The Evolution of U.S. Community Banks and Its Impact on Small Business Lending

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Abstract

There have been increasing concerns about the potential of larger banks acquiring community banks and the declining number of community banks, which would significantly reduce small business lending (SBL) and disrupt relationship lending. This paper examines the roles and characteristics of U.S. community banks in the past decade, covering the recent economic boom and downturn. We analyze risk characteristics (including the confidential ratings assigned by bank regulators) of acquired community banks, compare pre- and post-acquisition performance and stock market reactions to these acquisitions, and investigate how the acquisitions have affected SBL. Contrary to concerns, our regression analysis shows that the overall amount of SBL increases by more after merger when a larger bank acquires a community bank. The ratio of SBL to assets does increase after mergers as well for most of the sample years. The impact on SBL ratio is smaller for large acquiring banks. Data suggests an overall (regardless of mergers) declining SBL trend for all size groups. In fact, the decline in SBL ratio has been more severe among community banks, on average, relative to large banks. Community banks that were merged during the financial crisis were mostly in poor financial condition, and would have been unlikely to continue lending. We found that community bank targets accepted smaller merger premiums (or even discounts) to be part of a large banking organization. Our results indicate that mergers involving community bank targets over the past decade have enhanced the overall safety and soundness of the banking system without adversely impacting SBL. This implies that a policy that discourages mergers between community banks and large banks is unwarranted and could potentially result in a weaker financial system and have an unintentional dampening effect on the supply of SBL.

JEL Classifications: G21, G28, G34
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I. Introduction

The recent financial crisis has resulted in a dramatic increase in the number of problem banks — from 50 problem banks in 2005 to a peak of 884 in 2010. As of March 2013, there were still 612 problem banks.[1] Most of these have been small community banks with an average asset size of about $450 million. The stock market recovered and reached its new high in 2013, and large banks, particularly the too-big-to-fail (TBTF) or systemically important financial institutions, have also recovered strongly.[2] However, affected community banks have remained troubled.

While the Dodd-Frank Wall Street Reform and Consumer Protection Act has focused mostly on large TBTF banks, there have been fears among small community banks that they might also be affected and that the new rules might inhibit their ability to lend in their local communities because of the increased costs of such lending.[3] For these reasons, some commentators believe that many of the community banks have been seeking to merge or to be acquired by a larger bank in order to take advantage of the scale economies under the new regulations.[4] Should community banks be encouraged to merge? Would acquisitions of community banks by large banks result in a significant reduction in SBL in local communities and destroy relationship lending?

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[1] Source: FDIC Report

[2] For example, JPMorgan Chase & Co. reported profit growth of 31 percent per share in the second quarter of 2013, Goldman Sachs's profit also more than doubled in the second quarter of 2013 compared with the year before, and Bank of America reported a 65 percent increase in profit during the same period.

[3] This concern holds despite the recent efforts to impose less complex requirements for small banks, such as the Volcker Rule, which was approved by the Senate in December 2013.

[4] In December 2013, the Conference of State Bank Supervisors released a paper on designing a federal regulatory framework for community banks. The group has argued that the rulemaking since the financial crisis has undermined the smaller lenders' ability to provide credit tailored to consumers and small businesses. See Conference of State Bank Supervisors (2013) for more details.

Our objective is to examine the impact of small community bank acquisitions on SBL over the past decade, covering both the boom and the recent downturns, with particular attention to the differential impacts of acquisitions by large versus small banks. It is important to note that in this paper we define community banks as being smaller than $1 billion. The definition of community bank has been evolving. Some may refer to community banks being as large as $10 billion when considering the entire banking organization.[5]

The measures of performance and risk characteristics used in this study include the change in the confidential supervisory ratings (CAMELS) before and after the mergers; how the banks perform in terms of risk-taking, efficiency, liquidity, capitalization, and profitability; and how they are perceived by the market. We use the data on mergers and acquisitions that involved community banks during the period from 2000 to 2012 to examine the risk characteristics of the targets and acquirers at the time of the mergers, to track post-merger performance of the combined banking firm, and to investigate whether the mergers have affected the banks' SBL. Finally, we observe how the stock markets react to the community bank merger announcement, during both the boom and the financial crisis.

We find that community bank mergers that took place during the recent financial crisis are much different than those mergers that occurred in earlier periods. Interestingly, the acquirers have generally been more healthy prior to the merger, and the combined banking firms have been healthier financially and more efficient in their operations after the merger, regardless of the economic condition and whether the acquirers are large or small. Controlling for the risk characteristics of the targets and the acquirers and for economic factors, our

[5] See, for example, the Federal Deposit Insurance Corporation (2012) for definitions of community bank.

regression analysis shows that overall SBL amount increases by more when the acquirer is a large bank (with assets of more than $10 billion). In terms of changes in SBL to asset ratio, however, the merger has smaller impact on the SBL ratio when the acquirer is a large bank – that is, the ratio increases by less than when the acquirer is another community bank. Our overall results suggest that mergers that involved community bank targets have so far enhanced the safety and soundness of the banking system and have done so without hurting SBL, as large banks have come in to substitute and fill the SBL gap.[6]

The rest of the paper is organized as follows. Section II discusses existing literature related to the special role of community banks in relationship lending and those related to the impact of community bank mergers on credit availability to small businesses. Section III describes the data sources and provides a statistical overview of the changes in the U.S. community banking industry and community bank mergers since the year 2000. Section IV explores the risk characteristics of the targets, the acquiring banks, and the combined banking firms for all the mergers that involved community bank targets since the year 2000 — and shows that community banks have become stronger through the mergers and acquisitions. Section V investigates the evolving role of community banks in SBL over the 2000–2012 period by exploring SBL market shares at large versus community banks, and how SBL may have been affected by community bank mergers. Section VI examines merger deal premiums and stock market reactions in all mergers that involved community bank targets during 2000–2012. Finally, concluding remarks and policy implications are presented in Section VII.

[6] It should be noted, however, that we measure a bank's SBL activities based on Call Report. This data does not allow us to identify whether the SBL was made to local businesses or to small businesses outside the local community.

II. Literature Review and Our Contribution

About 90 percent of all U.S. banks are community banks with total assets of less than $1 billion. These banks altogether, however, account for only about 10 percent of U.S. banking assets (see Table 1 for more details). This may be why research that focuses on community banks has been relatively scarce despite concerns about the impact of the recent recession on this sector and the related policy considerations. We will focus on studies on community bank mergers and the role of community banks in SBL.

Role of Community Banks in SBL: The existing literature on the role of community banks in SBL has so far presented mixed results. Beccalli and Frantz (2013) and Kowalik (2013), for example, find support for the traditional view that small community banks have advantages in monitoring their customers through personal relationships, and that through mergers, community banks could become too large to look beyond credit scores in its lending decision and too large to maintain direct personal knowledge which has enabled them to meet the community needs.

Using merger data from 1991 to 2006, Beccalli and Frantz (2013) examine important determinants for banks to become involved as either a target or an acquirer in a merger. While the paper focuses primarily on methodological approaches — multinomial logistic versus Cox regression — they find that banks that are likely to become a target of a bank merger tend to be cost and profit inefficient, less liquid, and less capitalized. They also find that the acquiring banks tend to be well diversified and well managed, where managers leverage their profits and pursue higher growth strategies. Banks that acquire other banks multiple times (involved in multiple merger deals rather a single deal) tend to be larger banks. of the local economy that

Kowalik (2013) examines how competition from large banks, which have lower funding costs, affects small banks' ability to attract and maintain their borrowers. Small community banks have advantages in monitoring their customers through personal relationships, and they have an important role to play in monitoring and enhancing the project value for intermediate quality borrowers whose true quality may not be reflected in the public reports. The paper argues that small banks can be viable competitors of large banks and can add value to the borrowers' projects when the true value cannot be easily observed by large banks. This finding suggests that, unlike large banks that serve large transparent firms, small community banks have their special role in supporting small businesses in their local communities, as they are better able to form strong relationships with small opaque firms.

Several other papers, however, find different results which may be driven by different data and/or different methodologies. Overall, other studies suggest that while large banks may have comparative disadvantage in relationship lending, it does not necessarily imply that large banks are disadvantaged in providing credit to informationally opaque (and small) firms. One reason is that large banks have comparative advantage in utilizing small business credit scores (SBCS) which has allowed them to increase lending to marginal borrowers and do so at lower cost than small banks could. The SBCS, which has been widely used by large banks, is also believed by some to serve as a better tool for evaluating credit risk than the individual (business owner) credit scores used by community banks. Finally, some studies examine reactions by other local banks to local community bank mergers and find that other banks start making more SBL. In addition, de novo banks tend to spring up in response to community bank

mergers. Both large banks and de novo banks together have more than filled the SBL gaps caused by community bank mergers. Below is more detail on these studies.

Berger and Udell (2006) examine lending to small and medium-size enterprises (SME) using a more complete framework that allows the presence of alternative lending technologies. They conclude against some previous findings that large banks have a comparative advantage in transaction-based lending technologies and that some transaction-based lending technologies used by large banks are actually well suited for funding opaque SMEs. They also point out that the conventional results from other studies may be driven by the differences between the U.S. structure and that of other nations. Small bank presence may be more important in other nations because their financial structures may limit their use of some lending technologies available in the U.S.[7]

Berger, Goulding, and Rice (2014) examine the type of bank serving as the main relationship bank for small businesses, controlling for risk characteristics of the firm and those of the owner, using the 2003 Survey of Small Business Finances. They find results that are not consistent with the conventional paradigm. Similarly, Berger, Cerqueiro, and Penas (2014) examine the contribution of small banks in lending to recent startup firms during the period from 2004 to 2009. They find that the greater market presence of small banks results in more lending to small opaque firms and a lower failure rate of these small firms during normal times. However, this only holds for information-intensive loans, such as term loans and business lines of credit. In addition, this relationship disappeared and was reversed during the financial crisis.

[7] The most recent review of bank lending technologies may be found in Berger (2014).

Berger, Frame, and Miller (2005) find that small business credit score (SBCS) plays an important role in SBL. The SBCS has allowed some large banks to expand their lending to at least some pools of small business customers — therefore, this technology has allowed larger banks to increase their role in lending to small businesses. Consistent with these findings, Berger, Cowan, and Frame (2011) find that the use of credit scores (rather than relationships) in SBL by community banks is surprisingly widespread. Interestingly, the credit scores employed by community banks tend to be the consumer credit scores of the small business owners rather than the more encompassing SBCS that more accurately reflect credit information on both the firms and the owners.

Community Bank Mergers and SBL Impacts: Elyasiani and Goldberg (2004) present a literature survey on SBL and suggest that while bank mergers are likely to affect SBL, the decision for banking firms to make relationship loans could also be affected by several other factors, such as regulatory and/or technological changes, loan characteristics (such as collateral and loan rates), and borrower characteristics (such as multiple relationships, length of relationship, distance, etc.).

Jagtiani (2008) examines 3,900 mergers that involved publicly traded banking organizations during the pre-financial crisis period from 1990 to 2006. The results indicate that more than one-half of the acquiring banks that bought community banks were themselves community banks. This, in conjunction with another finding that almost 90 percent of all mergers between community banks involved banks headquartered in the same state, seems to suggest that community banks may be merging with the goal of concentrating their efforts on

what they are believed to do best (which is to provide personal service to small businesses and other local customers) – thus, should not have adverse impact on SBL.

Avery and Samolyk (2004) take a deeper look into this issue and take into account reactions by other local banks, using data from 1994 to 2000. Interestingly, they find different reactions to large bank mergers vs. small bank mergers. Specifically, large bank mergers are associated with slower loan growth in the local area, but community bank mergers are associated with higher loan growth and greater market share of SBL funded by local community banks. They conclude that other community banks in the area react to mergers by making more SBL. This is consistent with Jagtiani (2008) and sheds light on the source of increased SBL by community banks in the local area.

Berger, Scalise, Saunders, and Udell (1998) also find that other banks in the area had strong SBL reactions to bank mergers, as the size distribution of banks in the local market change. They investigate the "static" versus the "dynamic" effects of bank mergers on SBL. They find that while the *static effects* (associated with scale and strategy due to reduced efficiency in relationship lending as the banks merge into a larger bank) resulted in a reduction in SBL, the *dynamic effects* (associated with postmerger impact and reactions by other local banks) resulted in increased SBL by other banking firms in the local area. Overall, they conclude that the static effects that reduce SBL are more than offset by the reactions of other local banks so that the net impact of bank mergers results in increased SBL.

In addition to increased SBL from other nonmerged banks in the same local area, Berger, Bonime, Goldberg, and White (2004) found that de novo banks spring up and start engaging in SBL in markets in which there are mergers. Goldberg and White (1998) and

DeYoung, Goldberg, and White (1999) find that new banks tend to make more relationship loans and that the amount of relationship lending declines as banks age (up to 20 years old). In response to community bank mergers, de novo banks tend to be formed to fill the SBL gap as small local banks disappear through mergers.

Overall, the literature suggests that there are many factors that impact the amount and growth in SBL. Bank consolidation and reaction by other banks to local bank mergers could impact SBL. Besides mergers and acquisitions, changes in market environment and regulations could play an important role. The recent financial crisis has brought about one of the largest changes in the history of banking regulations, resulting in dramatic changes in the behaviors of both borrowers and banking firms. Our paper reexamines community bank mergers and SBL, using more recent data.

III. Community Banking Overview

Our data come from various sources. We focus on mergers that involved community bank (with assets less than $1 billion) targets during the period 2000-2012. All the information related to the mergers, target characteristics, and the acquirer characteristics come from the SNL Financial database. Data related to SBL are collected from the Federal Reserve Call Reports and Y-9 Reports. Supervisory ratings are collected from the National Examination Data (NED) System. Stock prices are from the Center for Research in Security Prices (CRSP) database, and economic factors are collected from the Haver Analytics database.

The U.S. banking industry is unique in that while more than 90 percent of about 7,000 U.S. banks are small community banks (with less than $1 billion in assets), more than 90

percent of the U.S. banking assets are held at large banking institutions.[8] The community banking sector has also been shrinking over time, both in terms of the number of community banks and the amount of assets controlled by community banks (Table 1).

There has also been a long-term, steady trend of merger and acquisition activity involving community banks. Overall, the number of large banks has been growing significantly in the past decade, while there has been a substantial decline in the number of community banks. More than 90 percent of all bank merger transactions that took place during 2000 to 2012 involved community bank targets. However, this number translates to only about 10 percent in terms of all targets' banking assets (Table 2).

There have been concerns that attrition of the community banking sector may be adversely affecting SBL and that acquisition of small banks by large banking institutions would disrupt relationship lending. The general perception seems to be that the observed decline in the number of community banks in the past decade may not result in much impact on SBL if the acquirers have been community banks themselves (rather than large banks). Table 3 shows that about 60 percent of the community banks that merged during the sample period were acquired by other community banks.[9] The next question is whether these community bank acquirers are from out-of-state, due to the concerns that if the acquiring banks are headquartered in another state, the funding from the local community may be lost to out-of-state borrowers. Table 4 shows that about 80 percent of community bank mergers (mergers

[8] This is as of year-end 2012.
[9] This translates to about 40 percent of banking assets of all community bank targets – see Table 3.

between the community bank target and the community bank acquirer) have been within the same state (in-state mergers).[10]

So far, these basic statistics indicate that the majority of community bank mergers involved community bank acquirers and they were mostly in-state mergers, thus, the mergers may not have significant impact in reducing lending to small businesses and/or moving funds out of the community. We further explore this issue and examine whether community bank mergers that took place in the past decade may have strengthened the banks' comparative advantage in relationship lending.

IV. Have Community Banks Become Stronger or Weaker After the Mergers?

We explore important characteristics of targets and acquirers around the mergers' announcement dates and compare those with characteristics of the combined firm (after the mergers). Figures 1.1 to 1.7 present the comparison of premerger and postmerger performance based on the various components of the confidential supervisory ratings (i.e., the capital adequacy (C), asset quality (A), management quality (M), earnings (E), liquidity (L), sensitivity to market (S), and the composite rating (CAMELS), respectively).[11] The sample includes all mergers that involved community banks during the period from 2000 to 2012. The plots compare average ratings across all the mergers that were announced in each year from that period. Note that the lowest rating (1) represents the best rating, and the highest rating (5) is the worst.[12]

[10] This translates to about 60 percent of banking assets of all community bank targets – see Table 4.
[11] The premerger ratings for targets and acquirers are the latest assigned ratings prior to the merger announcement date. The postmerger ratings are the first assigned rating after the merger has been completed.
[12] Agarwal, Lucca, Seru, and Trebbi (2014) find that different regulators may be applying different standards when assigning the CAMELS ratings. The discrepancy is related to different weights given to local economic conditions.

Based on the average supervisory ratings prior to the mergers, the community bank targets are consistently weaker than the acquirers, particularly for mergers that took place during the financial crisis period or later (2008 and thereafter) when the targets' ratings were below satisfactory (3 rating), on average. The ratings of the combined firm (after the merger) are much improved compared with those of the targets prior to the mergers. These results are consistent across all component ratings and the composite CAMELS rating. Overall, community banks that were acquired during the financial crisis had performed poorly and, on average, were rated unsatisfactory by their regulators on all risk aspects.[13]

Figure 1.8 plots number of community bank targets and their composite CAMELS ratings as of the merger announcement date. The majority of community bank targets for mergers announced during the sample period are healthy banks – with composite CAMELS rating of 1 or 2. Unlike the mergers that were announced in 2000-2008 and in 2012, community bank targets for mergers that took place in 2009-2011 were mostly 4-rated or 5-rated banks (trouble banks). These banks would not have been able to serve as a good funding source for small businesses anyway, and, in fact, they were more likely to fail if they were not acquired by another (healthier) bank.[14] Overall, for the entire sample period which includes both boom and bust economic environment, community bank mergers have served to enhance the safety and

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While our analysis here does not control for the regulators (federal versus state regulators) that assigned the ratings, we do control for economic conditions around the merger date.

[13] These community bank targets were undercapitalized, holding poor-quality assets on the balance sheet, not well managed, not profitable, less liquid, and more exposed to greater market risks.

[14] Gilbert, Myer, and Fuchs (2014) examine banks with asset < $10 billion that were rated 4 or 5 at some point during 2006-2013, and they find that almost half of them either merged with another bank (15.6 percent) or failed (24.7 percent) by the end of 2013.

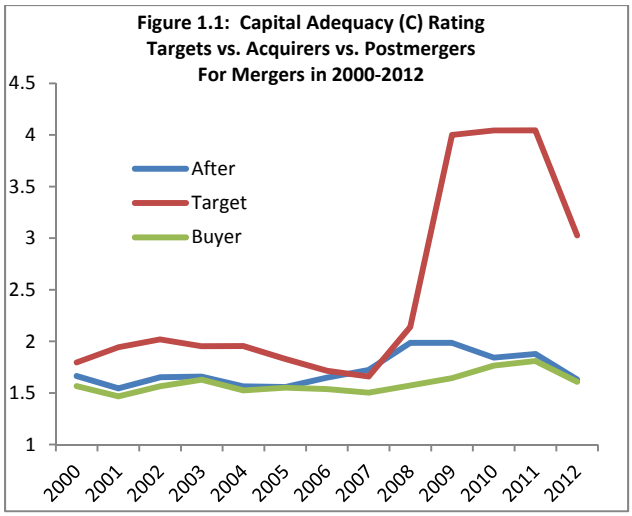


Figure 1.1: Capital Adequacy (C) Rating
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer

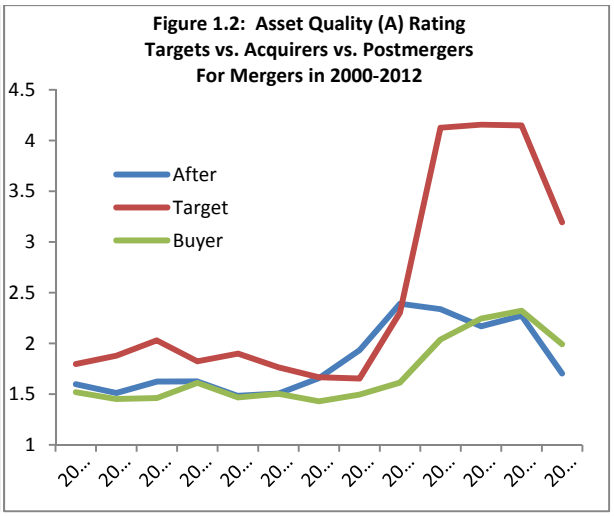


Figure 1.2: Asset Quality (A) Rating
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer

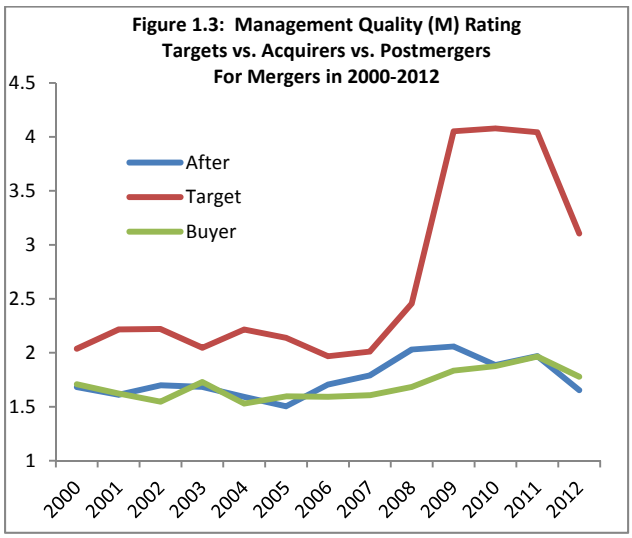


Figure 1.3: Management Quality (M) Rating
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer

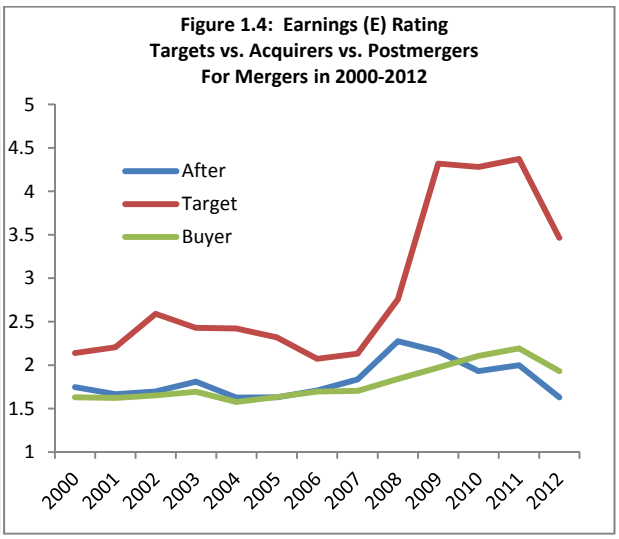


Figure 1.4: Earnings (E) Rating
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer

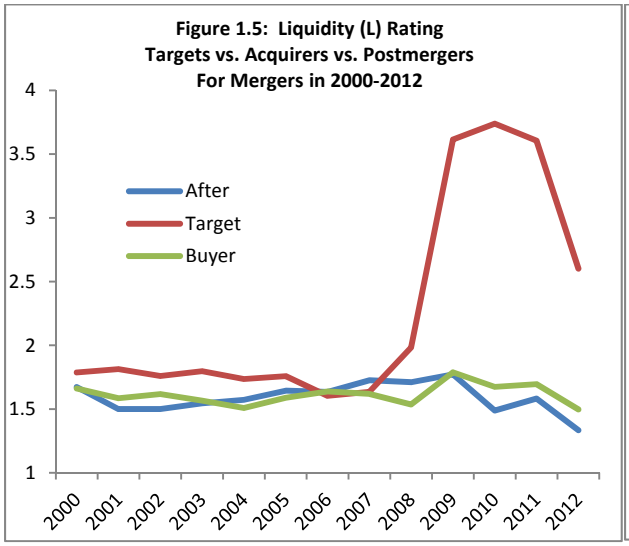


Figure 1.5: Liquidity (L) Rating
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer

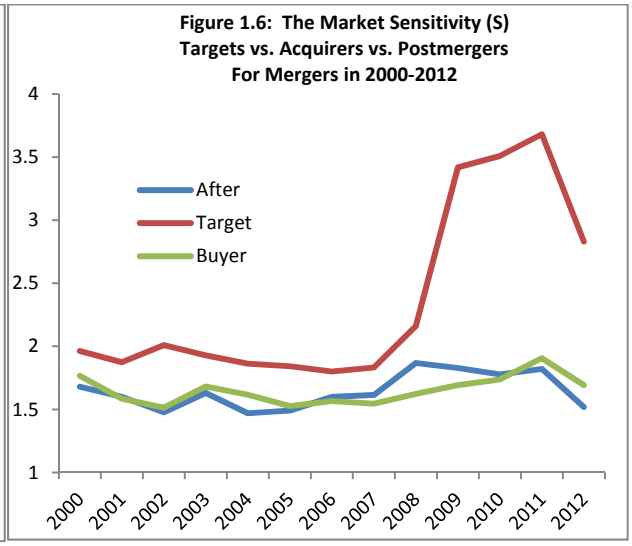
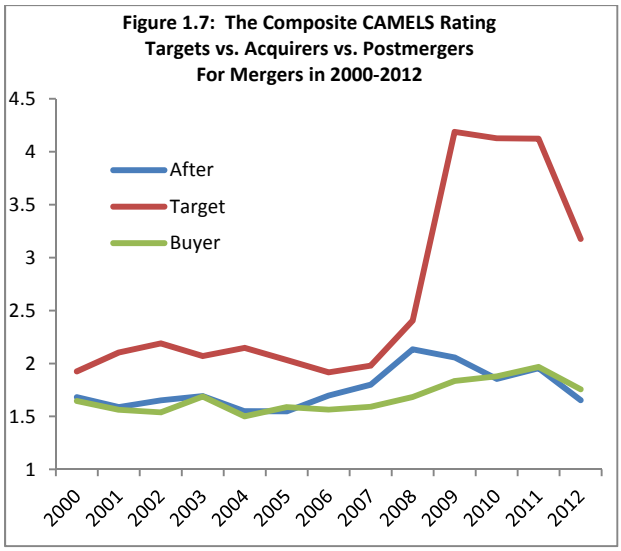
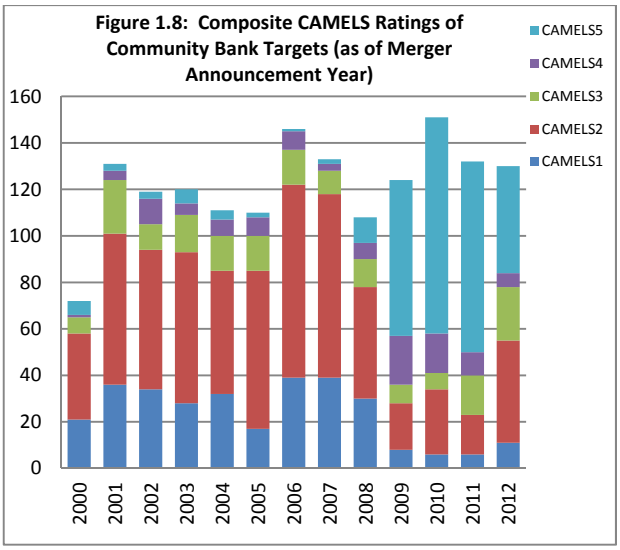


Figure 1.6: The Market Sensitivity (S)
Targets vs. Acquirers vs. Postmergers
For Mergers in 2000-2012
After
Target
Buyer



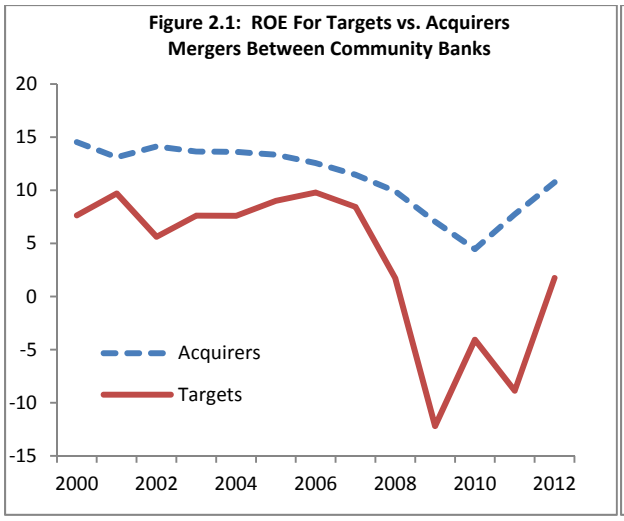


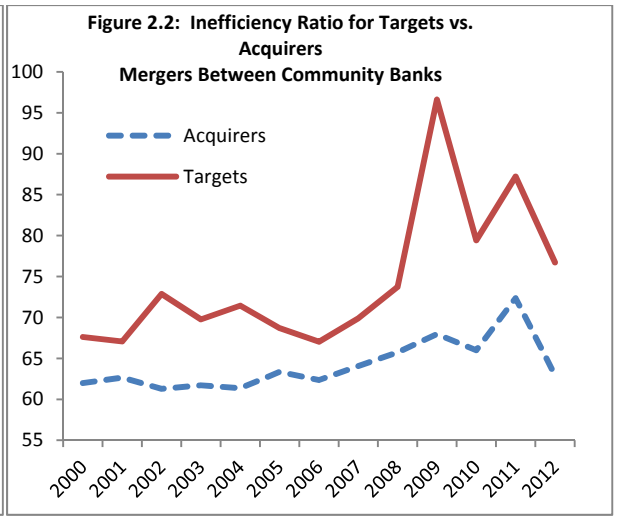
Sources: SNL database and the Federal Reserve National Examination Database (NED)

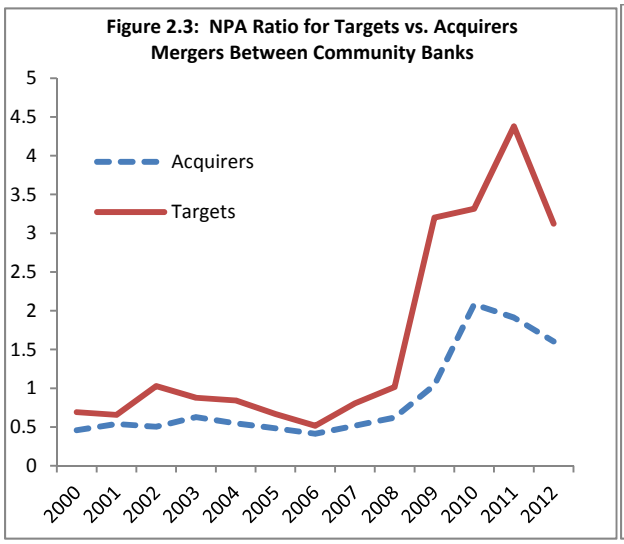
soundness of the banking system,[15] suggesting that there are no good reasons to be overly concerned about the large number of community bank mergers so far.

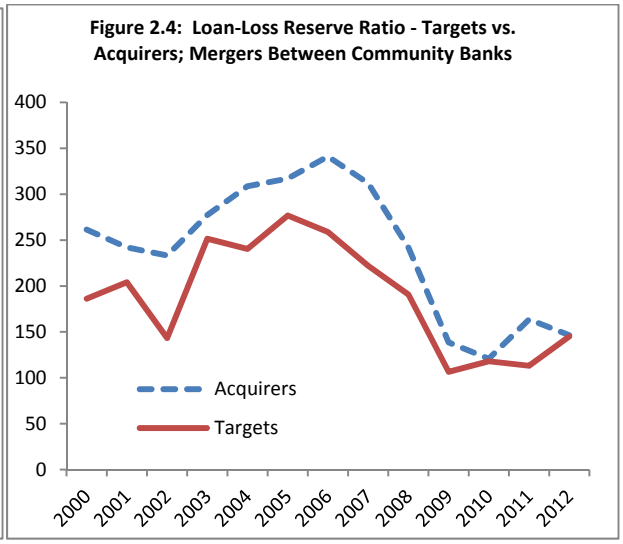
In addition to exploring changes in the confidential supervisory ratings, we confirm our findings with additional analysis of other important performance measures for targets and acquirers. Figures 2.1 to 2.5 present the various performance measures, based on the return on equity (ROE), operational inefficiency ratio (measured as the ratio of noninterest expense to the sum of net interest income and other income), nonperforming assets (NPA) ratio, loan–loss reserve ratio, and common equity capital-to-total asset ratio, respectively. The results are consistent with those presented earlier. Again, community bank targets are generally weaker than the acquirers prior to the mergers, particularly for community bank mergers that took

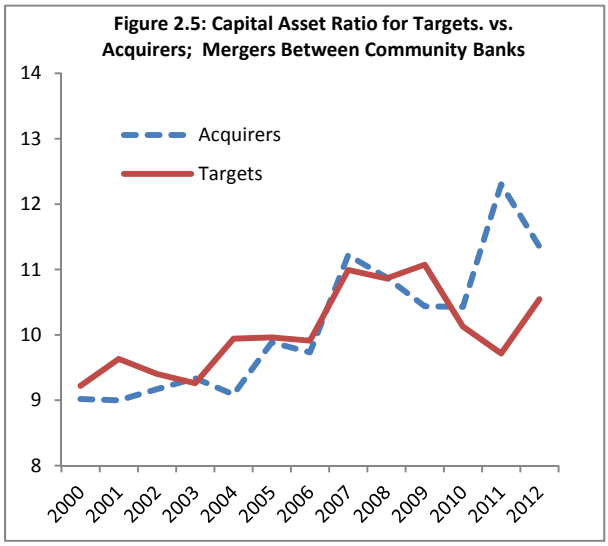
[15] Our finding is consistent with Cooper and Vermilyea (2012), who find that mergers that involved a well-managed acquiring bank (with a superior M rating) could improve the long-term performance of the combined banking firm after the merger.

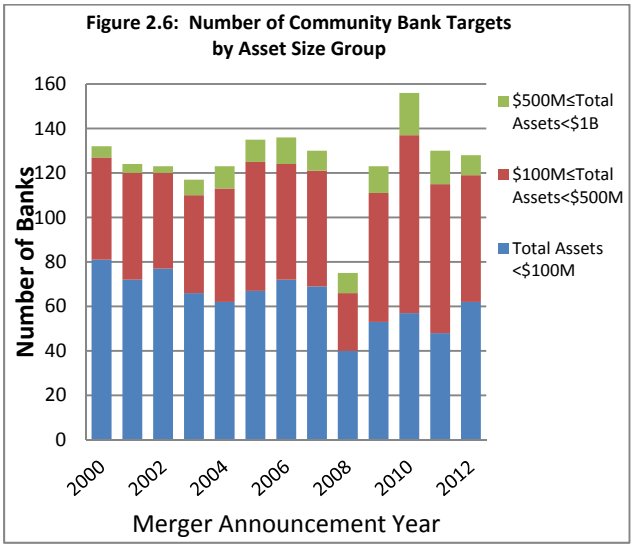












Source: SNL Financial database

place during and after the recent financial crisis.[16] Note that most of the community bank targets have consistently been smaller than $500 million in assets, as shown in Figure 2.6.

V. Funding Availability for Small Businesses

As mentioned earlier, the conventional wisdom is that small local community banks make loans based on relationships and other qualitative information (rather than the typical model-based risk score used by large banks). The public concerns around community bank mergers and the declining number of U.S. community banks have been mainly associated with the belief that community banks have been the traditional funding sources for local small businesses and that there would be a shortage of funds to small and new businesses without them. We explore the role of community banks versus large banks in SBL and examine the potential impact of attrition of the community banking sector on SBL.

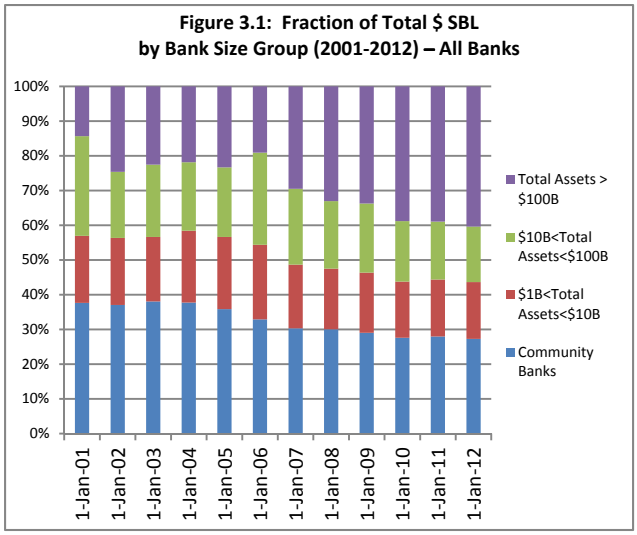
SBL at Community Banks Versus Large Banks: First, we examine the changes in market share of SBL for the various bank size groups from 2001 to 2012, using Call Report data.[17] Figure 3.1 shows that SBL market share increased significantly (more than doubled) for the largest banks (larger than $100 billion) but decreased for community banks.[18] Second, we examine the average SBL-to-total-asset ratio for the various bank size groups during the same

[16] The targets were not profitable (smaller ROE or larger losses), were less efficient in their operations, had more bad loans (more charge-offs), and were less capitalized.

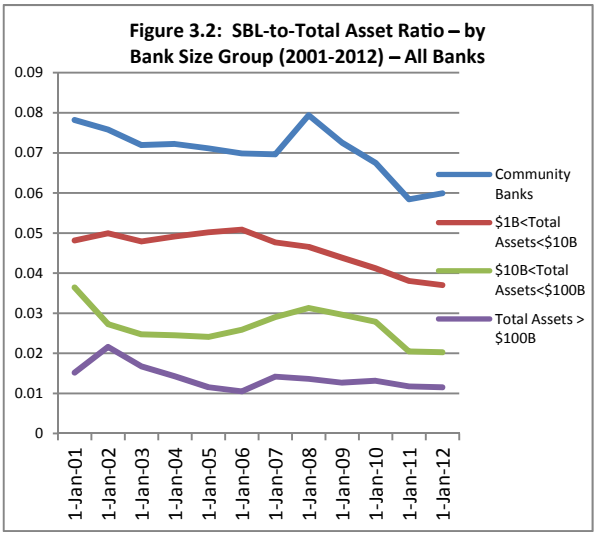
[17] Data on SBL and assets are obtained from the year-end quarterly Call Reports, and the sample includes all banks (the entire market) in the U.S.

[18] The increased market share in SBL at large banks is partly due to their becoming more active in SBL and partly due to the fact that large banks became larger in this period. The number of banks in this size category increased from six banks in 2001 to 18 banks in 2012, and their share of domestic assets increased from 36 percent in 2001 to 66 percent in 2012.

period from 2001 to 2012.[19] Figure 3.2 shows that the SBL-to-assets ratio has declined during this period — for all bank size groups (including community banks). While community banks have consistently been more committed (larger ratio of SBL to total assets) to SBL, this does not translate to a large volume of SBL. More important, it is indicated in Figure 3.2 that since 2008 the average SBL-to-assets ratio has declined more sharply, on average, for community banks than the larger banks. Note that we observe a significant decline in SBL among community banks despite the federal support to help them jump-start the economy during the financial crisis through the Small Business Lending Fund (SBLF).[20]



Source: Call Report Data



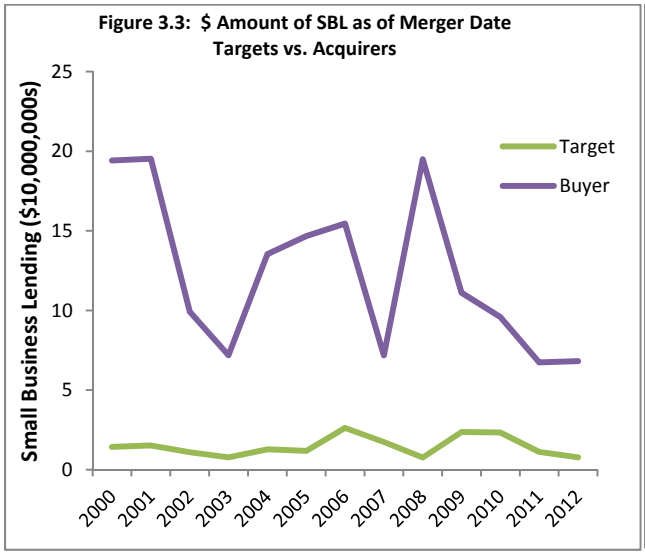
Source: Call Report Data

SBL at Community Banks That Merged: We next focus on SBL volume associated with community banks that merged during the period from 2000 to 2012. In terms of SBL volume (in dollar amount), Figure 3.3 shows that the targets had significantly smaller SBL, on average, than

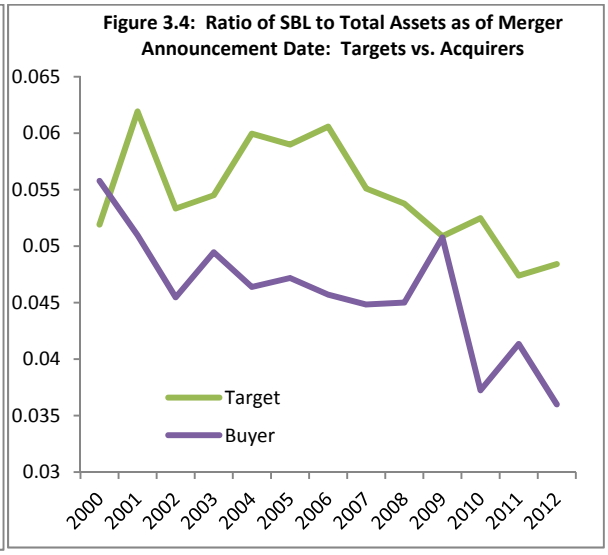
[19] Again, data on SBL and assets are obtained from the year-end quarterly Call Reports, and the sample includes all banks in the U.S.

[20] The SBLF was made available to banks with assets less than $10 billion only. Of the 7700 banks that were eligible, only 1000 banks applied and 332 banks were approved. As a result, of the total SBLF funding of $30 billion, only $4 billion was distributed. See Carpenter and Robinson (2014) for more details.

the acquirers did.[21] In terms of commitment to SBL (ratio of SBL to assets), however, Figure 3.4 shows that the targets were more committed than the acquirers prior to the mergers. The SBL ratio is the combined SBL ratio of the target and the acquirer as of merger announcement date divided by the combined assets of the target and the acquirer as of the merger announcement date.



Sources: SNL database and Call Reports

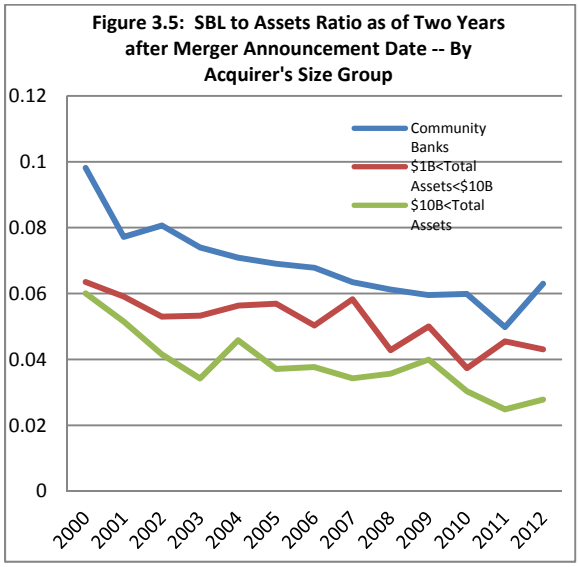


Sources: SNL database and Call Reports

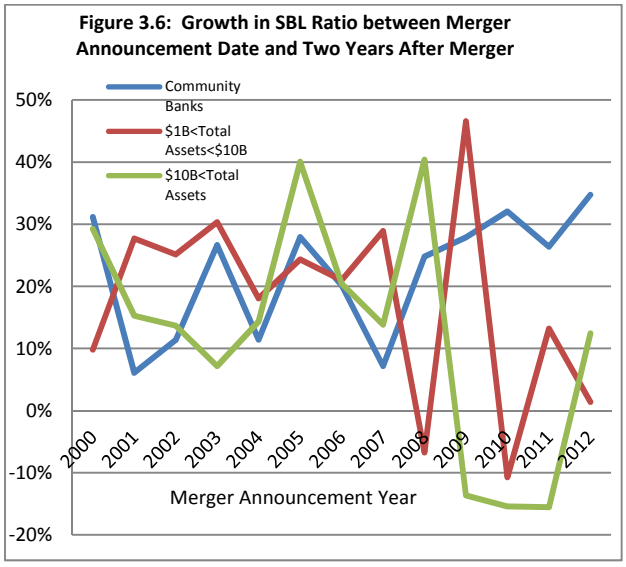
We also find that after the mergers, SBL for the combined firms (as of one year and two years after the completion of the mergers) tends to follow the acquirers' patterns. Figures 3.5 and 3.6 present the change in SBL from pre-merger (as of merger announcement date) to post-merger (two years after merger announcement date) for different size groups of the acquiring banks. Figure 3.5 shows that although the SBL to asset ratio (as of two years after merger announcement date) is higher for smaller acquiring banks than for large acquiring banks, the SBL ratio has been declining for all size groups of acquirers. Despite the overall declining trend

[21] For Figures 3.3 to 3.5, the data on SBL and assets are obtained from the year-end quarterly Call Reports. The sample includes all mergers announced from 2000 to 2012 that involved community banks (targets being less than $1 billion in assets). The data are from the SNL database.

in SBL ratio, it is interesting to see from Figure 3.6 that the change (growth) in SBL ratio (between merger announcement date and two years later) has been positive (increasing) for all mergers regardless of whether the acquirers are large or small for most of the sample period. The only exception is for large acquirers for mergers announced around the peak of the financial crisis.



Sources: SNL database and Call Reports



Sources: SNL database and Call Reports

To summarize, our results so far suggest that while the U.S. banking industry has been expanding rapidly in the past decade, the share of SBL to banking assets has become significantly smaller now than it was over a decade ago (Figure 3.2). Following overall industry trends, the ratio of SBL to assets has declined for all bank size groups, regardless of whether they were involved in mergers and acquisitions (Figures 3.2, 3.4, and 3.5). Interestingly, the decline in the SBL ratio has been more severe at community banks than at larger banks. Large banks have also been playing an increasing role in providing funding to small businesses.

Regression Analysis — Community Bank Mergers and SBL: To further understand the impact of community bank mergers on SBL, we perform a regression analysis in which we

control for the characteristics of the targets and the acquirers and the SBL trend for similar banks (in the same size category and geographic location). The samples include all mergers that involved community banks during the period from 2000 to 2012. The summary statistics of the sample are presented in Table 5.[22]

Dependent variables are measured in two different ways. First, we use the total change in amount (not adjusted for inflation) of SBL following the mergers — estimated as the combined firm's total SBL after the merger minus the combined total SBL (the target and the acquirer) prior to the merger. The results are presented in columns 1 and 2 of Table 6. Second, we use the change in the ratio of SBL to assets for the combined (merged) banking firm as compared with premerger. The premerger ratio is the combined SBL of the target and the acquirer divided by the combined total assets of the target and the acquirer before the merger. The results are presented in columns 3 and 4 of Table 6.

Independent variables include risk characteristics as reflected in the composite CAMELS ratings for the targets and the acquirers prior to the merger in which the supervisory ratings have values ranging from 1 (best) to 5 (worst). We also include dummy indicators for the size category (less than $1 billion, between $1 billion and $10 billion, and larger than $10 billion) of the acquiring banks, where the community bank acquirers, with assets of $1 billion or less, are included in the analysis as the base case.

[22] When CAMELS data are included in the analysis, the number of observations drops significantly. However, the sample distribution across bank size groups remains roughly the same for both the original (full) sample and the reduced sample (with no missing CAMELS). For acquirers, in the full sample, 27 percent of the banks are in the $1 billion to $10 billion range, 10 percent are in the more than $10 billion range, and the rest are in the less than $1 billion range. The numbers change only slightly to 25 percent in the $1 billion to $10 billion range and 6 percent in the larger than $10 billion range for the reduced sample, which is used for the regression analysis (with no missing CAMELS).

In addition, we control for the interaction between economic factors (such as the boom period indicator) and asset size of the combined firm (by size category, with assets being less than $1 billion, between $1 billion and $10 billion, and larger than $10 billion), where the boom period is defined as the years from 2004 to 2007. This is intended to capture the varying economic impact on SBL for the various size groups. Further, we control for whether the merger is an assisted merger in which the target was failing. For this, we include a dummy indicator for mergers that involved targets that were rated 4 or 5 (unsatisfactory) by their supervisors.[23]

Controlling for the Overall SBL Market Trends: The trend variable is calculated for each observation, and it is defined as a percentage change in the overall SBL by all banks (regardless of whether they merged) that are in the same size class as the combined merged firm, in which the SBL change is measured over the same period based on the merged banking firm's merger date.[24] This trend variable is included in the analysis to control for the overall market trend of SBL around the time of the merger announcement — to account for the SBL activities at banks that did not merge and to account for the varying SBL activities both in tough economic cycles (through time) and across banks. In other words, this SBL trend variable is included as a control factor to separate out the change in SBL after mergers that may have been driven by factors other than the merger, such as changes in SBL activities due to changes in the economic environment, changes in demand and supply of SBL, regulatory changes, etc.

[23] We also perform a separate analysis that excludes all 5-rated banks and includes a control indicator for 4-rated banks; the results are consistent with those presented in Table 6.

[24] Until 2010, SBL was reported only once a year at the end of the second quarter. The trend control factor is measured as the one-year change in the overall market (for the merged bank's size group) around the merger date. For example, for a merger completed in November 2006, the trend variable would capture the change in SBL in the market from June 2005 to June 2006.

From columns 1 and 2 in Table 6, controlling for all the risk characteristics of the targets and the acquirers and economic factors as described earlier, the combined banking firms tend to increase their overall SBL by a larger amount when the acquiring bank is very large (with more than $10 billion in assets).[25] This is reflected in the significantly positive coefficients of the dummy indicator *D_Largest_Acquirer_>$10Bill*. In addition, the coefficient of the interactive term *D_Boom (2004-2007)*D_Largest* is also significantly positive, indicating that the increase in the SBL amount (when the acquirers are in the largest size group) is even larger for those mergers that took place during the boom period from 2004 to 2007. We find no significant change in the SBL volume when the acquiring banks are either small community banks or medium size (with assets less than $10 billion), after controlling for the risk characteristics, economic conditions, and market trends. Note that the coefficient of SBL market trend (specific to the size group and time of mergers) is negative, reflecting the fact that SBL volume increased after the mergers despite the overall decline in the overall SBL activities during the sample period of 2002-2012 -- see Figures 3.2 for declining SBL trend overall (the entire banking industry); Figure 3.4 for declining SBL trend for targets and acquirers; Figure 3.5 for declining SBL trend for the merged banking firms (banks that were involved in the mergers).

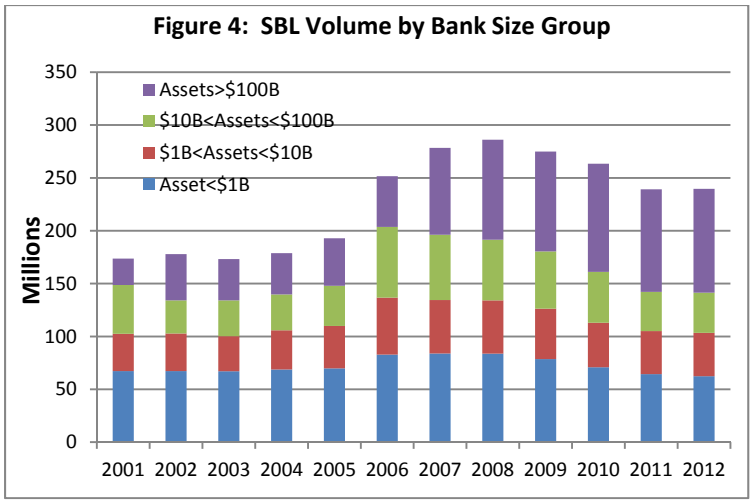
When focusing on the change in ratio of SBL to assets, rather than the change in dollar amount of SBL, the results in columns 3 and 4 of Table 6 show that the SBL ratio (after the merger) tends to increases by less (or some may even decline) when the acquiring banks are the largest or medium-size banks (larger than $10 billion in assets), as reflected in the

[25] Our analysis is based on the overall reported SBL in the Quarterly Call Report, which does not allow us to identify whether the increase in SBL take place in the same local community as the community bank target or in other communities.

significantly negative coefficients of *D_Large Acquirer_$1Bill to $10Bill* and *D_Largest Acquirer_>$10Bill*.[26] This is likely due to the fact that these large acquiring institutions tend to grow more aggressively such that the overall assets growth exceeds that of SBL.[27] We also control for failing targets, with the composite CAMELS rating being unsatisfactory (rated 4 or 5) — the coefficients are consistently insignificant.

The SBL trend variable in Table 6, *TREND_SBL Change_Size Group*, is the average change in the SBL ratio by all banks in the same size class around the merger announcement date, regardless of whether they were involved in any merger transactions. The coefficients of this SBL trend factor are significantly negative in column 2 (change in SBL volume) but insignificant in column 4 (change in SBL ratio).[28] The negative coefficient in column 2 reflects the fact that the SBL volume actually increase after the merger (i.e. the SBL volume of the combined firm is larger than SBL volume of the target and the acquirer combined as of merger announcement date) despite a declining trend in SBL volume for the entire banking industry. Figure 4 below shows that SBL amount for the banking industry (by bank size group) have been declining since the beginning of the financial crisis.

[26] Recall from Figure 3.2 that the trend for SBL ratio for the entire banking industry was declining and that the decline in the SBL ratio at large banks overall is not as severe as that of the surviving community banks.
[27] Appendix 1 presents the plots of changes in SBL for the groups of merged banks compared with all other banks (merged and nonmerged banks combined) in the same size group. We find that changes in the SBL ratio due to mergers (that involved community bank targets) seem to be unrelated (or negatively correlated) to the overall SBL market trend (for the same size class).
[28] Interpreting the coefficient of the trend variable is not straight forward – see the appendix for more detail.



Other control factors in Table 6 are the composite supervisory ratings of the targets and the acquiring banks. They are generally not significantly important in determining the change in SBL after the mergers — with only one exception (in column 3) where it is weakly significantly positive at the 10 percent level, suggesting that the SBL ratio may rise for mergers that involve poorly rated acquiring banks.[29]

The regression results confirm our previous findings that SBL activities, on average, change significantly after the acquisitions. On the one hand, the volume of SBL lending seems to grow by a substantially larger amount when the acquirer is a large bank (larger than $10 billion). On the other hand, the SBL ratio increases substantially more when the acquirer is a community bank, compared with little change in the case of a large bank acquirer. These results hold even after controlling for important risk characteristics of the targets and acquirers, economic conditions, size-related factors, and market trends.

Overall, the results are consistent with a favorable impact of acquisitions of community banks on SBL activities, whether the acquirer is large or small, suggesting that both large and

[29] We repeat the same analysis with the component CAMELS ratings as control factors, rather than the composite rating — the results are consistent with those reported in Table 6 (they are not presented here but are available upon request).

small acquirers of community banks having a particular focus on small business lending. Acquirers tend to increase the volume of SBL in line with their overall asset growth rate, while community bank acquisitions have a favorable impact on the ratio of SBL to total assets.

These findings should be viewed in the context of the overall industry trends described earlier. The SBL ratio for the industry overall has been declining, more so for community banks than large banks, on average, over the recent years. In addition, the roles of large banks in supporting small businesses have become increasingly important in recent years with greater SBL market shares. The smaller SBL ratio to assets at large banks suggests that the growth in loan demand for small business may be slower than that of the overall banking assets in recent years.

VI. Merger Deal Premiums and Stock Market Reactions

Merger Deal Premiums: This section examines the merger deal premiums that acquirers are willing to pay to acquire a community bank target. We perform a regression analysis, with the dependent variable being the merger deal premiums, which are calculated as a ratio of price per share paid by the acquirer divided by the market price per share of the target, based on the target's share price as of the day before the merger announcement date. The data on mergers and share prices are obtained from the SNL database and Yahoo Finance.[30]

The analysis controls for the various risk characteristics of the targets and the acquirers, including the ROE, efficiency ratio (the ratio of noninterest expense to the sum of net interest

[30] Our analysis in this section includes a much smaller number of observations because most of the community banks that were involved in the mergers were not publicly traded; thus, their market share prices were not available.

income and other income), nonperforming loans (NPLs), capital adequacy, asset size of the acquiring banks, market to book ratio, and an indicator for in-state mergers. The acquirer's size indicators are calculated with inflation adjusted. All the risk characteristics are measured as of the merger announcement date — calculated as the ratio of the acquirer's characteristic to the target's characteristic. The market-to-book ratio is the ratio of the acquirer's market-to-book ratio to the target's market-to-book ratio. The results are presented in Table 7.

The results indicate that merger premiums are smaller when the acquiring banks are very large banks (with assets greater than $10 billion). The community bank targets were willing to accept a smaller premium (or even a discount) to become a part of a large banking organization — probably because the underlying motivations or circumstances may systematically differ between the large and small bank acquisitions.[31]

Stock Market Reactions: Based on the subset data of community bank mergers that involved publicly traded community bank targets, we examine how the stock market reacts to the mergers, controlling for the various risk characteristics of the acquirers and the targets. We perform a regression analysis with the dependent variable being cumulative abnormal returns (CARs) around the merger announcement date (window -3 days to +3 days around the announcement date).[32] The abnormal returns are calculated based on an index of the 25 largest financial institutions, following the methodology used for the abnormal returns calculation in Brook, Hendershott, and Lee (1998). Again, we control for the relative acquirer–

[31] For instance, there may be more synergies in the case of a community bank acquirer, allowing for larger acquisition premiums, or large banks may have more bargaining power. This result is also consistent with Brewer and Jagtiani (2013) which finds that small target banks tend to accept smaller or negative merger premiums to become part of a large too-big-to-fail (TBTF) banking organization and to have access to the "TBTF subsidy."
[32] We also perform the same analysis with different CARs windows, including (-1, +1) and (-1, +3). The results are not shown here, but they are consistent with those presented in Table 8.

to-target ratios for ROE, efficiency ratio, NPLs, and capital-to-assets ratio. The risk factors are measured as of the merger's announcement date. Relative asset size is the ratio of the target's assets to the acquirer's assets. The acquirer's size indicators are inflation adjusted. The merger deal premium variable is the price per share that the acquirer paid to acquire the target divided by the market price per share of the target (source: SNL database and Yahoo Finance). A dummy indicator for low trading volume is also included to indicate that the bank's stocks were traded with an average of less than 1,000 shares daily for the period in which the market model is fitted. The results are presented in Table 8.

After controlling for the risk characteristics of both the targets and the acquirers, the results suggest that the stock market's perception of community bank mergers seems to be determined by the merger deal premiums (i.e., the premiums that the acquirers are willing to pay over the target's market price per share). The larger the premiums that the acquiring banks are willing to pay to acquire the community bank target, the larger the positive abnormal returns around the merger announcement date. Given that the deal premiums that acquirers are willing to pay are proxies for the synergies to be obtained from the mergers, the results are consistent with an argument that the market reacts more positively to the mergers that are expected to produce greater synergies.

VII. Conclusions and Policy Implications

There have been growing concerns about the potential of the decline in the number of community banks and the increasing number of acquisitions of community banks by larger banks — to disrupt local relationships and significantly reduce SBL.

In this paper, we examine the roles and characteristics of U.S. community banks in the past decade, covering both the boom period and the subsequent downturn. We compare the pre- and post-merger performance and risk characteristics (including the confidential ratings assigned by bank regulators), investigate whether the mergers have affected SBL, and observe how the stock markets react to community bank mergers. In particular, we also explore whether large banks have been able and willing to step in and substitute for community banks in providing funding to small businesses.

We show that large banks have been getting larger and that the number of small banks has been declining over the past two decades. However, from 2000 to 2012, as the number of community banks has declined, we have found that the overall SBL market share for the largest banks (more than $100 billion) has more than doubled; thereby indicating that large banks have been stepping in to fill the gap.

Our regression analysis, controlling for risk characteristics of the targets and the acquirers, economic factors, and market trends, finds that the amount of SBL by acquiring banks tends to increase from the pre-acquisition base, and more so when the acquirer is a large bank (with assets of more than $10 billion), indicating that the large bank acquirers do grow SBL. Acquirers tend to increase the volume of SBL in line with their overall asset growth rate, while community bank acquisitions have a favorable impact on the ratio of SBL to total assets.[33]

When examining SBL activities in terms of the average SBL-to-total-asset ratio, the data show that the SBL-to-assets ratio has declined (over the same period from 2001 to 2012) for all

[33] It seems reasonable to assume that the increase in SBL occurs in the local community of the acquired community banks, based on previous literature related to other local banks' SBL reaction to local community bank mergers. Our SBL data, however, does not allow us to confirm this.

bank size groups, including the community banks themselves. The rate of decline among large banks has been lower than that of community banks.

We find that community banks that were merged during the financial crisis period performed poorly and were often rated unsatisfactory by their regulators on all risk aspects. These community bank targets were undercapitalized, held poor quality and less liquid assets on their balance sheet, were not profitable, and were not well managed. Our results overall indicate that mergers of community bank targets with healthier banks have resulted in combined banking firms that are healthier financially and more efficient in their operations. Overall, mergers that involved community bank targets have so far enhanced the safety and soundness of the banking system.

Among all community bank mergers that involved publicly traded targets, we find that the merger premiums are smaller when the acquiring banks are large banks (with total assets greater than $10 billion). This may reflect systematic differences in motives for the acquisitions. After controlling for the risk characteristics of both the targets and the acquirers, the results suggest that the stock market's perception of community bank mergers seems to be determined by the merger deal premiums (i.e., the premiums that the acquirers are willing to pay over the target's market price per share).

Based on the above, we conclude that the trend of acquisitions of community banks by large banks over the past decade has enhanced the overall safety and soundness of the banking system, without adversely impacting SBL, as large banks have stepped in and grown their local

lending.[34] This implies that a policy that discourages mergers between community banks and large banks is unwarranted and could potentially result in a weaker financial system and have an unintentional dampening effect on the supply of SBL lending.

[34] Thirteen large banks pledged in September 2012 to boost lending to small businesses by $20 billion as of September 2014. These large banks include Bank of America Merrill Lynch, Citigroup, JPMorgan Chase & Co., PNC Bank N.A., TD Bank, U.S. Bank, Wells Fargo, KeyCorp, Regions Financial Corp., SunTrust Banks Inc., Citizens Financial Group Inc., Huntington Bancshares Inc., and M&T Bank Corp. As of September 2013, the banks had already boosted their SBL by $17 billion.

Table 1: Industry Trend
Number of Banking Organizations and Share of Banking Assets by Asset Size of Banking Organizations

Banking organizations include bank holding companies and independent commercial banks. Size thresholds are adjusted for inflation by using assets measured in 2006 prices.

Year	Number of Banking Organizations by Asset Size ($billions)					Share of Domestic Banking Assets (%) by Asset Size ($billions)				
	<$1	$1-$10	$10-$100	>$100	All	<$1	$1-$10	$10-$100	>$100	All
2001	6850	275	53	6	7184	18.4%	15.3	30.1	36.1	100%
2002	6671	270	52	7	7000	18.0%	14.3	25.7	42.0	100%
2003	6521	277	60	7	6865	17.1%	12.5	27.1	43.3	100%
2004	6380	300	54	7	6741	16.0%	12.8	24.6	46.7	100%
2005	6240	312	54	7	6613	13.4%	11.0	22.1	53.6	100%
2006	6933	384	75	8	7400	12.6%	11.3	27.5	48.6	100%
2007	6795	394	68	13	7270	11.9%	10.5	20.6	57.0	100%
2008	6674	379	57	17	7127	11.3%	9.7	16.8	62.1	100%
2009	6440	406	63	18	6927	10.8%	9.4	16.9	62.8	100%
2010	6159	379	57	19	6614	10.6%	8.9	14.7	65.8	100%
2011	5897	375	61	17	6350	9.9%	8.5	16.8	64.8	100%
2012	5708	369	61	18	6156	9.7%	8.5	15.9	65.9	100%

Source: Call Reports (June data for each year)

This table shows that while more than 90 percent of (about 7,000) U.S. banks are small community banks (with less than $1 billion in assets), more than 90 percent of the U.S. banking assets are held at larger banking institutions. More importantly, the community banking sector has been shrinking over time, both in terms of the number of community banks and the amount of assets controlled by community banks

Table 2: Targets
Acquisitions of Banking Organizations
by Asset Size of the Targets

This table presents the merger trend over the period 200-2012. More than 90 percent of the mergers that took place involved community bank targets (with assets less than $1 billion). This number, however, accounts for only slightly more than 10 percent in terms of all targets' banking assets. Further, the plot below shows that most of the community bank targets are smaller than $500 million in asset size.

Year	Number of Acquisitions ($billions) by Target's Asset Size					Amount of Assets Acquired ($billions) by Target's Asset Size				
	<$1	$1-$10	$10-$100	>$100	All	<$1	$1-$10	$10-$100	>$100	All
2000-2004	810	67	18	4	899	$140.3	$172.0	$526.1	$937.4	$1775.8
2005-2006	412	28	7	0	447	$73.6	$70.1	$220.0	$0.0	$363.8
2007-2008	307	24	4	3	338	$53.0	$69.0	$102.9	$1017	$1242.7
2009-2010	342	28	6	0	376	$69.3	$77.0	$114.3	$0.0	$260.6
2011-2012	337	23	1	0	361	$64.2	$53.1	$24.5	$0.0	$141.8
Total Number of Acquisitions	2208 91.2%	170 7.0%	36 1.5%	7 0.3%	2421 100%	$400.4 10.6%	$441.2 11.7%	$987.8 26.2%	$1955 51.9%	$3764.7 100%

Source: SNL database.

Note: Banking organizations include bank holding companies and independent commercial banks. Size thresholds are adjusted for inflation by using assets measured in 2006 prices.

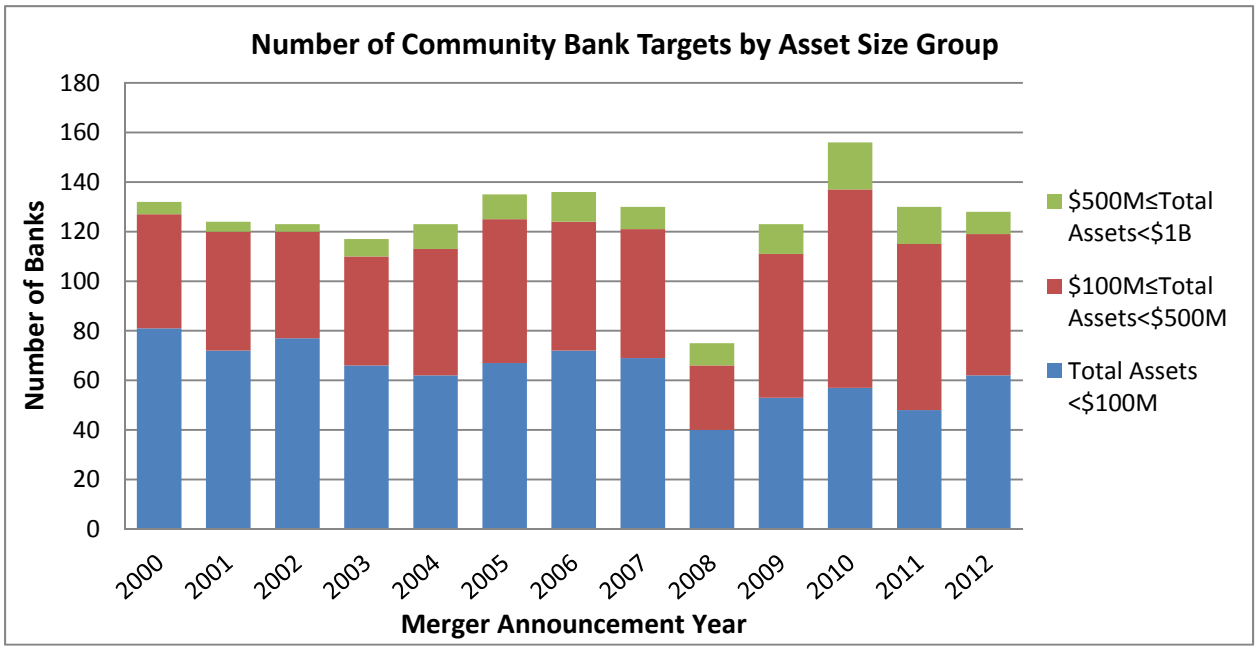


Table 3: Acquirers
Acquisitions of Community Banks
by Asset Size of Acquirers

The table below shows that about 60 percent of all the community bank acquisitions that took place during the period 1990-2012 involved community bank acquirers. This translates to about 40 percent of all community bank assets being acquired in the same period.

Year	Number of Community Bank Acquisitions ($billion) by Buyer's Asset Size					Amount of Community Bank Assets Acquired ($billion) by Buyer's Asset Size				
	<$1	$1-$10	$10-$100	>$100	All	<$1	$1-$10	$10-$100	>$100	All
1990-1994	946 61%	388	196	11	1541 100%	69 36%	71	45	4.1	189 100%
1995-1999	692 49%	458	218	34	1402 100%	62 28%	92	58	8.3	221 100%
2000-2004	467 58%	257	80	6	810 100%	44 32%	62	31	2.5	140 100%
2005-2006	243 59%	137	24	8	412 100%	28 38%	32	10	2.6	73 100%
2007-2008	217 71%	74	14	2	307 100%	24 46%	22	6	0.8	53 100%
2009-2010	312 91%	29	0	1	342 100%	61 88%	8	0	0.4	69 100%
2011-2012	261 77%	69	6	1	337 100%	44 69%	18	2	0.4	64 100%
Total	3138 61%	1412 27%	538 10%	63 1%	5151 100%	333 41%	304 37%	153 19%	19 2%	811 100%

Source: SNL database.

Note: Banking organizations include bank holding companies and independent commercial banks. Size thresholds are adjusted for inflation by using assets measured in 2006 prices.

Table 4: In-State vs. Out-of-State Mergers of Community Banks with Community Banks

The table below shows that about 80 percent of community bank mergers (mergers between the community bank target and the community bank acquirer) have been within the same state (in-state mergers) – this translates to about 60 percent of assets of the targets.

Year	Number of Community Bank Acquisitions		Amount of Community Bank Assets Acquired ($billion)	
	In-State	Out-of-State	In-State	Out-of-State
1990-1994	937 87%	137 13%	115 61%	75 39%
1995-1999	718 89%	86 11%	125 56%	96 44%
2000-2004	445 82%	97 18%	85 61%	55 39%
2005-2006	212 79%	57 21%	44 60%	29 40%
2007-2008	204 80%	50 20%	35 66%	18 34%
2009-2010	257 66%	132 32%	45 65%	24 35%
2011-2012	237 77%	70 23%	40 63%	24 37%
Total	3010 82.7%	629 17.3%	490 60.4%	321 39.6%

Source: SNL database.

Note: The sample includes all bank mergers in which both the targets and the acquirers are U.S. commercial banks or bank holding companies with total assets less than $1 billion (in 2006 prices).

Table 5
Summary Statistics of the Full Sample

Data includes all mergers that involved community bank targets during the period 2002-2012. Many of the community banks do not have observable share prices, as reflected in a much smaller sample when including share prices in the analysis. Some of the targets and acquirers from the SNL database could not be merged with certainty with the Federal Reserve Examination Database, thus reducing number of observations when including CAMELS in the analysis.

Variable	N	Mean	Minimum	Maximum	Std Dev	N Miss
Relative Size (Target/Acquirer)	1658	0.284	0.00007	13.940	0.6629	572
D_Acquirer Size $1-$10 Billion	2230	0.253	0	1.00	0.4352	0
D_Acquirer Larger Than $10 Billion	2230	0.063	0	1.00	0.2442	0
ROE Ratio (Acquirer/Target)	1606	1.170	-201.606	193.662	10.0735	624
Efficiency Ratio (Acquirer/Target)	1563	0.869	-48.159	3.3557	1.2742	667
NPA Ratio (Acquirer/Target)	1277	3.565	0	200.031	12.8812	953
Capital Asset Ratio (Acquirer/Target)	1659	-0.507	-2693.87	12.048	66.1690	571
Acquirer_C Rating	1588	1.594	1.00	5.00	0.5561	642
Acquirer_A Rating	1610	1.696	1.00	5.00	0.7025	620
Acquirer_M Rating	1588	1.687	1.00	5.00	0.5685	642
Acquirer_E Rating	1592	1.773	1.00	5.00	0.7509	638
Acquirer_L Rating	1590	1.610	1.00	4.00	0.5461	640
Acquirer S Rating	1582	1.645	1.00	4.00	0.5498	648
Acquirer_Composite CAMELS	1597	1.670	1.00	5.00	0.5442	633
Target_C Rating	1606	2.492	1.00	5.00	1.4672	624
Target_A Rating	1615	2.531	1.00	5.00	1.5128	615
Target_M Rating	1610	2.681	1.00	5.00	1.3520	620
Target_E Rating	1610	2.916	1.00	5.00	1.4022	620
Target_L Rating	1611	2.278	1.00	5.00	1.3139	619
Target S Rating	1591	2.389	1.00	5.00	1.1455	639
Target_Composite CAMELS	1608	2.666	1.00	5.00	1.4021	622
D_In-State Mergers	2230	0.722	0	1.00	0.4476	0
DealPremium1DayBefore	293	35.038	-49.600	96.880	25.2010	1937
DealPremium2DayBefore	303	38.337	-31.370	119.740	27.5024	1927
DealPremium3DayBefore	309	40.715	-31.370	137.700	30.6425	1921
CAR_Window -1, +1	576	-0.004	-0.5165	0.3477	0.0519	1654
CAR_Window -3, +3	576	-0.005	-0.2841	0.3296	0.0598	1654
CAR_Window -1, +3	576	-0.005	-0.2537	0.3546	0.0538	1654

Table 6
Small Business Lending Regressions

The samples include all mergers that involved community banks during the period from 2000 to 2012. Supervisory ratings have a value of 1 (best) to 5 (worst). Community bank acquirers (with assets up to $1 billion) are included in the analysis as the base case. The increase in total SBL amount (Columns 1 and 2) and SBL to Asset Ratio (Columns 3 and 4) due to mergers is calculated based on the difference (not adjusted for inflation) between SBL by the combined firm after the merger and the combined SBL of the target and the acquirer prior to the merger. The Trend variable is calculated for each observation based on SBL amount at other banks (including non-merged banks) in the same size group at the time of the observation's merger announcement date – thus, specifically controlling for bank size and economic environment in the trend variable. Possibility of assisted mergers is controlled for with the D_Failing Target indicator. Standard errors are reported in parentheses under the coefficients. The significance levels are calculated with heteroscedasticity-consistent standard errors, where ***, **, and * represent significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	$ Increased SBL After M&A		Increased SBL Ratio After M&A	
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	6450.81	24157.17	0.1328***	0.1464***
	(19776.78)	(21032.40)	(0.0310)	(0.0329)
D_Large Acquirer_$1Bill to $10Bill	-4462.10	-1303.96	-0.1191***	-0.1151***
	(12905.91)	(10655.19)	(0.0202)	(0.0167)
D_Largest Acquirer_> $10Bill	235,460.54***	274848.47***	-0.1252***	-0.1234***
	(25298.30)	(19858.60)	(0.0399)	(0.0317)
D_Boom (2004-2007)*D_Large	15270.68		0.0152	
	(17356.39)		(0.0277)	
D_Boom (2004-2007)*D_Largest	89004.29**		-0.0010	
	(38023.39)		(0.0614)	
D_Failing Target (4-5 Rated)	4340.26	-3191.54	-0.0208	-0.0255
	(23605.85)	(23760.00)	(0.0375)	(0.0377)
TREND_SBL Change_Size Group		-123905.17**		-0.0951
		(52126.92)		(0.0829)
Acquirer_Composite CAMELS	4684.41	3042.56	0.0227*	0.0211
	(8379.62)	(8390.49)	(0.0134)	(0.0134)
Target_Composite CAMELS	-5845.41	-6913.00	-0.0140	-0.0147
	(7475.89)	(7485.27)	(0.0117)	(0.0117)
R-Square	16.59%	16.54%	5.89%	5.99%
Adjusted R-Square	16.05%	16.08%	5.37%	5.40%
Observation Number (N)	1087	1087	960	960

Table 7
Community Bank Merger — Deal Premiums

The merger deal premiums are calculated based on the target's share price as of one day before the merger announcement date. The acquirer's size indicators are inflation adjusted. The merger deal premium is the price per share that the acquirer paid to acquire the target divided by market price per share of the target (sources: SNL database and Yahoo Finance). All the risk characteristics (ROE, efficiency ratio, NPLs, capital-to-assets ratio, market-to-book ratio) are measured as of the merger's announcement date — acquirer-to-target ratio. The market-to-book ratio is the ratio of the acquirer's market-to-book ratio to the target's market-to-book ratio. Standard errors are reported in parentheses under the coefficients. The significance levels are calculated with heteroscedasticity-consistent standard errors, where ***, **, and * represent significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Model	(1)	(4)	(7)
Intercept	46.4153***	16.8278	19.7697
	(12.0062)	(14.9138)	(16.1707)
D_Mergers Announced in 2003-2007	--	--	-2.8784
			(4.2457)
D_Mergers Announced in 2008-2010	--	--	3.7930
			(8.6852)
D_Mergers Announced in 2011 or Later	--	--	3.8699
			(6.4883)
D_$1 Billion < Acquirer Size > $10Billion	-0.4798	1.9512	2.0128
	(4.7004)	(4.8895)	(4.9228)
D_Acquirer Asset Size > $10 Billion	-10.7393*	-12.0855**	-11.5112*
	(5.7128)	(5.6041)	(5.8775)
ROE Ratio_Acquirer to Target	-0.1446	-0.1432	-0.1109
	(0.1891)	(0.5100)	(0.4982)
Efficiency Ratio_Acquirer to Target	-12.0745	-8.7366	-8.7455
	(10.6378)	(11.2318)	(11.1935)
NPL Ratio_Acquirer to Target	0.1868	0.4726***	0.5053***
	(0.2277)	(0.1683)	(0.1593)
Capital Ratio_Acquirer to Target	1.8847	5.8738	4.9612
	(2.9373)	(3.7927)	(3.8398)
Market-to-Book_Acquirer to Target	--	15.2883***	13.7855***
		(3.6965)	(4.1138)
D_In-State Mergers	-1.5262	-1.8270	-1.8626
	(4.4637)	(4.7382)	(4.7850)
R-Square	0.0341	0.148	0.1569
Adjusted R-Square	-0.0047	0.101	0.0916
RMSE	25.8544	24.4372	24.5649
Observation Number	182	154	154

Table 8
Stock Market Reactions
Cumulative Abnormal Returns (CARs) Regressions

The cumulative abnormal returns (CARs) are calculated for the window (-3, +3) around the merger announcement date, based on an index of the 25 largest financial institutions. Relative asset size is the ratio of the target's assets to the acquirer's assets. The acquirer's size indicators are inflation adjusted. The merger deal premium is the price per share that the acquirer paid to acquire the target divided by the market price per share of the target (sources: SNL database and Yahoo Finance). All the risk characteristics (ROE, efficiency ratio, NPLs, capital-to-assets ratio) are measured as of the merger's announcement date — acquirer-to-target ratio. The dummy indicator for low trading volume indicates that the bank's stocks were traded with an average of less than 1,000 shares daily for the period in which the market model is fit. Standard errors are reported in parentheses under the coefficients. The significance levels are calculated with heteroscedasticity-consistent standard errors, where ***, **, and * represent significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

	(1)	(2)	(3)
Intercept	-0.014**	-0.026	-0.057
	(0.0072)	(0.0164)	(0.0442)
Relative Asset Size_Target to Acquirer	0.035**	0.015	-0.0093
	(0.0150)	(0.0234)	(0.0550)
D_Acquirer Asset Size > $1Billion	0.012*	0.0105	0.003
	(0.0059)	(0.0120)	(0.0239)
D_Acquirer Asset Size > $10Billion	0.012	0.0109	-0.004
	(0.0081)	(0.0162)	(0.0309)
D_In-State Mergers	0.001	0.0002	-0.006
	(0.0047)	(0.0083)	(0.0147)
Merger Deal Premium	--	0.0006***	0.0007**
		(0.0002)	(0.0003)
ROE Ratio_Acquirer to Target	--	--	0.0003
			(0.0021)
Efficiency Ratio_Acquirer to Target	--	--	0.027
			(0.0323)
NPL Ratio_Acquirer to Target	--	--	-0.001
			(0.0007)
Capital Ratio_Acquirer to Target	--	--	0.019
			(0.0165)
D_Low Trading Volume	--	--	0.00049
			(0.027)
D_Mergers Announced in 2003-2007	--	--	0.0041
			(0.016)
D_Mergers Announced in 2008-2010	--	--	0.001
			(0.0203)
D_Mergers Announced in 2011 or Later	--	--	0.004
			(0.0206)
R-Square	1.50%	12.59%	0.17.67%
Adjusted R-Square	0.56%	9.12%	12.37%
RMSE	0.0436	0.0417	0.0547
Observation Number	132	132	84

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Appendix 1

The purpose of this appendix is to illustrate changes in SBL growth for those that merge relative to the overall market which mostly were not involved in a merger. In order to control for asset size and economic factors, we separate the plots by asset size group of the acquiring banks. The plot compares SBL activities for merged community banks vs. overall market for each year. The figures show one-year and two-year changes in SBL following the merger announcement date. Data are from the SNL financial database and the Federal Reserve Call Report (June) data. The results from these figures indicate that SBL at sampled merged banks tends to move largely independently of the overall SBL in the same time period -- consistent with the regression results in Table 6, which indicate that SBL at merged banks tended to, on average, move in the opposite direction of the market. The results could also imply that banks that acquire community banks, as a size class, tend to be different from banks that generally make up the market (nonmerged banks) in terms of their SBL.

Figure A1 plots SBL changes for those mergers involved community bank acquirers. The overall changes in SBL for the entire community banking sector is so small and not clearly observable in the plot. The SBL has been stable throughout the entire sample period for the community banking sector. For those that merged, their SBL fluctuate wildly – with no relationship with the overall market – increased during the pre-crisis period and decreased for those merged during the financial crisis period.

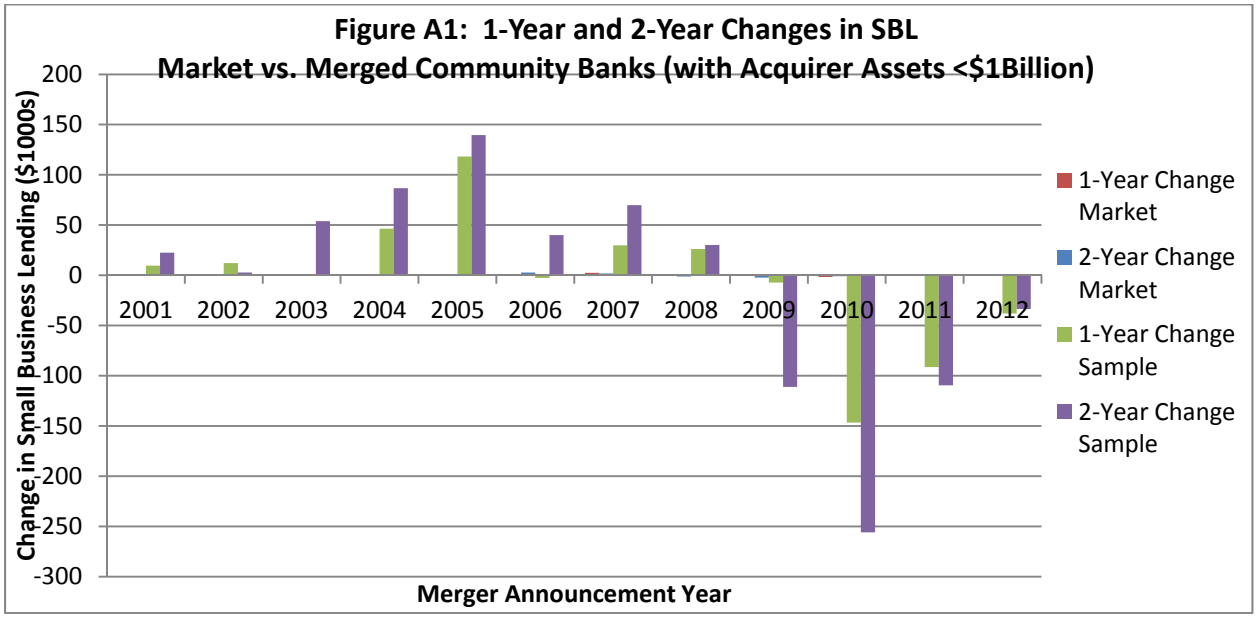

Figure A2 plots SBL changes for those mergers involved larger acquirers, with assets between $1 billion and $10 billion. The change in SBL activities in the market is easier to observe – rose before the crisis and declined during the crisis. Again, there is no clear pattern of relationship between SBL at the sample merged banks and the overall market for the same size group (during the same time period).

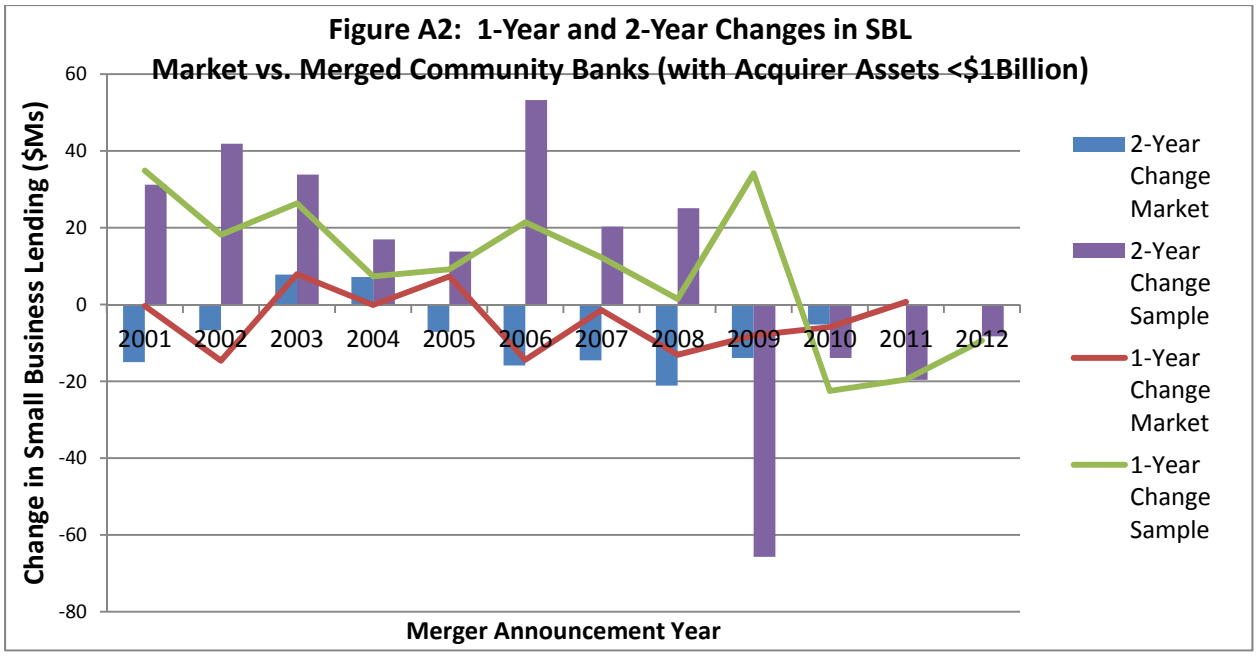

Figure A3 plots SBL changes for those mergers involved the largest group of acquirers, with assets larger than $10 billion. The decline in SBL activities in the market for this size group is obviously more severe than those in the sample during the financial crisis period. The overall SBL for the market of this size group also increased significantly during the boom of 2004-2007 and decline during the crisis of 2007. It is interesting to note that SBL did not decline with the overall market for those that acquired community banks.