The Effects of Banks on "Debt-Sensitive" Small Businesses

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Abstract

We try to identify which small businesses are most "debt sensitive," or most likely to be affected by banking market conditions. For our primary debt sensitivity categories, we hypothesize that bank conditions are most likely to have significant effects on firms in size classes and industries that are "on the bubble" for credit availability (probability of credit close to 0.50), rather than those with "relatively easy" or "relatively difficult" access to credit (probability much higher or lower, respectively). Our secondary classifications also require that loans fund a substantial proportion of assets for the firms in the category that have loans. We test the hypotheses by using a comprehensive data set of U.S. small businesses by size class and industry matched with variables measuring bank market power, market structure, and efficiency in the firm's local markets. We find the data to be consistent with the hypotheses, but not all of the bank conditions are significant. The support for the hypotheses is strongest using the secondary classifications.

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1. Introduction

Much of the banking research over the last decade has focused on the effects of banks on small businesses. Nonetheless, several important research and policy questions remain. First, it is unclear whether small businesses are best served on net in more versus less competitive banking markets. The exercise of bank market power may help small businesses served using one lending technology – relationship lending – but hurt small firms served using other technologies. Second, the net effect of changes in bank market structure from consolidation remains in question. That is, it is unclear whether the supply of small business credit is increased or decreased from the shifting of market shares from small, single-market institutions – or "local community banks" – to large, geographically dispersed banking organizations – or "mega banks." Third, the effects of bank efficiency on the supply of small business credit – the extent to which small businesses are better served by institutions that are closer to the efficient frontier – has not been addressed empirically to our knowledge.

In this paper, we try to both narrow and broaden the focus of this literature. We narrow the focus by identifying and testing *which* small businesses are most likely to be affected by bank market power, market structure, and efficiency. While some authors have addressed this issue, our hypotheses appear to be quite different. For our *primary* debt sensitivity categories, we hypothesize that bank conditions are most likely to have significant effects on small businesses in size classes and industries that are "on the bubble" for credit availability or have marginal access to debt. We argue that these firms will be more sensitive than both those with "relatively easy" credit availability or good access to debt and those with "relatively difficult" credit availability or poor access to debt.

The logic here is quite simple – we argue that the effects of the key exogenous variables are maximized near the center of the distribution. This is similar to the familiar S-curve specified in logit or probit analysis. The effect of exogenous variables should be maximized in the center of the distribution, and minimized near both the upper and lower tails, although we have no specific distribution in mind. We simply argue that firms that with close to a 0.50 probability of obtaining a loan should be more sensitive to bank conditions than firms with high probabilities that are likely to obtain credit for almost any banking conditions and those with low probabilities that are unlikely to acquire debt financing under virtually any market conditions.

For our *secondary* classifications of which firm size classes and industries are likely to be more sensitive to bank market conditions, we also include the requirement that loans fund a substantial proportion of assets for the small businesses in the category that have loans. The goal is to ensure that this funding is important when it

is available so that having the loans is of economic significance to the firm. The secondary classification method has the advantage of identifying firms more clearly as debt-sensitive. However, it has the disadvantage of reducing the number of industries that can be analyzed, because the very small firms in a number of industries tend to have relatively low loan-to-asset ratios when they have loans.

We broaden the focus of the research literature by studying the effects of bank market power, market structure, and efficiency in the same analysis. Many recent empirical papers examine the effects of bank market power on small business credit with mixed results. A smaller number of recent studies test the effects of bank market structure using the market shares of banks of different sizes and geographic spreads. No empirical studies of which we are aware directly examine the question of the effects of bank efficiency on small businesses. By studying the effects of these banking factors together on the small businesses that are most likely to be affected by them, we may shed more light on the larger research and policy questions of both whether and how banks "matter" to small businesses.

We use data from the Survey of Small Business Finances (SSBF) on small business size, industry, and credit to formulate hypotheses about the sizes and industries that are likely to be more or less "debt-sensitive." We then test these hypotheses using information from the U.S. Census on the numbers of business establishments by size, industry, and location, and data from bank regulatory reports for commercial bank location and condition. We match virtually all the business establishments in the U.S. with virtually all the commercial banks in virtually all the local metropolitan and rural markets in the U.S. for a 12-year period from 1991-2002. We exclude firms in the finance, real estate, nonprofit, and agriculture industries – industries that typically have different credit availability issues – leaving a total of over 30,000 market-year observations.

In defining and measuring debt sensitivity, we focus on overall access to loans, rather than just bank loans. We argue that bank loans and credit from other sources – such as commercial finance companies, thrifts, and other financial institutions – are likely to be largely substitutable. In some cases, firms may borrow from these other institutions because of unfavorable banking conditions, but commercial banks should be considered as contenders for almost all loans, given that they use almost all of the lending technologies for small businesses employed by different types of financial institutions, and banks are almost always conveniently located to make these loans. For most small businesses, debt sensitivity essentially amounts to external finance sensitivity, since very few small businesses have access to equity markets.

We also recognize a potential source of endogeneity if the banking industry conditions are responsive to the firms we identify as more and less debt-sensitive. However, as shown below, we focus most of our attention on the smallest size class of firms with 1-4 employees. These firms account for less than 5% of total employment, so it is unlikely that banks increase or decrease their market shares or efficiency in response to these firms.

Our concept of debt sensitivity differs significantly from the concept of "external dependence" for an industry employed by Rajan and Zingales (1998) and others. External dependence is based on having the highest total external finance for investments by large, publicly traded U.S. manufacturing firms – firms that generally have significant access to both external debt and equity. Industries that finance more of their investments with external funds are considered to be more dependent. External dependence is designed to describe the differences in technological needs for financing across industries, such the gestation period or production cycle between investment and resulting future cash flows.

External dependence is very good for many purposes, but may not be appropriate for very small U.S. businesses that typically do not have access to external equity and which have loans only about half the time. We argue that for these firms, access to *any* external funding is primary importance, and the amount of credit granted if loans are issued is a secondary concern. Moreover, the technological needs for investment funding for large, publicly traded manufacturing firms may not be descriptive of the technological needs for funding of very small firms, many of which are not in manufacturing sectors. These firms may also have deficiencies in working capital financing as well as investment capital funding. For these firms, we argue that the probability of having loans is more useful for reflecting their access to credit.

An alternative that has been used is the median loan/asset ratio for small businesses in different manufacturing industries – viewing industries with higher ratios as more dependent on external debt (Cetorelli and Strahan 2006). This is closer to our concept because it uses small business debt, but differs in some important ways. This use of loan/asset ratios focuses on industries in which small businesses receive the most credit, rather than on industries with firms on margin of receiving any credit. The median loan/asset ratio for small businesses in industry also does not differentiate between the smallest and largest of these firms, which we show below appear to have very different access to loans. While we use the median loan/asset ratio for firms with loans in our secondary classification for debt sensitivity, we do not focus on the highest values.

A third alternative is to focus on the rate of new incorporations of businesses in a state. Black and Strahan (2002) show that this is a good indicator of the number of "starts" of very small firms, and so may well represent a size class and point in the financial growth cycle when firms are highly sensitive to banking market conditions. Their tests are somewhat analogous to our examination of debt sensitivity based on different size classes of small businesses. However, they are not able to compare their very small firms to a larger size class, and they are not able to differentiate among industries with their data source.

To preview our main hypothesis tests, we regress the log of firms per capita in different size classes and in different primary and secondary debt sensitivity categories on credit supply variables measuring bank market power, bank market structure, bank efficiency, and some controls. We then test for differences across these regressions. The results are statistically and economically significant and consistent with our hypotheses that the numbers of very small firms per capita in categories identified as particularly debt-sensitive – or "on the bubble" for credit availability – are more responsive to banking conditions than are firms in categories identified ex ante as less sensitive. However, not all of the bank conditions are found to be significant. We also find the most support for the hypotheses using our secondary debt sensitivity classifications, despite the fact that we have to drop a number of industries to construct the categories.

Section 2 describes our classification of debt-sensitive small business sizes and industries and our main hypotheses. Section 3 presents the regression model and discusses the variables and the data and reviews some of the literature that has tested the key bank market variables. Section 4 gives the results of our regressions and hypothesis tests, and Section 5 concludes.

2. Classification of debt-sensitive small businesses and our hypotheses

In this section, we identify the types of small businesses – by both size and industry – that are likely to be more or less debt sensitive than other small firms. We employ data from the 1998 Survey of Small Business Finances (SSBF), a widely used research tool for small business finance with a wealth of detailed information on a large number of U.S. small businesses and their access to financial services.[1] The survey provides information on firms up to the limit of 500 full-time-equivalent employees – the Small Business Administration (SBA) definition of a small business. We exclude respondents without assets or a valid SIC code from which to determine the firm's industry. We also exclude firms in the finance, real estate, nonprofit, and agriculture

[1] The 1998 survey is the most recent available with fully "cleaned" data.

industries, as the credit availability issues for such firms are quite different.

2.1 Debt sensitivity by firm size class

We measure firm size by number of employees to be consistent with our data on business establishments in the local market described below. Table 1 shows the number of firms in each of 3 employee size classes, the proportion of these firms with loans (P LOAN), and the median loans-to-assets ratio for firms that have loans (LOAN RATIO). We base our identification of debt sensitivity on overall access to loans, not just bank loans. Bank loans and other loans are likely to be largely substitutable because banks use almost all the lending technologies and are located in virtually every local market. Thus, banks could make almost all of the loans if bank market conditions were ideal.[2]

As shown in the table, about half of the small businesses, 1576 firms, are in the smallest size class of 1-4 employees (including firms with a single owner-employee and no paid staff). By construction, these smallest of small businesses have the fewest employees per firm, a mean of about 2.2 employees (3450/1576). These firms account for less than 5% of total employment in the sample despite the large number of these firms.

The most striking statistics in Table 1 are the values of P LOAN(1-4) and P LOAN(20+) of 46.5% and 87.5%, respectively. The difference in the two values, P LOAN(20+) – P LOAN(1-4), is 41.0 percentage points, and is both statistically and economically significant. P LOAN(1-4) is close to the theoretical probability of obtaining a loan of 0.50 where the effects on credit availability of banking conditions and other factors is likely to be maximized. Thus, these smallest of small businesses with 1-4 employees would seem to typify firms that are "on the bubble" for credit availability, with marginal access to credit. In contrast, the value of P LOAN(20+) of 87.5% is quite high, and appear to represent firms with high credit availability, or relatively easy access to debt.

In addition, loans appear to be much more important economically to the smallest firms when they have loans. As shown in the table, the 1-4 employee firms finance about half of their assets with loans when they have loans, as opposed to about one third for firms with 20+ employees. The difference, LOAN RATIO(20+) – LOAN RATIO(1-4), is statistically significant as well as economically significant.

Based on these figures as well as conventional wisdom and prior research, we hypothesize that small

[2] We do not count trade credit as a loan here, given that banks do not compete as directly with trade credit suppliers.

businesses with 1-4 employees are more debt sensitive than those with 20+ employees both overall and within their same industry. The 87.5% figure for P LOAN(20+) suggests that these firms tend to have credit supplied to them regardless of industry.[3] There are a number of likely reasons for this, including greater informational transparency; lower risk; and economies of scale in loan values, given that larger firms tend to have larger credits.

For our intermediate firm size class of 5-19 employees, P LOAN(5-19) – P LOAN(1-4) is also positive and significant and LOAN RATIO(5-19) – LOAN RATIO(1-4) is again negative and significant. However the differences are much smaller, so we make no explicit hypothesis that these firms are less debt sensitive than the 1-4 size class.

While the data in Table 1 are by firm size only and not by industry, the arguments should generally hold within industry as well, and we test this hypothesis below. That is, larger firms in the same industry are expected to be more transparent, lower risk, and have larger loans that cost less per dollar than smaller firms. Importantly, there is also significant heterogeneity even within a size class across industries, as shown next.

2.2 Debt sensitivity by firm size class and industry using our primary and secondary classification rules

Table 2, Panel A shows our primary debt sensitivity categories, which are based on both firm size class and industry. Given our findings on firm size above, we sort the industries according to the proportions of firms in the 1-4 employee size class with loans (P LOAN(1-4)). Based on SIC codes, we order the 32 industries for which we have representation in the SSBF from highest to lowest values for P LOAN(1-4). As shown, the proportion of these very small firms with loans varies from as high as 75.0% for the lodging industry to only 21.4% for educational services. Thus, even among these very small firms, those in some industries are much more likely to have external credit than others, suggesting that size class alone is not sufficient for the purpose of identifying debt sensitivity.

Thus, for our primary classification, we divide the industries into those with a high proportion of 1-4 employee firms with loans, P LOAN(1-4) $\geq$ 0.60, a medium proportion, 0.40 < P LOAN(1-4) < 0.60, and a low proportion, P LOAN(1-4) $\leq$ 0.40. We hypothesize that firms with 1-4 employees in industries with a medium loan proportion are "on the bubble" for credit availability and are more debt sensitive by virtue of the close

[3] The 87.5% may be an understatement of credit availability, since some of the 12.5% without loans may have relatively easy access to credit but have no demand for loans at the time of the survey.

proximity of their P LOAN(1-4) to the 0.50 mark. We postulate less sensitivity for very small firms in industries with high loan proportions or "relatively easy" credit availability and for those in low-proportion industries with "relatively difficult" credit availability.

As shown in the table, firms with 1-4 employees in 16 of the 32 industries are classified as more debt sensitive using our primary classification rule. These firms constitute well over half of the firms with 1-4 employees because of the presence of some very large individual industries (e.g., business and technical services). We also note that most of the highly sensitive firms and employees are not in manufacturing industries. As discussed above, prior attempts to identify dependence on external finance or debt in some cases focus only on manufacturing.

Table 2, Panel B gives our secondary debt sensitivity categories, which are again based on both firm size class and industry. The secondary categories include the same rules for the loan proportion – a medium P LOAN(1-4) value – and add a requirement for the median loan/asset ratio for firms with loans – a medium or high LOAN RATIO(1-4) value. That is, to further differentiate the categories, we add the requirement that LOAN RATIO(1-4) > 0.40 (loans fund more than 40% of assets) for the both the high and medium P LOAN(1-4) groups, and that LOAN RATIO(1-4) ≤ 0.40 (loans fund 40% or less of assets) for the low P LOAN group. This yields more separation between the high and medium P LOAN groups on the one hand and the low P LOAN group on the other hand. Industries that do not meet these joint requirements are not assigned to a secondary category.

As shown, these requirements on LOAN RATIO reduce the total number of industries classified from 32 to 22. The number of high P LOAN industries is cut from 7 to 4, the number of medium P LOAN industries is reduced from 16 to 13, and the number in the low P LOAN category is sliced from 9 to 5 industries. The secondary classification method has the benefit of more clearly identifying firms as debt-sensitive, but it comes at the cost of fewer observations to analyze in drawing conclusions.

Table 3, Panels A and B provide tests of firm size differences in loan proportion (P LOAN) using our primary and secondary debt sensitivity categories, respectively. For each of the industries and for each of the primary and secondary categories, we test whether the differences P LOAN(5-19) – P LOAN(1-4) and P LOAN(20+) – P LOAN(1-4) are statistically and economically significant. The results and how they vary across the debt sensitivity categories are quite interesting. It seems quite clear that the data are consistent with

our hypothesis that small businesses with 1-4 employees are more debt sensitive than those with 20+ employees within their same industry. The values of P LOAN(20+) – P LOAN(1-4) are generally positive, large, and statistically significant in the overwhelming majority of cases for both the primary and secondary categories.

It is also clear that this effect is much higher, the lower is the P LOAN(1-4) category. This occurs because the values of P LOAN(20+) do not vary much across categories – staying between about 85% and 90% with loans – whereas P LOAN(1-4) falls precipitously from about two thirds with loans to about one third or one quarter with loans. Thus, it appears that industry does not matter much for the largest of small businesses – almost all of which are associated with high credit availability – but industry is quite important for the smallest of small businesses.

The findings for P LOAN(5-19) – P LOAN(1-4) are qualitatively similar, but quantitatively smaller. The differences are generally positive and higher when the P LOAN(1-4) category is lower, but the results are less often statistically and economically significant. Recall that based on the findings in Table 1, we make no explicit hypothesis that the firms with 5-19 employees are less debt sensitive than those with 1-4 employees.

As a final note on the identification/hypotheses generated using the SSBF data, we recognize that in some cases, firms have no loans because they do not want to borrow, rather than any credit constraints. The SSBF provides some additional evidence that this is not a decisive factor. Specifically, we find that firms in our most debt-sensitive group are much less often granted loans when they indicate on the SSBF that they "want" credit (applied for a loan in the prior three years).

3. Regression model, variables, and data sets

3.1 Regression model and endogenous variables

We regress the log of firms per capita in a given size class or in a given primary or secondary debt sensitivity category on credit supply variables measuring bank market power; bank market structure (presence and shares by size and geographic structure); and bank cost or profit efficiency. We also include control variables for market and time period:

$$\begin{aligned} \ln(\text{MKT FIRMS}) = f(&\text{bank market power,} \\ &\text{bank market presence and shares by size and geography,} \\ &\text{bank cost or profit efficiency,} \\ &\text{market control variables,} \\ &\text{time fixed effects),} \end{aligned} \tag{1}$$

where MKT FIRMS is the log of the number of establishments of a given size or category per 1000 population in the local market. Establishments are physical locations at which business is conducted or services or industrial operations are performed. They are not necessarily identical with a company, which may own and operate one or more establishments. The establishment data are taken from County Business Patterns (U.S. Census Bureau), which has annual information on the location, employment size, and industry of all establishments in the nation. [4]

For convenience, we use the term "firm" to describe either an establishment or small business and draw conclusions about small businesses. We acknowledge that the correspondence between the number of employees in an establishment and in a small business sometimes deviate from one another because a business may have multiple establishments. As examples, a company may own several fast-food franchises, convenience stores, or service stations. Nonetheless, given our focus on the 1-4 employee size class, it seems likely that vast majority of these very small establishments are either coincident with or owned by very small businesses.

We argue that the number of very small firms per capita in certain industries is a very good candidate for the effects of bank credit supply to small businesses, as measured by our bank market power, structure, and efficiency variables. The literature suggests that these bank market characteristics affect small business credit availability generally, and the SSBF data analyzed above suggests that very small firms – particularly those in industries identified as "on the bubble" or on the margin for credit – are the most sensitive to this credit availability. Thus, if differences in banks' small business credit supplies have any significant effects on small businesses, they should affect the numbers of these marginal firms. Viewed in this fashion, our tests may also be interpreted as more precise investigations of the larger research and policy question of whether banks "matter" to small businesses.

The number of these firms per capita may also be a particularly good summary statistic for the effects of bank credit supply. Measures of the performance of very small businesses using financial statements – if they were also available by firm location, size, and industry for all firms in the nation – would reflect only the marginal benefits for those that entered and survived. In contrast, the number of firms per capita also

[4] When two or more activities are carried on at a single location under a single ownership, they are generally are grouped as a single establishment and its industry is based on the major activity. The Census uses SIC codes through 1997 and NAICS codes thereafter. Therefore, for our industry identification, we use the SIC codes for the years 1991 – 1997, and match these to approximately equivalent NAICS codes for 1998-2002. The smallest size class of 1-4 employees includes establishments that did not report any paid employees in the mid-March pay period at the time of the sample, but paid wages to at least one employee at some time during the year. Those with no paid staff at any time during the year are excluded from these establishment data by the Census.

incorporates the number of firms that exited the market or did not enter in the first place.

To test our main hypotheses, we run the model in equation (1) for the three firm size classes and separately for our primary and secondary categories that are based on both size and industry. Using our identification above, when the firm size classes are specified, the 1-4 employee category is hypothesized to be more debt sensitive than the 20+ category. When the primary or secondary categories are specified, the medium loan proportion firms are postulated to be more sensitive than the high and low proportion firms.

The hypothesis tests consist of determining whether the one category of firms (1-4 size class or medium loan proportion) is statistically and economically significantly more sensitive than other categories to our three sets of bank market conditions (market power, structure, and efficiency). Thus, under the maintained assumption that our identification of debt sensitivity is valid, we test our hypotheses that these credit supply variables have significantly greater effects on firms per capita in a category identified as more debt sensitive than on firms per capita in a category identified as less sensitive.

We conduct separate estimations for metropolitan (METRO) and rural (RURAL) markets. The former are agglomerations of counties designated as Metropolitan Statistical Areas (MSAs) or New England County Metropolitan Areas (NECMAs) for the year 2002, and the latter include all other counties. These local markets are standard in antitrust and research on banking and small business lending because most retail services, including small business loans, are provided within these markets.[5]

We expect much greater test power in rejecting the null hypothesis of no different effect of the bank market variables across firm categories in RURAL markets. There is more variation in market conditions in RURAL counties – METRO markets are generally more highly competitive with significant presence and shares of all bank types. There are also many more observations on RURAL markets, further increasing test power.

3.2 Exogenous variables

The data are annual observations for METRO and RURAL markets for the years 1991 - 2002. We show sample means, minimums, and maximums by market for both market types for the exogenous variables in Table 4. All financial values are expressed in real 1994 dollars, deflated using the Consumer Price Index (CPI). The

[5] Some studies found that U.S. banks have increased the distances at which they make small business loans, more often lending outside these traditional geographic definitions of local markets (e.g., Petersen and Rajan 2002, Hannan 2003), but most small businesses still use local banks.

main data sources for the key exogenous variables are bank Call Reports for bank balance sheet and income items and FDIC Summary of Deposits for the locations of bank branches.

The exogenous variables (other than the time fixed effects) are measured as averages over the prior 3 years to reduce measurement error and endogeneity. For market power, we use concentration as measured by the Herfindahl index for bank branches (including head offices) in the market (HERF). The use of branches – rather than the quantities of deposits or loans – reduces endogeneity problems. Banks choose their branch locations and typically leave these fixed for the short term, whereas customers may respond to the exercise of market power by changing deposits and loans more quickly. We include only bank branches, and exclude savings and loans that take deposits, but typically do not supply much small business credit. Not surprisingly, RURAL markets are generally highly concentrated, whereas METRO markets are typically moderately concentrated.

The research literature is ambiguous on the net effect of market power on small business credit availability. Market power may have a negative effect on the amount of credit supplied using any lending technology through the traditional structure-conduct-performance (SCP) model. However, there may be an increase in credit supplied using one lending technology – relationship lending. This is because market power helps the bank enforce a long-term implicit contract in which the borrower receives a subsidized interest rate in the short term, and then paying a higher rate in a later period (Petersen and Rajan 1995). The empirical results for lending to small businesses are mixed, with some studies finding generally unfavorable effects from market power (e.g., Karceski, Ongena, and Smith 2005, Cetorelli and Strahan 2006), and others finding favorable effects (e.g., Petersen and Rajan 1995, Cetorelli 2004).

For bank market structure, we include variables for the presence and market shares of three types of banks – "local community banks," "multicommunity banks," and "mega banks." We define local community banks (LOCAL COMM) as those with branches in a single local market and gross total assets (GTA) of $5 billion or less; multicommunity banks (MULTI COMM) as institutions those with branch offices in multiple markets and GTA ≤ $1 billion; and mega banks (MEGA) as the remainder with GTA > $5 billion or in multiple markets with GTA > $1 billion.

These three definitions conform reasonably well with the research literature and conventional wisdom about community banking and relationship lending (see DeYoung, Hunter, and Udell 2004). Local community banks fit with the notion that an institution must be in only one community and small enough to "know" that

locality – its leaders, its business climate, and its customer base – yielding a potential comparative advantage in relationship lending based on "soft" information to very small businesses. Multicommunity banks fit an even narrower definition of size, potentially improving any advantage in relationship lending, but their presence in multiple markets may inhibit their abilities to use this lending technology. Finally, mega banks essentially correspond to the idea of institutions that are either too large to know the local community well or have a combination of geographic dispersion and size that prevents specialization in relationship lending to small firms. Nonetheless, these institutions may have comparative advantages in transactions lending technologies – such as financial statement lending, small business credit scoring, and asset-based lending – that are based on "hard" information (e.g., Berger and Udell 2006).

Unfortunately, the theory still does not suggest which bank size-geography group is likely to provide the most credit availability on net for debt-sensitive establishments. While the smaller small businesses are more likely to be served by relationship lending, they may alternatively be served using some of the transactions lending technologies, such as small business credit scoring. The empirical literature on the effects of the market shares of large and small banks is mixed. For example, one study finds that new business incorporations respond positively to large bank market share (Black and Strahan 2002), while another study finds virtually no difference in credit availability or price of credit of large bank market share (Berger, Rosen, and Udell 2006). A study of deposits, rather than small business loans, finds the mixed result of partial market segmentation – large and small banks compete with each other, but less intensively than among large banks or among small banks (Adams, Brevoort, and Kiser forthcoming). A qualitatively similar result is found for deposit competition between single-market and multimarket banks in rural U.S. banking markets (Cohen and Mazzeo forthcoming). Finally, some recent literature suggests that mega banks may have increased how aggressively they compete due to deregulation and technological changes over time that favor larger, more geographically dispersed banking organizations (e.g., Berger and Mester 2003, Berger, Dick, Goldberg, and White forthcoming).

The presence and shares of local community banks (LOCAL COMM), multicommunity banks (MULTI COMM), and mega banks (MEGA) banks suggest that all three size-geography groups are almost always present in METRO markets, and MEGA banks have the greatest share. In RURAL markets, by contrast, LOCAL COMM banks have the largest share and MEGA institutions are present slightly less than half of the time.

We include either the cost or profit efficiency of banks in the firm's market. Profit efficiency is the more

inclusive concept, but we also include cost efficiency because it is more commonly specified in the literature and the predictions may differ as discussed below. We specify cost and profit efficiency ranks, which are uniform over time, rather than efficiency levels, which vary from year to year because our model in equation (1) includes multiple years.

The efficiency variables are derived from the residuals of OLS variable cost and profit functions that are estimated for virtually all banks in the nation in the same size-geography group in the same year. For example, we regress the variable costs of MULTI COMM banks for 1993 on measures of market prices of variable inputs, quantities of variable outputs and fixed outputs/inputs, and controls for market environment for that year.[6] We assume that the bank with the lowest cost residual is the most efficient MULTI COMM bank in 1993, the one with the highest residual is least efficient, and so forth in between these extremes. We convert the ranks of these residuals into a uniform scale over [0,1], such that most efficient bank has a rank of 1.00, the least efficient has a rank of 0.00, and a bank that is more efficient than 70% of the banks in the category and year has a rank of 0.70. Profit efficiency rank is derived analogously using the variable profit function, ranking higher residuals as more efficient. COST EFF of MULTI COMM BANKS is the weighted mean of the cost efficiency ranks of MULTI COMM banks in market m averaged over years t-1, t-2, and t-3. That is, we measure how well the banks in this market performed relative to banks in the same size-geography group in the same three years.[7]

There is no empirical research of which we are aware directly on the topic of the credit availability effects of bank frontier efficiency, although other studies have used bank financial ratios or labor productivity ratios (e.g., Black and Strahan 2002). In terms of expected effects, the most cost-efficient banks tend to have the lowest costs of lending, all else equal, which may be passed on in part to loan customers in terms of lower prices and greater availability. The effects of profit efficiency ranks, which embody both cost and revenue efficiencies, are more ambiguous. A profit-efficient bank may pass along to business loan customers some of the benefits of

[6] Variable inputs are purchased funds, core deposits, and labor; variable outputs are consumer loans, commercial and industrial loans, real estate loans, other loans, and securities; fixed outputs/inputs are off-balance-sheet items, physical capital, and financial equity capital; and market controls are population and total deposits. The cost and profit functions use the Fourier-flexible functional form, which combines a conventional translog form with Fourier trigonometric terms. See Berger and Mester (1997) for the exact specification.

[7] We exclude a small number of observations from the efficiency calculations because of violations of data standards, and we include presence-of-efficiency dummies in the regressions (not shown) to account for these. These dummies affect fewer than 1% of observations. For the MEGA banks, we also exclude the handful of single-market banks with GTA > $5 billion because they are so unusual and unrepresentative.

cost efficiency and some of any revenue efficiencies earned from other activities (e.g., from superior securities portfolio management). However, profit efficiency may also incorporate the effects of market power in loan pricing, which may reduce small business credit, leaving the overall sign of the profit efficiency ranks unknown. Again, theory does not provide a guide for which bank size-geography group's efficiency is likely to be most important, but the research findings on the effects of deregulation and technological change suggest that the efficiency ranks of the mega banks may be most influential.

The statistics shown in Table 4 suggest the banks in METRO markets tend to be more efficient than those in RURAL markets. This is particularly so for MEGA banks that have average cost and profit efficiency ranks of only about 20% in rural markets (i.e., worse than about 80% of the MEGA banks), suggesting that the least efficient of these institutions tend to expand to rural markets. As well, within METRO markets, the average market efficiency ranks are all slightly below 0.50, despite the fact that the mean rank across banks is always 0.50 by construction (uniform distribution over [0,1]). This suggests that even within METRO markets, the most efficient banks tend to be in the markets with most banks and the lowest average market shares (since the means in Table 4 weight all markets equally).

The control variables include first- and second-order terms of population to account for market size. We also include state geographic regulation variables. These regulations had important effects on local market competition in the early part of the sample, but have become less relevant as banks can now have (almost) nationwide operations (subject to a 10% deposit cap achieved through mergers). The time fixed effects control for other differences in competition and macroeconomic conditions over the sample period.

4. Results of regressions and hypothesis tests

Tables 5, 6, and 7 present our regressions and test results by employee size class (Table 5) and by our primary and secondary classifications for debt sensitivity classifications (Tables 6 and 7, respectively). In Panel A of each table, we display regressions of the log of firms per capita in the market (ln (MKT FIRMS)) on the bank market variables (BK MKT) and controls (CTRLS). We show results for firms with different predicted debt sensitivity to test our main hypotheses. Specifically, the BK MKT coefficients should be statistically and economically more significant for firms that are hypothesized to be more debt sensitive than for firms predicted to be less sensitive. In Panel B of each table, we show the statistical hypothesis tests for differences in coefficients of the banking variables between firm size classes or primary or secondary classifications. Finally,

in Panel C of each table, we tabulate the quantitative effects of these differences in coefficients to test for economic significance.

In all cases, separate regressions are shown for METRO and RURAL markets. Each observation in the regressions is a market-year combination. There are 3816 observations for the METRO regressions, reflecting over 300 METRO markets per year over the 12 years of the sample. There are 26,904 RURAL observations, reflecting the much larger number of these markets.

We present findings for 4 specifications, each with different combinations of the BK MKT exogenous variables. Specification I includes only bank market power – as measured by HERF – and the control variables. This represents the most common specification for recent studies of credit availability, focusing on the net effects of bank market power.

Specification II adds the bank market structure variables. These include the presence and shares by bank size-geography groups – local community (LOCAL COMM), multicommunity (MULTI COMM), and mega (MEGA) banks. We specify dummies for the presence of all three groups, and include the shares of the latter two groups, leaving LOCAL COMM share excluded as the base case. The shares measure the marginal effects of banks in a group on competitive conditions in the market. The inclusion of the presence dummies as well as the shares allows for the possibility that a very small share for a group may have an important effect in terms of a "toehold" or sunk costs that allow for the threat of more aggressive competition through future expansion without the costs or delay of entry. We are not aware of prior research using the presence dummies.

Specifications III and IV add the cost and profit efficiency ranks, respectively, of the banks in the three bank size-geography groups. We include only one of the two efficiency concepts at a time because they have potential different predictions and because profit efficiency incorporates cost efficiency as well as revenue efficiency.

4.1 Results by size class

Table 5, Panel A shows the regressions of ln (MKT FIRMS) on the bank market variables (BK MKT) and controls (CTRLS) for the 1-4, 5-19, and 20+ employee size classes. Recall that we hypothesize that the number of market firms with 1-4 employees per capita is more sensitive to the bank market variables than the number with 20+ employees, with no clear prediction for the difference in sensitivity between the 5-19 and 1-4 employee size classes.

The HERF coefficients are negative and statistically significant in RURAL markets for all three size classes and generally insignificant for the METRO markets, as expected. To simplify matters, we focus attention on the complete Specification IV using profit efficiency for RURAL markets, but the coefficients are almost the same in all 4 specifications. The coefficient of -0.0653 for the 1-4 employee size class is not much larger in magnitude than the -0.579 coefficient for the 5-19 size class, but is more than double the coefficient of -0.295 for the 20+ size class.

We test for statistical significance of the differences in coefficients across size classes in Panel B. As shown, the coefficient differences between the 5-19 and 1-4 size classes – shown under the COEFF(5-19) – COEFF(1-4) heading – are not statistically significant. In contrast, all of the RURAL values of COEFF(20+) – COEFF(1-4) show statistical significance for the difference between the RURAL coefficients, consistent with our hypothesis about differences between these two groups.

We examine the economic significance of these differences in Panel C. As there are no common metrics or standards for economic significance, we make a few "rules" that seem appropriate, although they are obviously somewhat subjective. First, we examine economic significance only when both the coefficient is statistically significant for the category hypothesized to be most debt sensitive and the difference in coefficient estimates across debt sensitivity categories is statistically significant. Second, we confine attention for economic significance to the complete specifications of Models III and IV to avoid issues of excluded variables. Third, we examine the effects of an economically substantial change in the exogenous variable in question, which differs across our exogenous variable groups. For example, we examine a change in HERF of 0.08, which corresponds to a difference in antitrust treatment, and we evaluate a change in the market share of MEGA banks of 0.25, approximately the change that would occur if banks in RURAL markets consolidated to be similar to the market structure of METRO markets.

Finally – and most subjective – we will call the difference economically significant if the effect of the coefficient difference and change in exogenous variable moves the predicted difference in the effects on the endogenous variables of market firms per capita at least 1%. We argue that an additional 1% difference in the number of firms per capita in a more sensitive category than in a less sensitive category that is also statistically significant is an important difference because the number of firms is such an important indicator of the financial health of very small businesses. In Panel C of each table, we indicate in **bold** the numbers that are evaluated for

economic significance – coefficient is statistically significant for the most sensitive hypothesized category and statistically significantly different from other categories – and we indicate with a sword (†) the subset of these with a magnitude exceeding 0.01, which we will call economically significant.

As noted, for our substantial change in the exogenous variable for market power, we evaluate an increase in HERF of 0.08 (ΔHERF = .08). This corresponds to a substantial difference in antitrust treatment. U.S. antitrust authorities classify a HERF in the range of 0.10 – 0.18 as a moderately concentrated market, and a HERF over 0.18 as a highly concentrated market, requiring more scrutiny for merger approval. The coefficient of -0.0653 for the MKT FIRMS(1-4) in the RURAL Specification IV regression in Panel A implies a change in the dependent variable for ΔHERF = .08 as (-0.653) ▪ 0.08 = -0.05224 or about a -5.224% change in the 1-4 employee firms per capita in RURAL markets, given the natural log form of the dependent variable. In contrast, the corresponding coefficient of -0.295 for the MKT FIRMS(20+) regression implies a (-0.295) ▪ 0.08 = -0.0236 or about a -2.36% change in the 20+ firms per capita in RURAL markets. The difference between these numbers, which may be expressed more simply as [COEFF(20+) – COEFF(1-4)] ▪ ΔHERF, is 0.02864 or about a 2.864% greater decline in 1-4 employee firms than in 20+ employee firms, which is shown in Table 5, Panel C, which is marked by a sword for economic significance. The difference is similarly economically significant for the RURAL Specification III test, as shown in the table.

Turning to bank market presence, the only variable in Panel A that is consistently statistically significant for MKT FIRMS(1-4) is LOCAL COMM in the METRO markets, so we confine attention to this variable and these markets. The data show a very strong effect, with 1-4 employee firms per capita between about 7.5% and 12.5% higher when a local community bank is present. However, as shown in Panel B, the differences between the size classes are not statistical significant, so it may be the case that small businesses of all sizes benefit from the competition provided by having at least one local community banks in METRO markets. We do not evaluate the economic significance of the market presence variables because of this lack of statistical significance of the coefficient differences. However, we simply note here for completeness that for Panel C of each of Tables 5, 6, and 7, the change in the presence variables to be evaluated is 1 (e.g., Δ LOCAL COMM = 1), since these variables are 0,1 dummies.

For the bank market shares – which measure the marginal effects of a greater presence of the banks in a size-geographic group – the MEGA bank coefficients are statistically significant in all the MKT FIRMS(1-4)

regressions, and the LOCAL COMM coefficients are statistically significant for the RURAL markets only, and are smaller in magnitude. Thus, very small businesses may be better off if large and/or multimarket banks have greater market shares at the expense of shares of local community banks. In Panel B of Table 5, none of the MULTI COMM market share coefficient differences are statistically significant, so we do not investigate the economic significance of these differences. The MEGA coefficient differences are statistically significant in all cases for COEFF(20+) – COEFF(1-4), and also statistically significant for the METRO markets for COEFF(5-19) – COEFF(1-4), so we investigate their economic significance in Panel C. We use Δ MEGA = 0.25 as our metric for a substantial change in market share for these banks. This seems reasonable, given the finding in Table 4 that the MEGA share in RURAL markets is about 30% below that in METRO markets in our data set. All of these differences are in the range of about -3% to -4%, suggesting a larger percentage effect on the very small businesses. Thus, for both METRO and RURAL markets, for MEGA coefficient differences are may be considered to be statistically and economically significantly different for the 20+ size class, and consistent with our hypothesis about the effects of this component of market structure. The findings also suggest economic and statistical significant differences for the 5-19 employee size class in METRO markets.

Turning to the efficiency findings, both cost and profit efficiency have some positive, statistically significant effects on MKT FIRMS(1-4). In Table 5, Panel B, some of the METRO market cost efficiency COEFF(5-19) – COEFF(1-4) differences are statistically significant, as are some of the METRO and RURAL market cost and profit efficiency COEFF(20+) – COEFF(1-4) differences. To evaluate economic significance of these changes, we consider a change in efficiency of 0.10 or 10 percentage points, which would be a substantial increase – such as an improvement from the median to the 60^{th} percentile of the efficiency distribution. As shown in Panel C, all of the statistically significant changes are economically significant, ranging from about 1.2% to about 2.5%.

To briefly summarize our results by size class, we find the regression results to be consistent with our hypothesis that small businesses with 1-4 employees are more debt sensitive overall than those with 20+ employees based on their sensitivity to our banking variables. However, the statistically and economically significant findings are limited to some variables in some types of markets. The difference in market power applies to RURAL markets only; none of the market presence variables are statistically significantly different; the effects of market shares apply to MEGA banks in both METRO and RURAL markets, but not to MULTI

COMM banks; and the efficiency effects are somewhat spotty, and smaller than some of the effects of the other variables.

4.2 Results by primary debt sensitivity categories

For our primary debt sensitivity categories in Table 6, we again start by examining the statistical significance of the coefficients for the category hypothesized to be most debt sensitive – the 1-4 employee size class in industries with a MEDIUM P LOAN(1-4) firms (0.40 < P LOAN(1-4) < 0.60). In Panel A, the effects of our market power variable, HERF, are again statistically significant only for RURAL markets for the MEDIUM P LOAN(1-4) category. The HERF coefficients are also statistically significant in HIGH P LOAN(1-4) and LOW P LOAN(1-4) categories for RURAL markets, but smaller in magnitude. The findings in Panel B are consistent with statistical significance for these RURAL market differences from both the HIGH and LOW P LOAN(1-4) firms – i.e., COEFF(HIGH,PRI) – COEFF(MED,PRI) and COEFF(LOW,PRI) – COEFF(MED,PRI) are all statistically significant for RURAL markets. In Panel C, the economic effects are stronger for the differences from the HIGH P LOAN(1-4) category – over 3% differences for both Specifications III and IV – than the differences of just under 2% for the differences from the LOW P LOAN(1-4) category.

Turning to the effects of bank market structure, the coefficients for the presence of a LOCAL COMM bank in a METRO market are economically large and statistically significant for the MEDIUM P LOAN(1-4) category, but the differences from the HIGH and LOW P LOAN(1-4) categories are not statistically significant. Again, we do not pursue the market presence variables further.

The market share findings in Table 6 for the MEDIUM MKT FIRMS(1-4) regressions are similar to the findings above in Table 5 for all the MKT FIRMS(1-4) firms. The MEGA bank coefficients are statistically significant for both METRO and RURAL markets in all the regressions, and the LOCAL COMM coefficients are statistically significant for the RURAL markets only. These findings again suggest benefits to having larger market shares for large and/or multimarket banks at the expense of shares of local community banks. In Panel B of Table 6, none of the MULTI COMM market share coefficient differences are statistically significant, so we do not investigate their economic significance. The MEGA coefficient differences are not statistically significant for the COEFF(HIGH,PRI) – COEFF(MED,PRI) differences, but they are all statistically significant for all the COEFF(LOW,PRI) – COEFF(MED,PRI). The findings in Panel C also suggest economic significance of these differences in both METRO and RURAL markets – about a 3% stronger effect for MEDIUM P LOAN(1-4)

firms than LOW P LOAN(1-4) firms.

Turning to the efficiency findings, all of the cost and profit efficiencies are statistically significant for the MEDIUM P LOAN(1-4) category for RURAL markets, although one of the profit efficiencies is negative and only significant at the 10% level. Half of the efficiencies are also significant for METRO markets. Other than the one negative effect, all of these are positive and exceed the corresponding efficiency effects for both the HIGH and LOW P LOAN(1-4) category. Panel B suggests that several of the differences are statistically significant, but Panel C suggests very limited economic significance – just for COEFF(LOW,PRI) – COEFF(MED,PRI) for METRO markets for the cost and profit efficiency of MEGA banks of just over 1%.

To briefly summarize our results by primary debt sensitive category, we find that the data provide some support for our hypothesis that even within the smallest size class of businesses with 1-4 employees, those in industries with a MEDIUM P LOAN(1-4) are more debt sensitive than those in industries with HIGH P LOAN(1-4) and LOW P LOAN(1-4). We focus just on the differences in Table 6, Panel C that are both statistically and economically significant. The MEDIUM P LOAN(1-4) category is only more sensitive than the HIGH P LOAN(1-4) category to the market power variable HERF in RURAL markets, while differences between MEDIUM and LOW P LOAN(1-4) industries are also significant for both METRO and RURAL market shares for MEGA banks and for the efficiencies of MEGA banks in METRO markets. As we will see next, the differences among the industries will be stronger for the secondary categories that add the requirement that the LOAN RATIO is substantial.

4.3 Results by secondary debt sensitivity categories

Table 7 shows the regressions for the secondary categories, which add the requirement for a substantial median loan/asset ratio for industries in the high and medium P LOAN groups (LOAN RATIO(1-4) > 0.40), and a low ratio (LOAN RATIO(1-4) ≤ 0.40) for the low P LOAN group. The findings are generally more strongly consistent with our hypotheses than those for the primary categories shown in Table 6. In the interest of brevity, we will discuss only the findings that are statistically and economically significant in Table 7, Panel C and how they differ from Table 6, Panel C.

The most important difference between our secondary and primary results is that the secondary results are much more often statistically and economically significant, particularly for the differences between the HIGH and MEDIUM P LOAN(1-4) industries. For the secondary classification of industries, the HIGH and MEDIUM P LOAN(1-4) differences are significant not just for market power for RURAL markets, but also for the presence

of LOCAL COMM banks in METRO markets when profit efficiency is specified; for the market shares of MEGA banks in both METRO and RURAL markets; and for some of the cost and profit efficiencies in both METRO and RURAL markets. The main differences between LOW and MEDIUM industries in Table 7, Panel C are that the magnitudes of all the significant cases in Table 6, Panel C are all larger in Table 7, Panel C; that presence of LOCAL COMM banks in METRO markets is significant when profit efficiency is specified; and that more of the cost efficiencies are statistically and economically significant.

5. Conclusion

We employ the concept of "debt sensitivity," which differs in some important ways from "external dependence" and other measures of the importance of external funding used in the literature. We argue that debt sensitivity may be a useful tool for identifying which sizes and industries of small businesses may be most affected by banking market conditions, including bank market power, structure, and efficiency. We formulate and test our hypotheses using two data sets on small business size, industry, access to credit, and location, as well as data on the banks in their markets.

To be specific, we use responses from 3272 firms to the 1998 Survey of Small Business Finances (SSBF) on their size, industry, and access to credit to form hypotheses about the sizes and industries of small businesses that likely to be more or less "debt-sensitive." We then test these hypotheses with regression analysis that employs a comprehensive data set on business establishments and their size, industry, and location from the U.S. Census Bureau and information on the banks in their markets from regulatory reports. The regressions include 3807 observations of metropolitan market-years and 26,904 observations of rural market-years from 1991-2002.

Our primary debt sensitivity classifications are based on whether firms in a size class and/or industry have a loan probability between 0.40 and 0.60. We argue that firms with loan probability close to 50% are "on the bubble" for credit or have marginal access to debt, and are more sensitive to local banking conditions than both those with "relatively easy" credit availability (probability $\geq$ 60%) and those with "relatively difficult" credit availability (probability $\leq$ 40%). Based on this standard, we hypothesize that small businesses with 1-4 employees – with a loan probability of 46.5% – are more debt sensitive than those with 20+ employees – with a loan probability of 87.5%.

Even within the smallest size class of 1-4 employee firms, there is considerable variation, with some industries with over 70% of firms and others under 30% of firms having loans. For our primary debt sensitivity

categories based on both size and industry, we hypothesize that firms with 1-4 employees in industries with a medium loan proportion between 0.40 and 0.60 are more debt sensitive than those in industries with higher and lower loan proportions for their 1-4 employee firms. Our secondary classification adds the requirement that the median loan/asset ratio for firms in the category with loans exceed 0.40 to ensure that the credit is a substantial source of financing when it is available. The secondary classification method has the advantage of identifying firms more clearly as debt-sensitive, but has the disadvantage of reducing the number of industries classified from 32 to 22.

The empirical findings are consistent with our hypotheses – the size classes and industries hypothesized to be more debt-sensitive are statistically and economically significantly more sensitive to at least some of the bank market power, market structure, and efficiency variables than those hypothesized to be less debt-sensitive. The banking variables and market conditions that provide the most consistent support for the hypotheses are the local market Herfindahl index in rural markets and the share of "mega" banks (assets > $5 billion or in multiple markets with assets > $1 billion) in both metropolitan and rural markets. The cost and profit efficiency of "mega" banks operating in metropolitan markets is also almost always statistically and economically significant.

Interestingly, our strongest findings are for our secondary classifications. Despite the deletion of almost one-third of the industries, the addition of the requirement of substantial funding when firms have loans makes the findings more often statistically and economically significant. Once this requirement is in place, the 1-4 employee firms with medium loan probabilities are clearly more debt-sensitive than those with both high and low loan probabilities.

In terms of policy implications, the findings suggest that the credit availability of small, debt-sensitive firms may be reduced by within-market mergers that increase concentration in rural markets, but that the more common type of recent consolidation – creating larger banks that operate in more markets – may be associated with an increase in credit availability for these sensitive firms. The consolidation may bring additional credit availability benefits if it results in increased efficiency.

References

Adams, Robert M., Kenneth P. Brevoort, Elizabeth K. Kiser. Forthcoming. "Who Competes with Whom? The Case of Depository Institutions." Journal of Industrial Economics.

Berger, Allen N., Astrid A. Dick, Lawrence G. Goldberg, and Lawrence J. White, forthcoming. "Competition from Large, Multimarket Firms and the Performance of Small, Single-Market Firms: Evidence from the Banking Industry," *Journal of Money, Credit, and Banking*.

Berger, A.N., Mester, L.J., 1997. "Inside the black box: What explains differences in the efficiencies of financial institutions?" *Journal of Banking and Finance* 21: 895-947.

Berger, A.N., Mester, L.J., 2003. "Explaining the dramatic changes in the performance of U.S. Banks: Technological change, deregulation, and dynamic changes in competition." *Journal of Financial Intermediation* 12: 57-95.

Berger, Allen N., Richard J. Rosen, and Gregory F. Udell, 2006. "Does Market Size Structure Affect Competition? The Case of Small Business Lending." *Journal of Banking and Finance* 30.

Berger, Allen N., and Gregory F. Udell. 2006. "A more complete conceptual framework for SME finance," *Journal of Banking and Finance* 30.

Black, Sandra E., and Philip E. Strahan. 2002. "Entrepreneurship and Bank Credit Availability." *Journal of Finance* 57: 2807-2833.

Cetorelli, N., 2004. Bank concentration and competition in Europe. *Journal of Money, Credit, and Banking* 36: 543-558.

Cetorelli, Nicola, and Philip E. Strahan. 2006. "Finance as a barrier to entry: Bank competition and industry structure in local U.S. markets." *Journal of Finance* 61: 437-461.

Cohen, Andrew, and Michael J. Mazzeo. Forthcoming. "Market Structure and Competition among Retail Depository Institutions." *Review of Economics and Statistics*.

DeYoung, Robert, William C. Hunter, and Gregory F. Udell. 2004. "The Past, Present, and Probable Future for Community Banks." *Journal of Financial Services Research* 25: 85-133.

Hannan, Timothy H. 2003. "Changes in Non-Local Lending to Small Business." *Journal of Financial Services Research* 24: 31-46.

Karceski, J., Ongena, S., Smith, D., 2005. The impact of bank consolidation on commercial borrower welfare, *Journal of Finance* 60: 2043-2082.

Petersen, M.A., Rajan, R.G., 1995. The effect of credit market competition on lending relationship. *Quarterly Journal of Economics* 110: 407-443.

Petersen, Mitchell A., and Raghuram G. Rajan. 2002. "Does distance still matter? The information revolution in small business lending." *Journal of Finance* 57: 2533-70.

Rajan, Raghuram G., and Luigi Zingales. 1998. "Financial dependence and growth." *American Economic Review* 88, 559-586.

Table 1. Proportions of small businesses with loans (P LOAN) and median loan/asset ratio for firms with loans (LOAN RATIO). Includes firms in all industries except for finance, real estate, nonprofit, and agriculture. Employee size classes are 1-4, 5-19, and 20+, cutting off the largest class at 500 to meet the SBA classification of a small business. P LOAN – P LOAN(1-4) ≡ difference in P LOAN from the smallest size class; LOAN RATIO - LOAN RATIO(1-4) ≡ difference in LOAN RATIO from the smallest size class.

Source: 1998 Survey of Small Business Finance (SSBF).

Employee Size Class	Number of Firms	Total Employment	P LOAN	LOAN RATIO	P LOAN – P LOAN(1-4)	LOAN RATIO – LOAN RATIO(1-4)
ALL	3272	87,837	0.644	0.401	–-	–-
1-4 employees	1576	3450	0.465	0.488	–-	–-
5-19 employees	807	7113	0.737	0.432	0.272***	-0.056***
20+ employees	889	77,274	0.875	0.332	0.410***	-0.156***

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2, Panel A. Primary Debt Sensitivity Categories. Primary categories based on proportion of 1-4 employee firms with loans (P LOAN(1-4)). Industries with 0.40 < P LOAN(1-4) < 0.60 are hypothesized to be more debt sensitive (*More sensitive)* than those with P LOAN(1-4) ≥ 0.60 or ≤ 0.40 (*Less sensitive*).

In descending order by P LOAN(1-4). Source: 1998 SSBF.

Debt Sensitivity Category Name	Category Definition and Debt Sensitivity	Category Member Industries	Firms with 1-4 Employees (by industry)		
			Num Firms with 1-4 Employees	Total Empl.	P LOAN(1-4)
HIGH P LOAN(1-4)	High proportion of 1-4 employee firms with loans. P LOAN(1-4) ≥ 0.60 *"Relatively easy" credit availability, good access to debt* *Less Sensitive*	lodging	12	28	0.750
		industrial equipment	15	41	0.733
		apparel stores	13	28	0.692
		wood & paper products	16	44	0.688
		trucking & warehousing	21	41	0.619
		printing & publishing	25	61	0.600
		utilities & sanitary	5	12	0.600
		7 HIGH P LOAN(1-4) industries	*107*	*255*	*0.664*
MEDIUM P LOAN(1-4)	Medium proportion of 1-4 employee firms with loans. 0.40 < P LOAN(1-4) < 0.60 *"On the bubble" for credit availability, marginal access to debt* *More Sensitive*	automotive	22	53	0.591
		building & garden matrls.	17	38	0.588
		communication	7	17	0.571
		gen. merchandise & food	36	94	0.556
		wholesale trade	97	230	0.546
		amusement & recreation	15	28	0.533
		transportation	17	41	0.529
		home furnishing stores	40	93	0.525
		constructn. & contracting	165	355	0.521
		health services	71	183	0.507
		electronics	12	24	0.500
		eating & drinking places	25	66	0.480
		misc. manufacturing	15	36	0.467
		auto & repair services	145	310	0.462
		misc. retail	133	284	0.459
		business & tech. services	413	855	0.409
		16 MEDIUM P LOAN(1-4) industries	*1230*	*2707*	*0.473*
LOW P LOAN(1-4)	Low proportion of 1-4 employee firms with loans. P LOAN(1-4) ≤ 0.40 *"Relatively difficult" credit availability, poor access to debt.* *Less Sensitive*	stone & metal	10	21	0.400
		chem., petrol. & plastics	5	10	0.400
		social services	37	65	0.378
		movies	8	19	0.375
		personal services	142	297	0.338
		textiles, apparel & leather	15	33	0.267
		food & tobacco	4	5	0.250
		mining	4	11	0.250
		education services	14	27	0.214
		9 LOW P LOAN(1-4) industries	*239*	*488*	*0.335*

Table 2, Panel B. Secondary Debt Sensitivity Categories. Secondary categories based on proportion of 1-4 employee firms with loans (P LOAN(1-4)) and median loan/asset ratio for firms with loans (LOAN RATIO(1-4)). Industries with 0.40 < P LOAN(1-4) < 0.60 & LOAN RATIO(1-4) > 0.40 are hypothesized to be more debt sensitive *(More sensitive)* than those with P LOAN(1-4) ≥ 0.60 & LOAN RATIO(1-4) > 0.40 or P LOAN(1-4) ≤ 0.40 & LOAN RATIO(1-4) ≤ 0.40 *(Less sensitive)* .

In descending order by P LOAN(1-4). Source: 1998 SSBF.

Debt Sensitivity Category Name	Category Definition and Debt Sensitivity	Category Member Industries	Firms with 1-4 Employees (by industry)			
			Num Firms with 1-4 Employees	Total Empl.	P LOAN(1-4)	LOAN RATIO(1-4)
HIGH P LOAN(1-4) & HIGH or MEDIUM LOAN RATIO(1-4)	High proportion of 1-4 employee firms with loans and high or medium loan/asset ratio for firms with loans. P LOAN(1-4) ≥ 0.60 & LOAN RATIO(1-4) > 0.40 "Relatively easy" credit availability, good access to debt. *Less Sensitive*	industrial equipment	15	41	0.733	0.979
		wood & paper products	16	44	0.688	0.912
		trucking & warehousing	21	41	0.619	0.805
		utilities & sanitary	5	12	0.600	1.898
		4 HIGH P LOAN(1-4) & MEDIUM or LARGE LOAN RATIO(1-4) industries	*57*	*138*	*0.667*	*0.911*
MEDIUM P LOAN(1-4) & HIGH or MEDIUM LOAN RATIO(1-4)	Medium proportion of 1-4 employee firms with loans and high or medium loan/asset ratio for firms with loans. 0.40 < P LOAN(1-4) < 0.60 & LOAN RATIO(1-4) > 0.40 "On the bubble" for credit availability, marginal access to debt. *More Sensitive*	building & garden matrls.	17	38	0.588	0.824
		communication	7	17	0.571	0.898
		gen. merchandise & food	36	94	0.556	0.445
		amusement & recreation	15	28	0.533	0.519
		transportation	17	41	0.529	0.806
		home furnishing stores	40	93	0.525	0.547
		constructn. & contracting	165	355	0.521	0.440
		electronics	12	24	0.500	0.500
		eating & drinking places	25	66	0.480	0.506
		misc. manufacturing	15	36	0.467	0.964
		auto & repair services	145	310	0.462	0.620
		misc. retail	133	284	0.459	0.448
		business & tech. services	413	855	0.409	*0.477*
		13 MEDIUM P LOAN(1-4) & MEDIUM or LARGE LOAN RATIO(1-4) industries	*1040*	*2241*	*0.462*	*0.486*
LOW P LOAN(1-4) & LOW LOAN RATIO(1-4)	Low proportion of 1-4 employee firms with loans and low loan/asset ratio for firms with loans. P LOAN(1-4) ≤ 0.40 & LOAN RATIO(1-4) ≤ 0.40 'Relatively difficult" credit availability, poor access to debt. *Less Sensitive*	movies	8	19	0.375	0.340
		textiles, apparel & leather	15	33	0.267	0.135
		food & tobacco	4	5	0.250	0.007
		mining	4	11	0.250	0.133
		education services	14	27	0.214	0.019
		5 LOW P LOAN(1-4) & LOW LOAN RATIO(1-4) industries	*45*	*95*	*0.267*	*0.131*

Table 3, Panel A. Tests of firm size differences in loan proportion (P LOAN) using *primary* debt sensitivity categories.

In descending order by P LOAN(1-4). Source: SSBF.

		Firms with 1-4 Employees			Firms with 5-19 Employees				Firms with 20+ Employees			
		More Sensitive			*???? Sensitivity*				*Less Sensitive*			
Debt Sensitivity Category	Category Member Industries	Num Firms with 1-4 Employees	Total Empl.	P LOAN(1-4)	Num Firms with 5-19 Employees	Total Empl.	P LOAN(5-19)	P LOAN(5-19) – P LOAN(1-4)	Num Firms with 20+ Employees	Total Empl.	P LOAN(20+)	P LOAN(20+) – P LOAN(1-4)
HIGH P LOAN(1-4)	lodging	12	28	0.750	9	97	0.889	0.139	11	829	1.000	0.250*
	industrial equipment	15	41	0.733	10	102	0.800	0.067	31	3034	0.871	0.138
	apparel stores	13	28	0.692	8	58	0.875	0.183	6	482	0.667	-0.026
	wood & paper products	16	44	0.688	4	29	1.000	0.313	32	3780	0.906	0.219*
	trucking & warehousing	21	41	0.619	17	167	0.706	0.087	20	1387	0.850	0.231*
	printing & publishing	25	61	0.600	14	111	0.929	0.329**	17	1914	0.941	0.341**
	utilities & sanitary	5	12	0.600	4	40	1.000	0.400	2	104	1.000	0.400
	7 HIGH P LOAN(1-4) industries	*107*	*255*	*0.664*	*66*	*604*	*0.848*	*0.185****	*119*	*11,530*	*0.891*	*0.227****
MEDIUM P LOAN(1-4)	automotive	22	53	0.591	22	188	0.864	0.273**	39	3011	0.974	0.383***
	building & garden matrls.	17	38	0.588	15	147	0.600	0.012	13	681	0.769	0.181
	communication	7	17	0.571	7	51	0.714	0.143	8	655	1.000	0.429**
	gen. merchandise & food	36	94	0.556	22	178	0.682	0.126	25	2395	0.920	0.364***
	wholesale trade	97	230	0.546	69	678	0.754	0.207***	78	6694	0.897	0.351***
	amusement & recreation	15	28	0.533	8	81	0.875	0.342	20	1428	0.850	0.317**
	transportation	17	41	0.529	14	144	0.571	0.042	19	2114	0.789	0.260*
	home furnishing stores	40	93	0.525	31	228	0.774	0.249**	10	483	1.000	0.475***
	constructn. & contracting	165	355	0.521	93	813	0.753	0.231***	98	7950	0.878	0.356***
	health services	71	183	0.507	46	386	0.761	0.254***	38	3476	0.842	0.335***
	electronics	12	24	0.500	6	68	0.667	0.167	22	1850	0.955	0.455***
	eating & drinking places	25	66	0.480	55	509	0.564	0.084	90	7052	0.811	0.331***
	misc. manufacturing	15	36	0.467	6	54	0.833	0.367	10	778	0.900	0.433**
	auto & repair services	145	310	0.462	42	357	0.762	0.300***	9	533	0.889	0.427**
	misc. retail	133	284	0.459	53	451	0.774	0.315***	21	1724	0.714	0.256**
	business & tech. services	413	855	0.409	157	1326	0.777	0.368***	145	13,005	0.876	0.467***
	16 MEDIUM P LOAN(1-4) industries	*1230*	*2707*	*0.473*	*646*	*5659*	*0.741*	*0.268****	*645*	*53,829*	*0.871*	*0.398****
LOW P LOAN(1-4)	stone & metal	10	21	0.400	15	136	0.800	0.400**	36	3539	0.889	0.489***
	chem., petrol. & plastics	5	10	0.400	7	75	0.857	0.457*	20	2114	0.900	0.500**
	social services	37	65	0.378	21	183	0.524	0.145	15	966	0.867	0.488***
	movies	8	19	0.375	6	47	0.667	0.292	3	124	0.667	0.292
	personal services	142	297	0.338	29	243	0.483	0.145	14	960	0.786	0.448***
	textiles, apparel & leather	15	33	0.267	7	62	0.857	0.590***	18	1784	0.889	0.622***
	food & tobacco	4	5	0.250	4	48	1.000	0.750**	10	1243	1.000	0.750***
	mining	4	11	0.250	3	28	0.000	-0.250	6	736	0.833	0.583*
	education services	14	27	0.214	3	28	1.000	0.786***	3	449	1.000	0.786***
	9 LOW P LOAN(1-4) industries	*239*	*488*	*0.335*	*95*	*850*	*0.632*	*0.297****	*125*	*11,915*	*0.880*	*0.545****

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3, Panel B. Tests of firm size differences in loan proportion (P LOAN) using *secondary* debt sensitivity categories.

In descending order by P LOAN(1-4). Source: SSBF.

		Firms with 1-4 Employees				Firms with 5-19 Employees					Firms with 20+ Employees				
		More Sensitive				*???? Sensitivity*					*Less Sensitive*				
Debt Sensitivity Category	Category Member Industries	Num Firms with 1-4 Employees	Total Empl.	P LOAN (1-4)	LOAN RATIO(1-4)	Num Firms with 5-19 Employees	Total Empl.	P LOAN (5-19)	LOAN RATIO(5-19)	P LOAN(5-19) – P LOAN(1-4)	Num Firms with 20+ Employees	Total Empl.	P LOAN (20+)	LOAN RATIO(20+)	P LOAN(20+) – P LOAN(1-4)
HIGH P LOAN(1-4) & HIGH or MEDIUM LOAN RATIO(1-4)	industrial equipment	15	41	0.733	0.979	10	102	0.800	0.142	0.067	31	3034	0.871	0.251	0.138
	wood & paper products	16	44	0.688	0.912	4	29	1.000	0.393	0.313	32	3780	0.906	0.494	0.219*
	trucking & warehousing	21	41	0.619	0.805	17	167	0.706	0.657	0.087	20	1387	0.850	0.547	0.231*
	utilities & sanitary	5	12	0.600	1.898	4	40	1.000	2.133	0.400	2	104	1.000	0.178	0.400
	4 HIGH P LOAN(1-4) & MEDIUM or LARGE LOAN RATIO(1-4)	*57*	*138*	*0.667*	*0.911*	*35*	*338*	*0.800*	*0.574*	*0.133*	*85*	*8305*	*0.882*	*0.395*	*0.216****
MEDIUM P LOAN(1-4) & HIGH or MEDIUM LOAN RATIO(1-4)	building & garden matrls.	17	38	0.588	0.824	15	147	0.600	0.283	0.012	13	681	0.769	0.196	0.181
	communication	7	17	0.571	0.898	7	51	0.714	0.425	0.143	8	655	1.000	0.314	0.429**
	gen. merchandise & food	36	94	0.556	0.445	22	178	0.682	0.507	0.126	25	2395	0.920	0.354	0.364***
	amusement & recreation	15	28	0.533	0.519	8	81	0.875	0.329	0.342	20	1428	0.850	0.310	0.317**
	transportation	17	41	0.529	0.806	14	144	0.571	0.795	0.042	19	2114	0.789	0.397	0.260*
	home furnishing stores	40	93	0.525	0.547	31	228	0.774	0.318	0.249**	10	483	1.000	0.260	0.475***
	constructn. & contracting	165	355	0.521	0.440	93	813	0.753	0.435	0.231***	98	7950	0.878	0.221	0.356***
	electronics	12	24	0.500	0.500	6	68	0.667	0.705	0.167	22	1850	0.955	0.237	0.455***
	eating & drinking places	25	66	0.480	0.506	55	509	0.564	0.725	0.084	90	7052	0.811	0.484	0.331***
	misc. manufacturing	15	36	0.467	0.964	6	54	0.833	0.623	0.367	10	778	0.900	0.467	0.433**
	auto & repair services	145	310	0.462	0.620	42	357	0.762	0.328	0.300***	9	533	0.889	0.275	0.427**
	misc. retail	133	284	0.459	0.448	53	451	0.774	0.264	0.315***	21	1724	0.714	0.310	0.256**
	business & tech. services	413	855	*0.409*	*0.477*	157	1326	*0.777*	*0.396*	*0.368****	145	13,005	*0.876*	*0.272*	*0.467****
	13 MEDIUM P LOAN(1-4) & MEDIUM or LARGE LOAN RATIO(1-4)	*1040*	*2241*	*0.462*	*0.486*	*509*	*4407*	*0.733*	*0.405*	*0.271****	*490*	*40,648*	*0.861*	*0.307*	*0.400****
LOW P LOAN(1-4) & LOW LOAN RATIO(1-4)	movies	8	19	0.375	0.340	6	47	0.667	0.365	0.292	3	124	0.667	0.535	0.292
	textiles, apparel & leather	15	33	0.267	0.135	7	62	0.857	0.469	0.590***	18	1784	0.889	0.406	0.622***
	food & tobacco	4	5	0.250	0.007	4	48	1.000	0.080	0.750**	10	1243	1.000	0.335	0.750***
	mining	4	11	0.250	0.133	3	28	0.000		-0.250	6	736	0.833	0.313	0.583*
	education services	14	27	0.214	0.019	3	28	1.000	0.332	0.786***	3	449	1.000	0.276	0.786***
	5 LOW P LOAN(1-4) & LOW LOAN RATIO(1-4)	*45*	*95*	*0.267*	*0.131*	*23*	*213*	*0.739*	*0.347*	*0.472****	*40*	*4336*	*0.900*	*0.355*	*0.633****

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4. Exogenous Variables in Regressions. Definitions and selected summary statistics for exogenous variables used in the regressions. The data are annual observations for 1991 - 2002 for metropolitan (METRO) or rural (RURAL) domestic markets, where metropolitan markets are agglomerations of counties designated as Metropolitan Statistical Areas (MSAs) or New England County Metropolitan Areas (NECMAs) for the year 2002 and rural markets are all other counties. All exogenous variables (other than time fixed effects) are averages of 1-, 2-, and 3-year lagged values relative to the dependent variables to reduce measurement error and endogeneity problems. All regressions contain presence-of-efficiency dummies by bank size and geography to control for inadequate efficiency data.

All financial variables are in 1994 dollars, deflated using the CPI. Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

		METRO Markets (1991-2002)			**RURAL Markets (1991-2002)**		
		(N=3,816)			(N=26,904)		
		mean	**min**	**max**	**mean**	**min**	**max**
Bank Market Power							
HERF	Market Herfindahl index based on branch shares	0.145	0.004	0.615	0.381	0.062	1.000
Bank Market Presence							
LOCAL COMM	=1 if market has at least one "local community bank" (single-market bank with gross total assets (GTA) ≤ $5 billion)	0.918	0.000	1.000	0.745	0.000	1.000
MULTI COMM	=1 if market has at least one "multicommunity bank" (multimarket bank with GTA ≤ $1 billion)	0.944	0.000	1.000	0.727	0.000	1.000
MEGA	=1 if market has at least one mega bank (single-market bank with GTA > $5 billion or at least one multimarket bank with GTA > $1 billion)	0.917	0.000	1.000	0.430	0.000	1.000
Bank Market Share							
LOCAL COMM (omitted as base case)	Total market share of local community banks	0.308	0.000	1.000	0.462	0.000	1.000
MULTI COMM	Total market share of multicommunity banks	0.197	0.000	0.868	0.343	0.000	1.000
MEGA	Total market share of mega banks	0.495	0.000	1.000	0.195	0.000	1.000
Bank Cost Efficiency							
LOCAL COMM	Cost efficiency rank of local community banks	0.456	0.000	0.966	0.358	0.000	0.995
MULTI COMM	Cost efficiency rank of multicommunity banks	0.489	0.000	0.989	0.367	0.000	0.996
MEGA	Cost efficiency rank of mega banks	0.465	0.000	0.923	0.211	0.000	0.990
Bank Profit Efficiency							
LOCAL COMM	Profit efficiency rank of local community banks	0.478	0.000	0.982	0.380	0.000	1.000
MULTI COMM	Profit efficiency rank of multicommunity banks	0.478	0.000	0.977	0.373	0.000	0.998
MEGA	Profit efficiency rank of mega banks	0.460	0.000	0.937	0.204	0.000	0.995
Market Control Variables							
POP	Market population	666K	56.7K	9.55M	23.5K	433	188K
UNIT	Dummy for unit banking state	0.006	0.000	1.000	0.009	0.000	1.000
LIMIT	Dummy for limited branching state	0.161	0.000	1.000	0.302	0.000	1.000
STATEWIDE (omitted as base case)	Dummy for unlimited branching within state	0.834	0.000	1.000	0.689	0.000	1.000
INTERSTATE	Dummy for interstate bank holding company expansion is allowed	0.978	0.000	1.000	0.953	0.000	1.000
Fixed Effects							
TIME EFFECTS	11 dummy variables for 1992 - 2002	-	-	-	-	-	-

Table 5, Panel A. Regressions of log of firms per capita (ln (MKT FIRMS)) in different size classes on bank market variables (BK MKT) and market controls (CTRLS).

Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	MKT FIRMS(1-4) *More Sensitive*								MKT FIRMS(5-19) *???? Sensitivity*								MKT FIRMS(20+) *Less Sensitive*							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																								
HERF	0.089	-0.642***	-0.004	-0.649***	-0.019	-0.643***	-0.071	-0.653***	-0.065	-0.592***	0.070	-0.578***	0.059	-0.570***	0.028	-0.579***	-0.254**	-0.337***	-0.095	-0.303***	-0.108	-0.298***	-0.145	-0.295***
	[0.51]	[-18.27]	[-0.02]	[-16.81]	[-0.11]	[-16.62]	[-0.38]	[-16.75]	[-0.50]	[-18.52]	[0.49]	[-16.24]	[0.43]	[-16.04]	[0.20]	[-16.14]	[-2.02]	[-12.39]	[-0.70]	[-10.01]	[-0.83]	[-9.78]	[-1.17]	[-9.73]
Bank Market Presence																								
LOCAL COMM			0.110***	0.038*	0.075*	-0.027	0.125***	0.000			0.071**	0.051***	0.070**	-0.029	0.109***	0.040*			0.031	0.048***	0.032	-0.004	0.102***	0.075***
			[2.76]	[1.90]	[1.66]	[-1.17]	[2.72]	[0.02]			[2.43]	[2.76]	[2.09]	[-1.32]	[3.25]	[1.73]			[1.15]	[3.02]	[1.01]	[-0.20]	[3.09]	[3.79]
MULTI COMM			-0.020	0.001	-0.078	-0.036	-0.023	0.021			0.037	0.002	0.027	-0.033	0.042	0.015			0.048**	0.012	0.053*	-0.017	0.077***	0.044**
			[-0.39]	[0.04]	[-1.43]	[-1.58]	[-0.41]	[0.96]			[1.24]	[0.11]	[0.80]	[-1.56]	[1.28]	[0.71]			[2.02]	[0.77]	[1.89]	[-0.96]	[2.76]	[2.51]
MEGA			0.058*	0.043**	-0.035	-0.015	-0.026	-0.021			0.043*	0.060***	0.033	0.023	0.008	0.010			0.022	0.055***	0.045	0.036*	0.023	0.019
			[1.91]	[2.35]	[-0.95]	[-0.60]	[-0.64]	[-0.80]			[1.71]	[3.54]	[1.07]	[1.03]	[0.25]	[0.43]			[0.78]	[3.69]	[1.36]	[1.84]	[0.69]	[0.98]
Bank Market Shares																								
MULTI COMM			-0.024	0.066**	-0.037	0.076**	-0.026	0.067**			-0.003	0.049	-0.006	0.061**	-0.003	0.047			-0.011	0.024	-0.009	0.031	-0.010	0.023
			[-0.36]	[2.13]	[-0.58]	[2.46]	[-0.39]	[2.16]			[-0.06]	[1.63]	[-0.13]	[2.04]	[-0.07]	[1.57]			[-0.20]	[0.90]	[-0.16]	[1.16]	[-0.19]	[0.87]
MEGA			0.103*	0.154***	0.100*	0.173***	0.109**	0.161***			-0.023	0.096**	-0.021	0.115***	-0.022	0.101***			-0.055	0.023	-0.049	0.034	-0.063	0.026
			[1.92]	[3.60]	[1.91]	[4.06]	[2.03]	[3.77]			[-0.55]	[2.57]	[-0.51]	[3.10]	[-0.54]	[2.71]			[-1.23]	[0.71]	[-1.09]	[1.07]	[-1.46]	[0.80]
Bank Cost Efficiency																								
LOCAL COMM					0.054	0.139***							-0.001	0.174***							0.002	0.111***		
					[1.05]	[4.44]							[-0.02]	[5.76]							[0.05]	[4.40]		
MULTI COMM					0.108***	0.066**							0.010	0.063**							-0.021	0.054**		
					[2.99]	[2.34]							[0.36]	[2.33]							[-0.68]	[2.41]		
MEGA					0.190***	0.088***							0.013	0.047							-0.058*	0.021		
					[4.33]	[2.76]							[0.39]	[1.65]							[-1.73]	[0.86]		
Bank Profit Efficiency																								
LOCAL COMM							-0.048	0.065**							-0.079**	0.010							-0.133***	-0.059***
							[-1.08]	[2.39]							[-2.55]	[0.38]							[-4.10]	[-2.64]
MULTI COMM							-0.015	-0.041							-0.024	-0.025							-0.066**	-0.061***
							[-0.44]	[-1.62]							[-0.89]	[-0.97]							[-2.23]	[-3.03]
MEGA							0.159***	0.100***							0.065*	0.072**							0.006	0.052**
							[3.20]	[2.82]							[1.87]	[2.47]							[0.19]	[2.12]
Control Variables																								
LOG POP	-0.374**	-1.206***	-0.545***	-1.128***	-0.515***	-1.137***	-0.518***	-1.138***	-0.268*	-0.598***	-0.305*	-0.533***	-0.290*	-0.546***	-0.269*	-0.537***	-0.085	0.138	-0.074	0.177*	-0.059	0.168*	-0.020	0.193**
	[-2.15]	[-10.05]	[-3.05]	[-9.38]	[-2.95]	[-9.55]	[-2.95]	[-9.46]	[-1.81]	[-4.77]	[-1.95]	[-4.25]	[-1.86]	[-4.45]	[-1.73]	[-4.30]	[-0.59]	[1.47]	[-0.50]	[1.87]	[-0.40]	[1.79]	[-0.13]	[2.05]
LOG POP SQRD	0.030**	0.110***	0.042***	0.099***	0.039***	0.100***	0.040***	0.101***	0.018	0.060***	0.021*	0.051***	0.020*	0.052***	0.018	0.051***	0.007	-0.003	0.007	-0.008	0.006	-0.007	0.002	-0.010
	[2.32]	[8.93]	[3.14]	[8.01]	[3.02]	[8.20]	[3.04]	[8.13]	[1.64]	[4.66]	[1.80]	[3.94]	[1.70]	[4.17]	[1.56]	[4.03]	[0.68]	[-0.30]	[0.62]	[-0.85]	[0.52]	[-0.73]	[0.22]	[-1.01]
TIME EFFECTS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Observations	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904
R-squared	0.04	0.2	0.08	0.22	0.13	0.23	0.11	0.22	0.08	0.16	0.1	0.17	0.11	0.19	0.12	0.18	0.13	0.31	0.14	0.31	0.16	0.32	0.19	0.32

State bank branching policy variables, presence-of-efficiency dummies not shown; t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 5, Panel B. Tests of *statistical significance* of differences in effects of bank market variables (BK MKT) on log of firms per capita (ln (MKT FIRMS)) by size class.

Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(5-19) - COEFF(1-4)								COEFF(20+) - COEFF(1-4)							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																
HERF	-0.155	0.050	0.073	0.071	0.078	0.073	0.099	0.074	-0.343	0.305***	-0.092	0.346***	-0.089	0.345***	-0.074	0.358***
	[-0.71]	[1.06]	[0.30]	[1.35]	[0.34]	[1.40]	[0.43]	[1.39]	[-1.59]	[6.86]	[-0.39]	[7.04]	[-0.40]	[7.01]	[-0.33]	[7.23]
Bank Market Presence																
LOCAL COMM			-0.039	0.012	-0.005	-0.002	-0.016	0.040			-0.078	0.010	-0.043	0.023	-0.023	0.075**
			[-0.79]	[0.46]	[-0.10]	[-0.07]	[-0.29]	[1.19]			[-1.63]	[0.38]	[-0.78]	[0.77]	[-0.41]	[2.37]
MULTI COMM			0.057	0.001	0.105	0.003	0.065	-0.006			0.068	0.011	0.132**	0.019	0.100	0.023
			[0.95]	[0.05]	[1.63]	[0.08]	[1.01]	[-0.19]			[1.19]	[0.46]	[2.13]	[0.65]	[1.60]	[0.83]
MEGA			-0.016	0.017	0.068	0.038	0.034	0.030			-0.036	0.012	0.080	0.051	0.049	0.040
			[-0.40]	[0.67]	[1.41]	[1.13]	[0.66]	[0.89]			[-0.88]	[0.50]	[1.61]	[1.60]	[0.93]	[1.23]
Bank Market Shares																
MULTI COMM			0.021	-0.017	0.031	-0.015	0.023	-0.020			0.012	-0.042	0.028	-0.045	0.016	-0.044
			[0.26]	[-0.40]	[0.39]	[-0.35]	[0.28]	[-0.46]			[0.14]	[-1.02]	[0.33]	[-1.10]	[0.19]	[-1.06]
MEGA			-0.125*	-0.058	-0.120*	-0.058	-0.131*	-0.060			-0.157**	-0.131**	-0.149**	-0.139***	-0.172**	-0.135**
			[-1.87]	[-1.02]	[-1.82]	[-1.03]	[-1.95]	[-1.06]			[-2.27]	[-2.45]	[-2.17]	[-2.61]	[-2.49]	[-2.54]
Bank Cost Efficiency																
LOCAL COMM					-0.054	0.034							-0.052	-0.028		
					[-0.87]	[0.79]							[-0.83]	[-0.71]		
MULTI COMM					-0.098**	-0.003							-0.129***	-0.012		
					[-2.15]	[-0.07]							[-2.72]	[-0.34]		
MEGA					-0.177***	-0.041							-0.248***	-0.067*		
					[-3.21]	[-0.96]							[-4.48]	[-1.67]		
Bank Profit Efficiency																
LOCAL COMM							-0.031	-0.055							-0.085	-0.124***
							[-0.56]	[-1.45]							[-1.55]	[-3.51]
MULTI COMM							-0.009	0.016							-0.051	-0.020
							[-0.20]	[0.44]							[-1.12]	[-0.63]
MEGA							-0.093	-0.028							-0.152**	-0.048
							[-1.54]	[-0.61]							[-2.55]	[-1.10]

t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 5, Panel C. Tests of *economic significance* of differences in effects of selected changes in bank market variables (BK MKT) on changes in log of firms per capita (ln(MKT FIRMS)) by size class.
Complete specifications of Models III and IV only for METRO and RURAL markets; market-year observations, 1991 - 2002.
All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(5-19) - COEFF(1-4)				COEFF(20+) - COEFF(1-4)			
	III	III	IV	IV	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power								
Δ HERF = 0.08	0.0062	0.0058	0.0079	0.0059	-0.0071	**0.0276**†	-0.0059	**0.0286**†
Bank Market Presence								
Δ LOCAL COMM = 1	-0.0050	-0.0020	-0.0160	0.0400	-0.0430	0.0230	-0.0230	0.0750
Δ MULTI COMM = 1	0.1050	0.0030	0.0650	-0.0060	0.1320	0.0190	0.1000	0.0230
Δ MEGA = 1	0.0680	0.0380	0.0340	0.0300	0.0800	0.0510	0.0490	0.0400
Bank Market Shares								
Δ MULTI COMM = 0.25	0.0078	-0.0038	0.0058	-0.0050	0.0070	-0.0113	0.0040	-0.0110
Δ MEGA = 0.25	**-0.0300**†	-0.0145	**-0.0328**†	-0.0150	**-0.0373**†	**-0.0348**†	**-0.0430**†	**-0.0338**†
Bank Cost Efficiency								
Δ LOCAL COMM = 0.10	-0.0054	0.0034			-0.0052	-0.0028		
Δ MULTI COMM = 0.10	**-0.0098**	-0.0003			**-0.0129**†	-0.0012		
Δ MEGA = 0.10	**-0.0177**†	-0.0041			**-0.0248**†	**-0.0067**		
Bank Profit Efficiency								
Δ LOCAL COMM = 0.10			-0.0031	-0.0055			-0.0085	**-0.0124**†
Δ MULTI COMM = 0.10			-0.0009	0.0016			-0.0051	-0.0020
Δ MEGA = 0.10			-0.0093	-0.0028			**-0.0152**†	-0.0048

*Effects in **bold** are statistically significant and are evaluated for economic signficance.*
† *exceeds 0.01 and indicates statistical and economic significance.*

Table 6, Panel A. Regressions of log of firms per capita (ln (MKT FIRMS)) in different *primary* debt sensitivity categories on bank market variables (BK MKT) and market controls (CTRLS).

Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	HIGH PROPORTION WITH LOANS (P LOAN(1-4) ≥ 0.60) *Less Sensitive*								MEDIUM PROPORTION WITH LOANS (0.40 < P LOAN(1-4) < 0.60) *More Sensitive*								LOW PROPORTION WITH LOANS (P LOAN(1-4) ≤ 0.40) *Less Sensitive*							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																										
HERF	-0.030	-0.247***	-0.073	-0.251***	-0.080	-0.247***	-0.104	-0.253***	0.119	-0.650***	-0.002	-0.661***	-0.015	-0.654***	-0.066	-0.665***	0.014	-0.454***	0.089	-0.440***	0.064	-0.439***	0.036	-0.444***
	[-0.22]	[-7.45]	[-0.49]	[-6.74]	[-0.56]	[-6.65]	[-0.71]	[-6.72]	[0.70]	[-18.47]	[-0.01]	[-17.11]	[-0.08]	[-16.87]	[-0.36]	[-17.04]	[0.13]	[-17.04]	[0.75]	[-14.31]	[0.59]	[-14.25]	[0.32]	[-14.34]
Bank Market Presence																										
LOCAL COMM			0.037	0.006	0.024	-0.027	0.042	-0.008			0.109***	0.038*	0.074*	-0.032	0.126***	-0.004			0.065***	0.043***	0.046*	0.015	0.070***	0.020
			[1.03]	[0.37]	[0.62]	[-1.28]	[1.04]	[-0.36]			[2.90]	[1.89]	[1.72]	[-1.36]	[2.86]	[-0.14]			[2.75]	[2.73]	[1.82]	[0.83]	[2.63]	[1.07]
MULTI COMM			-0.044	0.018	-0.055	-0.007	-0.047	0.023			-0.010	-0.001	-0.071	-0.038*	-0.016	0.023			-0.032	-0.012	-0.063*	-0.020	-0.021	-0.010
			[-1.07]	[1.10]	[-1.28]	[-0.35]	[-1.06]	[1.15]			[-0.19]	[-0.08]	[-1.32]	[-1.68]	[-0.29]	[1.05]			[-1.07]	[-0.83]	[-1.92]	[-1.16]	[-0.59]	[-0.55]
MEGA			0.045*	0.027*	-0.009	0.003	-0.013	0.000			0.057*	0.049***	-0.037	-0.008	-0.029	-0.014			0.027	-0.003	-0.008	-0.053***	0.005	-0.059***
			[1.71]	[1.76]	[-0.29]	[0.15]	[-0.41]	[0.02]			[1.96]	[2.72]	[-1.01]	[-0.30]	[-0.72]	[-0.53]			[1.26]	[-0.24]	[-0.33]	[-2.95]	[0.19]	[-3.22]
Bank Market Shares																										
MULTI COMM			0.020	0.028	0.016	0.035	0.021	0.030			-0.033	0.067**	-0.047	0.078**	-0.037	0.069**			0.006	0.043*	0.002	0.045*	0.006	0.041
			[0.41]	[1.01]	[0.33]	[1.25]	[0.41]	[1.07]			[-0.51]	[2.17]	[-0.76]	[2.52]	[-0.55]	[2.21]			[0.13]	[1.68]	[0.04]	[1.74]	[0.13]	[1.56]
MEGA			0.029	0.095**	0.032	0.104***	0.040	0.098**			0.119**	0.164***	0.115**	0.183***	0.125**	0.171***			-0.010	0.034	-0.011	0.046	-0.011	0.039
			[0.72]	[2.46]	[0.81]	[2.69]	[0.97]	[2.53]			[2.28]	[3.87]	[2.26]	[4.36]	[2.38]	[4.06]			[-0.29]	[1.12]	[-0.33]	[1.54]	[-0.31]	[1.28]
Bank Cost Efficiency																										
LOCAL COMM					0.019	0.072***							0.054	0.150***							0.029	0.053**		
					[0.56]	[2.61]							[1.04]	[4.77]							[1.00]	[2.28]		
MULTI COMM					0.017	0.044*							0.115***	0.066**							0.058**	0.016		
					[0.70]	[1.78]							[3.20]	[2.31]							[2.19]	[0.78]		
MEGA					0.100***	0.036							0.193***	0.087***							0.071***	0.075***		
					[3.33]	[1.26]							[4.37]	[2.75]							[2.64]	[3.21]		
Bank Profit Efficiency																										
LOCAL COMM							-0.019	0.024							-0.050	0.072**							-0.019	0.035*
							[-0.51]	[1.00]							[-1.15]	[2.58]							[-0.71]	[1.68]
MULTI COMM							-0.005	-0.013							-0.009	-0.049*							-0.032	-0.002
							[-0.18]	[-0.54]							[-0.27]	[-1.92]							[-1.10]	[-0.13]
MEGA							0.098***	0.041							0.162***	0.099***							0.045	0.090***
							[2.99]	[1.36]							[3.31]	[2.80]							[1.35]	[3.60]
Market Controls																										
LOG POP	-0.324***	-0.624***	-0.369***	-0.565***	-0.351***	-0.569***	-0.346***	-0.569***	-0.293*	-1.190***	-0.483***	-1.105***	-0.454***	-1.115***	-0.458***	-1.115***	-0.391***	-0.532***	-0.414***	-0.528***	-0.405***	-0.535***	-0.406***	-0.538***
	[-2.82]	[-5.05]	[-3.07]	[-4.56]	[-2.94]	[-4.60]	[-2.88]	[-4.57]	[-1.69]	[-9.83]	[-2.72]	[-9.14]	[-2.62]	[-9.30]	[-2.63]	[-9.21]	[-2.66]	[-5.03]	[-2.74]	[-4.96]	[-2.68]	[-5.05]	[-2.68]	[-5.08]
LOG POP SQRD	0.022**	0.050***	0.025***	0.042***	0.023***	0.043***	0.023***	0.043***	0.025*	0.111***	0.038***	0.099***	0.035***	0.101***	0.036***	0.101***	0.030***	0.044***	0.032***	0.043***	0.031***	0.044***	0.031***	0.045***
	[2.55]	[3.99]	[2.81]	[3.34]	[2.65]	[3.40]	[2.60]	[3.38]	[1.92]	[8.94]	[2.85]	[7.98]	[2.72]	[8.16]	[2.76]	[8.08]	[2.71]	[4.10]	[2.80]	[4.03]	[2.74]	[4.14]	[2.74]	[4.18]
Observations	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904
R-squared	0.13	0.16	0.14	0.17	0.16	0.17	0.16	0.17	0.06	0.18	0.1	0.2	0.15	0.21	0.13	0.21	0.07	0.15	0.09	0.15	0.12	0.16	0.11	0.16

Year dummies, state bank branching policy variables, and presence-of-efficiency dummies not shown; t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 6, Panel B. Tests of *statistical significance* of differences in effects of bank market variables (BK MKT) on log of firms per capita (ln (MKT FIRMS)) by *primary* debt sensitivity category.
Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.
All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(HIGH,PRI) - COEFF(MED,PRI)								COEFF(LOW,PRI) - COEFF(MED,PRI)							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																
HERF	-0.149	0.403***	-0.071	0.410***	-0.065	0.407***	-0.038	0.412***	-0.105	0.196***	0.091	0.221***	0.079	0.215***	0.102	0.221***
	[-0.69]	[8.32]	[-0.29]	[7.65]	[-0.28]	[7.58]	[-0.16]	[7.61]	[-0.51]	[4.44]	[0.41]	[4.47]	[0.38]	[4.35]	[0.47]	[4.45]
Bank Market Presence																
LOCAL COMM			-0.072	-0.032	-0.050	0.005	-0.083	-0.004			-0.044	0.004	-0.029	0.047	-0.056	0.023
			[-1.40]	[-1.19]	[-0.85]	[0.17]	[-1.39]	[-0.12]			[-0.99]	[0.18]	[-0.58]	[1.58]	[-1.09]	[0.74]
MULTI COMM			-0.034	0.019	0.016	0.031	-0.031	0			-0.022	-0.010	0.008	0.018	-0.005	-0.033
			[-0.52]	[0.80]	[0.23]	[1.03]	[-0.45]	[0.00]			[-0.37]	[-0.45]	[0.12]	[0.62]	[-0.07]	[-1.17]
MEGA			-0.013	-0.022	0.028	0.011	0.015	0.014			-0.031	-0.052**	0.029	-0.046	0.034	-0.046
			[-0.32]	[-0.91]	[0.60]	[0.32]	[0.30]	[0.42]			[-0.85]	[-2.34]	[0.65]	[-1.48]	[0.70]	[-1.43]
Bank Market Shares																
MULTI COMM			0.054	-0.039	0.063	-0.043	0.057	-0.039			0.039	-0.024	0.049	-0.033	0.043	-0.028
			[0.66]	[-0.94]	[0.80]	[-1.02]	[0.69]	[-0.92]			[0.50]	[-0.59]	[0.65]	[-0.82]	[0.53]	[-0.69]
MEGA			-0.091	-0.069	-0.083	-0.080	-0.085	-0.074			-0.129**	-0.131**	-0.127**	-0.137***	-0.136**	-0.133**
			[-1.38]	[-1.21]	[-1.29]	[-1.40]	[-1.28]	[-1.29]			[-2.06]	[-2.52]	[-2.06]	[-2.66]	[-2.15]	[-2.56]
Bank Cost Efficiency																
LOCAL COMM					-0.034	-0.078*							-0.025	-0.097**		
					[-0.56]	[-1.86]							[-0.42]	[-2.48]		
MULTI COMM					-0.098**	-0.022							-0.056	-0.05		
					[-2.28]	[-0.58]							[-1.26]	[-1.41]		
MEGA					-0.093*	-0.051							-0.122**	-0.012		
					[-1.74]	[-1.20]							[-2.35]	[-0.31]		
Bank Profit Efficiency																
LOCAL COMM							0.031	-0.047							0.032	-0.037
							[0.55]	[-1.28]							[0.62]	[-1.07]
MULTI COMM							0.004	0.036							-0.023	0.046
							[0.10]	[1.04]							[-0.51]	[1.44]
MEGA							-0.064	-0.058							-0.117**	-0.009
							[-1.08]	[-1.25]							[-1.97]	[-0.20]

t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 6, Panel C. Tests of *economic significance* of differences in effects of selected changes in bank market variables (BK MKT) on changes in log of firms per capita (ln (MKT FIRMS)) by *primary* debt sensitivity category.

Complete specifications of Models III and IV only for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(HIGH,PRI) - COEFF(MED,PRI)				COEFF(LOW,PRI) - COEFF(MED,PRI)			
	III	III	IV	IV	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power								
Δ HERF = 0.08	-0.0052	**0.0326**†	-0.0030	**0.0330**†	0.0063	**0.0172**†	0.0082	**0.0177**†
Bank Market Presence								
Δ LOCAL COMM = 1	-0.0500	0.0050	-0.0830	-0.0040	-0.0290	0.0470	-0.0560	0.0230
Δ MULTI COMM = 1	0.0160	0.0310	-0.0310	0.0000	0.0080	0.0180	-0.0050	-0.0330
Δ MEGA = 1	0.0280	0.0110	0.0150	0.0140	0.0290	-0.0460	0.0340	-0.0460
Bank Market Shares								
Δ MULTI COMM = 0.25	0.0158	-0.0108	0.0143	-0.0098	0.0123	-0.0083	0.0108	-0.0070
Δ MEGA = 0.25	-0.0208	-0.0200	-0.0213	-0.0185	**-0.0318**†	**-0.0343**†	**-0.0340**†	**-0.0333**†
Bank Cost Efficiency								
Δ LOCAL COMM = 0.10	-0.0034	**-0.0078**			-0.0025	**-0.0097**		
Δ MULTI COMM = 0.10	**-0.0098**	-0.0022			-0.0056	-0.0050		
Δ MEGA = 0.10	**-0.0093**	-0.0051			**-0.0122**†	-0.0012		
Bank Profit Efficiency								
Δ LOCAL COMM = 0.10			0.0031	-0.0047			0.0032	-0.0037
Δ MULTI COMM = 0.10			0.0004	0.0036			-0.0023	0.0046
Δ MEGA = 0.10			-0.0064	-0.0058			**-0.0117**†	-0.0009

*Effects in **bold** are statistically significant and are evaluated for economic signficance.*

† *exceeds 0.01 and indicates statistical and economic significance.*

Table 7, Panel A. Regressions of log of firms per capita (ln (MKT FIRMS)) in different *secondary* debt sensitivity categories on bank market variables (BK MKT) and market controls (CTRLS).

Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	HIGH PROPORTION WITH LOANS (P LOAN(1-4) ≥ 0.60) & MEDIUM OR HIGH LOAN RATIO (LOAN RATIO(1-4) > 0.40)								MEDIUM PROPORTION WITH LOANS (0.40 < P LOAN(1-4) < 0.60) & MEDIUM OR HIGH LOAN RATIO (LOAN RATIO(1-4) > 0.40)								LOW PROPORTION WITH LOANS (P LOAN(1-4) ≤ 0.40) & LOW LOAN RATIO (LOAN RATIO(1-4) ≤ 0.40)							
	Less Sensitive								*More Sensitive*								*Less Sensitive*							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																								
HERF	-0.246***	-0.206***	-0.221***	-0.190***	-0.225***	-0.186***	-0.240***	-0.182***	0.186	-0.608***	0.033	-0.629***	0.023	-0.621***	-0.033	-0.632***	-0.148	-0.165***	-0.044	-0.183***	-0.064	-0.188***	-0.068	-0.196***
	[-3.01]	[-7.23]	[-2.69]	[-6.00]	[-2.75]	[-5.87]	[-3.00]	[-5.70]	[1.03]	[-16.41]	[0.16]	[-15.57]	[0.12]	[-15.33]	[-0.17]	[-15.49]	[-1.46]	[-6.80]	[-0.46]	[-6.58]	[-0.67]	[-6.74]	[-0.72]	[-7.03]
Bank Market Presence																								
LOCAL COMM			0.026	0.020	0.033	0.005	0.019	0.048***			0.101**	0.030	0.061	-0.042*	0.124***	-0.013			0.022	0.030**	0.043**	0.043**	-0.006	-0.017
			[1.15]	[1.35]	[1.20]	[0.27]	[0.71]	[2.75]			[2.58]	[1.38]	[1.35]	[-1.67]	[2.69]	[-0.49]			[1.09]	[2.08]	[2.06]	[2.46]	[-0.25]	[-1.05]
MULTI COMM			-0.009	0.017	-0.005	-0.009	-0.002	0.035**			-0.001	-0.001	-0.069	-0.041*	-0.007	0.030			0.003	-0.042***	-0.012	-0.028*	-0.006	-0.075***
			[-0.47]	[1.17]	[-0.22]	[-0.54]	[-0.08]	[2.03]			[-0.02]	[-0.07]	[-1.19]	[-1.72]	[-0.12]	[1.32]			[0.16]	[-3.17]	[-0.45]	[-1.75]	[-0.20]	[-4.65]
MEGA			0.015	-0.007	-0.001	-0.010	-0.018	-0.019			0.047	0.052***	-0.058	-0.006	-0.045	-0.017			0.063***	-0.018	0.055**	-0.032**	0.045*	-0.053***
			[0.65]	[-0.52]	[-0.03]	[-0.53]	[-0.70]	[-0.99]			[1.56]	[2.72]	[-1.53]	[-0.24]	[-1.11]	[-0.61]			[3.11]	[-1.52]	[2.27]	[-2.08]	[1.69]	[-3.45]
Bank Market Shares																								
MULTI COMM			0.048	0.020	0.048	0.023	0.050	0.021			-0.045	0.081**	-0.060	0.092***	-0.048	0.083**			-0.040	0.033	-0.047	0.028	-0.041	0.028
			[1.15]	[0.83]	[1.18]	[0.95]	[1.23]	[0.88]			[-0.65]	[2.45]	[-0.90]	[2.80]	[-0.68]	[2.52]			[-1.01]	[1.37]	[-1.20]	[1.19]	[-1.04]	[1.20]
MEGA			0.003	0.050	0.010	0.056*	0.016	0.053*			0.134**	0.189***	0.132**	0.209***	0.141**	0.197***			-0.054*	0.038	-0.063**	0.036	-0.052*	0.037
			[0.12]	[1.56]	[0.37]	[1.73]	[0.57]	[1.66]			[2.44]	[4.17]	[2.50]	[4.66]	[2.57]	[4.38]			[-1.70]	[1.41]	[-2.00]	[1.32]	[-1.67]	[1.37]
Bank Cost Efficiency																								
LOCAL COMM					-0.013	0.035							0.065	0.153***							-0.054*	-0.038*		
					[-0.50]	[1.50]							[1.22]	[4.60]							[-1.97]	[-1.66]		
MULTI COMM					-0.012	0.052**							0.127***	0.071**							0.026	-0.029		
					[-0.56]	[2.51]							[3.50]	[2.35]							[0.96]	[-1.48]		
MEGA					0.018	0.001							0.211***	0.089***							0.025	0.016		
					[0.72]	[0.05]							[4.66]	[2.58]							[1.08]	[0.85]		
Bank Profit Efficiency																								
LOCAL COMM							0.012	-0.052**							-0.062	0.075**							0.042*	0.079***
							[0.42]	[-2.54]							[-1.36]	[2.52]							[1.90]	[3.90]
MULTI COMM							-0.020	-0.032*							-0.011	-0.063**							0.013	0.061***
							[-0.95]	[-1.66]							[-0.31]	[-2.31]							[0.38]	[3.29]
MEGA							0.048*	0.017							0.172***	0.108***							0.036	0.061***
							[1.87]	[0.70]							[3.37]	[2.86]							[1.10]	[2.92]
Market Controls																								
LOG POP	-0.235**	-0.041	-0.231**	-0.019	-0.220**	-0.022	-0.212**	-0.007	-0.187	-1.176***	-0.389**	-1.077***	-0.352**	-1.088***	-0.356**	-1.087***	-0.411**	-0.388***	-0.423**	-0.407***	-0.440**	-0.407***	-0.445**	-0.431***
	[-2.44]	[-0.41]	[-2.34]	[-0.19]	[-2.27]	[-0.22]	[-2.20]	[-0.07]	[-1.05]	[-9.20]	[-2.11]	[-8.45]	[-1.98]	[-8.61]	[-1.98]	[-8.51]	[-2.30]	[-4.25]	[-2.27]	[-4.46]	[-2.38]	[-4.47]	[-2.43]	[-4.71]
LOG POP SQRD	0.015**	-0.009	0.015**	-0.012	0.014*	-0.011	0.013*	-0.013	0.017	0.110***	0.030**	0.097***	0.027**	0.098***	0.027**	0.098***	0.031**	0.033***	0.032**	0.035***	0.033**	0.035***	0.034**	0.038***
	[2.05]	[-0.91]	[1.99]	[-1.15]	[1.90]	[-1.11]	[1.82]	[-1.27]	[1.25]	[8.42]	[2.19]	[7.38]	[2.02]	[7.57]	[2.05]	[7.48]	[2.30]	[3.58]	[2.29]	[3.81]	[2.41]	[3.83]	[2.46]	[4.10]
Observations	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904	3816	26904
R-squared	0.20	0.15	0.21	0.15	0.21	0.15	0.22	0.15	0.05	0.15	0.09	0.18	0.15	0.19	0.12	0.19	0.04	0.07	0.06	0.07	0.07	0.07	0.07	0.08

Year dummies, state bank branching policy variables, and presence-of-efficiency dummies not shown; t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 7, Panel B. Tests of *statistical significance* of differences in effects of bank market variables (BK MKT) on log of firms per capita (ln (MKT FIRMS)) by *secondary* debt sensitivity category.
Models I - IV for METRO and RURAL markets; market-year observations, 1991 - 2002.
All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(HIGH,SEC) - COEFF(MED,SEC)								COEFF(LOW,SEC) - COEFF(MED, SEC)							
	I	I	II	II	III	III	IV	IV	I	I	II	II	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power																
HERF	-0.432**	0.402***	-0.254	0.438***	-0.248	0.436***	-0.207	0.450***	-0.333	0.442***	-0.077	0.446***	-0.087	0.434***	-0.035	0.436***
	[-2.18]	[8.61]	[-1.14]	[8.53]	[-1.18]	[8.47]	[-0.95]	[8.69]	[-1.62]	[9.98]	[-0.34]	[9.11]	[-0.40]	[8.82]	[-0.16]	[8.82]
Bank Market Presence																
LOCAL COMM			-0.075*	-0.010	-0.028	0.047	-0.105**	0.062*			-0.079*	0.000	-0.018	0.085***	-0.130**	-0.004
			[-1.66]	[-0.38]	[-0.53]	[1.51]	[-1.98]	[1.91]			[-1.80]	[-0.01]	[-0.37]	[2.78]	[-2.54]	[-0.12]
MULTI COMM			-0.008	0.018	0.064	0.031	0.005	0.005			0.005	-0.041*	0.057	0.013	0.001	-0.105***
			[-0.14]	[0.76]	[1.02]	[1.07]	[0.08]	[0.17]			[0.08]	[-1.76]	[0.89]	[0.47]	[0.01]	[-3.75]
MEGA			-0.032	-0.059**	0.057	-0.003	0.027	-0.002			0.016	-0.070***	0.112**	-0.025	0.090*	-0.036
			[-0.86]	[-2.54]	[1.25]	[-0.10]	[0.55]	[-0.06]			[0.45]	[-3.12]	[2.52]	[-0.81]	[1.84]	[-1.14]
Bank Market Shares																
MULTI COMM			0.093	-0.061	0.108	-0.069*	0.098	-0.062			0.005	-0.048	0.012	-0.064	0.007	-0.055
			[1.15]	[-1.49]	[1.39]	[-1.68]	[1.20]	[-1.52]			[0.06]	[-1.19]	[0.16]	[-1.57]	[0.08]	[-1.35]
MEGA			-0.131**	-0.139**	-0.122**	-0.153***	-0.126**	-0.144***			-0.188***	-0.151***	-0.195***	-0.174***	-0.194***	-0.160***
			[-2.14]	[-2.50]	[-2.06]	[-2.77]	[-2.05]	[-2.60]			[-2.96]	[-2.87]	[-3.17]	[-3.32]	[-3.06]	[-3.05]
Bank Cost Efficiency																
LOCAL COMM					-0.078	-0.118***							-0.119**	-0.191***		
					[-1.32]	[-2.90]							[-1.99]	[-4.74]		
MULTI COMM					-0.139***	-0.019							-0.101**	-0.101***		
					[-3.30]	[-0.52]							[-2.23]	[-2.77]		
MEGA					-0.193***	-0.087**							-0.185***	-0.073*		
					[-3.76]	[-2.09]							[-3.63]	[-1.85]		
Bank Profit Efficiency																
LOCAL COMM							0.074	-0.127***							0.104**	0.005
							[1.38]	[-3.52]							[2.05]	[0.13]
MULTI COMM							-0.010	0.030							0.024	0.124***
							[-0.23]	[0.90]							[0.49]	[3.77]
MEGA							-0.124**	-0.091**							-0.136**	-0.047
							[-2.17]	[-2.02]							[-2.24]	[-1.09]

t statistics based on errors clustered by market.

** significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 7, Panel C. Tests of *economic significance* of differences in effects of selected changes in bank market variables (BK MKT) on changes in log of firms per capita (ln (MKT FIRMS)) by *secondary* debt sensitivity category.

Complete specifications of Models III and IV only for METRO and RURAL markets; market-year observations, 1991 - 2002.

All financial variables are in 1994 dollars, deflated using the CPI.

Main data sources: County Business Patterns (Census) for number of establishments data; Call Reports for bank balance sheet and income items; FDIC Summary of Deposits for the locations of bank offices; BEA for population.

	COEFF(HIGH,SEC) - COEFF(MED,SEC)				COEFF(LOW,SEC) - COEFF(MED, SEC)			
	III	III	IV	IV	III	III	IV	IV
	METRO	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**	**METRO**	**RURAL**
Bank Market Power								
Δ HERF = 0.08	-0.0198	**0.0349**†	-0.0166	**0.0360**†	-0.0070	**0.0347**†	-0.0028	**0.0349**†
Bank Market Presence								
Δ LOCAL COMM = 1	-0.0280	0.0470	**-0.1050**†	0.0620	-0.0180	0.0850	**-0.1300**†	-0.0040
Δ MULTI COMM = 1	0.0640	0.0310	0.0050	0.0050	0.0570	0.0130	0.0010	-0.1050
Δ MEGA = 1	0.0570	-0.0030	0.0270	-0.0020	0.1120	-0.0250	0.0900	-0.0360
Bank Market Shares								
Δ MULTI COMM = 0.25	0.0270	**-0.0173**†	0.0245	-0.0155	0.0030	-0.0160	0.0018	-0.0138
Δ MEGA = 0.25	**-0.0305**†	**-0.0383**†	**-0.0315**†	**-0.0360**†	**-0.0488**†	**-0.0435**†	**-0.0485**†	**-0.0400**†
Bank Cost Efficiency								
Δ LOCAL COMM = 0.10	-0.0078	**-0.0118**†			-0.0119	**-0.0191**†		
Δ MULTI COMM = 0.10	**-0.0139**†	-0.0019			**-0.0101**†	**-0.0101**†		
Δ MEGA = 0.10	**-0.0193**†	**-0.0087**			**-0.0185**†	**-0.0073**		
Bank Profit Efficiency								
Δ LOCAL COMM = 0.10			0.0074	**-0.0127**†			0.0104	0.0005
Δ MULTI COMM = 0.10			-0.0010	0.0030			0.0024	0.0124
Δ MEGA = 0.10			**-0.0124**†	**-0.0091**			**-0.0136**†	-0.0047

*Effects in **bold** are statistically significant and are evaluated for economic signficance.*

† *exceeds 0.01 and indicates statistical and economic significance.*