

# Bank Consolidation and Small Business Lending within Local Markets

April 2003  
Working Paper 2003-02

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The views expressed here are those of the authors and do not necessarily reflect those of the Federal Deposit Insurance Corporation or the Department of Justice. An earlier version of this paper was presented at the Federal Reserve System Conference on Changing Financial Markets and Community Development. The authors would like to thank conference participants James Marino and John O'Keefe for their comments. We also thank Ross Dierdorff and Brian Deitch for assistance with the CRA and census databases, Lynne Montgomery for her editing and Sarah Belanger for her cheerfully putting together our many tables.

# **Bank Consolidation and Small Business Lending within Local Markets**

Katherine Samolyk and Christopher Richardson

## **Abstract**

This paper uses the relatively new CRA small business loan data to examine how bank consolidation has been related to small business lending within a bank's local community—particularly to borrowers having more modest economic prospects, such as very small businesses or those located in low- and moderate-income areas. The results of multivariate tests indicate that during the late 1990s, banks experiencing merger activity—including banks that did not themselves merge but were part of active holding companies—had systematically lower small business loan growth than inactive banks. But, the effects appear to reflect a general decline in small business lending rather than a shift away from lending to lower-income areas or to very small businesses. At the local level, merger-related effects are more pronounced when the merger activity increases the local market share of the surviving bank or its parent holding company. Thus, our results indicate that, at least in terms of the quantity of credit, the effects of bank consolidation do not appear to fall disproportionately on the businesses having more modest prospects. On the other hand, the market-level analysis indicates that standard antitrust concerns about the provision of local banking services still seem to apply in small business credit markets.

JEL Classifications: G21, G28, G34

Keywords: Small business; Lending; Community Reinvestment Act; Bank mergers

## 1. Introduction

The Community Reinvestment Act (CRA) of 1977 was intended to encourage insured depository institutions to meet the credit needs of the communities where they are chartered to accept deposits. The primary focus of CRA assessments by bank regulatory agencies has traditionally been on the provision of home mortgage credit, in part because of the availability of data pursuant to the 1975 Home Mortgage Disclosure Act (HMDA). However, 1995 revisions to the CRA regulations reemphasized and clarified the treatment of lending to small businesses and small farms. One goal of these revisions was to make CRA evaluations more reflective of actual outcomes than of bank lending policies and procedures (Canner [1999]). To this end, the revised CRA regulations require an annual reporting of geographic data on small business and farm lending by larger banking institutions (these data are referred to as the CRA data).

The 1995 CRA regulations raise important questions about how commercial banks and savings institutions—hereinafter referred to as “banks”—choose to serve their communities, particularly in light of the ongoing trend toward bank consolidation. Although concerns have been raised that bank mergers adversely affect small business credit availability, no one has specifically studied the types of small business lending that are likely to qualify for the purposes of CRA assessments—such as loans to businesses in low- and moderate-income (LMI) neighborhoods.<sup>1</sup> In this study, we use the relatively new CRA data to examine how bank merger activity has affected small business lending to particular segments of local banking markets.

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<sup>1</sup> For example, there is the notion that small banks have a comparative advantage in meeting the less-standardized credit needs of small businesses but that large banks have a comparative advantage in providing standardized credit products such as home mortgages and credit cards. If this notion is accurate, a continuation of the bank consolidation trend could reduce the extent to which banks satisfy CRA regulations through small business lending. On the other hand, CRA requirements may cause a bank to maintain CRA-qualifying small business lending programs even while it reduces its focus on small business customers who do not qualify as CRA borrowers. In both of these scenarios, there is also the potential for merging banks to shift the composition of CRA-type business lending from loans in LMI areas to loans to very small businesses that qualify for CRA credit regardless of their neighborhoods' income levels.

Because small banks do not report CRA data, we follow much of the bank consolidation literature in analyzing business lending by individual banks (as opposed to lending in particular geographic areas, such as MSAs or counties). In the taxonomy used by Berger and Udell (1998a), our study is “dynamic” in that we compare changes in small business lending by merging banks over time with changes in such lending by comparable institutions that were not involved in merger activity.

We use the geographic detail in the CRA data to quantify the types of small business lending likely to “count” in terms of CRA assessments—including loans to LMI areas and to very small businesses. We also examine how merger activity affects lending in the specific markets where a bank operates branches. This latter approach allows us to explicitly control for market characteristics and market conditions in measuring merger-related effects. It also allows us to test whether merger-related effects differ for within-market versus out-of-market merger activity and for rural versus urban markets. The goal of this study is not to assess the costs or benefits of the Community Reinvestment Act for any particular constituency. Rather, our goal is to conduct a careful and rigorous analysis of the relatively new CRA data to see whether bank merger activity was systematically related to small business lending within local banking markets during the late 1990s.

Our results indicate that banks experiencing merger activity—including banks that did not themselves merge but were part of holding companies that were acquiring new banks—had systematically lower small business loan growth than banks experiencing no merger activity. At the local level, the evidence suggests that merger-related effects depend on how the merger activity affects local market structure. Specifically, we find that negative merger-related effects in MSA markets are pronounced when the merger activity increases the local market share of the surviving bank or its parent holding company. These findings are consistent with those yielded by other studies that use other data. Specifically, our tests indicate that the effects of bank consolidation on small business lending have an important local dimension, as emphasized by Avery and Samolyk (2000). Thus the evidence suggests

that standard antitrust concerns about the provision of local banking services still seem to apply in small business credit markets.

Although our results indicate that merger activity is associated with less small business lending, they also indicate that—at least in terms of the quantity of credit—the effects of bank consolidation do not fall disproportionately on the small business borrowers likely to have more modest economic prospects. This does not necessarily imply that these borrowers are not more vulnerable than other small businesses seeking credit. Indeed, it may mean that the CRA is having its intended effect.

Below, we summarize our efforts to quantify changes in small business lending within local banking markets and relate these changes to bank merger activity using multivariate statistical tests. Section 2 of the paper discusses concerns about bank consolidation for small business lending and research related to this issue. Section 3 discusses some empirical issues involved in using the relatively new CRA data to study the effect of merger activity on small business lending in local banking markets. Section 4 presents tests that measure merger-related differences in small business lending at the bank level. Section 5 presents the results of tests that examine how merger activity is related to a bank's small business lending in the particular markets that constitute its assessment area. Section 6 concludes.

## **2. Background**

The Community Reinvestment Act of 1977 (CRA) was enacted to encourage banking institutions to meet the credit needs of local communities in a manner that is consistent with safe and sound banking practices. For large retail institutions, the evaluation of the extent to which an institution is meeting the “convenience and needs” of its community is based on three tests of CRA compliance: the lending test, the investment test, and the service test. However, current regulations stipulate that a bank cannot receive a composite CRA rating of “satisfactory” or higher unless it scores at least a “low satisfactory” on the lending test.

For the purposes of CRA assessments, the “assessment area” that is defined as constituting a bank’s local community includes regions where it operates deposit-taking branches or where the bank originates a significant proportion of its loans. With respect to a bank’s lending activities, however, the CRA lending test does not stipulate specific performance measures. Rather, the lending test broadly evaluates the extent to which an institution is consistently meeting local credit needs, including the needs of low- and moderate-income borrowers within the communities it serves. Local credit needs can be met through home mortgage lending and small business and small farm lending, as well as through the provision of community development loans.

### *2.1 Small business lending and the Community Reinvestment Act*

With respect to business loans, the 1995 revisions to CRA regulations clarified and reemphasized the role of small business lending in CRA evaluations. They also mandated the collection of annual data on small business and farm loan originations. Since 1996, independent banks having assets of at least \$250 million and bank affiliates of holding companies that control at least \$1 billion in assets have been required to report data on the number and dollar volume of small business and farm loans originated during the calendar year. By “small,” the CRA data refer to loans of less than \$1 million going to nonfarm businesses of any size (\$500,000 for loans to farms). The data also include detail on the small loans extended to “small” firms—that is, businesses having gross annual receipts of less than \$1 million. The CRA loan data are aggregates classified by the census tract location of the borrowing business and include separate figures for farms and nonfarm businesses and for three size categories of small loans. Finally, since 1998, for the purposes of CRA evaluations, each bank also reports which census tracts are included in its service area (its assessment area). In this study, we use the geographic CRA data for 1996 through 1999 to study how mergers and acquisitions have affected small business lending to particular segments of the local banking market.

## *2.2 Bank consolidation and small business lending*

A broad concern associated with the continuing bank consolidation trend is that the merging of banks into larger, more complex organizations may adversely affect the provision of basic banking services to the smaller customers that are more costly to serve. Small business lending has been advanced as a banking product likely to be affected by bank consolidation (Berger and Udell [1996], Avery and Samolyk [2000]) because traditionally this type of lending has been local in nature—often to firms with idiosyncratic credit needs and risks tied to the prospects of the local economy.

Researchers have identified two basic channels by which bank consolidation may adversely affect small business lending. First, as mentioned above, there is the notion that small banks have a comparative advantage in meeting the less-standardized credit needs of small businesses but that large banks have a comparative advantage in providing standardized credit products, such as home mortgages and credit cards. Hence, as banks grow to be larger, more complex organizations, they may shift away from small business lending to more- standardized loan products or larger commercial customers. Second, reduced competition in local markets is more likely to affect small business borrowers, who have fewer alternatives to local banks. Even arguments to the effect that larger banks can take advantage of credit- scoring technologies suggest that bank consolidation will affect which small businesses get credit and at what price.

The implication of the general bank consolidation story for small business lending within the local community is simply that the adverse consequences are more likely to affect the more marginal small business customers—those that are the smallest or whose economic prospects are more modest. And since a bank's local community includes the markets where it operates branches, the effects of bank consolidation on CRA-type lending may be related to how mergers affect the mix of within-market versus out-of-market lending by merging institutions. For example, if merging banks shift to small business underwriting methods that emphasize credit scoring, consolidation may reduce the extent to which small business credit markets are local (that is, in the sense that loans tend to be made in the

markets where banks operate branches). In this scenario it is also likely that the more marginal small business borrowers are those that will be unlikely to qualify for “scored” credit. These considerations suggest that, in the absence of CRA, bank consolidation should be associated with at least a relative decline in lending to more marginal small business borrowers.

CRA considerations, however, should cause banks to be less inclined to reduce their focus on customers that “count” in terms of CRA evaluation. But, consolidating institutions may shift their CRA-related lending focus to home mortgage lending, which has become a standardized product well suited to larger, more organizationally complex banking organizations. This shift would be consistent with merger-related declines in small business lending, along with declines to more marginal business customers.

### *2.3 Related studies*

Numerous studies have examined how mergers and acquisitions affect a bank’s overall small business lending.<sup>2</sup> Most of these studies use bank-level small business loan data reported since 1993 in mid year Reports of Condition and Income.<sup>3</sup> They compare lending by “merging” banks with lending by “nonmerging” banks and test whether there are systematic differences associated with merger activity. The results of these studies depend on how changes in small business lending are measured, what time period is studied, and how bank merger activity is defined.<sup>4</sup> But the evidence broadly

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<sup>2</sup> For discussions of these studies, as well as related research about small business financing issues, see Berger, Demsetz, and Strahan (1999); Berger and Udell (1998b); and Samolyk (1997).

<sup>3</sup> Since 1993, commercial banks and savings institutions have been required to report (on the June Reports of Condition and Income) midyear data on the number and outstanding balances of their small loans to businesses and farms (on the June Reports of Condition and Income). These bank-level data do not include information about the location of the borrowers, but they do break down lending into loan size categories that are comparable to those reported in the CRA data on calendar-year loan originations. Small nonfarm business loans include loans of less than \$1 million, and small farm loans include loans of less than \$500,000.

<sup>4</sup> Bank-level small business lending studies have tended to examine changes in small business lending as a proportion of total bank assets (or total commercial loans). Examples include Peek and Rosengren (1998) and Strahan and Weston (1998). Studies of credit availability at the market level have tended to examine changes in the amount of small business lending (or loan growth rates); For example, see Berger, Saunders, Scalise, and Udell (1998b); and Avery and Samolyk (2000).



indicates negative merger-related effects associated with mergers involving larger banks or more concentrated markets, whereas acquisitions by smaller or more active small business lenders have been associated with more small business lending by the surviving banks.<sup>5</sup>

Before the fairly recent availability of the CRA data, it was difficult to assess the implications of bank consolidation for small business lending within local markets, particularly lending to LMI neighborhoods. To our knowledge, no one has yet used the CRA data to study this specific issue. Canner (1999) examines the relationship between bank CRA nonfarm business lending patterns and neighborhood characteristics, using data from the 1990 Census of Population and Housing on tract-level income and racial/ethnic composition, and using Dun & Bradstreet data on the geographic distribution of large and small businesses. This study does not, however, investigate how factors such as bank mergers are related to changes in small business lending patterns over time. CRA business loan data have also been used to study the competitiveness of local banking markets and the importance of out-of-market lenders (see, for example, Cyrnak [1998]). But these studies generally do not explicitly test conjectures about the effects of mergers; nor do they focus on the types of business lending likely to count for the purposes of CRA assessments.

### **3. Empirical Overview**

Our empirical strategy follows much of the bank consolidation literature in analyzing small business lending at the bank level, comparing changes in small business lending over time by merging banks with changes observed for comparable institutions that were not involved in merger activity.

There are a number of ways in which one can measure changes in lending over time. Bank-level small business lending studies have tended to examine changes in small business lending as a proportion of

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<sup>5</sup> In contrast, a study of bank consolidation and home mortgage lending patterns reports evidence that consolidation has had little effect on credit availability in local mortgage markets (Avery, Bostic, Calem, and Canner, [1999]). However, the authors acknowledge that these results may reflect the evolution of home mortgage lending into a standardized product market that has become more national than local.

total bank assets (or total commercial loans). Studies of credit availability at the market level have tended to examine changes in the amount of small business lending (or in loan growth rates). Here we focus on loan growth rates—albeit at the bank level rather than at an aggregated market level.

We estimate reduced-form multivariate regressions to test for systematic differences in small business loan growth among banks experiencing merger activity compared with inactive banks.

Throughout, we studied samples of commercial banks and samples that included both commercial banks and savings institutions. Although our empirical strategy seems straightforward, the nature of the data collected and the inherent geographic dimension of the lending being studied pose formidable issues in the execution of a study of this type. These issues are summarized below and presented in detail in Appendix 1 of this study.

### *3.1 Measuring small business lending within local markets*

The most obvious limitation of the CRA data from a research perspective is that only a subset of banks must report these data.<sup>6</sup> For example, it is difficult to study overall credit availability using the CRA small business loan data because many small banks do not report these data.<sup>7</sup> The exemption of small banks from CRA reporting also affects the samples of banks that we can use in this study because we cannot include banks for which we do not have complete CRA data for a given study period.

Hence, our study samples exclude non-CRA reporting banks and new CRA reporters—those that

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<sup>6</sup> Studies of small business credit availability generally face this problem, because bank regulatory agencies do not collect information from nonbank sources of small business financing, such as finance companies.

<sup>7</sup> At the broader market level, bank deposit data have been used to estimate local small business lending by small banks that do not report the CRA data (see, for example, Cynrak, [1998]). These estimates have been used to analyze the competitive structure of local markets and the way in which proposed bank mergers and acquisitions would affect market concentration. However, changes in the CRA reporting status of banks over time make it difficult to use these estimates to study changes in geographic lending patterns over time. When a nonreporting bank becomes a CRA reporter (through a merger, an acquisition, or internal growth), it is difficult, if not impossible, to separate out true changes in its local lending from changes due solely to the change in its CRA reporting status. Aside from problems posed by changes in the CRA reporting population, it is also unlikely that a bank's deposit-taking patterns are a good proxy for its lending activities at the submarket level. Deposit-based small business loan estimates of CRA lending would assume that a bank lends only to businesses in the same census tracts or zip codes where it operates branches.

reported at the end of a given study period but not at the beginning. More importantly, to accurately measure changes in small business lending by banks that have acquired other banks, we must also exclude CRA-reporting banks that acquired non-CRA reporting banks during a given study period (see Appendix 1 for more detail).

We study the growth of small business lending during two 2-year study periods (comparing 1998 loan originations with 1996 loan originations, and 1999 loan originations with 1997 originations). We chose to use these 2-year study intervals because we believe they are long enough for the effects of merger activity on lending to manifest themselves in the calendar year CRA loan origination data.<sup>8</sup>

We use the geographic detail in the CRA data and U.S. Census Bureau data to quantify small business lending to particular segments of local banking markets.<sup>9</sup> Unfortunately, banks were not required to include information about their assessment areas in their CRA filings for 1996 and 1997. Therefore, we approximate each bank's assessment areas using annual Summary of Deposit (SOD) data on bank branch locations reported every June. Although banks have been required to report their CRA assessment areas since 1998, we must use our method of approximating bank assessment areas for our entire study period so as to measure small business lending consistently throughout each sample period.<sup>10</sup>

We constructed three measures of the types of small business lending (SBL) likely to count for the purposes of CRA assessments. *Assessment Area SBL* includes small loans (less than \$1 million) to businesses located in the markets where the bank operates branches. *Assessment Area LMI SBL*

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<sup>8</sup> Of course, the relative newness of the CRA data limits the temporal scope of our study, and although our study periods overlap, we feel it is important to compare results for the two periods, particularly because of data quality issues associated with any new data collection effort

<sup>9</sup> Insured depository institutions report Summary of Deposit (SOD) data on bank branch locations and local deposits in a supplement to the June Call Report each year.

<sup>10</sup> We validated the accuracy of using branching patterns to approximate bank assessment areas and found that the median share of a bank's small business lending accurately classified by this method is more than 95 percent. Nonetheless we still chose to exclude banks for which the bank branching data do not correctly classify at least 70 percent of the bank's loans (as either in-assessment-area or out-of-assessment-area loans). Our method of approximating bank assessment areas is discussed more fully in Appendix 1.

includes small loans to businesses located in low- and moderate-income (LMI) neighborhoods in markets where the bank operates branches. And *CRA-Type SBL* includes Assessment Area LMI SBL plus SBL to small firms (annual sales of less than \$1 million) located in non-LMI parts of a bank's deposit market. The latter two measures attempt to capture lending to the more "marginal" small business borrowers, who (according to the bank consolidation story) are more likely to be adversely affected by merger activity.

Along with measures of assessment area lending, we also examine two broader measures of small business lending in order to more fully interpret observed patterns in the CRA data: (1) a bank's *Total SBL* (both within and outside of its assessment area) and (2) a bank's *Total LMI-area SBL* (both within and outside of its assessment area). We use these measures to assess how observed changes in small business lending within a bank's local banking markets compare with changes in its overall small business lending.<sup>11</sup>

An issue, however, in any study of small business lending from a CRA perspective is how one deals with changes in a bank's assessment area over time when measuring changes in local lending over time. Banks change their assessment areas as they change the geographic markets they serve, and this can affect which of their small business loans "count" for the purposes of CRA assessments. For example, if a bank expands its branching network to areas where it already makes small business loans, there can be an increase in the bank's "reported" assessment area SBL simply because the bank has broadened its assessment area. On the other hand, when a bank exits a market as a deposit taker (as part of a divestiture or otherwise), the bank may continue to make small business loans to the area—loans that will no longer count as assessment area small business lending if the market is dropped

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<sup>11</sup> Similarly, other small business studies generally measure merger-related effects on small business lending relative to other measures of banking activity, such as the growth of assets, total commercial loans, or deposits.

from the bank's assessment area.<sup>12</sup> Changes in a bank's assessment area may be associated with a bank merger, but nonmerging banks also change their geographic banking patterns over time.

In this study, we examine two types of Assessment Area (AA) loan growth measures. In terms of our tests of how mergers affect small business lending at the *bank level*, we report what we refer to as changes in "reported AA" lending. Changes in reported AA lending compare what a bank (and any bank it acquires) would report as assessment area lending at the beginning of the period with what it reports two years later.<sup>13</sup> Reported AA loan growth measures do not attempt to net out changes in lending associated with assessment area changes.

However, one might want to net out changes in reported AA lending due solely to changes in a bank's AA so as to study the bank's actual lending to a particular market. What we refer to as "pro forma AA" loan growth measures actual changes in lending to markets where a bank (or its acquisitions) operated branches at the beginning of the period.<sup>14</sup> Below, we use pro forma AA loan growth measures in testing how merger activity affects a bank's lending to each of its assessment area markets (or those of its acquisitions). Thus, we focus on what happens to the actual credit supplied by a bank (and its acquisitions) to a given market—irrespective of what would have counted for the purposes of CRA assessments.

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<sup>12</sup> The key point here is that when a bank adds an assessment area market where it already lends (or drops a market but continues to lend there), the bank will increase (decrease) its reported assessment area lending even if there is no change in the bank's actual small business lending

<sup>13</sup> For merging banks, we use what each component of the survivor would have actually reported in measuring its [merger-adjusted] *reported* CRA lending at the beginning of the period. In particular, for a surviving bank we measure beginning-of-period CRA lending to include qualifying loans made in areas where it operated branches at the beginning of the period—but we do not include loans the acquirer made in areas where only its acquisition operated branches. Similarly, for a bank that is absorbed by another, we do not include loans in areas where it did not operate branches, even if its acquirer did operate branches there. In our measures of *reported* changes, end-of-period lending reflects a bank's actual assessment area at the end of the period. Changes in "reported AA" loan growth measures include (1) changes in AA lending to assessment area markets that remain in a bank's assessment area; (2) increases in AA lending associated with the addition of new assessment area markets; and (3) decreases in AA lending as existing assessment area markets are dropped.

<sup>14</sup> Changes in small business lending to a bank's beginning-of-period pro forma *assessment area* measure changes in lending to the areas where a bank (or any of its acquisitions, if it merged) was active as a deposit taker in the beginning of the period. In tracking changes in *pro forma assessment area* lending, we include loans to areas where banks no longer have a physical presence but we do not include loans in newly entered markets. Of course, over time both non-merging and merging banks may change the geographic markets that they serve.

### 3.2 *Classifying bank merger activity*

Another issue that must be addressed in any bank consolidation study is how to characterize bank merger activity. A range of legal changes in bank structure are associated with increasing concentration of banking sector assets—including consolidations of holding company affiliates, mergers of unaffiliated banks, and bank acquisitions by holding companies that do not involve a merger into a holding company affiliate. The important consideration for credit availability is simply that different types of mergers may have very different implications for the behavior of the surviving banks. For example, consolidations of holding company affiliates are sometimes thought to have little effect on bank behavior because the parties were already part of the same holding company.

Here we study small business lending by individual banks—even if they are part of a holding company—because CRA ratings are assigned at the bank level. However, we take a broad perspective in defining bank merger activity. We consider merger activity at the bank level; but for holding company (HC) affiliates, we also specify whether the parent HC is actively acquiring new banks, since broader structural changes within a holding company may affect the behavior of affiliates even if they do not merge. Hence our measure of *any merger activity* includes the following six distinct “types” of merger activity:

1. ***Unaffiliated merger(s)***: The bank merges with at least one previously unaffiliated bank.
2. ***Affiliate merger(s)/active HC***: The bank acquires only previously affiliated banks, but it is part of an HC that acquires at least one unaffiliated bank.
3. ***Affiliate merger(s)/inactive HC***: The bank acquires only HC affiliates, and the only merger activity within the parent HC involves the consolidation of affiliates.
4. ***No merger/ new HC***: The bank does not merge with another bank, but it is acquired by a new HC (the HC is therefore active by our definition).
5. ***No merger/active HC***: The bank is not involved in merger activity, but it is part of a holding company that acquired at least one unaffiliated bank.

6. *Inactive*: The bank is not involved in merger activity, and its HC parent has not acquired any previously unaffiliated banks.

For each study sample, we classify the merger activity of each surviving bank during a two-year interval (year-end 1996 through year-end 1998, or year-end 1997 through year-end 1999). Inactive banks serve as the base group that we compare with “active” banks, i.e., categories one through five above.

Below we summarize the results of multivariate tests that relate small business loan growth to these types of bank merger activity.<sup>15</sup> We ran all tests for study samples that include savings institutions and commercial banks and for study samples that include only commercial banks. The results are broadly consistent. However, since savings institutions tend to do relatively small amounts of business lending, we focus below on the commercial bank results. Comparable results for samples that also include savings institutions are reported in Appendix 2. All regressions are estimated using Ordinary Least Squares (OLS).

#### **4. Bank-Level Tests**

Our bank-level multivariate tests measure the relationship between a bank’s small business loan growth and whether it experienced merger activity, controlling for its characteristics and financial condition. Panel A of Table 1 reports the distributions of our commercial bank study samples, classified by the nature of bank merger activity as discussed above. As this table indicates, in each study period we were able to identify approximately 750 commercial banks for which there are complete CRA data (for the survivor as well as for all banks that the survivor absorbed). Roughly half of the banks in each study sample were not involved in merger or acquisition activity of any type during the period (and were not part of an “active” holding company). Around a third were not directly involved in merger or acquisition activity but were affiliated with a holding company that had actively acquired at least one

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<sup>15</sup> Here we discuss results for loan growth rates measured in dollars. We also did some analysis of growth rates measured using the number of loan originations.

institution. The remaining institutions merged with other institutions or were acquired by new holding companies during the sample period. Unfortunately, for some specific classifications of merger activity we have a relatively small number of observations.

#### 4.1 Model specification

The bank-level tests for merger-related differences in small business lending can be specified by the following general reduced-form model:

$$\text{Loan Growth}_{i,(t,t-2)} = f(\text{Merger Activity}_{i,(t,t-2)}, \text{Bank Characteristics and Conditions}_{i,t-2}) + \text{error},$$

which measures the relationships between small business loan growth by bank  $i$  during the sample period and whether it experienced merger activity during the sample period, controlling for its characteristics and financial condition as of the beginning of the study period.

Tests that measure the effects associated with *any merger activity* include a dummy variable that equals 1 if a bank experienced any of the types of merger activity listed in panel A. The coefficients on this variable measure the average difference in small business loan growth for “active” banks versus those that were not affected by any type of merger activity (inactive banks). Tests that measure the effects associated with *specific types* of merger activity include a set of dummy variables indicating the specific type of merger activity experienced by each active bank.<sup>16</sup> The coefficients on these variables measure (average) loan growth differentials for each particular types of merger activity (listed in Table 1) compared with inactive banks.

Panel B of Table 1 lists the control variables included in the bank-level tests. Control variables include dummy variables indicating each bank’s asset size class, minority-owned banks, credit card lenders, and the census division in which each bank is headquartered.<sup>17</sup> Control variables measuring a bank’s condition include its ratio of net loan charge-offs to total loans and leases; its ratio of

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<sup>16</sup> The “types” of merger activity are defined to be mutually exclusive, so the merger activity experienced by a given bank can be classified as a single type.

<sup>17</sup> We also included a variable identifying savings institutions in the regressions, using the study samples that include both commercial banks and savings institutions.



nonperforming assets to total assets; its annual return on assets; and its ratio of total commercial loans to total assets. All of the bank-level control variables are measured as of the beginning of a study period, before the occurrence of any merger activity. For banks that acquire others during the study period, control variables are measured on a merger-adjusted basis when appropriate.

Although not reported below, we also estimated comparable specifications that include contemporaneous asset growth (measured on a merger-adjusted basis) as a right-hand-side variable. The merger dummies in these specifications measure merger-related differences in small business loan growth over and above that which is associated with bank asset growth during the same period.<sup>18</sup>

#### 4.2 Bank-level test results

The panels in Table 2 report the results of the bank-level tests. As indicated in Panel A, we find evidence that merger activity was negatively associated with the growth of small business lending in both of our study periods. However, the merger-related effects appear to be associated with an overall decline in small business lending rather than with a shift away from loans to LMI areas or to very small businesses.

Panel B of Table 2 reports the coefficient estimates on the merger variables in tests that replace the *any-merger* dummy with variables indicating specific types of merger activity. The results indicate negative merger-related effects for banks that acquired previously unaffiliated institutions, but also for banks that did not directly experience merger activity but were part of active holding companies. Of course, in studies that analyze lending at the holding-company level (such as Strahan and Weston [1998]), lending by all parts of an active holding company would be “counted” in quantifying merger-related effects.

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<sup>18</sup> Significant merger effects in these regressions indicate differences in small business loan growth measured relative to differences correlated with asset growth. Hence, these tests are in the spirit of the bank-level small business loan studies that look at changes in bank loan-to-asset ratios.

Although our tests indicate that the active banks have lower small business loan growth, the effects of merger activity do not appear to fall disproportionately on very small businesses or those located in low-and moderate-income areas. This does not necessarily imply that these borrowers are not more marginal than other small businesses seeking credit. Indeed, it may mean that the CRA is having its intended effect. We do, however, advise caution in focusing on the precise magnitude of estimated merger-related growth differentials. The manner in which one deals with extreme loan growth rates can affect the averages measured for different groups and therefore the differentials across groups.

In tests where we include contemporaneous bank asset growth as a control, the (absolute) magnitude of the merger-related effects is smaller; thus, the significance levels are lower. Asset growth explains less of the observed merger-related growth differentials in the 1996-1998 study period than in the 1997-1999 period. Indeed, the negative growth differentials associated with any merger activity for the 1996-1998 sample period remain significant even when one controls for bank asset growth. Finally, as indicated in Table A.2 in Appendix 2, we find that the negative relationships between merger activity and small business lending for study samples that include savings institutions are broadly consistent with those evident for commercial banks.

## **5. By-Bank/By-Market Tests**

Bank-level tests may obscure differences in small business lending that are associated with the characteristics of, and conditions in, the particular markets where a bank operates. Hence we also conducted multivariate tests that examine how bank merger activity is related to small business loan growth in each of the particular markets that constituted a bank's assessment area.<sup>19</sup> These tests allow us to control for the characteristics of, and the conditions in, the local markets where a bank operates (as well as for the bank's characteristics and condition) in measuring merger-related effects. These

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<sup>19</sup> As Cynrak (1998) discusses, most bank SBL is within-market; that is, banks tend to lend to borrowers in the markets where they operate their branches.

tests also allow us to see if the effects of merger activity depend on whether the activity affects the local market share of the surviving institution—that is, whether the merger activity involves firms that both operated in the market before the merger activity. Again, we discuss our results for commercial banks. Comparable results for samples that also include savings institutions are presented in Appendix 2.

We want to focus on how merger activity affects the actual amount of lending provided by the bank to a given market relative to what the bank (and/or any bank that it acquired) provided at the beginning of the sample period. Hence for each bank in our bank-level samples, we calculated the dollar growth of small business lending in each of its pro forma AA markets (defined at the beginning of a given study period).<sup>20</sup> We compiled these records into a by-bank/by-market data set that includes a set of market-level records for each bank. Again, we are measuring the change in actual lending by a bank (and/or its acquisitions) to a market; this may not correspond to “reported” assessment area loan growth—even for inactive banks.<sup>21</sup>

We use metropolitan statistical areas (MSAs) and rural counties to approximate urban and rural banking markets, respectively. Because related research suggests that merger-related effects can differ for urban and rural markets, we split our by-bank/by-market samples into urban and rural sub-samples and fit separate models for each sub-sample.

In measuring for merger-related effects, we use the same merger classifications as in the bank-level tests. However, for each by-bank/by-market observation, we also classify the bank’s merger activity by whether it increased the local market share of the surviving bank (or its parent); that is,

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<sup>20</sup> Given our method of using a bank’s deposit markets to broadly approximate its assessment area, we constructed a data set that included small business loan growth observations for each market in which a bank (or any of its acquisitions) operated deposit-taking branches at the beginning of the period.

<sup>21</sup> Both merging and nonmerging banks can change assessment areas as they change the geographic scope of their activities. In cases when a bank (merging or otherwise) has dropped a market from its assessment area, our measures of changes in pro forma CRA lending (and pro forma LMI area lending) will differ from what would have “counted” as CRA lending by the bank (that is, from what we refer to as “reported” CRA lending).

whether merger activity involved two parties that already operated branches in the market.<sup>22</sup> We use the term *within-market merger activity* to refer to merger activity that increases the bank's (or parent HC's) local market share; otherwise, we use the term *out-of-market merger activity*.

Panel A of Table 3 summarizes the distribution of our by-bank/by-market samples for commercial banks in terms of these types of merger activity. As this panel indicates, the by-bank/by-market samples are larger than the bank-level samples because larger banks generally operate in more than one market. The shares of observations associated with some type of merger activity are higher in these samples than in the bank-level samples. This indicates that larger multi-market banks were more likely to experience merger activity than smaller banks that operated in fewer markets. Still, we have relatively few observations on some specific types of merger activity, particularly within-market activity.

### 5.1 Model specification

The by-bank/by-market tests can be specified by the general reduced form model

$$\text{Loan growth}_{j, i, (t, t-2)} = f(\text{Merger Activity}_{j, i, (t, t-2)}, \text{Bank Characteristics and Conditions}_{i, t-2}, \text{Market Characteristics and Conditions}_{j, t-2}) + \text{error}.$$

These tests relate loan growth in market  $j$  by bank  $i$  to bank  $i$ 's merger activity and whether it affects bank  $i$ 's market share in market  $j$  (as described by Panel A of Table 3).

The by-bank/by-market tests that measure the effects associated with *any merger activity* include two dummy variables that indicate whether a bank experienced any type of merger activity and whether the activity was within-market or out-of-market. We also ran tests that included dummy variables that classify merger activity by its specific type *and* by whether it involved an increase in the bank's local market share. Again, the coefficients on the merger variables measure (average) loan growth differentials for each particular type of merger activity compared with inactive banks.

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<sup>22</sup> We classify merger activity as being within market if it is associated with an increase in the share that the banking organization (holding company or independent bank) has of the local deposit market, as measured using Summary of Deposit data.

The multivariate tests reported here include the same set of bank-level control variables that was used in the bank-level tests. (All of the market-level records for any given bank  $i$  include that bank's control variables.) These tests also include a set of market-level control variables that measure local banking market characteristics and economic conditions. Each of the market-level records for bank  $i$  will have a different set of market-level controls, reflecting the particular conditions in each of its markets. Thus we are estimating merger-related differences in loan growth, controlling for the specific conditions in the particular local markets where any given bank operates.

Panel B of Table 3 lists the market-level control variables included in the multivariate tests. Control variables are measured as of the beginning of the indicated study period—before any merger activity. First, we include the bank's share of the local small business loan market as a control because future loan growth in a particular market is likely to be negatively related to the bank's current market penetration in that particular market—irrespective of merger activity. Our measures of local banking market characteristics include the local deposit market Herfindahl-Hirschman Index (HHI), the share of the local deposit market held by large commercial banks (assets of more than \$1B), the share of the local deposit market held by savings institutions; and the share of the local small business loan market funded by local institutions (that is, institutions operating branches in the market). Our measures of local conditions include local deposit market growth; the logged value of the market's population (a measure of market size); population growth during the preceding two years; and per capita income growth during the preceding two years. We also included a set of dummy variables that indicate the census division in which the market is located.

## 5.2 *By-bank/by-market results*

Table 4 reports the results of the tests measuring the loan growth differentials associated with *any type* of merger activity classified by whether the activity is *within market* or *out of market*. As the panels in this table indicate, we find that merger-related effects differ between urban and rural

markets. Merger-related effects also depend on whether the merger activity increases the surviving bank's market share. Effects are more pronounced when associated with within-market merger activity than when associated with out-of-market activity, particularly in MSA markets. Some of the negative differentials in LMI areas are greater in magnitude than those measured for total local small business lending; however, as we state above, we are cautious about focusing on the exact magnitude of differentials in observed loan-growth rates.

Table 5 lists the coefficient estimates from regressions that replace the dummy variables indicating any merger activity with those indicating specific types of merger activity. Some differences exist across rural and urban markets and across the two study periods. In rural markets, negative merger-related differentials are most consistently evident for unaffiliated mergers—with both within-market and out-of-market mergers—and for inactive banks whose HC parents are acquiring banks in other markets. Interestingly, in the later sample period, inactive banks whose parents are acquiring other banks in the same market exhibited significantly higher local small business loan growth. For both rural and urban markets, banks that were acquired by a holding company that was already operating in the market evidenced dramatically lower loan growth than inactive banks. In MSA markets, the merger-related effects are most consistently evident when a merger is between previously unaffiliated banks—particularly when the merger increases the survivor's local market share. Again, the results for commercial banks are broadly comparable to those obtained for all institutions (Appendix 2).

The evidence obtained at the market level is interesting from an antitrust perspective as well as from a community development perspective. Despite conjectures that banking markets are no longer as local as traditionally defined, these results suggest that small business borrowers may still be affected by banking conditions in a fairly localized area. Moreover, this finding is consistent with findings reported by Avery and Samolyk (2000), who study the effects of consolidation on small business lending at the local market level using completely different data on small business loans. The results in this paper do suggest that standard antitrust methodology would still seem to apply in small business credit markets

with small business lending markets still appearing to be fairly local. However, the results presented here indicate that, at least in terms of quantity of credit, the effects of bank consolidation do not fall disproportionately on the small business borrowers whose economic prospects are likely to be more modest.

## **6. Conclusion**

To our knowledge, this paper is the first to use the CRA data to explicitly examine how bank consolidation was related to small business lending during the late 1990s. As we discuss, the limited reporting of these data complicated our examination and represents an important caveat in interpreting the evidence presented here. Nonetheless, our bank-level multivariate tests yield evidence that banks experiencing merger activity—including banks that are part of an active company, but are not themselves directly involved in a merger or an acquisition — had systematically lower small business loan growth than inactive banks. These merger-related effects, however, appear to be associated with an overall decline in small business lending rather than with a shift away from lending to LMI areas or to very small businesses within a bank’s service area.

The evidence yielded by an examination of specific banking markets suggests that bank-level analyses can obscure merger-related effects that occur at the local level. Specifically, we find significantly lower small business loan growth associated with within-market merger activity—that is, merger activity that increases the local market share of the surviving institutions—particularly in urban markets. For practical purposes, therefore, the evidence suggests that bank antitrust policies have important implications for small business lending.

We do, however, advise caution in extrapolating the evidence presented here (on CRA-filing institutions) to all banks. First, as Call Report data on small business lending indicate, small banks tend to do commensurately more small business lending, relative to their share of industry assets than do large banks. We also find that smaller CRA reporters consistently have substantially higher small business

loan growth than their large counterparts. Hence, the exemption of many small banks from the CRA reporting requirement is particularly unfortunate from the perspective of small business research. For example, in using the CRA data to study the effects of bank merger activity, we had to drop institutions from our study samples if they merged with non-CRA reporters (or if they themselves were a CRA-reporters at the beginning of a given study period). Because non-CRA reporters are smaller banks, our study samples are not representative of all banks or all bank mergers. Since we had to exclude any bank that acquired a small non-CRA reporter, our results are less likely to characterize effects associated with mergers involving small banks.

Finally, this study does not imply that banks ignore CRA obligations, or take them more lightly, in their post-merger environments. The next step in this research project is to examine whether the merger-related effects reported here may reflect a shift in CRA-related lending from business lending to home mortgage lending. Such a shift would be consistent with conjectures regarding bank scale and bank product mix.



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**Table 1: Bank-level Tests**

**A. Distribution of Commercial Banks by Type of Merger Activity**  
*Percentage of study sample*

	<i>1996—1998</i>	<i>1997—1999</i>
<b>Any merger activity</b>	<b>48.5</b>	<b>50.5</b>
Merged with unaffiliated bank	4.2	4.2
Affiliate merger; active HC	3.3	1.6
Affiliate merger; inactive HC	1.7	1.7
No merger; new HC	6.1	6.4
No merger; active HC	33.2	36.5
<b>No merger activity</b>	<b>51.5</b>	<b>49.5</b>
Number of observations	756	745

**B. Control Variables in Bank-level Multivariate Tests**  
*Mean for commercial bank study sample*

	<i>1996—1998</i>	<i>1997—1999</i>
Asset < \$250M	.292	.234
\$250M<=Assets < \$1B	.485	.509
\$1B <=Assets < \$10B	.200	.224
Headquarters in MSA	.702	.721
Minority-owned bank	.013	.013
Credit card lender	.015	.013
Net charge-off ratio (percent)	.328	.343
Nonperforming asset ratio (percent)	.673	.587
Return on assets (percent)	1.322	1.327
Comm. lending share of assets	0.605	0.617
Census division of bank headquarters		
New England	.030	.036
Mid-Atlantic	.134	.138
East North Central	.231	.230
West North Central	.138	.129
Southeast	.189	.185
East South Central	.058	.056
West South Central	.082	.091
Mountain	.058	.056
Number of observations	756	745

Note: We include the same set of control variables in each of the bank-level tests. However, because of space considerations, we in subsequent tables do not report the coefficients for the dummy variables indicating the census division in which a bank is headquartered.

**Table 2: Bank-level Tests for Merger-Related Differences in  
Small Business Loan Growth**  
*A: For Commercial Banks Experiencing Any Type of Merger Activity*

Dependent Variable:	1996—1998					1997—1999				
	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA-Type SBL	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA-Type SBL
Intercept	-0.713*** (0.201)	- 0.774*** (0.231)	-0.707*** (0.202)	-0.722*** (0.234)	- 0.685*** (0.204)	-0.742*** (0.238)	-0.845*** (0.288)	-0.458** (0.224)	-0.565** (0.258)	-0.474** (0.219)
<b>Any merger activity</b>	<b>-0.117** (0.049)</b>	<b>-0.121** (0.056)</b>	<b>-0.109** (0.049)</b>	<b>-0.124** (0.057)</b>	<b>-0.117** (0.050)</b>	<b>-0.158*** (0.060)</b>	<b>-0.138* (0.073)</b>	<b>-0.114** (0.057)</b>	<b>-0.109* (0.066)</b>	<b>-0.112** (0.056)</b>
Asset < \$250M	0.657*** (0.158)	0.657*** (0.182)	0.711*** (0.159)	0.656*** (0.184)	0.695*** (0.160)	0.642*** (0.166)	0.617*** (0.201)	0.436*** (0.156)	0.416** (0.180)	0.432*** (0.153)
\$250M<=Assets<\$1B	0.635*** (0.151)	0.615*** (0.173)	0.705*** (0.152)	0.641*** (0.176)	0.676*** (0.153)	0.681*** (0.157)	0.667*** (0.190)	0.526*** (0.148)	0.521*** (0.170)	0.511*** (0.144)
\$1B<=Assets < \$10B	0.551*** (0.154)	0.604*** (0.177)	0.656*** (0.155)	0.671*** (0.179)	0.658*** (0.156)	0.546*** (0.160)	0.531*** (0.193)	0.298** (0.150)	0.344** (0.173)	0.293** (0.147)
Headquarters in MSA	-0.074 (0.054)	-0.103 (0.063)	-0.087 (0.055)	-0.113* (0.063)	-0.091* (0.055)	-0.016 (0.068)	-0.020 (0.082)	-0.067 (0.064)	-0.071 (0.074)	-0.066 (0.062)
Minority-owned bank	0.516*** (0.198)	-0.427* (0.227)	0.542*** (0.199)	-0.548** (0.242)	0.471** (0.200)	0.323 (0.241)	-0.690** (0.292)	0.346 (0.227)	- 0.887*** (0.273)	0.260 (0.221)
Credit card lender	0.809*** (0.252)	1.072*** (0.289)	0.485* (0.253)	-0.717** (0.293)	0.469* (0.255)	0.733** (0.009)	1.276*** (0.411)	-0.741** (0.331)	-0.582 (.381)	-0.887*** (0.323)
Net charge-off ratio	-0.201*** (0.051)	- 0.286*** (0.058)	-0.184*** (0.051)	-0.268*** (0.060)	- 0.181*** (0.052)	-0.015 (0.050)	-0.130** (0.061)	0.034 (0.047)	-0.056 (0.055)	0.051 (0.046)
Nonperf. asset ratio	0.048 (0.036)	0.067 (0.041)	0.051 (0.036)	0.072* (0.041)	0.056 (0.036)	0.034 (0.054)	0.017 (0.066)	0.013 (0.051)	0.005 (0.059)	0.008 (0.050)
Return on assets	0.046 (0.039)	0.037 (0.045)	0.019 (0.040)	0.007 (0.046)	0.022 (0.040)	0.126** (0.052)	0.124** (0.063)	0.025 (0.049)	-0.013 (0.057)	0.028 (0.048)
Comm. Loan/asset share	0.566*** (0.191)	0.608*** (0.220)	0.467** (0.192)	0.509** (0.223)	0.408** (0.194)	0.456** (0.228)	0.578** (0.276)	0.377* (0.215)	0.490** (0.247)	0.376* (0.209)
Mean dependent variable	0.122	0.111	0.109	0.094	0.103	0.114	0.097	0.073	0.061	0.070
Adjusted R Squared	0.083	0.075	0.071	0.062	0.063	0.058	0.045	0.053	0.052	0.056

**Table 2: Bank-level Tests for Merger-Related Differences in  
Small Business Loan Growth**  
*B: For Commercial Banks Experiencing Specific Types of Merger Activity*  
*Coefficients on merger variables only*

Dependent Variable:	1996—1998					1997—1999				
	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA- Type SBL	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA- Type SBL
Merged w/ unaff. bank	-0.169 (0.114)	-0.172 (0.131)	-0.168 (0.114)	-0.181 (0.132)	-0.184 (0.115)	-0.123 (0.143)	-0.133 (0.173)	-0.044 (0.135)	-0.099 (0.155)	-0.060 (0.131)
Aff. merger; active HC	-0.172 (0.128)	-0.190 (0.146)	-0.148 (0.127)	-0.190 (0.147)	-0.160 (0.129)	-0.405* (0.219)	-0.435 (0.265)	-0.438** (0.207)	-0.626*** (0.237)	-0.489** (0.201)
Aff merger; inactive HC	0.131 (0.169)	0.117 (0.194)	0.168 (0.170)	0.145 (0.196)	0.156 (0.171)	-0.235 (0.213)	-0.222 (0.257)	-0.233 (0.200)	-0.261 (0.230)	-0.223 (0.195)
No merger; new HC	-0.162* (0.095)	-0.181* (0.109)	-0.145 (0.095)	-0.176 (0.110)	-0.148 (0.096)	0.076 (0.117)	0.137 (0.142)	-0.004 (0.110)	0.063 (0.127)	0.023 (0.108)
No merger; active HC	-0.110** (0.056)	-0.109* (0.064)	-0.107* (0.056)	-0.115* (0.065)	-0.115** (0.057)	-0.202*** (0.067)	-0.184** (0.081)	-0.131** (0.063)	-0.120* (0.072)	-0.128** (0.061)
Mean dependent variable	0.122	0.111	0.109	0.094	0.103	0.114	0.097	0.073	0.061	0.070
Adjusted R Squared	0.082	0.073	0.070	0.060	0.062	0.061	0.048	0.054	0.057	0.059

**Table 3: By-Bank/By-Market Tests**  
**A. Commercial Banks Sample by Type of Merger Activity**  
*Percentage of observations*

	<i>1996—1998</i>		<i>1997—1999</i>	
	Rural Counties	MSAs	Rural Counties	MSAs
<b><i>Out-of-mkt. merger activity</i></b>	<b>70.7</b>	<b>50.0</b>	<b>73.2</b>	<b>51.2</b>
Out-of-mkt; unaffiliated merger	25.2	16.6	17.5	10.4
Out-of-mkt; affiliate merger; active HC	11.3	4.2	2.8	1.9
Out-of-mkt; affiliate merger; inactive HC	3.5	5.1	12.7	10.0
Out-of-mkt; no merger; new HC	5.1	5.8	7.3	7.2
Out-of-mkt; no merger; active HC	25.6	18.3	32.8	21.7
<b><i>Within-mkt merger activity</i></b>	<b>3.8</b>	<b>11.9</b>	<b>2.5</b>	<b>10.7</b>
Within-mkt; unaffiliated merger	1.7	5.4	0.6	5.2
Within-mkt; affiliate merger; active HC	0.3	1.0	0.0	0.4
Within-mkt; no merger but new HC	0.5	2.3	1.0	1.5
Within-mkt; no merger but active HC	1.3	3.2	0.8	3.6

**B. Additional Control Variables in by-Bank/by-Market Tests**  
*Mean of observations in commercial bank study sample*

	<i>1996—1998</i>		<i>1997—1999</i>	
	Rural Counties	MSAs	Rural Counties	MSAs
Bank's share of local SBL mkt.	.170	.080	.166	.079
Deposit market Herfindahl/10,000	.264	.134	.266	.136
Big banks' local deposit mkt. share	.519	.622	.527	.635
Savings institutions' local mkt. share	.131	.207	.117	.200
Local banks' share of local SBL mkt.	.889	.921	.887	.914
Deposit growth in local market	.057	.075	.055	.070
Log (local population)	3.477	6.517	3.478	6.492
Local population growth	.018	.0 .8	.015	.017
Local per capita income growth	.078	.084	.094	.092
Census Division location				
Mid-Atlantic	.090	.169	.101	.185
East North Central	.238	.186	.235	.219
West North Central	.134	.057	.144	.057
Southeast	.184	.191	.202	.184
East South Central	.071	.034	.064	.027
West South Central	.031	.089	.033	.077
Mountain	.129	.062	.012	.057
Pacific	.091	.177	.060	.146
Number of observations	1498	1365	1812	1536

Note: We include the same set of control variables in all of the by-bank/by-market tests. Because of space considerations, we do not report the coefficients for the dummy variables indicating the census division in which the market is located



**Table 4: By-Bank/By-Market tests for Merger-Related Differences in Small Business Loan Growth**  
**A. In Rural Counties: Commercial banks experiencing any type of merger activity**

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Intercept	-1.339** (0.565)	-1.292** (0.618)	-1.398** (0.580)	-2.236*** (0.617)	-2.516*** (0.668)	-2.214*** (0.626)
<b>Out-of-mkt. merger activity</b>	<b>-0.219** (0.092)</b>	<b>-0.272*** (0.099)</b>	<b>-0.180* (0.094)</b>	<b>-0.170* (0.096)</b>	<b>-0.211** (0.104)</b>	<b>-0.164* (0.098)</b>
<b>Within-market merger activity</b>	<b>-0.250 (0.194)</b>	<b>-0.240 (0.210)</b>	<b>-0.250 (0.198)</b>	<b>-1.761*** (0.246)</b>	<b>-1.788*** (0.265)</b>	<b>-1.766*** (0.250)</b>
Bank's share of local SBL mkt.	-1.019*** (0.256)	-0.663** (0.279)	-0.868*** (0.262)	-1.066*** (0.260)	-0.927*** (0.282)	-1.004*** (0.264)
Deposit market Herfindahl	0.135 (0.379)	0.088 (0.427)	0.219 (0.389)	-0.116 (0.387)	-0.332 (0.430)	-0.230 (0.393)
Big banks' deposit mkt. share	0.505*** (0.161)	0.48*** (0.175)	0.479*** (0.165)	0.725*** (0.162)	0.762*** (0.176)	0.737*** (0.165)
Savings insts.' deposit mkt. share	-0.018 (0.288)	-0.020 (0.312)	0.029 (0.295)	0.592** (0.299)	0.450 (0.322)	0.477 (0.304)
Local banks, share of SBL mkt.	-0.486 (0.352)	-0.468 (0.384)	-0.745** (0.361)	0.447 (0.375)	0.607 (0.406)	0.450 (0.381)
Deposit growth in local market	-0.146 (0.337)	-0.247 (0.369)	-0.395 (0.345)	0.672** (0.299)	0.384 (0.322)	0.246 (0.304)
Log (local population)	0.092 (0.062)	0.073 (0.067)	0.137** (0.063)	0.009 (0.063)	0.018 (0.069)	-0.001 (0.064)
Local population growth	1.728 (1.511)	3.021* (1.643)	2.261 (1.549)	1.283 (1.580)	1.922 (1.704)	2.029 (1.604)
Local per capita income growth	0.122 (0.895)	0.060 (0.977)	0.151 (0.917)	-0.515 (0.944)	-0.151 (1.017)	-0.367 (0.959)
Bank asset size < \$250M	0.931*** (0.165)	0.953*** (0.179)	1.040*** (0.169)	1.142*** (0.174)	1.301*** (0.188)	1.210*** (0.177)
\$250M<=bank asset size<\$1B	1.013*** (0.132)	0.948*** (0.143)	1.110*** (0.135)	1.357*** (0.138)	1.453*** (0.150)	1.418*** (0.140)
\$1B<=bank asset size< \$10B	0.599*** (0.106)	0.579*** (0.115)	0.687*** (0.109)	1.041*** (0.098)	1.124*** (0.106)	1.115*** (0.099)
Bank headquartered in an MSA	-0.350*** (0.116)	-0.328*** (0.125)	-0.344*** (0.118)	-0.177 (0.116)	-0.151 (0.125)	-0.200* (0.118)
Bank is minority owed	0.081 (0.652)	0.759 (0.990)	0.387 (0.668)	0.032 (0.736)	0.111 (0.910)	0.168 (0.747)
Bank is a credit card institution	0.033 (0.565)	0.240 (0.611)	0.275 (0.579)	1.103 (0.794)	1.134 (0.854)	1.171 (0.806)
Bank's net charge-offs/loans	0.026 (0.116)	0.004 (0.126)	-0.026 (0.119)	-0.187* (0.105)	-0.168 (0.113)	-0.189* (0.106)
Bank's nonperforming asset ratio	-0.237** (0.093)	-0.246** (0.101)	-0.243** (0.095)	-0.168 (0.114)	-0.122 (0.123)	-0.150 (0.116)
Bank's return on assets	-0.060 (0.099)	-0.113 (0.108)	-0.057 (0.101)	0.132 (0.111)	0.133 (0.120)	0.130 (0.113)
Bank's comm. loan-to-asset ratio	0.808* (0.432)	0.992** (0.475)	0.843* (0.443)	0.410 (0.451)	0.428 (0.486)	0.415 (0.458)
Mean dependent variable	-0.373	-0.407	-0.399	-0.469	-0.505	-0.487
Adjusted R Squared	0.125	0.111	0.134	0.155	0.146	0.158



**Table 4: By-Bank/By-Market Tests for Merger-Related Differences in Small Business Loan Growth**

***B. In MSA Markets: Commercial banks experiencing any type of merger activity***

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Intercept	-1.566* (0.833)	-1.319 (0.911)	-1.477 (0.882)	-1.303 (0.959)	-1.140 (1.030)	-1.332 (0.959)
<b><i>Out-of-mkt. merger activity</i></b>	<b>-0.152**</b> (0.071)	<b>-0.156**</b> (0.076)	<b>-0.132*</b> (0.075)	<b>-0.001</b> (0.081)	<b>-0.053</b> (0.087)	<b>-0.028</b> (0.081)
<b><i>Within-market merger activity</i></b>	<b>-0.321***</b> (0.102)	<b>-0.409***</b> (0.111)	<b>-0.354***</b> (0.108)	<b>-0.884***</b> (0.126)	<b>-0.884***</b> (0.135)	<b>-0.882***</b> (0.126)
Bank's share of local SBL mkt.	-0.408 (0.359)	-0.102 (0.392)	-0.068 (0.380)	0.356 (0.418)	0.498 (0.449)	0.439 (0.418)
Deposit market Herfindahl	-1.381** (0.684)	-1.513** (0.747)	-1.584** (0.724)	-0.750 (0.827)	-1.112 (0.888)	-0.899 (0.827)
Big banks' deposit mkt. share	0.782*** (0.263)	0.718** (0.288)	0.696** (0.279)	0.344 (0.312)	0.507 (0.335)	0.443 (0.312)
Saving insts.' deposit mkt. share	0.698* (0.363)	0.472 (0.397)	0.501 (0.384)	-0.074 (0.397)	0.188 (0.427)	0.138 (0.397)
Local banks, share of SBL mkt.	0.956 (0.765)	0.875 (0.836)	0.987 (0.809)	0.892 (0.883)	0.769 (0.948)	0.848 (0.883)
Deposit growth in local market	0.201 (0.347)	0.293 (0.380)	0.197 (0.368)	0.256 (0.394)	0.260 (0.423)	0.263 (0.394)
Log (local population)	-0.008 (0.033)	0.002 (0.036)	0.017 (0.035)	0.039 (0.037)	0.022 (0.040)	0.038 (0.037)
Local population growth	0.536 (1.869)	2.257 (2.043)	1.249 (1.977)	0.648 (2.311)	2.370 (2.482)	1.083 (2.311)
Local per capita income growth	-1.984 (1.300)	-3.053 (1.424)	-3.452** (1.376)	-0.927 (1.388)	-1.568 (1.492)	-1.506 (1.389)
Bank asset size < \$250M	0.572*** (0.123)	0.572*** (0.134)	0.598*** (0.130)	0.812*** (0.156)	0.778*** (0.169)	0.809*** (0.156)
\$250M<=bank asset size<\$1B	0.539*** (0.090)	0.471*** (0.098)	0.534*** (0.095)	0.908*** (0.102)	0.861*** (0.110)	0.873*** (0.102)
\$1B<=bank asset size< \$10B	0.366*** (0.082)	0.334*** (0.089)	0.349*** (0.086)	0.490*** (0.087)	0.455*** (0.094)	0.466*** (0.087)
Bank headquartered in an MSA	-0.571*** (0.120)	-0.545*** (0.131)	-0.570*** (0.127)	-0.281** (0.133)	-0.279* (0.143)	-0.315** (0.133)
Bank is minority owed	-0.064 (0.264)	-0.552* (0.288)	-0.064 (0.279)	-0.118 (0.281)	-0.261 (0.309)	0.205 (0.287)
Bank is a credit card institution	1.104** (0.429)	1.288*** (0.467)	1.216*** (0.454)	-0.377 (0.625)	-0.776 (0.671)	-0.412 (0.625)
Bank's net charge-offs/loans	-0.252*** (0.073)	-0.301*** (0.080)	-0.263*** (0.077)	-0.005 (0.073)	-0.004 (0.078)	0.009 (0.073)
Bank's nonperforming asset ratio	-0.021 (0.053)	0.007 (0.058)	-0.025 (0.056)	-0.185** (0.081)	-0.219** (0.087)	-0.209*** (0.079)
Bank's return on assets	0.009 (0.061)	0.049 (0.066)	0.042 (0.064)	-0.006 (0.079)	0.014 (0.085)	0.014 (0.079)
Bank's comm. loan-to-asset ratio	0.480* (0.287)	0.351 (0.314)	0.396 (0.304)	0.342 (0.327)	0.272 (0.352)	0.379 (0.328)
Mean dependent variable	-0.107	-0.142	-0.137	-0.238	-0.255	-0.234
Adjusted R Squared	0.106	0.091	0.096	0.126	0.108	0.125

Note: \*\*\*, \*\*, \*: Significant at the 1%, 5%, 10% level, respectively. Standard errors are in parentheses.



**Table 5: Small Business Loan Growth Differentials in Bank Assessment-Area Markets**  
*Coefficients on variables indicating specific type of merger activity*  
*A. Rural Counties: Commercial Banks*

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Out-of-mkt; unaffiliated merger	<b>-0.505***</b> (0.133)	<b>-0.637***</b> (0.145)	<b>-0.484***</b> (0.136)	<b>-0.543***</b> (0.121)	<b>-0.674***</b> (0.130)	<b>-0.596***</b> (0.122)
Out-of-mkt; aff. merger; active HC	<b>-0.038</b> (0.133)	<b>-0.098</b> (0.144)	<b>-0.002</b> (0.136)	<b>-0.012</b> (0.213)	<b>0.066</b> (0.230)	<b>0.015</b> (0.216)
Out-of-mkt; aff.. merger; inactive HC	<b>-0.599***</b> (0.199)	<b>-0.665***</b> (0.215)	<b>-0.601***</b> (0.203)	<b>0.156</b> (0.134)	<b>0.168</b> (0.144)	<b>0.219</b> (0.135)
Out-of-mkt; no merger; new HC	<b>0.239</b> (0.177)	<b>0.165</b> (0.191)	<b>0.329*</b> (0.181)	<b>0.165</b> (0.161)	<b>0.204</b> (0.173)	<b>0.271*</b> (0.163)
Out-of-mkt; no merger; active HC	<b>-0.206**</b> (0.100)	<b>-0.233**</b> (0.109)	<b>-0.162</b> (0.103)	<b>-0.232**</b> (0.100)	<b>-0.276**</b> (0.108)	<b>-0.235**</b> (0.102)
Within-mkt; unaffiliated merger	<b>-0.503*</b> (0.275)	<b>-0.506*</b> (0.297)	<b>-0.535*</b> (0.282)	<b>-0.171***</b> (0.427)	<b>-1.423***</b> (0.460)	<b>-1.252***</b> (0.433)
Within-mkt; aff. merger; active HC	<b>0.108</b> (0.577)	<b>0.076</b> (0.622)	<b>0.154</b> (0.591)	<b>0</b>	<b>0</b>	<b>0</b>
Within-mkt; no merger; new HC	<b>-0.331</b> (0.498)	<b>-0.288</b> (0.536)	<b>-0.265</b> (0.509)	<b>-4.403***</b> (0.348)	<b>-4.295***</b> (0.376)	<b>-4.313***</b> (0.353)
Within-mkt; no merger; active HC	<b>-0.023</b> (0.307)	<b>-0.054</b> (0.339)	<b>-0.017</b> (0.314)	<b>1.012***</b> (0.375)	<b>1.026**</b> (0.404)	<b>0.979**</b> (0.380)
Mean dependent variable	-0.373	-0.407	-0.399	-0.469	-0.505	-0.487
Adjusted R Squared	0.136	0.123	0.146	0.228	0.215	0.232

*B. MSA s: Commercial Banks*

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Out-of-mkt; unaffiliated merger	<b>-0.316***</b> (0.102)	<b>-0.329***</b> (0.112)	<b>-0.291***</b> (0.108)	<b>-0.147</b> (0.119)	<b>-0.210</b> (0.130)	<b>-0.193</b> (0.120)
Out-of-mkt; aff. merger; active HC	<b>-0.006</b> (0.154)	<b>0.039</b> (0.170)	<b>-0.006</b> (0.163)	<b>0.028</b> (0.230)	<b>-0.203</b> (0.251)	<b>-0.056</b> (0.232)
Out-of-mkt; aff. merger; inactive HC	<b>-0.115</b> (0.153)	<b>-0.101</b> (0.167)	<b>-0.077</b> (0.162)	<b>0.146</b> (0.120)	<b>0.100</b> (0.131)	<b>0.112</b> (0.121)
Out-of-mkt; no merger; new HC	<b>0.021</b> (0.130)	<b>0.014</b> (0.142)	<b>0.030</b> (0.138)	<b>0.109</b> (0.129)	<b>0.113</b> (0.141)	<b>0.113</b> (0.130)
Out-of-mkt; no merger; active HC	<b>-0.178*</b> (0.091)	<b>-0.181*</b> (0.100)	<b>-0.152</b> (0.097)	<b>-0.083</b> (0.091)	<b>-0.144</b> (0.099)	<b>-0.108</b> (0.092)
Within-mkt; unaffiliated merger	<b>-0.496***</b> (0.137)	<b>-0.535***</b> (0.149)	<b>-0.508***</b> (0.145)	<b>-0.439***</b> (0.151)	<b>0.476***</b> (0.164)	<b>-0.474***</b> (0.152)
Within-mkt; aff. Merger; active HC	<b>-0.371</b> (0.290)	<b>-0.317</b> (0.329)	<b>-0.335</b> (0.307)	<b>-0.143</b> (0.485)	<b>0.177</b> (0.577)	<b>-0.171</b> (0.488)
Within-mkt; no merger; new HC	<b>-0.186</b> (0.209)	<b>-0.552**</b> (0.229)	<b>-0.355</b> (0.222)	<b>-4.572***</b> (0.261)	<b>-4.486***</b> (0.284)	<b>-4.420***</b> (0.262)
Within-mkt; no merger; active HC	-0.093 (0.172)	-0.112 (0.188)	0.091 (0.182)	-0.021 (0.179)	-0.047 (0.195)	-0.037 (0.180)
Mean dependent variable	-0.107	-0.142	-0.137	-0.238	-0.255	-0.234
Adjusted R Squared	0.108	0.094	0.097	0.252	0.216	0.242

Note: \*\*\*, \*\*, \*: Significant at the 1%, 5%, 10% level, respectively. Standard errors are in parentheses.

## Appendix 1: Data Construction

### *A.1 Identifying banks having complete CRA data*

Since this is a study of changes in banks' small business lending over time, we can study only banks for which we have comprehensive CRA loan data for all components of the organization at both the beginning and the end of a given study period.<sup>1</sup> For banks that did not acquire another institution during the study period, we classified banks as comprehensive CRA reporters if they reported CRA data at both the beginning and the end of the study period.

For banks that acquired one or more institutions during a given study period, the identification of banks for which we have complete CRA data is more complicated. First, we used data reported on the June Reports of Conditions and Income at the beginning of the study period to classify each acquired bank as to whether it made small business loans and then we identified whether these banks also reported beginning-of-period CRA data. Hence we classify a bank that acquired others as a comprehensive CRA reporter if all the small business lenders it acquired were also CRA reporters at the beginning of the period. A bank could acquire a non-CRA-reporting nonbank and still be included in our study. In addition, for banks that did not merge themselves but were part of holding companies that acquired previously unaffiliated banks, we did not need to have comprehensive CRA data for all components of the parent HC to study the behavior of the bank, given our bank-level approach.

When analyzing trends in small business lending, one should be sure to control for changes in the underlying population of CRA-reporting banks. Indeed, for our study periods, we observe declines in

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<sup>1</sup> Hence the fact that samples of organizations with complete CRA data differ depending on whether the analysis is conducted at the bank level or by aggregating data for holding company affiliates. In this analysis, we focused on lending to the continental United States and Hawaii. We excluded banks that were active primarily in Alaska or in U.S. territories, banks such as Scotiabank de Puerto Rico; Bank & Trust of Puerto Rico; Oriental Bank and Trust; First Bank of Puerto Rico Western Bank Puerto Rico; and Banco Bilbao Vizcaya in both years and U.S. Bank National PR in 1999. All measures of CRA-related lending are the sum of reported originations and purchases.

aggregate small business lending by the banks for which we have complete CRA data; however, aggregate lending by all CRA reporters increased.

### *A.2. Measuring bank assessment area lending*

Banks were not required to include information about their assessment areas in their CRA filings for 1996 and 1997. Therefore, we approximated bank assessment areas using geographic Summary of Deposit (SOD) data on bank branch locations (and on local deposits) reported by banks each year. We approximate a given bank's assessment area in a given year to include the MSAs and non-MSA counties where the bank operated branches, as reported in the SOD data for that year.<sup>2</sup>

Although looking at a bank's lending in the geographic area where it operates branches is a perfectly valid exercise, we are trying to analyze how merger activity affects small business lending in a bank's assessment area for the purposes of CRA evaluations. Thus, we use the reported assessment area data for 1998 and 1999 to assess the accuracy of estimates based on geographic branching patterns. For each bank in each of our samples, we calculated the share of its total small business lending (the dollar volume) that our approximation method accurately classifies as either within the bank's assessment area or out of the bank's assessment area. For each of our study samples, the median share of a bank's small business loans accurately classified by this method is 97 percent. We also examined whether the accuracy of our assessment area estimates is systematically related to the variables that we use in this study to analyze merger activity. We estimated bank-level multivariate regressions relating the variables we use to study small business lending to the banks' assessment area

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<sup>2</sup> The SOD data are reported by commercial banks and savings institutions each year as a supplement to their June Reports of Conditions and Income. Since the CRA data are for a calendar year, we merger-adjusted these June data to measure geographic branching patterns for banks that acquired others during the second half of a given year.

accuracy rates as described above. The results of this exercise indicate almost no relationship between the accuracy of our assessment area loan classification and a bank's merger classification.

However, because there appears to be some relationship between a bank's characteristics (such as size) and the accuracy of its estimated assessment area lending, we chose to drop those with low accuracy rates from our study samples. We exclude banks for which the assessment area estimates do not correctly classify at least 70 percent of the bank's loans correctly as either in-assessment-area or out-of-assessment-area loans. Although our measures of total small business loans and total LMI-area small business lending do not depend on a bank's assessment area, we use the same study samples of banks in all tests so that our results for the various measures of small business lending are all based on the same samples of institutions.

## Appendix 2

**Table A.1:**  
**Bank-level Tests**

<i>A. Distribution of Banks by Type of Merger Activity</i>		
<i>Percentage of study sample</i>		
<i>including commercial banks and savings institutions</i>		
	<i>1996—1998</i>	<i>1997—1999</i>
<b><i>Any merger activity</i></b>	<b><i>43.3</i></b>	<b><i>43.5</i></b>
Merged with unaffiliated bank	4.3	4.3
Affiliate merger; active HC	2.7	1.3
Affiliate merger; inactive HC	1.3	1.4
No merger; new HC	7.7	6.8
No merger; active HC	27.3	29.7
<b><i>No merger activity</i></b>	<b><i>56.7</i></b>	<b><i>56.5</i></b>
Number of observations	967	948
 <i>B. Control Variables in Bank-level Multivariate Tests</i>		
<i>Mean for study sample</i>		
<i>including commercial banks and savings institutions</i>		
	<i>1996—1998</i>	<i>1997—1999</i>
Asset < \$250M	.236	.191
\$250M<=Assets < \$1B	.526	.541
\$1B <=Assets < \$10B	.220	.241
Headquarters in MSA	.730	.741
Minority-owned bank	.010	.011
Credit card lender	.011	.011
Savings institutions	.218	.214
Net charge-off ratio (percentage)	.304	.310
Nonperforming asset ratio (percentage)	.765	.661
Return on assets (percent)	1.199	1.247
Comm. lending share of assets	0.062	.628
Census division of bank headquarters		
New England	.077	.081
Mid-Atlantic	.153	.155
East North Central	.229	.219
West North Central	.115	.111
Southeast	.172	.170
East South Central	.053	.049
West South Central	.073	.082
Mountain	.048	.047



Number of observations

967

948

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**Table A.2: Bank-level Tests for Merger-Related Differences in  
Small Business Loan Growth**  
*Commercial Banks and Savings Institutions*  
*A: For any type of merger activity*

Dependent Variable:	1996—1998					1997—1999				
	SBL	LMI SBL	AA SBL	AALMI SBL	CRA-Type SBL	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA-Type SBL
Intercept	-0.395* (0.235)	-0.448* (0.203)	-0.256 (0.263)	-0.305 (0.277)	-0.209 (0.264)	-0.779*** (0.245)	-0.853*** (0.277)	-0.515** (0.237)	-0.596** (0.258)	-0.517** (0.235)
<b>Any merger activity</b>	<b>-0.164*** (0.053)</b>	<b>-0.143** (0.060)</b>	<b>-0.142** (0.060)</b>	<b>-0.151** (0.063)</b>	<b>-0.153** (0.060)</b>	<b>-0.144** (0.063)</b>	<b>-0.126* (0.071)</b>	<b>-0.111* (0.061)</b>	<b>-0.101 (0.066)</b>	<b>-0.104* (0.060)</b>
Asset < \$250M	0.676*** (0.193)	0.660*** (0.216)	0.726*** (0.217)	0.666*** (0.228)	0.717*** (0.217)	0.650*** (0.183)	0.637*** (0.207)	0.467*** (0.177)	0.446** (0.193)	0.456*** (0.176)
\$250M<=Assets<\$1B	0.679*** (0.185)	0.665*** (0.207)	0.813*** (0.208)	0.730*** (0.219)	0.779*** (0.208)	0.719*** (0.173)	0.699*** (0.196)	0.555*** (0.167)	0.547*** (0.182)	0.535** (0.166)
\$1B<=Assets < \$10B	0.607*** (0.188)	0.666*** (0.211)	0.747*** (0.211)	0.758*** (0.222)	0.740*** (0.212)	0.526*** (0.176)	0.513*** (0.199)	0.301* (0.170)	0.333* (0.185)	0.288* (0.168)
MSA headquarters	-0.088 (0.061)	-0.082 (0.068)	-0.094 (0.068)	-0.102 (0.072)	-0.087 (0.069)	0.017 (0.070)	0.004 (0.079)	-0.026 (0.067)	-0.041 (0.074)	-0.031 (0.067)
Minority-owned bank	0.488** (0.241)	-0.453* (0.270)	0.569** (0.270)	-0.490 (0.300)	0.502* (0.271)	0.369 (0.273)	-0.652** (0.308)	0.395 (0.263)	-0.842*** (0.300)	0.311 (0.261)
Credit card lender	0.672** (0.302)	0.910*** (0.337)	0.306 (0.338)	0.475 (0.356)	0.334 (0.339)	0.957** (0.372)	1.447*** (0.420)	-0.454 (0.373)	-0.327 (0.406)	-0.543 (0.370)
Savings institution	0.402*** (0.071)	0.331*** (0.080)	0.288*** (0.080)	0.231*** (0.084)	0.300*** (0.080)	0.275*** (0.079)	0.273*** (0.089)	0.302*** (0.076)	0.263*** (0.083)	0.288*** (0.075)
Net charge-off ratio	-0.155*** (0.058)	-0.222*** (0.065)	-0.106 (0.065)	-0.165** (0.068)	-0.113* (0.065)	-0.105** (0.052)	-0.209*** (0.059)	-0.063 (0.050)	-0.143*** (0.055)	-0.060 (0.050)
Nonperf. asset ratio	-0.023 (0.021)	-0.029 (0.024)	-0.105*** (0.024)	-0.129*** (0.025)	-0.104*** (0.024)	0.027 (0.026)	0.023 (0.030)	-0.018 (0.026)	-0.018 (0.028)	-0.011 (0.025)
Return on assets	-0.022 (0.043)	-0.019 (0.049)	-0.098** (0.049)	-0.103** (0.051)	-0.100** (0.049)	-0.045 (0.046)	-0.046 (0.052)	-0.152*** (0.045)	-0.173*** (0.049)	-0.155*** (0.044)
Comm. Loan shares	0.472** (0.195)	0.494** (0.219)	0.387* (0.218)	0.534** (0.232)	0.306 (0.219)	0.797*** (0.223)	0.889*** (0.252)	0.846*** (0.216)	0.941*** (0.236)	0.870*** (0.215)
Mean dep. variable	0.217	0.191	0.188	0.163	0.184	0.192	0.176	0.161	0.147	0.155
Adjusted R Squared	0.098	0.066	0.082	0.076	0.080	0.077	0.071	0.095	0.094	0.094

**Table A.2. (cont.): Bank-level Tests for Merger-Related Differences in Small Business Loan Growth**

*Commercial Banks and Savings Institutions*

*B: Merger coefficients only; by type of merger activity*

Dependent Variable:	1996—1998					1997—1999				
	SBL	LMI SBL	AA SBL	AALMI SBL	CRA-Type SBL	SBL	LMI SBL	AA SBL	AA LMI SBL	CRA-Type SBL
Merged w/ unaff. bank	-0.256** (0.122)	-0.238* (0.136)	-0.260* (0.137)	-0.260* (0.144)	-0.270** (0.137)	-0.176 (0.141)	-0.180 (0.160)	-0.120 (0.137)	-0.143 (0.148)	-0.106 (0.135)
Aff. Merger; active HC	-0.197 (0.152)	-0.219 (0.170)	-0.175 (0.171)	-0.238 (0.180)	-0.190 (0.171)	-0.437* (0.249)	-0.464* (0.281)	-0.482** (0.241)	-0.664** (0.261)	-0.535** (0.239)
Aff merger; inactive HC	0.087 (0.209)	0.065 (0.234)	0.101 (0.234)	0.066 (0.247)	0.086 (0.235)	-0.248 (0.241)	-0.234 (0.273)	-0.256 (0.233)	-0.276 (0.253)	-0.241 (0.231)
No merger; new HC	-0.213** (0.093)	-0.185* (0.104)	-0.175* (0.104)	-0.158 (0.109)	-0.176* (0.104)	0.070 (0.114)	0.108 (0.129)	0.005 (0.110)	0.057 (0.120)	0.023 (0.110)
No merger; active HC	-0.137** (0.065)	-0.111 (0.072)	-0.116 (0.072)	-0.131* (0.076)	-0.130* (0.073)	-0.191*** (0.072)	-0.174** (0.081)	-0.126* (0.070)	-0.114 (0.076)	-0.121* (0.069)
Mean dep. variable	0.217	0.191	0.188	0.163	0.184	0.192	0.176	0.161	0.147	0.155
Adjusted R Squared	0.097	0.064	0.080	0.074	0.078	0.079	0.073	0.095	0.098	0.095

Note: \*\*\*, \*\*, \*: Significant at the 1%, 5%, 10% level, respectively. Standard errors are in parentheses.

**Table A.3: Banks/By-Market Level Tests**

**A. Distribution of Merger Activity**

*Percentage of sample*

*including commercial banks and savings institutions*

	<b>1996—1998</b>		<b>1997—1999</b>	
	Rural Counties	MSAs	Rural Counties	MSAs
	3	4	7	8
<b><i>Out-of-mkt. merger activity</i></b>	<b>67.9</b>	<b>45.3</b>	<b>69.9</b>	<b>46.1</b>
Out-of-mkt; unaffiliated merger	23.4	14.1	16.3	9.9
Out-of-mkt; affiliate merger; active HC	10.4	3.6	2.5	1.5
Out-of-mkt; affiliate merger; inactive HC	3.2	4.1	11.8	8.2
Out-of-mkt; no merger; new HC	5.9	8.0	7.6	7.8
Out-of-mkt; no merger; active HC	24.9	15.4	31.6	18.7
<b><i>Within-mkt merger activity</i></b>	<b>3.9</b>	<b>11.2</b>	<b>2.4</b>	<b>10.3</b>
Within-mkt; unaffiliated merger	1.6	5.3	0.6	5.6
Within-mkt; affiliate merger; active HC	0.3	0.9	0.0	0.3
Within-mkt; no merger; new HC	0.5	2.0	1.0	1.4
Within-mkt; no merger; active HC	1.5	3.0	0.8	3.0

**B. Additional Control Variables in By-Bank/By-Market level Multivariate Tests**

*Mean for observations in study sample*

*Including commercial banks and saving institutions*

	<b>1996—1998</b>		<b>1997—1999</b>	
	Rural Counties	MSAs	Rural Counties	MSAs
Bank's share of local SBL mkt.	.161	.068	.158	.068
Deposit market Herfindahl	.262	.132	.264	.135
Big banks' local deposit mkt. share	.509	.613	.512	.625
Savings institutions' local mkt. share	.142	.225	.130	.217
Local banks' share of local SBL mkt.	.889	.921	.888	.914
Deposit growth in local market	.057	.076	.058	.070
Log (local population)	3.497	6.579	3.492	6.552
Local population growth	.023	.017	.015	.017
Local per capita income growth	.077	.084	.094	.093
Census Division location of local market:				
Mid-Atlantic	.086	.176	.94	.187
East North Central	.238	.192	.230	.208
West North Central	.128	.05.1	.140	.051
Southeast	.185	.180	.197	.175
East South Central	.07.1	.029	.064	.023
West South Central	.038	.087	.040	.076
Mountain	.123	.052	.120	.050

Pacific	.091	.164	.064	.151
Number of observations	1629	1683	1964	1876

**TableA.4: By-Bank/by-Market Tests for Merger-Related Differences in Small Business Loan Growth**

*A. Rural Counties: Commercial Banks and Savings Institutions Experiencing Any Type of Merger Activity*

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Intercept	-0.950* (0.567)	-1.009 (0.617)	-1.043* (0.580)	-1.849*** (0.597)	-2.081*** (0.638)	-1.798*** (0.606)
<b><i>Out-of-mkt. merger activity</i></b>	<b>-0.156* (0.090)</b>	<b>-0.231** (0.097)</b>	<b>-0.131 (0.092)</b>	<b>-0.155* (0.092)</b>	<b>-0.196** (0.098)</b>	<b>-0.149 (0.094)</b>
<b><i>Within-market merger activity</i></b>	<b>-0.273 (0.195)</b>	<b>-0.296 (0.211)</b>	<b>-0.278 (0.200)</b>	<b>-1.722*** (0.242)</b>	<b>-1.750*** (0.257)</b>	<b>-1.725*** (0.246)</b>
Bank's share of local SBL mkt.	-0.925*** (0.269)	-0.565* (0.292)	-0.775 (0.275)	-0.970*** (0.263)	-0.842*** (0.282)	-0.907*** (0.267)
Deposit market Herfindahl	0.250 (0.391)	0.218 (0.437)	0.326 (0.400)	-0.100 (0.377)	-0.455 (0.412)	-0.198 (0.383)
Big banks' local deposit mkt. share	0.418** (0.165)	0.387** (0.178)	0.395** (0.169)	0.598*** (0.161)	0.646*** (0.172)	0.603*** (0.163)
Saving insts.' local deposit mkt. share	0.133 (0.290)	0.113 (0.313)	0.182 (0.297)	0.498* (0.291)	0.453 (0.309)	0.391 (0.295)
Local banks' share of SBL mkt.	-0.424 (0.361)	-0.358 (0.392)	-0.660* (0.370)	0.468 (0.373)	0.673* (0.399)	0.460 (0.379)
Deposit growth in local market	0.115 (0.344)	0.009 (0.374)	-0.132 (0.352)	0.600** (0.299)	0.312 (0.318)	0.196 (0.304)
Log (local population)	0.099 (0.063)	0.088 (0.069)	0.141** (0.065)	0.008 (0.062)	0 (0.067)	-0.001 (0.063)
Local population growth	1.141 (1.521)	2.440 (1.647)	1.733 (1.556)	0.130 (1.566)	0.913 (1.668)	0.799 (1.589)
Local per capita income growth	0.086 (0.923)	0.061 (1.003)	0.166 (0.944)	-0.816 (0.947)	-0.685 (1.008)	-0.677 (0.961)
Bank asset size < \$250M	0.958*** (0.168)	0.975*** (0.181)	1.073*** (0.172)	1.098*** (0.171)	1.215*** (0.182)	1.161*** (0.173)
\$250M<=bank asset size<\$1B	1.043*** (0.135)	0.966*** (0.146)	1.138*** (0.138)	1.276*** (0.134)	1.345*** (0.143)	1.330*** (0.136)
\$1B<=bank asset size<\$10B	0.620*** (0.109)	0.611*** (0.118)	0.717*** (0.112)	1.028*** (0.100)	1.113*** (0.106)	1.099*** (0.100)
Bank headquartered in an MSA	-0.302*** (0.114)	-0.282** (0.123)	-0.296** (0.117)	-0.265* (0.109)	-0.298** (0.116)	-0.288*** (0.111)
Bank is minority owed	0.049 (0.692)	0.714 (1.047)	0.346 (0.707)	0.198 (0.752)	0.372 (0.918)	0.327 (0.763)
Bank is a credit card institution	0.194 (0.597)	0.427 (0.643)	0.431 (0.611)	0.914 (0.782)	1.051 (0.830)	0.993 (0.793)
Bank is a savings institution	-0.395** (0.155)	-0.024 (0.132)	-0.371** (0.159)	-0.514*** (0.149)	-0.442*** (0.159)	-0.478*** (0.151)
Bank's net charge-offs/loans	0.012 (0.122)	-0.187* (0.096)	-0.039 (0.125)	-0.146 (0.098)	-0.146 (0.104)	-0.149 (0.099)
Bank's nonperforming assets ratio	-0.209** (0.090)	-0.187* (0.096)	-0.206** (0.092)	-0.208** (0.095)	-0.112 (0.102)	-0.201** (0.096)
Bank's return on assets	-0.006 (0.093)	-0.025 (0.101)	0 (0.095)	0.084 (0.080)	0.155* (0.086)	0.078 (0.081)
Bank's comm. loan-to-asset ratio	0.289 (0.416)	0.384 (0.453)	0.305 (0.425)	0.599 (0.429)	0.461 (0.458)	0.591 (0.436)

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Mean dependent variable	-0.373	-0.405	-0.396	-0.467	-0.499	-0.483
Adjusted R Squared	0.104	0.093	0.113	0.135	0.132	0.137

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**Table A.4: By-Bank/by-Market Tests for Merger-Related Differences in Small Business Loan Growth**

*B. MSA s: Commercial Banks and Savings Institutions Experiencing Any Type of Merger Activity*

Dependent Variable:	1996—1998 study period			1997—1999 study period		
	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
Intercept	-1.974* (0.845)	-1.472 (0.925)	-1.767** (0.879)	-1.06 (0.941)	-0.963 (0.993)	-1.023 (0.942)
<i>Out-of-mkt. merger activity</i>	-0.196*** (0.070)	-0.199*** (0.077)	-0.167** (0.073)	-0.001 (0.078)	-0.027 (0.082)	-0.011 (0.078)
<i>Within-market merger activity</i>	-0.377*** (0.102)	-0.441*** (0.112)	-0.405*** (0.106)	-0.716*** (0.119)	-0.711*** (0.126)	-0.708*** (0.119)
<i>Bank's share of local SBL mkt.</i>	-0.388 (0.389)	-0.029 (0.426)	-0.062 (0.405)	0.125 (0.441)	0.267 (0.466)	0.175 (0.442)
Deposit market Herfindahl	-1.534** (0.707)	-1.669** (0.774)	-1.672** (0.735)	-0.497 (0.821)	-0.775 (0.867)	-0.584 (0.823)
Big banks' local deposit mkt. share	0.593** (0.272)	0.583** (0.298)	0.542* (0.282)	0.293 (0.311)	0.439 (0.328)	0.376 (0.311)
Saving insts.' local deposit mkt. share	0.288 (0.359)	0.026 (0.393)	0.129 (0.374)	0.147 (0.381)	0.332 (0.403)	0.336 (0.382)
Local banks' share of SBL mkt.	1.818** (0.781)	1.379 (0.856)	1.700** (0.812)	0.198 (0.882)	0.097 (0.931)	0.096 (0.883)
Deposit growth in local market	-0.098 (0.342)	-0.056 (0.374)	-0.102 (0.356)	-0.036 (0.389)	0.018 (0.410)	-0.029 (0.389)
Log (local population)	0.044 (0.034)	0.062* (0.037)	0.064* (0.035)	0.022 (0.036)	0.011 (0.038)	0.021 (0.036)
Local population growth	0.042 (1.905)	2.000 (2.085)	1.025 (1.980)	0.248 (2.292)	1.913 (2.420)	0.573 (2.296)
Local per capita income growth	-2.491* (1.295)	-3.651** (1.420)	-3.825*** (1.347)	0.825 (1.347)	0.319 (1.423)	0.388 (1.350)
Bank asset size < \$250M	0.577*** (0.133)	0.593*** (0.146)	0.617*** (0.139)	0.733*** (0.164)	0.703*** (0.174)	0.723*** (0.164)
\$250M<=bank asset size<\$1B	0.578*** (0.095)	0.514*** (0.104)	0.570*** (0.099)	0.876*** (0.103)	0.833*** (0.108)	0.839*** (0.103)
\$1B<=bank asset size<\$10B	0.427*** (0.088)	0.403*** (0.096)	0.413*** (0.092)	0.439*** (0.089)	0.410*** (0.094)	0.418*** (0.089)
Bank headquartered in an MSA	-0.559*** (0.118)	-0.524*** (0.129)	-0.554*** (0.123)	-0.207* (0.125)	-0.253* (0.132)	-0.248** (0.125)
Bank is minority owed	-0.021 (0.288)	-0.467 (0.315)	-0.030 (0.300)	-0.006 (0.297)	-0.131 (0.321)	0.311 (0.304)
Bank is a credit card institution	0.728 (0.466)	0.906* (0.510)	0.897* (0.485)	1.090* (0.618)	0.761 (0.652)	1.227** (0.619)
Bank is a savings institution	0.079 (0.094)	0.114 (0.103)	0.171* (0.097)	0.036 (0.098)	0.048 (0.104)	0.041 (0.098)
Bank's net charge-offs/loans	-0.152** (0.075)	-0.190** (0.082)	-0.175** (0.078)	-0.283*** (0.065)	-0.300*** (0.068)	-0.300*** (0.065)
Bank's nonperforming assets ratio	-0.154*** (0.029)	-0.169*** (0.031)	-0.153*** (0.030)	-0.053 (0.036)	-0.057 (0.038)	-0.051 (0.036)
Bank's return on assets	-0.111* (0.058)	-0.083 (0.064)	-0.088 (0.061)	-0.101 (0.073)	-0.082 (0.077)	-0.091 (0.073)
Bank's comm. loan-to-asset ratio	0.649** (0.272)	0.571* (0.298)	0.508* (0.283)	0.707** (0.305)	0.711** (0.322)	0.732** (0.305)
Mean of dependent variable	-0.052	-0.090	-0.073	-0.183	-0.201	-0.180



Adjusted R Squared	0.104	0.091	.100	0.117	0.104	0.115
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Notes: \*\*\*, \*\*, \*: Significant at the 1%, 5%, 10% level, respectively. Standard errors are in parentheses.

**Table A.5: Small Business Loan Growth Differentials in Bank Assessment-Area Markets**

*Coefficients on variables indicating specific type of merger activity*  
*A. Rural Counties: Commercial Banks and Savings Institutions*

Dependent Variable:	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
	<i>1996—1998 study period</i>			<i>1997—1999 study period</i>		
Out-of-mkt; unaffiliated merger	-0.454*** (0.135)	-0.604*** (0.146)	-0.451*** (0.138)	-0.523*** (0.120)	-0.651** (0.128)	-0.578*** (0.122)
Out-of-mkt; affiliate merger; active HC	0.020 (0.137)	-0.051 (0.148)	0.044 (0.140)	-0.013 (0.218)	0.043 (0.232)	0.015 (0.221)
Out-of-mkt; affiliate merger; inactive HC	-0.584*** (0.210)	-0.670*** (0.226)	-0.600*** (0.215)	0.156 (0.134)	0.173 (0.143)	0.211 (0.136)
Out-of-mkt; no merger; new HC	0.125 (0.164)	0.057 (0.177)	0.193 (0.168)	0.168 (0.151)	0.208 (0.161)	0.247 (0.153)
Out-of-mkt; no merger; active HC	-0.142 (0.100)	-0.200* (0.108)	-0.116 (0.102)	-0.206** (0.098)	-0.257** (0.105)	-0.208** (0.099)
Within-mkt; unaffiliated merger	-0.460 (0.290)	-0.481 (0.311)	-0.505* (0.296)	-0.990** (0.421)	-1.199*** (0.447)	-1.065** (0.427)
Within-mkt; affiliate merger; active HC	0.142 (0.613)	0.088 (0.659)	0.179 (0.627)	NA NA	NA NA	NA NA
Within-mkt; no merger; new HC	-1.154** (0.491)	-1.150** (0.527)	-1.108** (0.501)	-4.249*** (0.345)	-4.169*** (0.366)	-4.171*** (0.349)
Within-mkt; no merger; active HC	0.032 (0.295)	-0.028 (0.323)	0.040 (0.301)	0.976** (0.385)	0.980** (0.409)	0.945** (0.390)
Mean dependent variable	-0.373	-0.405	-0.396	-0.467	-0.499	-0.483
Adjusted R Squared	0.113	0.103	0.123	0.198	0.193	0.202

*B. MSAs: Commercial Banks and savings institutions*

Dependent Variable:	All SBL	LMI SBL	CRA-Type SBL	All SBL	LMI SBL	CRA-Type SBL
	<i>1996—1998 study period</i>			<i>1997—1999 study period</i>		
Out-of-mkt; unaffiliated merger	-0.381*** (0.107)	-0.408*** (0.117)	-0.340*** (0.111)	-0.207* (0.117)	-0.215* (0.125)	-0.218* (0.118)
Out-of-mkt; affiliate merger; active HC	-0.255 (0.164)	-0.268 (0.180)	-0.249 (0.171)	-0.024 (0.252)	-0.233 (0.268)	-0.099 (0.254)
Out-of-mkt; affiliate merger; inactive HC	-0.181 (0.167)	-0.162 (0.182)	-0.130 (0.173)	0.129 (0.129)	0.094 (0.137)	0.106 (0.130)
Out-of-mkt; no merger; new HC	-0.028 (0.111)	0.003 (0.122)	-0.005 (0.115)	0.116 (0.122)	0.135 (0.129)	0.117 (0.122)
Out-of-mkt; no merger; active HC	-0.191** (0.096)	-0.202** (0.105)	-0.163 (0.100)	-0.024 (0.094)	-0.066 (0.100)	-0.035 (0.095)
Within-mkt; unaffiliated merger	-0.425*** (0.137)	-0.454*** (0.149)	-0.432*** (0.142)	-0.254* (0.142)	-0.278* (0.151)	-0.271* (0.143)
Within-mkt; affiliate merger; active HC	-0.339 (0.310)	-0.308 (0.350)	-0.302 (0.322)	-0.179 (0.535)	0.153 (0.622)	-0.201 (0.537)
Within-mkt; no merger; new HC	-0.746*** (0.217)	-1.042*** (0.237)	-0.905*** (0.225)	-4.163*** (0.268)	-4.075*** (0.285)	-4.031*** (0.269)
Within-mkt; no merger; active HC	-0.094 (0.177)	-0.100 (0.193)	-0.092 (0.184)	-0.024 (0.190)	-0.040 (0.203)	-0.032 (0.191)
Mean dependent variable	-0.052	-0.090	-0.073	-0.183	-0.201	-0.180
Adjusted R Squared	0.107	0.097	0.104	0.205	0.181	0.197

Note: \*\*\*, \*\*, \*: Significant at the 1%, 5%, 10% level, respectively. Standard errors are in parentheses.

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