.

A. Choice of LC bank

In our first set of tests, we examine the probability that a small business has an LC with a large bank, where we define a large bank as one with at least $1 billion in gross total assets (GTA). The probability is estimated using a logit functional form and is modeled as a function of the size structure of the banking market, the concentration of the market, and controls for a number of other market and firm characteristics. Our approach is to estimate:

(1) ln [P(LC from a large bank) / (1 - P(LC from a large bank))]

= *f*(large bank share, bank market concentration, other market characteristics, firm characteristics)

where P(•) indicates probability, "LC from a large bank" is a dummy variable that is one if the firm's most recent LC is at a large bank and zero if its most recent LC is at a small bank, and large bank share is the market share of large banks in the local market.[11]

[10] Note that in some cases, the bank extending credit is not located in the firm's local market. In our sample, the median distance to the bank that issued the firm's most recent LC is 3 miles, and in 90% of the cases, this bank was within 25 miles. Recent research suggests that the portion of small business loans made at greater distances beyond these local market boundaries has been increasing (e.g., Petersen and Rajan 2002, Hannan 2003). However, to the extent that some small businesses shop over a larger geographical area, our empirical results are biased against finding that local market bank size structure and concentration affect competition for small business lending.

[11] Large bank share and market concentration are based on deposits rather than loans, because no data available on the locations of all of a bank's loan customers. Our approach is consistent with other research that finds that local market deposit shares affect U.S. small business loan prices (e.g., Hannan 1991, Berger and Hannan 1997) and other aspects of the treatment of small business loan customers (e.g., Petersen and Rajan 2002, Berger, Miller, Petersen, Rajan, and Stein 2005). Banks make most small business loans in the same markets in which they have deposits. Small banks often have almost all of their loans and deposits in a single market, and there is evidence that as of 1996, only 4-6% of small business loans made by large commercial banks and banks in large bank holding companies were in markets in which these banks did not have deposits (Hannan 2003). The main distortion created by this measurement error is that the results are biased against our finding that bank market size structure matters, as the errors-in-variables in the large bank share variable attenuates its coefficients in the regressions toward zero. We find in both the quantity and price tests that a zero coefficient is strongly rejected in all cases, suggesting that the bias is not overwhelming and that market size structure measured using deposit shares does appear to matter.

We include control variables for bank market concentration, other market characteristics, and firm characteristics. It is important to control for concentration because it is the standard measure of market structure under the traditional structure-conduct-performance paradigm and it is likely correlated with our measure of market size structure. We also note a recent literature that suggests that concentration may positively affect one type of small business lending, relationship lending. Higher concentration may encourage banks to invest in relationships because borrowers are less likely to find alternative future sources of credit (e.g., Petersen and Rajan 1995). We measure bank market concentration using the Herfindahl index of deposits in the local banking market. Other market variables include a measure of market growth and two measures of market size – the log of total deposits in the local market and a dummy for whether the local market is an MSA – as well as some measures of the condition of banks in the market. Variables that control for firm characteristics include firm age, financial ratios, asset size, delinquencies and judgments of the firm and owner, organizational structure, industry, growth, and informational opacity.

Including banks of all sizes and loans of all sizes may result in a bias against finding that large banks grant disproportionately less credit to small businesses. This is because small banks are less able to make loans to the larger small businesses due to legal lending limits and problems of diversification. Banks are generally prevented by regulators from exposing more than 15% of their equity capital to a single customer. Thus, a bank cannot grant a $1 million LC unless it has at least $6.667 million in equity ($1 million / 0.15). Some of our LCs are greater than $1 million and some of our banks have less than $6.667 million in equity. This problem is present in most studies of the effects of bank size and M&As on small business lending, which typically grouped all loans under $1 million together and did not account for inability of the smallest banks to make loans at the high end of this interval.

To mitigate the effects of this bias, we look at three subsamples of LCs – lines under $1 million, lines between $100,000 and $1 million, and lines under $100,000. Essentially all banks can extend LCs under $100,000, so legal limits/diversification issues present no difficulty for this subsample. For the two subsamples of larger LCs, some adjustments are needed. For these subsamples, we include only LCs from banks with enough equity to make all loans in the

subsample under legal lending limits. That is, for the lines under $1 million and for those between $100,000 and $1 million, we include only LCs from banks with enough equity so that 15% of equity is at least equal to the maximum line in the subsample. Since the maximum line in these two subsamples is $1 million, we only include LCs at banks with at least $6.667 million in equity.

For the subsamples that range up to $1 million, we also use "restricted" measures of market size structure and the Herfindahl index – measures that include only banks with sufficient equity ($6.667 million) to be in the subsamples. As a robustness check, we tried using unrestricted measures of market structure, and these gave similar results.

B. Small business loan pricing

The second part of our analysis tests the effects of banking market size structure, size of the lending bank, market concentration, and other factors on small business loan prices. We estimate:

(2) PREMIUM = *f* (market size structure, bank size, bank market concentration and other market characteristics, firm characteristics, other bank characteristics, bank-borrower relationship, loan contract variables),

where PREMIUM is defined as the interest rate on the LC minus the bank's prime rate.

To measure local market size structure, we use the share of deposits held by large banks (GTA ≥ $1 billion). To account for bank size, we include a dummy that is one if the bank providing the LC is large. We include the same measures of bank market concentration and other market characteristics and firm characteristics as in equation (1). We also include other factors that might affect the decisions of the small business and potential lending banks. There are controls for the strength of the bank-borrower relationship (measured by its length) and other bank variables measuring the financial health of the lending bank. To control for risks of the loan not captured in the firm variables, we specify loan contract terms indicating whether the LC is secured, whether it is guaranteed, and whether compensating balances are required. Since the bank and firm may negotiate these contract terms and the interest rate simultaneously, using the

contract terms may introduce an endogeneity problem. Because of this concern, we run our regressions both with and without contract terms, and the results are qualitatively similar.

IV. Empirical results and reconciliation with the literature

A. Choice of LC Bank

The results for a logistic regression using equation (1) for the full sample are shown in the first column of Table 2.[12] The regression includes 648 firms whose most recent loan was an LC from a commercial bank as observations, with the dependent variable equal to one if and only if the small business has an LC from a large bank. At the bottom of the first column, we show that 359 of the 648 LCs (55%) are from large banks. Since the logistic form is nonlinear, for each coefficient estimate, we also show the marginal effect – the predicted change in the probability of having a LC from a large bank for a small change in the independent variable, evaluated at the sample mean. The p-values are for testing that each coefficient (and hence its marginal effect) equals zero.

Of key interest here is whether, all else equal, small businesses are disproportionately less likely to have LCs at large banks, as might be expected based on prior literature. We examine the effect of the LARGE BANK SHARE variable, our proxy for large banks' presence in local markets. A marginal effect significantly less than one is evidence that small businesses are disproportionately less likely to have LCs at large banks, all else equal. For each regression in Table 2, we show a p-value for testing the marginal effect of LARGE BANK SHARE equals one, displayed just below the more common test of a zero value.

[12] The results for both the choice of LC bank regressions and for the interest rate premium regressions discussed below are qualitatively similar when we use a Heckman correction for sample selection bias. We first run a probit equation for the probability that the firm will be granted an LC on its last loan application, and then include the resulting inverse Mills ratio as a regressor in our equations (1) and (2). There is a problem of identification for the Heckman correction, as we have no regressors in the first-stage probit that are not also in the second-stage equations. Since we do not have any "true" exclusion restrictions, our sample selection correction is identified by the nonlinearity inherent in the inverse Mills ratio. The use of the same underlying variables cannot be avoided, since all of the variables that affect the accept/reject decision may also affect the size of bank chosen, and the loan premium. Fortunately, our results are robust to including or excluding this Heckman correction.

For the full sample regression in column 1 of Table 2, the coefficient on the large bank share of 3.743 converts to a marginal effect of 0.925. This equates to a marginal increase in the probability of having a loan from a large bank of 0.925 percentage points for a one percentage point increase in the deposit share of large banks (evaluated at the sample mean).[13] As shown in the table, the p-value for testing the marginal effect of this variable equals one is 0.900, far from statistical significance. The estimated marginal effect of the large bank share is neither economically or statistically significantly different from one. Thus, the results shown in column 1 are **not** consistent with the conclusions from the prior literature that would predict a marginal effect substantially less than one.

As discussed, we use the subsamples of LCs under $1 million, between $100,000 and $1 million, and under $100,000 with only LCs from banks with enough equity to make all loans in each subsample to mitigate bias. For, the subsample of LCs under $1 million, the marginal effect of an increase in the market share of large banks is 0.971, which is not economically or statistically significantly different from one. When we drop the smallest LCs and focus on those between $100,000 and $1 million loans from the sample, the results are similar, a marginal effect of 0.833 that is not significantly different from one. Again, the results are **not** consistent with the conclusions of the prior literature.

The findings for LCs under $100,000 differ somewhat from the other results, with a marginal effect of 1.257. Although this value is not statistically significantly different from one, it is consistent with banks using different technologies to evaluate these loans than they do for larger LCs. One possible explanation is large banks may have an advantage in making many of these "micro" loans if they use transactions lending technologies based on statistical models that focus on the consumer characteristics of the small business owner rather than the characteristics of the business. Although our sample period predates widespread adoption of what is now referred to as small business credit scoring that combines personal and business data, some large banks may

[13] The marginal increase in P(LC from a large bank) for an increase in an independent variable evaluated at the sample mean is $P \cdot (1 - P) \cdot (\text{coefficient})$, where P is the mean frequency of having an LC from a large bank of 0.55 as shown in Table 1. Thus, the marginal increase in the probability of having an LC from a large bank when the large bank share is increased is $0.55 \cdot (1 - 0.55) \cdot (3.743) = 0.925$.

have been willing to make micro business loans based primarily on the owner's personal credit scores.

The additional banking market control variables in our regressions are generally not statistically significantly different from zero, but they suggest that there may be some differences in the way larger and smaller LCs are issued. For LCs between $100,000 and $1 million, safer markets, as measured by lower MKT BK NONPERF, are associated with more LCs at large banks, all else equal. For LCs under $100,000, in contrast, the coefficient on MKT BK NONPERF is positive although insignificant. Another difference is that banking market financial strength, as measured by MKT BANK ROE, has a significant positive effect on whether an LC under $100,000 is at a large bank, but no significant effect on LCs between $100,000 and $1 million.

The firm control variables allow us to examine whether firm characteristics affect the probability of having their LC at a large bank. Of particular interest is the question of whether opaque small businesses are more likely to have LCs at large versus small banks. The striking result is that there are very few significant effects of the firm characteristics, implying that large and small banks may make loans to similar small businesses on average. In the tests for LCs between $100,000 and $1 million, the only statistically significant coefficient on a firm characteristic is that for Ln(ASSETS), suggesting that larger firms borrow from large banks on average. This may reflect diversification problems for some of the small banks, since this coefficient is not significant for the LCs under $100,000. For LCs under $100,000, there are a few significant effects, but they are mixed. Variables measuring differences in risk have opposing signs – riskier firms as measured by higher leverage tend to have their LCs under $100,000 at small banks, but those whose owners having personal delinquencies tend to use large banks. Variables measuring opacity, such as Ln(FIRM AGE) and R&D EMPLOYEES have p-values that are far from significant, consistent with the hypothesis that both large and small banks serve opaque small businesses.

We perform a number of robustness checks on our results (not shown in tables). When we use only the size structure variable, we again find that it is not significantly different from one. The results are also qualitatively similar when we include various combinations of the control variables. In addition, we also tried different cutoffs between small and large banks. Specifically, if we define a large bank as one with over $10 billion in GTA, we find that the probability of having an LC at a large bank is still roughly proportional to the market share of large banks. If we define a large bank as one with over $100 million in GTA, the probability of having an LC under $100,000 at a large bank is again roughly proportional to the market share of large banks.[14] In addition, the results are similar when we divide markets into those where the large bank share is above and below the median. Overall, the findings appear to be quite robust.

B. Small Business Loan Pricing

We next turn to our results on small business loan pricing. Table 3 presents the results from regressing PREMIUM on market size structure, bank size, market concentration, and other bank, market, firm, relationship, and loan contract variables. This table shows the coefficient estimates and p-values. There are slightly fewer observations (520) than for the quantity regressions because of missing loan interest rate information.

We show the regression run three different ways. In the first column of Table 3, we exclude the market size structure variable to see if we replicate the result from the literature regarding the effect of bank size. In the second column, we show the full specification inclusive of market size structure, and in the third column, we exclude the potentially endogenous loan contract variables.

In the regression in the first column with market size structure excluded, the coefficient on LARGE BANK, the bank size dummy, is negative and significantly different from zero. Thus, given the control variables in the regression, banks over $1 billion in GTA charge lower premiums than do banks below $1 billion in GTA (the excluded group). The coefficient of -0.183 implies that the premium charged by a large bank is 18.3 basis points lower than the premium

[14] For the larger LCs, the logit regressions do not converge with this cutoff because very few large LCs are made at banks with less than $100 million in GTA due to legal lending limits/diversification problems.

charged by a small bank, all else equal. This result is consistent with prior findings in the literature, although our finding is based on a more complete analysis because we are able to control for firm characteristics. As discussed above, however, this finding may occur because of the exclusion of market size structure from the equation, given that individual bank size is likely highly correlated with the share of large banks in the market.

The second column of Table 3 has the full specification, including market size structure as well as individual bank size. As shown, the coefficient of the size structure variable is statistically significant but the bank size dummy is not. The coefficient of LARGE BANK SHARE is -0.475 and is statistically significant, whereas the coefficient of LARGE BANK is not statistically significant and is smaller than in the first column of Table 3. Thus, interest rates are significantly negatively affected by banking market size structure, but not by the size of the lending bank. These results are consistent with more aggressive competition in markets with a greater large bank share, and that banks of all sizes tend to set loan rates more on the basis of this competition than on their own size. Because we control for market concentration and other banking market variables, the coefficient on LARGE BANK SHARE is likely to reflect the direct competitive effects of market size structure, rather than the indirect effects of market concentration or other banking market conditions.

The findings also suggest that prior findings in the literature on pricing and loan size – confirmed in the first column of Table 3 with controls for firm characteristics – may be substantially attributable to the exclusion of market size structure. Importantly, in contrast to the literature, the findings do **not** suggest that large banks are disadvantaged in lending to opaque small businesses. On the contrary, the findings are consistent with large and small banks serving customers that pay about the same average interest rate for credit in the same local market, with no implication for differences in opacity between these customers.

We illustrate the economic magnitude of the effect of market size structure on pricing by example. Consider the implication if a community moved from the 25^{th} percentile of MSAs in terms of large bank deposit share to the 75^{th} percentile. Using this measure, Midland, Texas with

a 56% large bank deposit share is at the 25th percentile and Philadelphia, Pennsylvania with 85% of deposits in large banks is at the 75th percentile of all MSAs. Our results suggest that a bank of any given size in Midland will, on average and all else equal, have a loan interest rate that is 14 basis points higher than a bank of the same size in Philadelphia (coefficient of LARGE BANK SHARE of -0.475 times the 29% difference in this share).

Turning briefly to, the control variable coefficients, we find that having a longer relationship with a bank reduces the interest rate spread in the main regression, consistent with earlier findings. Interest rate spreads are also significantly higher in more concentrated markets, consistent with prior research. Unlike these prior studies, however, we control for firm characteristics, as well as for market size structure. LCs in markets that are growing faster (MKT BANK GROWTH) and with stronger banks as measured by return (MKT BANK ROE) pay higher spreads. In terms of firm characteristics, many of the coefficients on the control variables are not statistically significant with the exceptions being CURRENT RATIO, Ln(ASSETS), BUS DELINQ, SERVICES, and R&D EMPLOYEES. These coefficients all have the expected signs, with riskier or more opaque firms paying higher rates.

Finally, the coefficients on the loan contract term variables are all significant and of the predicted direction. Loans that are secured or guaranteed bear higher rates, as found in prior research, and compensating balances reduce the interest rate on average, as expected.

Due to the potential endogeneity of the loan contract terms, we drop these variables from the specification in the final column of Table 3. The main findings are qualitatively unchanged. The coefficient on LARGE BANK SHARE remains statistically and economically significant and the coefficient on LARGE BANK remains statistically insignificant.

We run robustness checks on the LC pricing results similar to those for LC choice results (not shown in tables). We find that the result that small businesses tend to pay lower rates in markets with greater market shares for large banks are robust to dropping the control variables and to altering the cutoff between small and large banks as we did for the LC regressions. We also tried a number of additional robustness checks. Dividing up the sample by size of the market

(total market deposits) appeared to have no material effect on the results – banks appear to behave similarly in large and small markets, all else equal. We also tried measuring bank size classes by the assets in all the banks in the bank's holding company (if any), rather than the assets of the bank itself. The main results were again preserved.

V. Conclusions

This paper proposes a new approach to addressing several controversies in the small business lending literature. We introduce market size structure – the shares of different sizes of local market participants, where size includes operations that are both within and outside that local market. Using market size structure, we reach different conclusions about whether large banks have an overall disadvantage in lending to opaque small businesses than the prior literature. The underpinning of this literature conceptually hinges on two conclusions: 1) external financing of opaque small businesses can only be provided by soft information-based relationship lending; and 2) large banks are ill-equipped to provide relationship lending. Empirical support for these conclusions substantially rests on quantity tests that indicate that large banks allocate a lower fraction of their loan portfolio to small business lending than small banks and on price tests that indicate that large banks lend to a higher-quality pool of small business borrowers. Our analysis in this paper casts doubt on both of these findings and provides support for an alternative hypothesis that large banks deploy a number of transactions-based technologies that are specifically targeted toward opaque small businesses, an explanation consistent with the conceptual framework in new research on small business lending (Berger and Udell forthcoming).

In our quantity tests, we find that the likelihood that a small business obtains credit from a bank of a given size is roughly proportional to the local market presence of banks of that size. We also find few significant differences in the opacity or other characteristics of small businesses that borrow from large versus small banks. These results are consistent with no net advantage or disadvantage for large banks in small business lending overall or to opaque firms.

The main finding in our price tests is that loan rate premiums on small business loans are significantly negatively affected by a greater market presence of large banks, but are not significantly affected by the size of the lending bank when the market presence of large banks is taken into account. That is, inclusion of market size structure in our price regressions eliminates the significance of the lending bank's size. This likely occurs because of the correlation between bank size and market size structure – large banks are more often in local markets with greater market shares for large banks.

Our findings are not inconsistent with the common finding in the literature that large banks have a comparative advantage in transactions-based lending and a disadvantage in relationship lending. Rather, our findings may be interpreted as supporting the hypothesis that there are many transactions lending technologies that large banks may deploy in lending to opaque small businesses. These include asset-based lending, leasing, and, in recent years, small business credit scoring.

Our findings are consistent with the possibility that if consolidation continues as it has – large organizations expanding into different local markets without substantially increasing local market concentration – there may be little effect on small business credit availability and a possible reduction in loan prices in some of these markets. These effects would not be anticipated by traditional analyses that exclude market size structure.

The results in this paper suggest that future researchers give consideration to including market size structure because, as in our study, it can substantially affect the findings. We also suggest that a fertile field for future research may be to test whether the effects of market size structure increase in importance over time with banking industry consolidation and the potential spread and improvement of the transactions technologies for lending to opaque small businesses.

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Table 1. Variable definitions, means, and standard deviations.

		LC choice regressions		Premium regressions	
Variable	**Definition**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Bank size and loan rate premium					
LARGE BANK	Dummy for whether the firm has a loan with a bank having greater than or equal to $1 billion GTA	0.55	0.63	0.57	0.64
PREMIUM	Premium over the Prime Rate on the line of credit			1.21	0.90
Size structure variable					
LARGE BANK SHARE	Proportion of deposits in the market at banks with greater than or equal to $1 billion GTA	0.62	0.37	0.64	0.36
Bank-firm relationship variable (used in premium regressions only)					
Ln(RELATE LENGTH)	Log of the length of relationship with LC bank			2.06	0.74
Other banking market variables					
HERFINDAHL	Market variable: Herfindahl ratio based on market deposits	0.19	0.11	0.19	0.11
MKT BANK GROWTH	Market variable: growth rate of bank deposits in the local market	-0.02	0.11	-0.02	0.11
Ln(MKT DEPOSIT SIZE)	Market variable: log of the total deposits in the local market	15.50	1.97	15.61	1.94
MSA DUMMY	Dummy for whether the firm is in an MSA	0.78	0.41	0.80	0.40
MKT BANK ROE	Market variable: average bank ROE weighted by deposits	0.12	0.05	0.12	0.05
MKT BK EQUITY RATIO	Market variable: average equity-to-assets ratio weighted by deposits	0.08	0.01	0.08	0.01
MKT BK NONPERF	Market variable: average nonperforming loans to total loans ratio weighted by deposits	0.04	0.02	0.04	0.02
Other bank variables (used in premium regressions only)					
BK ROE	Bank return on equity (ROE)			0.07	0.02
BK EQUITY RATIO	Bank equity-to-assets ratio			0.12	0.12
BK NONPERF LOANS	Bank nonperforming loans to total loans ratio			0.04	0.03

(Table continued on the next page)

Table 1 continued.

Variable	Definition	LC choice regressions Mean	LC choice regressions Standard deviation	Premium regressions Mean	Premium regressions Standard deviation
Firm variables					
Ln(FIRM AGE)	Log of the age of the firm	2.70	0.54	2.73	0.54
LEVERAGE	Firm leverage	0.61	0.36	0.62	0.37
PROFIT MARGIN	Firm profit margin	0.07	0.19	0.06	0.18
CURRENT RATIO	Firm current ratio	1.77	1.72	1.65	1.69
Ln(ASSETS)	Firm log of total assets	13.91	1.79	14.08	1.76
PERS DELINQ	Dummy indicating principle owner has been 60 or more days delinquent on personal obligations over the past three years	0.05	0.22	0.05	0.21
BUS DELINQ	Dummy indicating business has been 60 or more days delinquent over the past three years	0.19	0.39	0.18	0.39
JUDGMENT	Dummy indicating judgment rendered against principal owner during the past three years	0.04	0.19	0.04	0.19
CORPORATION	Dummy for whether the firm is a corporation	0.54	0.50	0.57	0.50
SUBCHAPTER S	Dummy for whether the firm is a Subchapter S firm	0.31	0.46	0.30	0.46
PARTNERSHIP	Dummy for whether the firm is a partnership	0.06	0.23	0.06	0.24
PROPRIETORSHIP	Dummy for whether the firm is a sole proprietorship	0.09	0.29	0.08	0.27
CONSTR	Dummy for whether the firm is in construction	0.11	0.31	0.11	0.32
SERVICES	Dummy for whether the firm is in services	0.25	0.43	0.23	0.42
RETAIL	Dummy for whether the firm is in retail	0.18	0.38	0.16	0.37
EMPLOYEE GROWTH	Firm employee growth	0.05	0.16	0.05	0.17
SALES GROWTH	Firm sales growth	0.39	0.71	0.36	0.69
PPE-to-ASSETS	Firm PPE to assets ratio	0.34	0.27	0.33	0.26
R&D EMPLOYEES	Firm R&D to employees ratio	0.04	0.14	0.04	0.13
Loan contract variables (used in premium regressions only)					
SECURE AR/INV	Dummy for whether the loan is secured by accounts receivable (AR) or inventory			0.42	0.49
SECURE OTHER	Dummy for whether the loan is secured by securities other than AR or inventory			0.21	0.41
GUARANTEED	LC is guaranteed			0.62	0.49
COMP BALANCES	Compensating balances dummy			0.11	0.31
Number of observations		648		520	

Table 2. Choice of a bank for a line of credit.

Logistic regressions for the probability that a small business has its most recent line of credit at a large bank. Each dependent variable is based a dummy that has the value one if the lending bank has GTA at least $1 billion and is zero otherwise. The marginal effect is the predicted change in the probability of having a LC from a large bank for a small change in the independent variable, evaluated at the sample mean.

	All LCs			**All LCs under $1 million at banks with equity greater than $6.667 million**			**All LCs between $100,000 and $1 million at banks with equity greater than $6.667 million**			**All LCs under $100,000**		
Variable	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value
INTERCEPT	-4.630	-1.144	0.008	-1.073	-0.233	0.599	-0.168	-0.025	0.953	-4.782	-0.717	0.246
Size structure												
LARGE BANK SHARE	3.743	0.925	0.000	3.906	0.971	0.000	3.427	0.833	0.000	5.315	1.257	0.000
Test of Marginal Effect = 1			0.900			0.874			0.843			0.748
Other banking market variables												
HERFINDAHL	0.518	0.128	0.711	1.152	0.286	0.480	0.238	0.058	0.911	4.194	0.992	0.208
MKT BANK GROWTH	0.003	0.001	0.997	0.627	0.156	0.535	0.523	0.127	0.676	3.093	0.731	0.116
Ln(MKT DEPOSIT SIZE)	-0.067	-0.017	0.528	-0.098	-0.024	0.428	-0.074	-0.018	0.641	-0.031	-0.007	0.900
MSA DUMMY	-0.145	-0.036	0.721	-0.304	-0.075	0.523	-0.430	-0.105	0.473	0.440	0.104	0.622
MKT BANK ROE	0.140	0.035	0.948	-0.069	-0.017	0.978	-0.305	-0.074	0.924	9.753	2.306	0.086
MKT BK EQUITY RATIO	-12.616	-3.117	0.353	-24.497	-6.089	0.137	-43.963	-10.681	0.047	35.899	8.487	0.184
MKT BK NONPERF	-5.357	-1.324	0.483	-16.475	-4.095	0.063	-21.405	-5.201	0.081	11.684	2.762	0.459
Firm variables												
Ln(FIRM AGE)	0.003	0.001	0.987	-0.146	-0.036	0.526	-0.039	-0.009	0.884	-0.062	-0.015	0.908
LEVERAGE	-0.307	-0.076	0.232	-0.439	-0.109	0.134	-0.325	-0.079	0.428	-0.916	-0.217	0.070
PROFIT MARGIN	-0.423	-0.104	0.365	-0.405	-0.101	0.428	-0.723	-0.176	0.346	-0.377	-0.089	0.638
CURRENT RATIO	-0.121	-0.030	0.033	-0.111	-0.028	0.092	-0.045	-0.011	0.576	-0.226	-0.053	0.066

(Table continued on the next page)

Table 2 continued.

	All LCs			LCs under $1 million, bank equity over $6.667 million			LCs $100,000-$1,000,000, bank equity over $6.667 million			All LCs under $100,000		
Variable	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value	Coefficient Estimate	Marginal Effect	p-value
Ln(ASSETS)	0.316	0.078	0.000	0.141	0.035	0.084	0.297	0.072	0.023	-0.287	-0.068	0.133
PERS DELINQ	0.324	0.080	0.486	0.531	0.132	0.307	0.246	0.060	0.764	1.154	0.273	0.085
BUS DELINQ	-0.153	-0.038	0.577	-0.285	-0.071	0.355	-0.274	-0.066	0.485	-0.486	-0.115	0.332
JUDGMENT	-0.138	-0.034	0.763	0.325	0.081	0.570	0.989	0.240	0.276	-1.154	-0.273	0.273
CORPORATION	0.191	0.047	0.643	0.321	0.080	0.467	-0.699	-0.170	0.442	1.458	0.345	0.037
SUBCHAPTER S	0.399	0.099	0.346	0.478	0.119	0.302	-0.281	-0.068	0.762	0.928	0.219	0.161
PARTNERSHIP	-0.420	-0.104	0.427	-0.558	-0.139	0.324	-0.636	-0.155	0.545	-1.743	-0.412	0.065
CONSTR	-0.443	-0.109	0.171	-0.220	-0.055	0.530	0.066	0.016	0.870	-1.053	-0.249	0.193
SERVICES	0.383	0.095	0.153	0.553	0.138	0.056	0.436	0.106	0.210	0.694	0.164	0.211
RETAIL	-0.181	-0.045	0.501	0.062	0.015	0.846	-0.027	-0.007	0.951	0.158	0.037	0.780
EMPLOYEE GROWTH	0.761	0.188	0.181	0.861	0.214	0.230	0.520	0.126	0.584	1.048	0.248	0.371
SALES GROWTH	0.007	0.002	0.961	0.011	0.003	0.940	-0.034	-0.008	0.857	0.337	0.080	0.195
PPE-to-ASSETS	-0.475	-0.117	0.207	-0.225	-0.056	0.613	0.066	0.016	0.914	-1.378	-0.326	0.075
R&D EMPLOYEES	0.067	0.017	0.918	0.126	0.031	0.862	-0.362	-0.088	0.737	-0.184	-0.043	0.831
Pseudo R-sq		0.223			0.167			0.142			0.349	
Observations		648			446			286			193	
Number of LCs at large banks		359			240			167			74	

Table 3. Regression of interest rate spread (PREMIUM) on size structure and bank size.
OLS regressions for the interest rate spread. The dependent variable in all the regressions in this table is PREMIUM, the spread over the prime rate of the bank loan. The regressions have different combinations of independent variables using the same data set. We use White's heteroskedasticity correction to find confidence intervals.

Dependent variable:	**PREMIUM**		**PREMIUM**		**PREMIUM**	
Variable	Coefficient Estimate	p-value	Coefficient Estimate	p-value	Coefficient Estimate	p-value
Size structure						
LARGE BANK SHARE			-0.475	0.018	-0.469	0.021
Bank variables						
LARGE BANK	-0.183	0.027	-0.112	0.186	-0.128	0.135
Bank-firm relationship variable						
Ln(RELATE LENGTH)	-0.090	0.058	-0.104	0.026	-0.121	0.008
Other banking market variables						
HERFINDAHL	1.063	0.029	1.432	0.007	1.440	0.007
MKT BANK GROWTH	0.501	0.090	0.477	0.102	0.478	0.107
Ln(MKT DEPOSIT SIZE)	0.051	0.152	0.085	0.035	0.074	0.064
MSA DUMMY	-0.200	0.176	-0.141	0.335	-0.134	0.374
MKT BANK ROE	1.070	0.137	1.289	0.075	1.402	0.054
MKT BK EQUITY RATIO	-1.500	0.754	-4.911	0.329	-6.005	0.220
MKT BK NONPERF	4.382	0.221	5.779	0.108	5.784	0.095
Other bank variables						
BK ROE	-0.466	0.090	-0.564	0.031	-0.471	0.060
BK EQUITY RATIO	2.635	0.384	2.920	0.328	2.851	0.341
BK NONPERF LOANS	-0.853	0.611	-1.490	0.365	-1.255	0.439
Firm variables						
Ln(FIRM AGE)	-0.111	0.107	-0.113	0.101	-0.144	0.037
LEVERAGE	0.037	0.696	0.046	0.628	0.087	0.366
PROFIT MARGIN	0.120	0.513	0.101	0.577	0.115	0.529
CURRENT RATIO	0.034	0.151	0.041	0.076	0.039	0.097
Ln(ASSETS)	-0.130	0.000	-0.131	0.000	-0.131	0.000
PERS DELINQ	0.143	0.407	0.141	0.421	0.166	0.370
BUS DELINQ	0.421	0.000	0.441	0.000	0.463	0.000
JUDGMENT	-0.039	0.864	-0.072	0.746	-0.073	0.733
CORPORATION	-0.085	0.591	-0.070	0.658	-0.013	0.932
SUBCHAPTER S	-0.101	0.539	-0.077	0.638	-0.054	0.746
PARTNERSHIP	-0.244	0.194	-0.200	0.286	-0.206	0.288
CONSTR	0.051	0.702	0.088	0.506	0.077	0.539
SERVICES	-0.227	0.012	-0.217	0.015	-0.204	0.023
RETAIL	0.058	0.586	0.063	0.550	0.087	0.415
EMPLOYEE GROWTH	0.066	0.772	0.049	0.824	0.072	0.750
SALES GROWTH	-0.043	0.446	-0.046	0.406	-0.032	0.560
PPE-to-ASSETS	0.105	0.447	0.117	0.395	0.137	0.314
R&D EMPLOYEES	0.648	0.012	0.658	0.008	0.754	0.003
Loan contract variables						
SECURE AR/INV	0.180	0.045	0.175	0.050		
SECURE OTHER	0.239	0.011	0.241	0.010		
GUARANTEED	0.155	0.055	0.156	0.050		
COMP BALANCES	-0.241	0.014	-0.245	0.013		
Adj R-sq	0.290		0.299		0.274	
Observations	520		520		520	