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Local Lending Markets: What a Small Business Owner/Manager Needs to Know

David W. Blackwell*
PricewaterhouseCoopers LLP

Drew B. Winters
University of Central Florida

This paper is a clinical examination of local lending markets served by two bank holding companies. Using small business lines of credit, we find evidence of higher average rates in the less competitive markets and less responsiveness of interest rates to the strength of the relationship between the borrower and the bank in the less competitive markets. These findings suggest that even after the dramatic changes in the banking industry over the last 20 years, the small business owner/manager still faces interest rates driven by local market competition. In our conclusion, we offer some suggestions about how the small business owner/manager may be able to gain access to more competitive loan rates.

Introduction

Berger and Udell (1998) report that the primary sources of small business funding are the principal owner, trade creditors, and commercial banks. They present a life cycle for small business funding that begins with all funding from the principal owner and that shifts toward funding from trade credit and bank loans as the firm grows and ages. Berger and Udell note that as small firms access external debt the owner often is required to pledge personal assets to support the debt because small firms are often informationally opaque. Because of the wealth (personal and business) that the small business owner has at stake, it is important that the small business owner understand the market for bank credit to small businesses.

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Existing evidence suggests that developing a relationship with a bank is valuable to a small business. Petersen and Rajan (1994) find that the length of firm's primary banking relationship is positively related to the amount of credit available to a small business, while Berger and Udell (1995) find that the length of the primary banking relationship is negatively related to the cost of debt to small firms. The value of banking relationships for small firms must be tempered, however, by Hannan's (1991) findings that lending markets are local (geographically limited) with higher average loan rates in the less competitive markets.¹ In addition, Petersen and Rajan (1995) find that small firm loan rates decline more slowly in markets with less local banking competition. Because the value to small businesses of banking relationships is related to local banking competition, a logical question is whether consolidation of the banking industry, ongoing since the late 1970s, has affected local lending competition.² The answer to this question lies on two dimensions: the quantity and pricing of credit in local banking markets.

As the banking industry consolidates, one concern for small businesses is that large banks may be less able or less willing to lend to small firms. Peek and Rosen-gren (1998a) examine the share of a bank's loan portfolio allocated to small business loans. They do not find evidence to suggest that the amount of small business loans has declined with the consolidation of the industry. In fact, they find that in about half the mergers they study, small business lending increased in the period immediately following the merger. Berger, Saunders, Scalise, and Udell (1998) also find that the consolidation of the banking industry has not reduced the amount of small business lending. This suggests that small business owners continue to have access to bank loans for their businesses—but at what cost?

Meyer (1998) suggests that bank mergers are mostly market extension mergers, so they do not increase local market concentration. Instead, Meyer suggests that market extension mergers may increase local market competition. Given the findings of Hannan (1991) and Petersen and Rajan (1995) that local lending markets are based on the amount of local competition, Meyer's suggestion of increased competition means that more competitive loan rates may be available to small businesses as banks merge. This is the issue examined in this paper. Specifically, do bank holding companies have common loan rates for similar small businesses across holding company locations (thus introducing competitive pressures to new markets) or do they price loans based on local market conditions?

This paper is a clinical study of local lending markets served by two bank holding companies. Using loan data from different banks within two bank holding

¹ Hannan (1991) defines local markets using Metropolitan Statistical Areas (MSAs).

² This question is one of the primary public policy issues related to the consolidation of the banking industry. [See, for example, Frame (1994) and Keeton (1995).]

companies, we test for local markets within each holding company. Specifically, we address three questions.

- (1) Are there local markets for loan rates within bank holding companies,
- (2) Are the local loan rates the result of the competitive structure of the loan market; and
- (3) Within a holding company, are loan interest rates more rigid in markets with less competition?

We examine variations in the pricing of lines of credit across banks within two bank holding companies that are located in the same limited geographic region. We find evidence that the holding companies in our clinical sample charge different loan rates at different bank locations, *ceteris paribus*. Within each holding company we find that the location premium varies with the amount of local competition. In addition, we find evidence that loan interest rates decline with longer bank/borrower relationships, but that the rates are less responsive to the length of the banking relationship in less competitive markets, a finding that suggests that loan interest rates are more rigid in less competitive markets.

Our results suggest that the small business owner/manager is still faced with local lending markets. This suggests that if the business is located in a less competitive/more concentrated banking market, the owner/manager will have to pursue lower loan rates over a wider geographic area because the banking competition will be slow to impose lower rates on the lending bank. In our summary and conclusion, we discuss some options for the owner/managers to reduce their loan rates.

Local Loan Markets and Their Testable Implications Integrated Markets and Borrower Reputation

Diamond (1989) examines the role of reputation in banking relationships. In Diamond's model, adverse selection and moral hazard problems result in initially high equilibrium interest rates to the pool of potential borrowers. Over time, some borrowers default and others repay their loans. As the banking relationship develops, the payment histories accumulate to form reputations that reduce the lender's adverse selection and moral hazard problems. This process results in lower interest rates to firms acquiring reputations as non-defaulting borrowers. Diamond (1991) extends the Diamond (1989) model to suggest that the reputation developed through repeated successful transactions with banks is portable. If reputation is portable, as banks compete to lend to firms with non-defaulting reputations rates should converge across banking markets over time.

Local (Segmented) Markets

The alternative to an integrated market is geographically segmented (local) markets. Sharpe (1990) develops a model of the bank/borrower relationship that would allow local markets to exist. Sharpe suggests that lending relationships provide the

lender better information than the lender's competitors. The result is that the high quality borrowers are *informationally captured*. Asymmetric information across banks provides the lender with monopoly power because adverse selection problems prevent a lender's competitors from attracting high-quality borrowers without attracting less desirable borrowers.

Sharpe's model explains why borrowers may have difficulties reliably conveying their reputations to lenders in different locations, but it does not explain why lenders would not cross markets to attempt to find high-quality borrowers, especially if high-quality borrowers are paying abnormally high loan interest rates in a given local market. For lenders to remain out of attractive markets (ones with higher risk-adjusted loan interest rates than their current market), the cost of operating in the local market must exceed the risk-adjusted loan interest rate gain. The cost of crossing markets would be especially important in small business lending if there are high fixed costs associated with credit analysis and credit monitoring because of the relative small dollar amount of the typical small business loan. If local lending markets exist because of high entry costs, then a positive role for mergers may exist to provide competitive loan interest rates for small businesses across local markets.

Hannan (1991) notes that bank regulation is built, in part, on the assumption that markets for some banking products are geographically segmented or *local*. Hannan tests for local loan markets and finds evidence that competitive differences across markets explain the observed differences in loan rates across markets. Hannan further suggests that greater interest rate rigidity in concentrated loan markets explains the observed differences in loan rates.

Petersen and Rajan (1995) also examine the effect of local market banking competition on interest rates. They suggest that in more concentrated banking markets, banks charge lower initial interest rates because they expect to recover the initial rate subsidy later in the relationship by providing additional loans or other services. The lower initial rates allow more firms to receive financing before moral hazard forces the banks to cut off credit. The result is that in concentrated banking markets young firms pay lower-than-competitive rates and older firms pay higher-than-competitive rates. Petersen and Rajan (1995) find empirical support for lower initial interest rates and for subsequent rate rigidity.

Testable Implications

Meyer (1998) suggests that banking mergers may increase local competition because most bank mergers are market extension mergers. It follows from Meyer that mergers bring banks from outside the local market into the local market and that the new bank may bring with it loan rates from its old market. If this is true, we should not find location premiums within a holding company, *ceteris paribus*.

Based on Meyer's suggestion and the current literature on small firm loan rates, there are three issues that we need to examine within bank holding companies. First,

do we find evidence of local loan pricing in our sample? We address this issue by testing for different loan interest rates across banks within a holding company while controlling for borrower-specific characteristics. Second, if location pricing exists, is the location premium related to the amount of local banking competition? In our sample, we address this issue by examining the relationship between location premiums and the number of banks in the local market. Finally, Hannan (1991) and Petersen and Rajan (1995) find pricing rigidity in less competitive markets. We examine rigidity within each bank holding company.

Other Issues Addressed with a Clinical Sample

The empirical papers discussed above find evidence of local lending markets using loans sampled nationally.³ Their samples require the authors to use proxy variables to control for factors that influence loan interest rates. Below, we discuss the factors the authors attempt to control for and discuss why our clinical sample provides direct control for these factors.

One primary factor that the previous studies control for is local credit market conditions. The authors control for local market conditions using proxies such as

- (1) The Herfindahl index,
- (2) State unemployment rates, or
- (3) Local wage rates.

Our sample comes from banks operating within a 50-mile radius in one state. Accordingly, we believe the banks and firms in our sample operate under the same market conditions and, therefore, these conditions are held constant.

A second primary concern is to control for lender characteristics. Hannan uses only urban banks in an attempt to use banks with similar characteristics. Petersen and Rajan (1995) differentiate between bank and non-bank lenders. We directly control for different bank characteristics by testing for local markets within two different bank holding companies. Within each holding company, the banks use the same procedures for analyzing credit quality, granting loans, and pricing loans.

Another concern is to control for the maturity of the loan. This is an issue because the national samples include both lines of credit and term loans. Berger and Udell (1995) state that lines of credit and term loans are fundamentally different. They describe lines of credit as relationship loans and term loans as transaction-driven loans. Because term loans are transaction based, term loan interest rates are

³ Hannan (1991) uses the *Survey of the Terms of Bank Lending* by the Federal Reserve. The survey is done quarterly and collects bank loan characteristics for a stratified sample of over 300 banks from across the U.S. Petersen and Rajan (1995) use the *National Survey of Small Business Finance* conducted by the Federal Reserve and the Small Business Administration. The survey collected data from over 3400 small businesses from across the U.S.

often determined more by the asset being funded than relationship factors that influence the interest rate on other firm loans from the bank. Accordingly, term loan interest rates are less likely to decline than line of credit interest rates as the bank/borrower relationship develops. Petersen and Rajan (1994) and Berger and Udell (1995) use the same national sample and find different results for the impact of bank/borrower relationships on loan interest rates. Petersen and Rajan use all the loans in the sample and find no evidence that bank/borrower relationships impact loan interest rates, while Berger and Udell exclude term loans and use only lines of credit from the sample and find that loan rates decline as the bank/borrower relationship develops. Blackwell and Winters (1997), using a different sample of lines of credit, also find evidence consistent with declines in interest rates on lines of credit as the bank/borrower relationship develops. We infer that the inclusion of term loans in a sample for cross-sectional tests of loan interest rate rigidity may bias the results toward finding interest rate rigidity. Accordingly, our sample includes only lines of credit.

Data and Methods

Sample Description

The sample consists of 215 lines of credit collected from six banks in two holding companies operating in a limited geographic region (radius of 50 miles).⁴ The loan agreements were active at fiscal year end, 1988. We require active loans to obtain current pricing data. The loans had been reviewed and renewed within the year, but for our data collection, it was not necessary that a draw existed against the available line of credit. The data collected from customer loan files include the interest rate, a description of collateral, fees, the existence of a deposit relationship with the lender, the bank loan classification based on credit risk, and customer financial information. To gain access to this data, we promised not to identify the banks or their borrowers.

The sample has several benefits that provide necessary controls when testing for different loan rates across markets. The sample is from a limited region within one state, which reduces concerns about different economic conditions across borrowers. The sample is from two bank holding companies. By examining loan pricing within a holding company, we directly control for bank-specific lending policies and risk preferences while testing for location premiums in loan rates. The sample includes the bank's risk classification for each loan. This variable provides an ordinal ranking of loans based on the bank's perception of loan risk and the bank's loan-specific monitoring efforts. Blackwell and Winters (1997) show that the bank's risk classification is a significant factor in the pricing of lines of credit.

⁴ While the six banks operate in the same limited geographic region, none of the six banks have physical locations in the same towns or cities.

Statistics on the Banks and their Markets

Table 1 provides data on bank size and local market competition. The local market is defined by city listing in *Polk's Bank Directory*.⁵

Holding Company A has total assets of \$750 million and includes more than the three banks in our sample. The holding company applies common commercial loan procedures across banks, but lending decisions, pricing, and loan servicing are done at the subsidiary level. Bank 1 has \$100 million in total assets. Bank 1 has two local bank competitors, and one of the two competitors is headquartered in the local market. Bank 1 is the larger of the two banks headquartered in its market. Bank 2 has \$50 million in total assets. Bank 2 has two local bank competitors, and one of the competitors is headquartered in the local market. Bank 2 is the smaller of the two banks headquartered in the market. Bank 3 has \$225 million in total assets. Bank 3 has four local competitors with one of the competitors headquartered in the market. Bank 3 is the smaller of the two banks headquartered in its local market.

Table 1—Description of Bank Sizes, Total Deposits, and Local Market Competition

Bank	Total Assets (000)	Number of Banks ^a	Number of Headquarters ^b
Holding Company A	\$ 750,000		
Bank 1	\$ 100,000	2	1
Bank 2	\$ 50,000	2	1
Bank 3	\$ 225,000	4	1
Holding Company B	\$5,000,000		
Bank 4	\$ 150,000	4	0
Bank 5	\$ 350,000	7	2
Bank 6	\$4,000,000	15	6

^aThe total number of banks listed in the local market (city) in Polk's bank directory, excluding the bank in the sample

^bThe number of banks listed as headquartered in the local market (city) in Polk's bank directory, excluding the bank in the sample. This number excludes listings for branches from banks headquartered in other cities

Holding Company B has \$5 billion in total assets and also includes more than the three banks in our sample. The holding company has common commercial loan procedures across banks including a loan-pricing model; however, loan decisions and loan servicing are done at the subsidiary level. Bank 4 has \$150 million in total assets. Bank 4 has four local bank competitors, but none of its local competitors is headquartered in the market. Bank 5 has \$350 million in total assets. Bank 5 has

⁵ Hannan and Liang (1995) assess the competitive influence of thrifts on commercial loan rates. They find that including controls for thrift competition does not improve their explanatory power for estimating commercial loan interest rates. Accordingly, the number of institutions listed as local banking competition includes only commercial banks.

seven local competitors, with two of the competitors headquartered in the market. It is the largest bank headquartered in its local market. Bank 6 is the dominant bank in Holding Company B and has \$4 billion in total assets. Bank 6 has 15 local bank competitors, with six of the competitors headquartered in the local market. Bank 6 is the second largest bank headquartered in its market.

Empirical Model

Petersen and Rajan (1994), Berger and Udell (1995), and Blackwell and Winters (1997) identify factors that influence a loan's interest rate. Using these three studies for guidance, we specify the following model for estimating the effect of location on the interest rates of lines of credit:

$$(1) \text{ spread} = \alpha_0 + \alpha_1(\text{firm size}) + \alpha_2(\text{collateral}) + \alpha_3(\text{deposits}) + \alpha_4(\text{loan class}) + \alpha_5(\text{banking relationship}) + \alpha_6(\text{location}) + \epsilon_i$$

where:

Spread = Spread over the prime rate;

Firm Size = $\ln(\text{total assets})$;

Collateral = 0/1 dummy variable where 1 implies the existence of collateral;

Deposits = 0/1 dummy variable where 1 implies the existence of deposits at the lending bank;

Loan Class = 0 for (low risk/less frequently monitored loans) and 1 for (medium risk/more frequently monitored loans);

Banking Relationship = $\ln(\text{length of relationship})$; and

Location = Dummy variables to identify local banking markets.

We do not need to control for time to maturity because the loans in this sample are renewable annually. In addition, the sample is a cross-section from 1988, so there is no need to control for cyclical variations in default risk premiums or term premiums.

Dependent Variable

Spread is the dependent variable and is the loan interest rate minus the bank's prime rate. The loans in the sample are priced at a constant spread relative to the bank prime rate and are renewable annually. At the time our data were collected, all the banks represented in the sample used the same prime rate.

Control Variables

Firm size, *deposits*, *loan class*, and *banking relationship* are control variables. These variables are either suggested by theory or have been shown empirically to be important factors in determining the interest rate on lines of credit.

We measure *firm size* with $\ln(\text{total assets})$. We offer two reasons why we expect an inverse relation between firm size and the loan interest rate. First, larger firms tend to have larger loans and economies of scale exist in loan production. Second, large firms have a greater capacity to service debt and thus have lower credit risk.

Collateral is a 0/1 dummy variable that equals 1 for the existence of collateral on the loan.⁶ Theory suggests that providing collateral should reduce the loan rate. Scott and Smith (1986), Berger and Udell (1995), and Blackwell and Winters (1997), however, find a positive relation between collateral and the loan rate in cross-sectional studies. Collateral simply may proxy for higher credit risk. Given the previous empirical results, we expect a positive coefficient on the collateral variable.

We measure the presence of *deposits* at the bank with a dummy variable that equals 1 when the borrower has a deposit relationship with the lending bank. Fama (1985) suggests that the bank's cost of monitoring a full-service customer may be less than monitoring a loan-only customer because of the additional information available on the full-service customer through its deposit history. This suggests a negative relation between the existence of deposits with the lending bank and the interest rate on lines of credit. Berger and Udell (1995) and Blackwell and Winters (1997) include variables for a deposit relationship with the lending bank. Neither study finds that a deposit relationship is a significant factor in the pricing of lines of credit with small firms.

We control for credit risk with a dummy variable for the bank's classification of the loan on credit risk and monitoring frequency. *Loan class* is a dummy variable that equals 0 for lower risk/less frequently monitored loans and that equals 1 for higher risk/more frequently monitored loans. The low risk category contains top quality loans classified as prime, high quality, or above average. These loans receive annual reviews. The higher risk category contains loans classified as standard, good, satisfactory, or average. These loans are reviewed semiannually. We expect a positive relation between loan class and the loan interest rate.

Our *banking relationship* variable is $\ln(\text{length of the banking relationship})$.⁷ Berger and Udell (1995) find a negative relation between the age of the relationship and loan rate to small firms with more than \$500,000 in total assets. Blackwell and Winters (1997) find that age of the relationship is negatively related to bank moni-

⁶ We include the pledging of personal assets and the providing of personal guarantees as collateral.

⁷ Petersen and Rajan (1994, 1995) use the number of institutions that the firm borrows from as a relationship factor for both the quantity of debt available to the firm and the cost of firm borrowing and the number of institutions is a significant explanatory factor for both. This data is not available for the firms in our sample.

toring and that reduced monitoring leads to lower interest rates.⁸ Accordingly, we expect a negative relationship between the length of the banking relationship and the firm's loan rate.

Test Variables

Location is our proxy for the local lending market. We use a 0/1 dummy variable for the location of each bank, by holding company. The dummy variables will allow us to determine if location rate premiums exist within a holding company, *ceteris paribus*. If local pricing exists within the holding companies, then we want to test if there is greater price rigidity in the markets with higher average loan rates.

Petersen and Rajan (1995) examine the decline in loan rates as firms age to test for loan rate rigidity. They find that rates are less responsive to differences in firm age in less competitive markets. Petersen and Rajan use firm age as a proxy for quality. In our model, the length of the banking relationship is a proxy for the firm's reputation (the firm's quality as a borrower) with the bank. Therefore, to test for local market price rigidity, we interact the bank location dummy (our proxy for market competition) and the length of the banking relationship

Summary Statistics on Regression Variables

Table 2 reports the number of loans from each bank and summary statistics on the variables in the regression model. Panel A in Table 2 reports the number of loans from each bank and the business structure of the borrowers. For Banks 1 through 5, our sample sizes range from 16 loans to 30 loans. We have a sample of 105 active lines of credit from Bank 6. The business structure of the borrowers shows that our sample is heavily weighted toward corporations and S-corporations. Cole and Wolken (1995) report that more than half of the small businesses surveyed in the *1993 National Survey of Small Business Finances* have some credit outstanding. From the group with credit, corporations and S-corporations are more likely to use lines of credit than are partnerships or proprietorships, which is consistent with our sample mix of business forms.

Panel B of Table 2 provides medians for the continuous variables in the model, while Panel C reports frequencies for categorical variables in the model. The first

⁸ Petersen and Rajan (1994) use both the age of the firm and the length of the banking relationship as relationship variables when they examine the cost of firm borrowing and find that the length of the relationship does not add explanatory power beyond that of firm age. They note that the correlation between the two variables is 0.41. Blackwell and Winters (1997) test the two variables separately because of concerns for multicollinearity. Petersen and Rajan (1995) use the age of the firm but not the length of the firm's banking relationship in tests for the cost of borrowing.

Table 2—Descriptive Statistics on Lines of Credit to 215 Small Firms

Panel A provides the number of loans from each bank and the business structure of the borrower. Panel B provides median values for the continuous variables by bank and Panel C provides frequencies for the dummy variables by bank.

	Holding Company A			Holding Company B		
	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6
Panel A (Number of Loans and Business Structure of Borrower)						
Number of Loans/Firms	16	17	27	20	30	105
Business Structure of Borrower ^a						
Corp	11	3	12	10	12	84
S Corp	5	1	8	8	9	19
Partnership	0	1	6	0	2	1
Sole Owner	0	12	1	2	4	1
Panel B (Sample Median)						
Spread between the Loan Interest Rate and the Prime Rate (percent)	2.25	1.25	1.00	1.88	2.00	0.50
Total Assets (\$000)	280.500	511.00	779.00	191.50	591.00	7624.00
Length of Banking Relationship (years)	6.5	13.00	5.00	4.50	5.50	5.00
Panel C (Percent of Sample with the Dummy Variable Equal to 1)						
Collateral	100.0	100.0	59.3	90.0	43.3	73.3
Higher Risk Loan Class	100.0	100.0	92.6	100.0	56.7	65.7
Deposit Relationship	75.0	82.4	100.0	70.0	90.0	8.6

^aFor Bank 5, we are missing information on the business structure of one of the borrowers.

median reported is the median spread relative to the prime rate (spread). The median spread ranges from 0.5 percent (50 basis points) to 2.25 percent (225 basis points). At first glance, these spreads suggest the existence of local loan markets. Because the remaining statistics in Table 2 indicate substantial customer heterogeneity in the control variables, however, any conclusions must await the regression results.

Finally, Berlin and Mester (1999) in a study of small business banking relationships divide their sample into below-prime loans and above-prime loans. They suggest that below-prime loan customers have sufficient reputation to access national credit markets [reputation portability as suggested by Diamond (1991)], while the above-prime customers are stuck in their local banking market. We examine our data for below-prime loans and find three below-prime loans. These three loans are not included in the final sample of 215 loans used for this study. The final sample is of loans priced at or above prime. Thus, the borrowers in our sample are unlikely to have access to the national credit markets and are instead local borrowers. Accordingly, the portability of reputation that we examine is not from local to national debt markets; instead, it is of reputation portability to adjacent local markets.

Regression Results

Our regression results are presented in Table 3. We report results by holding company. This allows us to test for location rate premiums within holding companies. Testing for location rate premiums within holding companies directly controls for bank risk preferences and bank loan pricing policies. For each holding company, we estimate two models: Model 1 tests for the existence of local loan markets, and Model 2 adds tests for loan rate rigidity.

Results for Local Lending Markets

First, we discuss the results for Bank Holding Company A. The control variable coefficients show that size and the existence of collateral are significant at the 1 percent level with the expected sign, while deposit relationship, loan class and the length of the banking relationship are not significant. The insignificance of the deposit relationship is consistent with the findings of Berger and Udell (1995) and Blackwell and Winters (1997). The insignificance of the relationship variable is consistent with pricing rigidity across banks in the holding company. The results for the loan class appear surprising, given the results of Blackwell and Winters. For Bank Holding Company A, however, all but two of the loans are in the same class.

The parameter estimates on the location dummy variables are positive and significant (Bank 1 at 5 percent and Bank 2 at 10 percent).⁹ The dummy variables suggest that, *ceteris paribus*, it costs a borrower 46 basis points more to borrow from Bank 1 than Bank 3, and 38 basis points more to borrow from Bank 2 than Bank 3.¹⁰ There is not a significant rate difference between Bank 1 and Bank 2. Geographically, Banks 1 and 3 are 75 miles apart, while Banks 2 and 3 are only 15 miles apart.

⁹ We have data from three banks within Bank Holding Company A. We use each bank's location as the proxy for the local market and identify each bank with a 0/1 dummy variable. To prevent the location variables from being linearly dependent, we omit Bank 3 from the regression model for Holding Company A. We also have three banks from within Holding Company B. We follow the same process as above for the location variables used in the regression model for Holding Company B. Bank 6 is the omitted bank.

¹⁰ Meyer (1998) notes that small business borrowers pay between 50 and 150 basis points more in the least competitive markets. We note that the local premiums paid at banks 1 and 2 are similar while the business structure makeup of their portfolios are quite different. This suggests that the business structure of a small business is not a significant factor in the firm's loan rate. In supplementary tests not reported for brevity, we included the borrower's business structure in equation (1). The business structure was not a significant explanatory factor of the firm's loan rate in either holding company.

Table 3—Ordinary Least Squares Regressions of the Interest Rates on Lines of Credit to 215 Small Firms

This table presents the regression results by holding company. For each holding company we present two model specifications. Model 1 has test variables only for bank location, while Model 2 includes the interaction variables to test for loan rate rigidity. *t*-statistics are reported in parentheses.

	Holding Company A		Holding Company B	
	Model 1	Model 2	Model 1	Model 2
Intercept	1.89 (2.46)**	1.89 (2.39)**	1.12 (4.55)***	1.06 (4.37)***
<i>ln</i> (Total Assets)	-0.21 (-3.13)***	-0.21 (-3.01)***	-0.11 (-4.43)***	-0.11 (-4.46)***
Collateral Dummy	1.11 (4.62)***	1.11 (4.51)***	0.22 (2.65)***	0.20 (2.53)**
Deposit Dummy	-0.19 (-0.76)	-0.19 (-0.70)	-0.27 (-2.51)**	-0.19 (-1.70)*
Loan Class Dummy	0.09 (0.20)	0.10 (0.21)	0.51 (6.12)***	0.46 (5.59)***
<i>ln</i> (Relationship)	-0.10 (-1.20)	-0.12 (-0.80)	-0.08 (-2.47)**	-0.03 (-0.10)
Bank 1 Dummy	0.46 (2.31)**	0.42 (1.06)		
Bank 2 Dummy	0.38 (1.79)*	0.33 (0.82)		
Bank 4 Dummy			0.85 (5.49)***	1.04 (4.73)***
Bank 5 Dummy			0.81 (5.43)***	1.25 (5.71)***
Bank 1 * <i>ln</i> (Relationship)		0.02 (0.10)		
Bank 2 * <i>ln</i> (Relationship)		0.03 (0.14)		
Bank 4 * <i>ln</i> (Relationship)				-0.15 (-1.26)
Bank 5 * <i>ln</i> (Relationship)				-0.27 (-2.82)***
F-statistic	10.32***	7.72***	46.47***	38.73***
Adjusted R-squared	52.51%	50.63%	67.39%	68.80%

*** Significant at the 1 percent level

** Significant at the 5 percent level

* Significant at the 10 percent level

Next, we discuss the results for Bank Holding Company B. All of the control variables in Model 1 for Bank Holding Company B are significant at the 5 percent level (or better) and have the expected signs. Two of these results deserve some discussion. First, the deposit relationship variable is significant and negative which is consistent with the lender's needing less monitoring of borrowers with whom they have deposit relationships. This is the first empirical evidence that we are aware of that demonstrates a statistically significant relationship between a deposit relation-

ship and loan interest rates. Finding a significant effect for the deposit relationship just in Holding Company B reinforces the benefit of testing for local markets within holding companies. Second, the significantly negative relation between the length of the bank/borrower relationship and the loan interest rate suggests that loan interest rates decline as the bank/borrower relationship continues. Thus, Bank Holding Company B should be an appropriate setting in which to test for loan interest rate rigidity.

The parameter estimates for the location dummies for Bank Holding Company B are positive and significant at the 1 percent level. The parameter estimate suggests that, *ceteris paribus*, a borrower at Bank 4 pays 85 basis points more than at Bank 6, and a borrower at Bank 5 pays 81 basis points more than at Bank 6. The rate differences between Banks 4 and 5 are not significant. The distance between Banks 4 and 6 is 15 miles, while the distance between Banks 5 and 6 is 50 miles.

The results from Model 1 provide evidence consistent with local loan pricing within each bank holding company. The question remains whether the local loan pricing is related to the amount of local banking market competition [Hannan (1991) and Petersen and Rajan (1995)]. The nature of our sample and data does not permit us to test this question directly. We can provide some insights, however, when the regression results are analyzed in light of the bank data in Table 1.

In Bank Holding Company A, Banks 1 and 2 have local premiums relative to Bank 3. Banks 1 and 2 have the same amount of local banking competition and similar local rate premiums. In Bank Holding Company B, Banks 4 and 5 have local premiums relative to Bank 6. Banks 4 and 5 have similar local rate premiums, and both banks face less local banking competition than Bank 6. This information suggests a negative relationship between the size of the location rate premium and the amount of local competition. The difference in the amount of local banking competition between Banks 4 and 5, which have similar location rate premiums, suggests that the amount of local banking competition is not the only factor determining local loan rates.

Loan Rate Rigidity

Having found evidence of local loan pricing with higher average rates in the less competitive markets within each bank holding company, we now address the issue of loan interest rate rigidity. In a cross-section of loans, interest rate rigidity is supported when interest rates are less responsive to the length of the banking relationship in less competitive markets. We test for interest rate rigidity with interaction variables between the bank location dummy variables and the length of the banking relationship. The tests for loan interest rate rigidity are reported as Model 2 in Table 3 for each of the holding companies.

In Model 2 for Bank Holding Company B, the interaction between length of the banking relationship and the Bank 4 dummy is not significant. It is significant, how-

ever, for Bank 5 at the 1 percent level. These results suggest that loan rates are more responsive to the length of the banking relationship at Bank 5 than at Bank 4. The data from Table 1 show that Bank 5 has nearly twice as much local competition as Bank 4. Accordingly, these results are consistent with more pricing rigidity in less competitive markets. Additionally, in Model 2, Bank 4 has a smaller coefficient on the location dummy variable than Bank 5 and a larger coefficient on the interaction variable than Bank 5. This suggests lower initial loan interest rates and more interest rate rigidity in the less competitive market. These results are consistent with the results in Petersen and Rajan (1995), who find that less competitive loan markets are characterized by lower initial loan interest rates and more loan interest rate rigidity.

In Model 2 for Holding Company A, the coefficients on both interaction variables are not significant. Table 1 shows that there is little local competition for Banks 1 and 2. We believe these results are consistent with interest rate rigidity. We are cautious about this conclusion, however, given the relatively small sample size from Holding Company A. We note in an estimate of the model including only the control variables (not reported for the sake of brevity) that the length of the relationship has a negative coefficient and is significant at the 10 percent level for Holding Company A. Also, we note that the interquartile range of the length of the relationship for Bank 1 is from two to 11 years, and for Bank 2 is from four to 18 years, which indicates that there is some variability in the length of the banking relationships in the sample. Given this additional information, we believe that interpreting the insignificant results on the interaction terms as evidence of loan interest rate rigidity is reasonable.

Summary and Conclusion

With the changing landscape of the banking industry over the last 20 years, it is difficult for the small business owner/manager to know where small business lending stands as banks get larger. Previous research by Peek and Rosengren (1998a) and Berger, Saunders, Scalise, and Udell (1998) suggest that small businesses continue to have access to bank loans as the banking industry consolidates. We examine possible effects of the consolidation of the banking industry on the cost of small firm bank loans.

Examining loan rates for small business lines of credit within two bank holding companies, we find evidence within each holding company consistent with previous studies. Specifically, we find evidence that loan rates decline as the length of the banking relationship increases, but that the decreases are smaller in less competitive markets. In addition, average loan rates are higher in the less competitive markets. These results are consistent with Sharpe's (1990) suggestion that bank borrowers are informationally captured and the Berger and Udell (1998) statement that small firms are more informationally opaque. The results are also consistent with studies on location by Engel and Rogers (1996) and Lerner (1995). Engel and Rogers find that

the distance between locations matters in the pricing of commodities, and Lerner finds that most venture capitalists fund local firms because of the ease of monitoring.

Our results suggest that the consolidation of the banking industry may not impact loan rates in local lending markets, which means that small business owners continue to be at the mercy of the local competition for their loan rates. The question that remains is whether the small business owner has any options to free the cost of business credit from the local market.

We offer two suggestions from the existing literature. First, Meyer (1998) states that banking relationships are important to small firms because small businesses are informationally opaque, which allows small businesses to be informationally captured (Sharpe, 1990). Dharan (1992) suggests that high-quality small firms can signal their quality by purchasing an audit, and Blackwell, Noland, and Winters (1998) state that audits provide information that banks find useful. This suggests that small businesses may be able to overcome some of their informational opaqueness by purchasing an audit and thus search the markets for lower loan rates using the audited financial information. Second, Lerner (1995) suggests that venture capitalists fund firms within 60 miles of the venture capitalist's location because of the desire to monitor the firms. Blackwell and Winters (1997) find that bank monitoring impacts small firm loan rates. This means that monitoring costs may prevent banks from entering a new market to compete for good loan customers. Peek and Rosengren (1998b) discuss the beginning of the use of credit scoring in small business lending. They suggest that credit scoring business loans may alter the way banks evaluate and monitor loans and thus provide lower cost loans to small businesses. Accordingly, the small business owner may be able access more competitive loan markets by searching outside the local lending market for banks that credit score business loans. If credit scoring small business loans works (as suggested by Peek and Rosengren), then location premiums should decline on small business loans over time.

Finally, we make two concluding remarks. First, we caution the reader about generalizing the results from our clinical sample because we clearly do not have a broad cross-section of the banks that lend to small businesses. This offers a line of further research. Second, we cannot determine if the location premiums we find have changed over time as the banking industry has consolidated. We do not have access to the data to update our sample. We did discuss the location premiums in our results with the president of one of the banks in our sample. The bank president is also a member of the board of directors for the holding company. The bank president said that location premiums are still present in his local market 10 years after we collected our data even with another bank holding company entering the local market in the 1990s by acquiring one of his local competitors.

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