

How Did the Financial Crisis Affect Small Business Lending in the United States?

by

**Rebel A. Cole
DePaul University
Chicago, IL 60604**

for



under contract number SBAHQ-10-M-0208

Release Date: November 2012

This report was developed under a contract with the Small Business Administration, Office of Advocacy, and contains information and analysis that was reviewed by officials of the Office of Advocacy. However, the final conclusions of the report do not necessarily reflect the views of the Office of Advocacy.

Contents

Executive Summary	i
1. Introduction.....	1
2. Review of the Literature: Availability of Credit to Small Businesses.....	5
3. Data.....	9
4. Methodology.....	13
4.1 Univariate Tests.....	13
4.2 Multivariate Tests.....	13
5. Hypotheses.....	20
6. Results.....	23
6.1. Graphs and Descriptive Statistics.....	23
6.2 Multivariate Analysis.....	28
7. Summary, Conclusions, and Policy Relevance.....	38
REFERENCES	41
TABLES	44

TABLES

Table 1: Definition of Variables from FFIEC Call Report	44
Table 2: Descriptive Statistics for Full Sample	45
Table 3: Descriptive Statistics: TARP vs. Non-TARP	46
Table 4: Loan Growth Tests: Annual Percentage Change in Dollar Value of Loans	47
Table 5: Loan Growth Tests: Annual Percentage Change in Ratio of Loans to Assets	48
Table 6: Loan Growth Tests: Natural Logarithm of the Dollar Value of Loans	49
Appendix Table 1: Selected Call Report Data for FDIC-Insured Banks (\$ Billions)	50
Appendix Table 2: Selected Call Report Data for FDIC-Insured Banks (% Assets)	51

FIGURES

Figure 1: Commercial Bank Loans 2001 – 2011	15
Figure 2: Small Business Loans 2001 – 2011	15
Figure 3: Value of Total Assets: All Banks and TARP vs. Non-TARP Banks	22
Figure 4: Value of Total Loans: All Banks and TARP vs. Non-TARP Banks	22
Figure 5: Value of Total C&I Loans: All Banks and TARP vs. Non-TARP Banks	24
Figure 6: Value of Total CRE Loans: All Banks and TARP vs. Non-TARP Banks	24
Figure 7: Value of Small Bus. Loans: All Banks and TARP vs. Non-TARP Banks	25
Figure 8: Value of Small C&I Loans: All Banks and TARP vs. Non-TARP Banks	27
Figure 9: Value of Small CRE Loans: All Banks and TARP vs. Non-TARP Banks	27

Executive Summary

How did the financial crisis that began in 2008 affect credit markets in the U.S.? Anecdotal evidence suggested that small businesses, which largely rely upon banks for credit, were especially hard hit. In this study, we analyze data on small-business lending collected by U.S. banking regulators to provide new evidence on how bank credit, in general, and bank credit to small businesses, in particular, were affected by the financial crisis. These data show that bank lending to small firms rose from \$308 billion in June 1994 to a peak of \$659 billion in June 2008 but then plummeted to only \$543 billion in June 2011—a decline of \$116 billion or almost 18%. Bank lending to all firms rose from \$758 billion in 1994 to a peak of \$2.14 trillion in June 2008 and then declined by about 9% to \$1.96 trillion as of June 2011. Hence, the decline in bank lending was far more severe for small businesses than for larger firms.

We use a panel regression model with both bank- and year-fixed effects to analyze changes in bank lending in a multivariate setting. Our regression model includes controls for bank size and financial condition. Our multivariate regression results largely confirm what we see in the raw data—bank lending to all businesses and, in particular, to small businesses, declined precipitously following onset of the financial crisis, and hit commercial & industrial lending far more severely than commercial real estate lending.

We also examine the relative changes in business lending by banks that did, and did not, receive TARP funds from the U.S. Treasury following onset of the crisis in 2008. U.S. bank regulators injected more than \$200 billion in capital into more than 900 banks, largely in hopes of stimulating bank lending, especially lending to small firms. Our analysis reveals that banks receiving capital injections from the TARP failed to increase their small-business lending; instead, they decreased their small-business lending by even more than other banks. This evidence shows that the TARP's Capital Purchase Program was largely a failure in this respect.

Our study also provides important new evidence on the determinants of business lending. First, we find a strong and significant positive relation between bank capital adequacy and business lending, especially lending to small businesses. This new evidence refutes claims by the U.S. banking industry that higher capital standards would reduce business lending and hurt the economy. Instead, it shows that higher capital standards would improve the availability of credit to U.S. firms, especially to small businesses.

Second, we find a strong and significant negative relation between bank size and business lending. This new evidence suggests that proposals to reduce the size of the largest banks would likely lead to more business lending.

Third, we find a strong and significant negative relation between bank profitability and business lending. This new evidence is consistent with moral hazard induced by deposit insurance, which leads unprofitable banks to increase their risk exposure so as to exploit the subsidy from deposit insurance.

Fourth, we find a strong and significant positive relation between our indicator for *de novo* banks and business lending. This new evidence complements existing studies of lending by *de novo* banks and suggests that regulators should enact policies to encourage the formation of new banks as one way to increase business lending.

How Did the Financial Crisis Affect Small-Business Lending in the U.S.?

1. Introduction

When the U.S. residential housing bubble burst in 2007 – 2008, credit markets in the U.S. and around the world seized up. Lax underwriting standards saddled U.S. banks, large and small, with levels of nonperforming loans not seen since the banking crisis of the late 1980s. During 2009, the FDIC closed more than 100 banks for the first time since 1992; and during 2009 – 2011, a total of 397 banks failed. As of year-end 2011, 813 banks appeared on the FDIC’s list of problem institutions, up more than an order of magnitude from a mere 76 as of year-end 2007, but down from a high of almost 900 as of year-end 2010. Almost 600 additional banks disappeared as a result of mergers, with the majority being motivated by capital-adequacy issues.

Anecdotal evidence suggests that small businesses, which largely rely upon banks for credit, were especially hard hit by the financial crisis.¹ In addition, the Federal Reserve System’s quarterly Senior Loan Officer Opinion Survey on Bank Lending Practices found evidence that lending standards for small-business loans tightened during 2008 – 2009, as lenders’ tolerances for risk decreased following onset of the crisis.² In response to the financial crisis, Congress passed a number of laws aimed at boosting the availability of capital to small businesses, beginning with the Troubled Asset Relief Plan (“TARP”) in 2008.

The availability of credit is one of the most fundamental issues facing a small business and therefore, has received much attention in the academic literature (See, for example, Petersen and Rajan, 1994; Berger and Udell, 1995, 1998; Cole, 1998; Cole, Goldberg and White, 2004). In this study, we extend this literature by analyzing data on small-business lending collected by

¹ Using data from the Federal Reserve’s 1993, 1998 and 2003 Surveys of Small Business Finances, Cole (2010) finds that about 60 percent of all small firms use some form of bank credit.

² The surveys can be found at <http://www.federalreserve.gov/boarddocs/snloansurvey/>.

U.S. banking regulators to provide new evidence on how the financial crisis affected bank lending to small businesses. Our analysis reveals that, over the period from 2008 – 2011, small-business lending declined by \$116 billion, or almost 18%, from \$659 billion to only \$543 billion.³ Small commercial & industrial lending declined by even more, falling by more than 20% over the same period. Worse yet, there is no evidence that the bottom had been reached by year-end 2011.

We also examine the relative changes in small-business lending by banks that did, and did not, receive funds from the Troubled Asset Relief Program. As part of the TARP, the U.S. Treasury injected more than \$200 billion of capital into more than 700 U.S. banking organizations to stabilize their subsidiary banks and promote lending, especially lending to small businesses. This effort is more formally known as the Capital Purchase Program (“CPP”), which began in late October of 2008 with capital injections into the eight largest bank holding companies.⁴ The success of CPP in promoting lending, in general, and small-business lending, in particular, has not been rigorously assessed until now.

Here, we provide the first rigorous evidence on how successful, or, more accurately, how unsuccessful the CPP turned out to be. Our evidence points to serious failure, as small-business lending by banks participating in the CPP fell by even more than at banks not receiving CPP funds. In other words, TARP banks took the taxpayers’ money, but then cut back on lending by even more than banks not receiving taxpayer dollars.

³ See Appendix Table 1, which is based upon annual data provided by the June Call Reports.

⁴ On Oct. 28, Citibank, J.P. Morgan Chase, and Wells Fargo each received \$25 billion, Bank of America received \$15 billion, Goldman Sachs and Morgan Stanley (both primarily investment rather than commercial banks) each received \$10 billion, and Bank of New York and State Street received \$3 billion and \$2 billion, respectively. On Nov. 14, an additional 21 banks received a total \$33.6 billion.

Why is this analysis of importance? According to the U.S. Department of Treasury and Internal Revenue Service, there were more than 23 million nonfarm sole proprietorships, more than 2 million partnerships with less than \$1 million in assets, and more than 5 million corporations with less than \$1 million in assets that filed tax returns for 2006.⁵ Small firms are vital to the U.S. economy. According to the U.S. Small Business Administration, small businesses account for half of all U.S. private-sector employment and produced 64% of net job growth in the U.S. between 1993 and 2008.⁶ Therefore, a better understanding of how bank credit to small businesses was affected by the financial crisis can help policymakers to take actions that will lead to more credit, which will translate into more jobs and faster economic growth.

We contribute to the literature on the availability of credit to small businesses in at least six important ways. First, we provide the first rigorous analysis of how severely bank lending to small businesses in the U.S. was curtailed by the financial crisis. Both theory, dating back to Schumpeter (1934),⁷ and more recent empirical research (e.g., King and Levine, 1993a, 1993b; Rajan and Zingales, 1998) indicate that capital-constrained firms grow more slowly, hire fewer workers and make fewer productive investments than firms utilizing debt in their capital

⁵ See the U.S. Internal Revenue Service statistics for nonfarm sole proprietorships at <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=134481,00.html>, for partnerships at <http://www.irs.gov/taxstats/bustaxstats/article/0,,id=97153,00.html>, and for corporations at <http://www.irs.gov/taxstats/bustaxstats/article/0,,id=97145,00.html>. The year 2006 is used for reference because it was the latest year for which statistics were available at the time this article was written.

⁶ See, “Frequently Asked Questions,” Office of Advocacy, U.S. Small Business Administration (2009). For research purposes, the SBA and Federal Reserve Board define small businesses as independent firms with fewer than 500 employees. We follow that definition in this research.

⁷ Aghion and Howitt (1988) provide a comprehensive exposition of Schumpeter’s theory of economic growth.

structure. A better understanding of how the financial crisis impacted bank lending to small businesses should provide policymakers with guidance in how to tailor economic and tax policies to boost bank lending to small firms, thereby increasing both employment and GDP.

Second, we provide the first rigorous evidence on the success or failure of the Capital Purchase Program in boosting bank lending to small firms. More than \$200 billion in taxpayer dollars was invested in this program, which officially ended on April 3, 2011, with an expected loss (according to the U.S. Congressional Budget Office) of more than \$25 billion. Our results strongly suggest that this program failed to boost lending to small businesses, or to businesses of any size, by banks that received capital injections. Instead, participating banks cut back on business lending by even more than did non-participating banks.

Third, we provide new evidence on the relation between capital adequacy and bank lending. We document a strong and robust positive relation between a bank's capital ratio and its subsequent change in business lending. This has important policy implications as bank regulators in both the U.S. and around the world consider raising minimum capital ratios for banks in response to the outcome of the financial crisis. Our new evidence supports a move to higher capital requirements and refutes claims by banking industry lobbyists that higher capital requirements would reduce bank lending. To the contrary, we show that *higher* capital standards would *improve* the availability of credit to U.S. firms, especially to small businesses.

Fourth, we find a strong and significant negative relation between bank size and business lending. This has important policy implications as bank regulators consider proposals to limit and/or reduce the size of banks. Our new evidence suggests that proposals to reduce the size of the largest banks would lead to more business lending.

Fifth, we find a strong and significant negative relation between bank profitability and business lending. This new evidence is consistent with moral hazard induced by deposit insurance, which leads unprofitable banks to increase their risk exposure so as to exploit the subsidy from deposit insurance.

Finally, we find a strong and significant positive relation between our indicator for *de novo* banks and business lending. This new evidence complements existing studies of lending by *de novo* banks and suggests that regulators should enact policies to encourage the formation of new banks as one way to increase business lending.

2. Review of the Literature: Availability of Credit to Small Businesses

The issue of availability of credit to small businesses has been studied by financial economists for at least sixty years, dating back at least to Wendt (1947), who examines availability of loans to small businesses in California. Since then, scores of articles have addressed this issue.

We limit our review of the literature to the most prominent studies of bank lending using bank-level loan data that have appeared in the financial economics literature during the past few years, especially those that use the bank Call Report data on small-business loans.⁸ The study most closely related to ours from a methodological viewpoint is Peek and Rosengren (1998), who examine the impact of bank mergers on small business lending.⁹ Like us, they examine the

⁸ There also is a related body of work on the availability of credit that relies upon information on the Surveys of Small Business Finances (SSBFs). See, for example, Petersen and Rajan (1994), Berger and Udell (1995, 1996, 1998), Cole (1998, 2008, 2009, 2010), and Cole, Goldberg and White (2004).

⁹ There also are a number of other studies that examine how mergers affect small-business lending, including Berger *et al.* (1998) and Cole and Walraven (1998), Ely and Robinson (2001), and Strahan and Weston (1998), but the methodologies in those studies differ from the

change in small business lending (as measured by the ratio of small-business loans to total assets) by groups of banks subject to different “treatments.” In their study, the treatment is whether or not the bank was involved in a merger, whereas, in our study, the treatment is whether or not the financial crisis has begun, as well as whether or not the bank participated in the CPP, whether or not the bank is a problem bank, and whether the bank is a community bank, regional bank, super-regional bank or money-center bank. Peek and Rosengren find that small-business lending of the consolidated bank post-merger converges towards the small-business lending of the pre-merger acquirer rather than that of the pre-merger target. Their study also makes clear the importance of adjusting for bank mergers over time.

Another closely related study is Berger and Udell (2004), who examine changes in bank lending to test what they call the “institutional memory” hypothesis. They construct a bank level dataset that spans twenty years—from 1980 through 2000—and calculate the annual change in the outstanding amounts of commercial loans, which they use as their primary dependent variable. They regress this dependent variable against a set of explanatory variables designed to measure “institutional memory” (their primary variable of interest), as well as variables designed to measure the health of the bank and overall loan demand. Berger and Udell (2004) do not examine small-business loans or the impact of the recent financial crisis on bank lending.

Ou and Williams (2009) use data from a variety of sources, including the FFIEC Call Reports, to provide an overview of small business lending by U.S. financial institutions during the past decade. Using the FFIEC data, they present aggregate statistics from 1995 – 2007 on small business lending by depository institutions, including a breakdown by institution size and a discussion of the growing importance of business credit-card loans.

methodology used here. In addition, many of those studies examine data from the Survey of Terms of Bank Lending rather than from the June Call Reports.

A recent study that examines the impact of the recent financial crisis on bank lending is Ivashina and Scharfstein (2010), who use loan-level data from DealScan to analyze changes in the market for large, syndicated bank loans. Their focus is on whether banks more vulnerable to contagion following the failure of Lehman Brothers reduced their lending by more than other banks. As they note, both DealScan and the regulatory database on bank loans that we use each captures only a portion of total bank lending to businesses. In that respect, our study is complementary to theirs; they cover the large, syndicated loans that often are securitized and do not appear on bank balance sheets; whereas we cover the smaller, non-syndicated loans that are not securitized, but remain on the balance sheets of the bank lenders.

Kwan (2010) looks at the financial crisis and bank lending, but does so by analyzing changes in rates on commercial & industrial loans, using data from the Federal Reserve's Survey of the Terms of Bank Lending ("STBL"). The STBL covers loans originated by a panel of about 340 banks that consists of most of the largest banks and a stratified-random sample of smaller banks. Again, our study can be viewed as a complement to Kwan's study; he examines price effects, whereas we analyze the quantity effects, of the financial crisis. While Kwan does not focus on small-business loans, he does present some information on small loans that is available from the STBL.

Li (2011) also looks at how the financial crisis affected bank lending, but her focus is on lending by banks that participated in the Capital Purchase Program. She finds that CPP investments boosted bank lending at capital constrained banks by 6.41% per annum. We also examine lending by banks that did and did not participate in the CPP, but our focus is on the impact on small business lending rather than total lending. Moreover, there are numerous methodological and data problems that call into question her results, including the fact that her

analysis excludes more than 200 banks that received CPP injections and looks at changes in lending only from 2008 Q3 to 2009 Q2; as we show, overall bank lending peaked in 2009 but declined thereafter. Also, Li examines total lending whereas we focus on business lending.

Black and Hazelwood (2011) examines the impact of the TARP on bank lending, as we do, but from a different perspective. Using data from the Federal Reserve Board's Survey of Terms of Business Lending, their study analyzes the risk ratings of individual commercial loans originated during the crisis. They find that risk-taking increased at large TARP banks but declined at small TARP banks, while lending in general declined.

Duchin and Sosyura (2012) also analyze the effect of CPP on bank lending and risk-taking. Using data on individual mortgage applications, they find that the change in mortgage originations was no different at TARP banks than at non-TARP banks similar characteristics, but that TARP banks increased the riskiness of their lending relative to non-TARP banks. They also find similar results for large syndicated corporate loans.

Cornett *et al.* (2011) analyze how the financial crisis affected bank lending, focusing on the role of liquidity risk management. They find that banks holding more illiquid assets funded by sources other than core deposits and equity reduced lending more than other banks in order to increase their liquid assets. They also find that banks with greater unused loan commitments increased lending by more than other banks, as borrowers drew down pre-existing lines when other sources of funding had dried up. Cornett *et al.* look only at total lending whereas we focus on business lending and, in particular, small-business lending. Also, Cornett *et al.* do not merger-adjust their data; instead, they drop all banks whose assets grew by more than 10% in a quarter. We calculate that this would exclude as much as one in ten observations and raises serious questions about the reliability of their results had the data been properly adjusted for mergers.

3. Data

To conduct this study, we use data from a number of sources. Our primary source is the FFIEC's quarterly financial reports of income and condition that are filed by each commercial bank in the U.S., which are known to bank researchers as the Call Reports.¹⁰ As part of the FDIC Improvement Act of 1991, which was passed to address regulatory shortcomings identified during the last major banking crisis, banking regulators were directed (in section 122) to begin collecting annually data on lending to small businesses and small farms.¹¹ To comply with this requirement, beginning in 1992, the June Call Report includes a section that gathers information on small business lending—*Schedule RC-C Part II: Loans to Small Businesses and Small Farms*. The schedule collects information on the number and amount outstanding of loans secured by nonfarm nonresidential properties/commercial & industrial loans with original loan amounts of less than \$100,000, with original loan amounts of \$100,000 to \$250,000 and with original loan amounts of \$250,000 to \$1 million. These are the two primary types of commercial loans made by commercial banks and correspond to items collected on Part I of Schedule RC-C, which provide the amounts of all loans secured by nonfarm nonresidential properties/commercial & industrial loans.¹² Appendix Table 1 presents statistics on selected variables from the June Call

¹⁰ The Federal Financial Institutions Examination Council, or FFIEC, is an interagency body that, among other duties, collects periodic financial information filed by depository institutions (known informally as the "Call Reports") on behalf of the Federal Reserve System (FRS), the Federal Deposit Insurance Corporation (FDIC) and the Office of the Comptroller of the Currency (OCC). The Call Report data from 1980 through 2010 are freely available to the public for download from the website of the Federal Reserve Bank of Chicago: http://www.chicagofed.org/webpages/banking/financial_institution_reports/commercial_bank_data.cfm.

¹¹ See the text of Section 122 at <http://www.fdic.gov/regulations/laws/rules/8000-2400.html>.

¹² The schedule also identifies banks that make substantially all of their business loans in original amounts less than \$100,000. There are about 1,000 such banks. For these banks, the values of business loans from Part I of Schedule RC-C are used as the values of small business loans.

Reports from 1994 – 2011 by bank asset-size class, including total assets, total loans, total C&I loans, total CRE loans, total small-business loans, total small C&I loans and total small CRE loans. Appendix Table 2 presents information on the same variables, but expressed as percentages of annual industry totals assets. In 2009, the decision was made to change the reporting frequency from annually to quarterly.¹³ Quarterly reporting of Section RC-C Part II began with the March 2010 Call Report.

It is important to account for the effect of mergers in calculating changes in bank balance-sheet data over time. During our 1994 – 2011 sample period, more than 9,000 banks disappeared via mergers. This means that about 6% of our bank-year observations are impacted by these mergers. To account for the impact of mergers on the balance sheet, of acquiring banks, we employ the following procedure. We identify the acquirer and target, as well as the date of each acquisition, using information from the FDIC’s Institution Directory.¹⁴ We then use this information to combine the values of each dollar-denominated item reported in the period prior to the merger. For example, if Bank A acquires Bank B during year ($t - 0$), we sum the values of dollar-denominated items for Bank A and Bank B during year ($t - 1$). We then calculate the change in dollar-denominated items for Bank A as the reported values for year-end ($t - 0$) and the sum of values for Bank A and Bank B for year-end ($t - 1$). This ensures that the changes in the loan variables that we measure are the result of changes in lending, and not the result of mergers.

¹³ See Notices in the *Federal Register* Vol. 72, No. 245 (Wednesday, December 23, 2009) at http://www.ffiec.gov/PDF/FFIEC_forms/FFIEC031_FFIEC041_20091223_ffr.pdf

¹⁴ The FDIC’s Institution Directory is available for download from its webpages at See <http://www2.fdic.gov/idasp/main.asp>. <http://www3.fdic.gov/idasp/index.asp>. This directory includes the FDIC Certificate Number of each inactive bank along with the certificate number of its acquirer.

Our third source of data for information on the Troubled Asset Relief Program is the website of the U.S. Treasury, where we obtain information on which banks participated in the Capital Purchase Program.¹⁵ One of the stated goals of the CPP was to encourage lending to small businesses. We identify 743 transactions totaling to \$205 billion in capital injections during the period from October 28, 2008, through December 31, 2009. After accounting for multiple transactions, we identify a total of 703 institutions receiving injections, of which 59 are Office of Thrift Supervision–regulated thrifts, which file different Call Reports; hence, we exclude them from our analysis. This leaves 644 institutions in our TARP sample, but many of these are multi-bank holding companies. We hand-matched these institutions to a list of bank holding companies taken from the Federal Reserve’s December 2008 Consolidated Financial Statements for Bank Holding Company Report FR Y9-C (our fourth source of data), which we downloaded from the website of the Federal Reserve Bank of Chicago. Finally, we merged the “high-holder” codes of these banks with the June 2008 FFIEC Bank Call Report to obtain a TARP sample of 926 FDIC-insured banks. We then merged these banks with the June 2009 FFIEC Bank Call Report, which is our first post-TARP data point; this reduced our TARP sample to 851 banks for which we can calculate changes in lending from pre-TARP.

¹⁵ See <http://www.financialstability.gov/latest/reportsanddocs.html>. We use the April 5, 2010, version of the report.

Figure 1:
Commercial Bank Loans 2001 – 2011
 Source: June Call Report Data

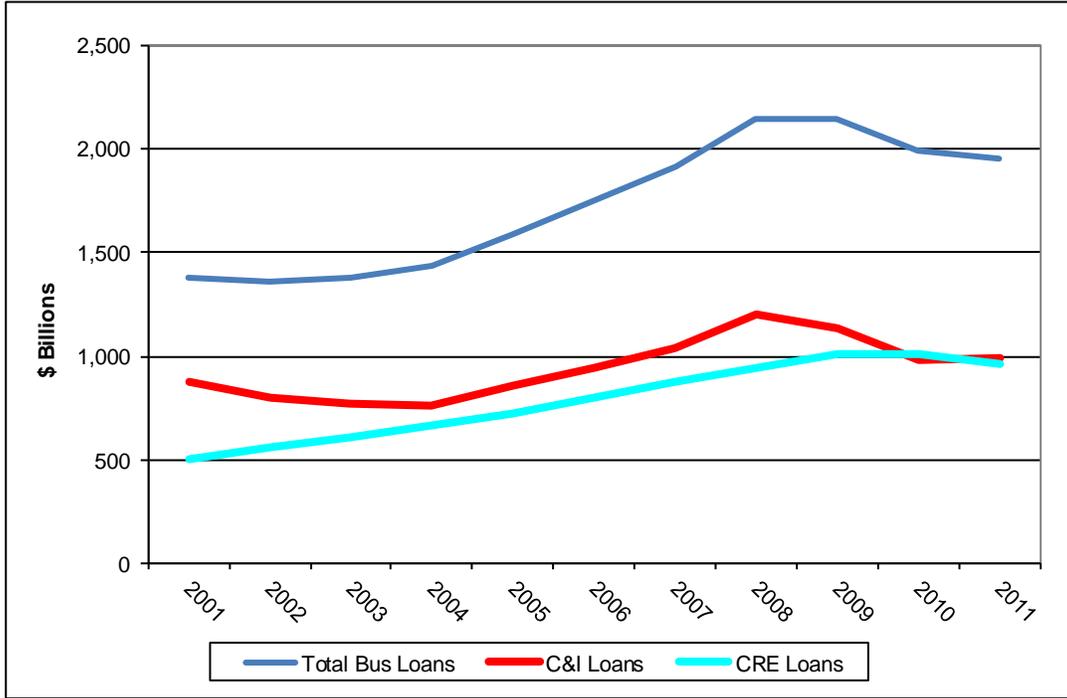
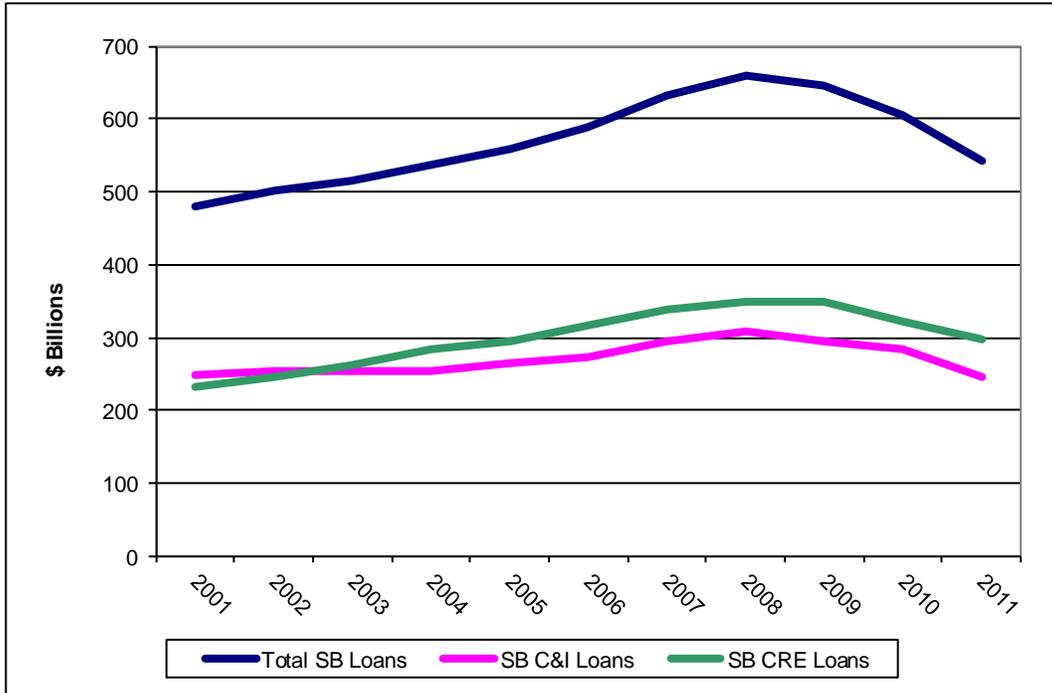


Figure 2:
Small-Business Loans 2001 – 2011
 Source: June Call Report Data



4. Methodology

4.1 Univariate Tests

In order to provide new evidence on how the financial crisis affected bank lending to small businesses, we employ both univariate and multivariate tests. First, we utilize graphs and univariate statistics to analyze both the level and changes in small-business lending in aggregate and by bank size. Figure 1 shows that total business loans continued to rise after the crisis began in 2008, but declined from 2009 to 2011. In contrast, C&I loans dropped significantly from 2008 to 2009 and continued to drop in 2010, falling by a total of almost 18% from the high of \$1.2 trillion; C&I lending rose slightly in 2011. Over this same time period, total assets increased by more than \$650 billion, or almost 6%, but, instead of making new loans, banks invested in government securities (see Appendix Table 1).

As shown in Figure 2, total small business lending declined by about 18%, or \$116 billion from 2008 – 2011. Just over half of this decline (\$63 billion) was in small C&I loans with the remainder (\$53 billion) in small CRE loans. Almost half of this decline occurred at banks with less than \$1 billion in assets.

In addition to looking at small-business lending by bank size, we also examine how participation in the CPP affected small-business lending by those banks that did, and those that did not, receive capital injections. We classify banks by whether or not they participated in the CPP.

4.2 Multivariate Tests

We also conduct multivariate tests on the data. We utilize a fixed-effects regression model that exploits the panel nature of our dataset to explain three different measures of small-

business lending: (1) the year-over-year percentage change in the dollar value of small-business loans (as measured by Berger and Udell (2004)); (2) the year-over-year change in the ratio of small-business loans to total assets (as measured by Peek and Rosengren (1998)); and (3) the natural logarithm of the dollar value of small-business loans.

Our first measure enables us to test whether banks increased or decreased the absolute amount of lending, whereas our second measure enables us to test whether banks increased or decreased their small business lending relative to their allocation of assets to other purposes. If banks proportionately decreased all assets in order to boost their capital ratios, then we would see a decline in our first measure but no change in our second measure. If banks disproportionately decreased lending to small businesses, then we should see declines in both measures.

Our third measure is closely related to our first measure because we include the lagged value of the dependent variable as a control variable; if we were to constrain the coefficient on this control variable to be 1.00, then the model would be algebraically equivalent to our first model. Essentially, our first model imposes this coefficient constraint, whereas our third model relaxes this constraint.

Our general model takes the form:

$$SBL_{i,t} = \beta_0 + \beta_1 \times Crisis \times Treatments_{i,t-1} + \beta_2 \times Controls_{i,t-1} + \epsilon_{i,t} \quad (1)$$

where:

$SBL_{i,t}$ is one of our three measures of small-business lending:

- (1) *Chg. SBL_{i,t}* is the percentage change in the dollar value of small-business loans outstanding at bank i during period t and the dollar value of small-business loans outstanding at bank i during period $t-1$;
- (2) *Chg. SBL/TA_{i,t}* is year-over-year change in the ratio of the dollar value of small-business

loans outstanding at bank i during period t to the dollar value of total assets at bank i during period t ; and

(3) $\ln(SBL)_{i,t}$ is the natural logarithm of the dollar value of small-business loans outstanding at bank i during period t .

In the fixed-effects model, the vector β_0 includes a set of dummy variables for each bank and for each time period. The bank dummies control for the effects of each individual bank's average characteristics on lending, while the time dummies measure the amount of lending that cannot be accounted for by bank dummies and other control variables in each time period. Therefore, the coefficients of the time dummies measure the unexplained changes in lending for each time period. We use the time dummies for periods after the onset of the crisis to measure changes in lending attributable to the crisis. However, it is important to note that these dummies measure changes in lending due to both changes in demand conditions as well as to changes in supply conditions.

We also analyze separately the two components of total small-business lending—small C&I loans and small CRE loans. We estimate equation (1) separately for each component for each of the three measures of small-business lending.

In addition, we analyze business lending to firms of all sizes—total business lending, which we define as total commercial real estate lending plus total C&I lending. Again, we use the three alternative lending measures—percentage change in the amount of lending, the change in the ratio of total lending to total assets, and log of the amount of lending.

$$TBL_{i,t} = \beta_0 + \beta_1 \times \text{Crisis} \times \text{Treatments}_{i,t-1} + \beta_2 \times \text{Controls}_{i,t-1} + \epsilon_{i,t} \quad (2)$$

where:

$TBL_{i,t}$ is one of our three measures of business lending by bank i in period t to firms of all sizes:

(1) $Chg. BL_{i,t}$ is the percentage change in the dollar value of all business loans outstanding at bank i during period t and the dollar value of all business loans outstanding at bank i during period $t-1$;

(2) $Chg. BL/TA_{i,t}$ is year-over-year change in the ratio of the dollar value of all business loans outstanding at bank i during period t to the dollar value of total assets at bank i during period t ;
and

(3) $Ln(BL)_{i,t}$ is the natural logarithm of the dollar value of small-business loans outstanding at bank i during period t .

As with small-business lending, we also analyze separately the two components of total business lending—all C&I loans and all CRE loans. We estimate equation (2) separately for each component for each of the three measures of small-business lending.

By comparing our results for small-business lending with our corresponding results for all business lending, we are able to provide evidence regarding whether declines in small-business lending were more, or less, severe than declines in total business lending.

In order to determine if changes in lending following onset of the financial crisis in 2008 were attributable to particular bank characteristics, we define a vector of time-effect dummy variables $Crisis$ for each period after the 2008 onset of the financial crisis and interact these dummies with our treatment variables. The vector β_1 of coefficients on these interaction variables measures the change in lending for each period after onset of the crisis associated with each treatment. If the financial crisis led banks with particular characteristics to reduce lending more than other banks, as we hypothesize, then these β_1 coefficients should be negative and statistically significant. By comparing the magnitude of these coefficients, we can determine the relative impact of the financial crisis as it progressed during 2008 – 2011.

We define a vector *Treatment* $i, t-1$ that includes a set of so-called “treatment” variables defining sets of banks with different characteristics expected to impact lending. These treatment variables enable us to test whether the impact of the financial crisis differed across groups of banks. Our primary treatment variable, which is measured as of period $t - 1$, is an indicator for bank participation in the TARP Capital Purchase Program as of period $t - 1$

We define a vector *Controls* $i, t-1$ that includes bank-level control variables measured as of period $t - 1$. We choose our control variables based upon previous research. First, we follow Peek and Rosengren (1998) and Berger and Udell (2004) by including various measures of financial health as measured by proxies for components of the CAMELS supervisory ratings system: capital, asset quality, earnings and liquidity.¹⁶ More specifically, we include *Total Equity*; nonperforming loans (*NPLs*), defined as the sum of loans past due 30 days or more and still accruing, nonaccrual loans, and OREO (other real estate owned); *Net Income*; and *Liquid Assets*, defined as cash and due from, plus Fed Funds purchased and securities purchased under reverse repurchase agreements, plus securities held to maturity, plus securities available for sale. As an alternative measure of asset quality, we follow Berger and Udell (2004) in using the allowance for loan and lease loss (*Loss Reserves*). Each is measured as of the previous year and expressed as a percentage of total assets. We expect a positive relation between bank health and changes in business lending, so we expect positive coefficients on *Total Equity*, *Net Income* and *Liquid Assets* and negative coefficients on *NPLs* and *Loss Reserves*.

Next, we follow Cornett *et al.* (2011) by including *Core Deposits*, defined as the ratio of core deposits to assets as of the previous year; and *Commitments*, defined as the ratio of business loan commitments to total credit commitments, where total credit commitments is defined as the

¹⁶ CAMELS typically measures six factors: capital, asset quality, management quality, earnings, liquidity, and sensitivity to market risk.

sum of total asset and total loan commitments. Cornett *et al.* argue that banks responded to the liquidity shock that accompanied the financial crisis by reducing new loan originations, and that banks exposed to more liquidity risk reduced lending by more than other banks. They proxy liquidity exposure on the asset side of the balance sheet by the ratios of illiquid assets to total assets and loan commitments to total credit; on the liability side of the balance sheet by the ratios of total equity to assets and core deposits to assets.

On the asset side, banks with more illiquid assets and more loan commitments would want to reduce new loan commitments in order to reduce their liquidity risk from having to fund new loans drawn on existing commitments. On the liability side, banks with less equity and fewer core deposits would want to reduce new loan commitments in order to reduce their liquidity risk from having to fund new loans drawn on existing commitments at a time when other sources of funds, such as wholesale deposits and short-term borrowing, had dried up. Consequently, we expect a positive coefficient on each of these variables.

Cornett *et al.* also argue that it is important to control for *Bank Size* because depositors and investors may prefer the safety of too-big-to-fail institutions. This would give larger banks a funding advantage during times of crisis, lessening their need to reduce new loan commitments. We include the natural logarithm of total assets as of the prior year as our measure of bank size. During normal times, small-business lending is less important to larger banks so we expect a negative relation between bank size and changes in small business lending. We have no expectation regarding the relation between bank size and total business lending.

We also include *De Novo*, an indicator for *de novo* banks, which we define as banks in operation for less than five years, because newly chartered banks start with virtually 100% cash on the asset side of the balance sheet and then quickly replace cash with new loans as they

develop lending relationships. Consequently, we expect loan growth to be much more rapid at such banks.¹⁷

We control for the amount of outstanding loans corresponding to each of our six dependent variables, expressed as a percentage of assets. Banks with extremely high exposure to a particular loan category are less likely to increase lending in that loan category and are constrained at the high end by 100% and at the low end by 0%. We expect a negative coefficient on each of these variables.

We define each of our variables in Table 1. In Table 2, we present descriptive statistics for our analysis variables based upon the full sample from 1994 – 2011. Over this full 18-year period, the median bank grew its small-business portfolio by about 7% per year, but this was in line with asset growth, as the median change in the ratio of small-business loans to total assets grew by only 0.3% per year. In contrast, the median bank grew its total business portfolio by more than 9% per year, and increased the median ratio of business loans to total assets by 2.5% per year. Among our control variables, we see that the median bank allocated 15% of assets to small-business loans; 19.4% to all business loans; and 33.3% to liquid assets. On the liability side, we see that the median bank funded 52.7% of its assets with core deposits and 9.6% with total equity.

In Table 3, we present descriptive statistics from June 2009 for our subsamples of TARP and non-TARP banks, where change variables are calculated from June 2008 to June 2009, and level variables are calculated as of June 2008. First, with respect to the control variables, we see strong differences in the two sub-samples. On average, TARP banks are about four times as large

¹⁷ In addition, Goldberg and White (1998) and Goldberg and DeYoung (1999) find that *de novo* banks allocate a higher portion of their assets to small business loans than do similar mature banks and that there is a negative relation between bank age and small-business lending.

as non-TARP banks (\$520 million vs. \$128 million) in terms of assets; are less liquid in terms of liquid assets to total assets (21.% vs. 30.3%) and core deposits to total assets (33.1% vs. 43.7%); are less profitable in terms of ROA (42 basis points vs. 72 basis points); are less well capitalized as measured by total equity to total assets (11.3% vs. 12.8%); and are much more exposed to business loans as a percentage of assets (34.2% vs. 24.8%).

With respect to the dependent variables, we see that, on average, TARP banks grew their small-business loans more slowly than non-TARP banks (7.0% vs. 8.4%) and actually decreased their allocation of assets to small business loans by 1.9% while non-TARP banks increased theirs by 1.9%. TARP banks grew their total business loans more quickly than non-TARP banks (12.5% vs. 11.2%) but grew their allocation of assets to business loans more slowly than non-TARP banks (2.8% vs. 4.4%). Note that this is only for 2009, not for 2009 – 2011.

5. Hypotheses

Our primary hypotheses revolve around factors expected to explain changes in small business lending (see equation 1) following the onset of the crisis during 2007.

H1: Small-business lending declined following onset of the financial crisis.

We expect that small-business lending, in general, declined following onset of the financial crisis as banks sought to boost their capital ratios by reducing bank loans in general and small-business loans in particular. This implies that subset of β_0 time-dummy coefficients corresponding to *Crisis* (time periods post-crisis 2009, 2010 and 2011) in equation (1) are negative and significant.

H2: Total business lending declined following onset of the financial crisis.

We expect that business lending, in general, declined following onset of the financial crisis as banks sought to boost their capital ratios by reducing bank loans. This implies that the subset of

β_0 time-dummy coefficients corresponding to *Crisis* (time periods post-crisis 2009, 2010 and 2011) in equation (2) are negative and significant.

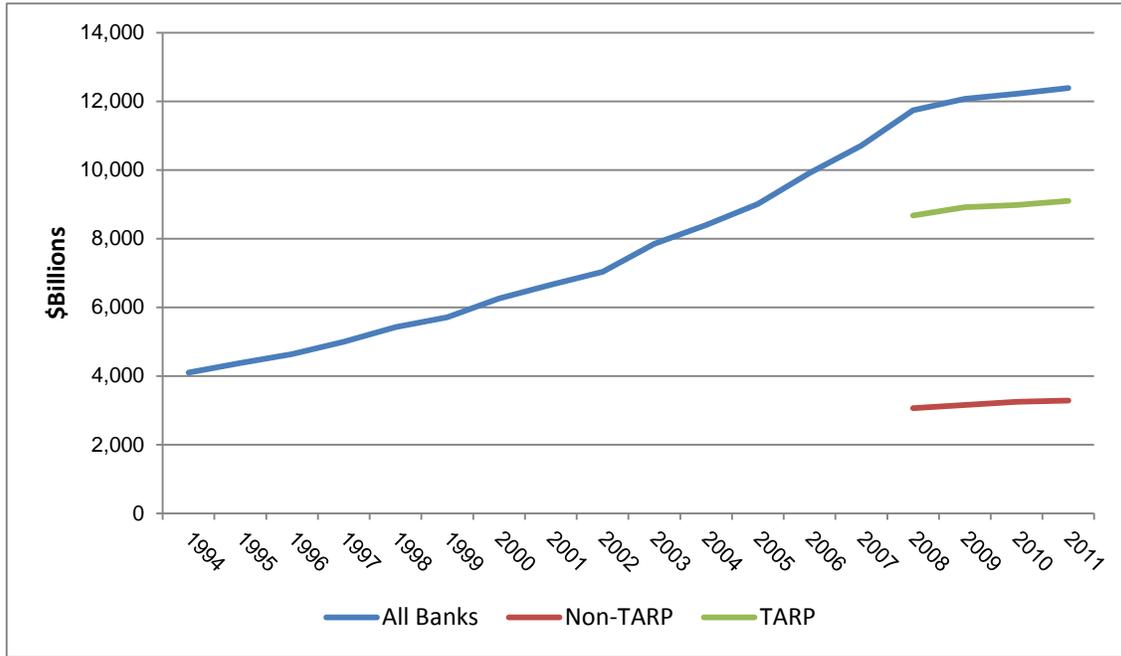
H3: Small-business lending declined by a greater percentage than total business lending following onset of the financial crisis.

Following onset of the financial crisis, we expect that small-business lending declined by a greater percentage than did total business lending as banks sought to boost their capital ratios by reducing bank loans in general and small-business loans in particular. We expect that banks would be more loyal to their large customers than to their small customers, and that this would be more pronounced at large banks than at small banks. This implies that the expected differences in the subset of β_0 time-dummy coefficients corresponding to *Crisis* (time periods post-crisis) in equation (1) and equation (2), i.e., the differences in the change in small-business lending and the change in total-business lending, are positive and significant.

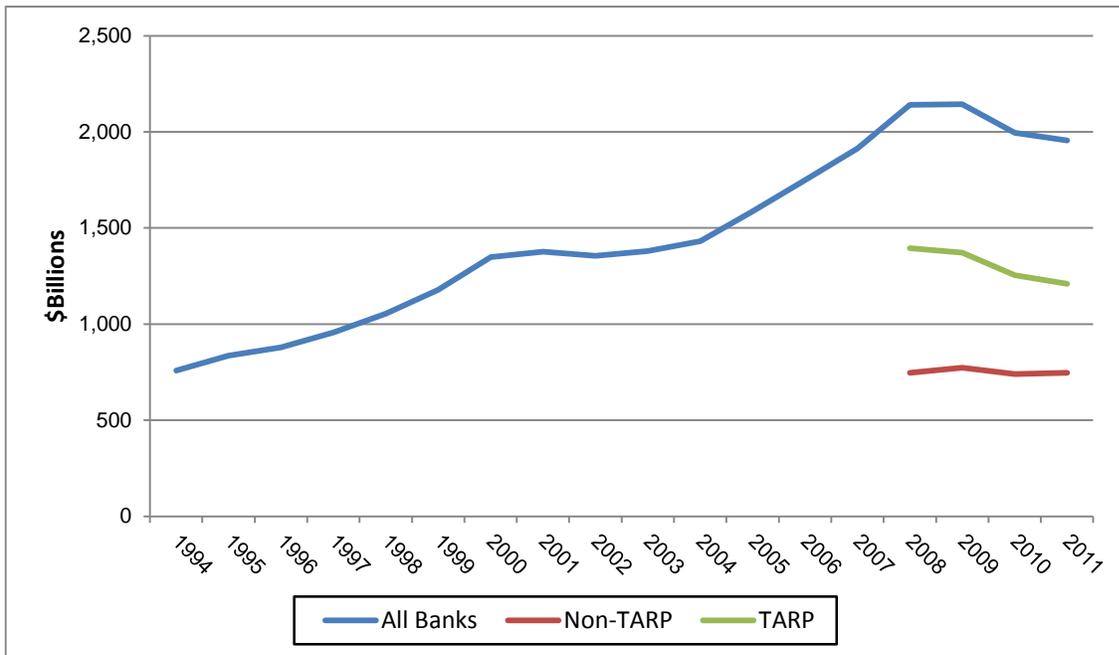
H4: The decline in small-business lending was smaller at CPP banks than at non-CPP banks.

We expect that banks receiving CPP capital injections were able to boost their small-business lending relative to banks that did not receive CPP capital injections. This implies that the β_1 coefficients on *CPP – Crisis* interactions are positive and significant.

**Figure 3:
Value of Total Assets
All Banks and TARP Banks vs. Non-TARP Banks**



**Figure 4:
Value of Total Business Loans
All Banks and TARP Banks vs. Non-TARP Banks**



6. Results

6.1. Graphs and Descriptive Statistics

Figures 3 and 4 show the nominal dollar values of total assets and total business loans, respectively, for all banks and separately, beginning in 2008, for TARP banks and non-TARP banks. As shown in Figure 3, from 1994 – 2008, total assets almost tripled from \$4.1 trillion to \$11.7 trillion, while the number of banks declined from 11,195 to 7,550 as the industry consolidated. Clearly evident in Figure 3 is the slowing of asset growth beginning in 2009.

Figure 4 shows that total business loans leveled off in 2009 at \$2.144 trillion and then declined by almost 9% in 2010 and 2011 to \$1.956 trillion. The decline at TARP banks was even larger at almost 10%. At non-TARP banks, the decline was only 3%, and actually ticked up slightly in 2011.

Figures 5 and 6 show the nominal dollar values of total Commercial & Industrial (C&I) loans and total Commercial Real Estate (CRE) loans, respectively. Again, the graphs show the values for all banks and separately, beginning in 2008, for TARP and non-TARP banks. In Figure 5, the recession following 9/11 is clearly evident, with total C&I loans declining from \$881 billion in 2000 to \$763 billion in 2004 before resuming growth in 2005 – 2008. C&I lending peaked in 2008 at \$1.203 trillion and then declined by 18% during 2009 – 2010 to a low of \$981 billion; lending grew slightly to \$993 billion in 2011. The drop was especially sharp at TARP banks, where C&I lending dropped by more than a fifth from 2008 to 2010, whereas the drop for non-TARP banks was less than 10%.

Figure 5:
Value of Total Commercial & Industrial Loans
All Banks and TARP Banks vs. Non-TARP Banks

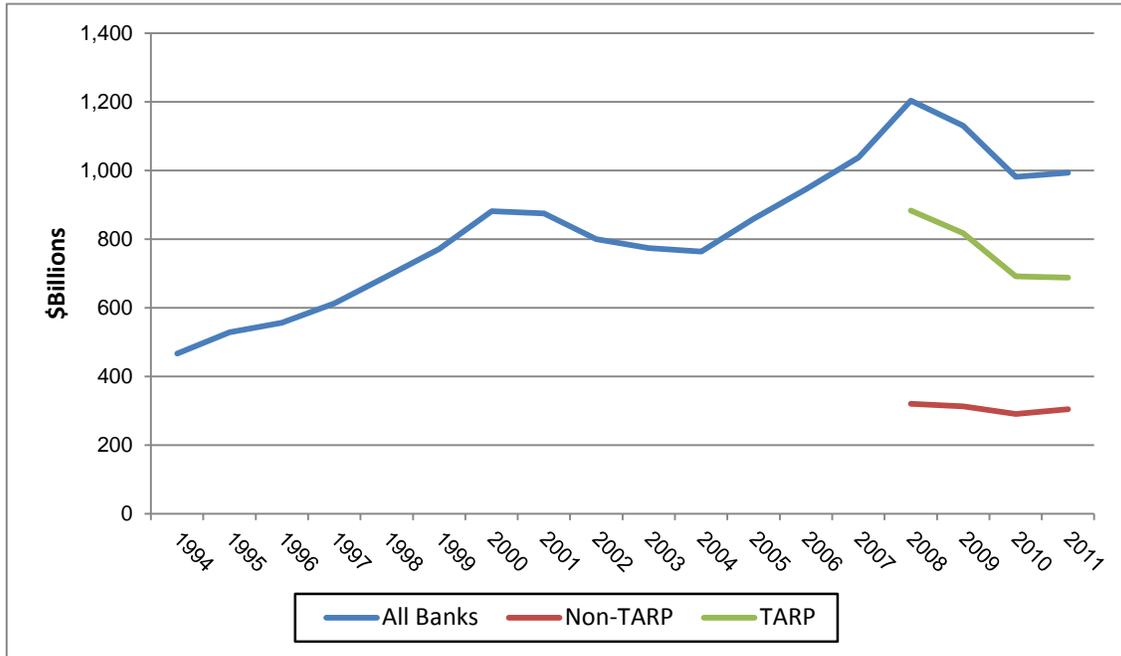
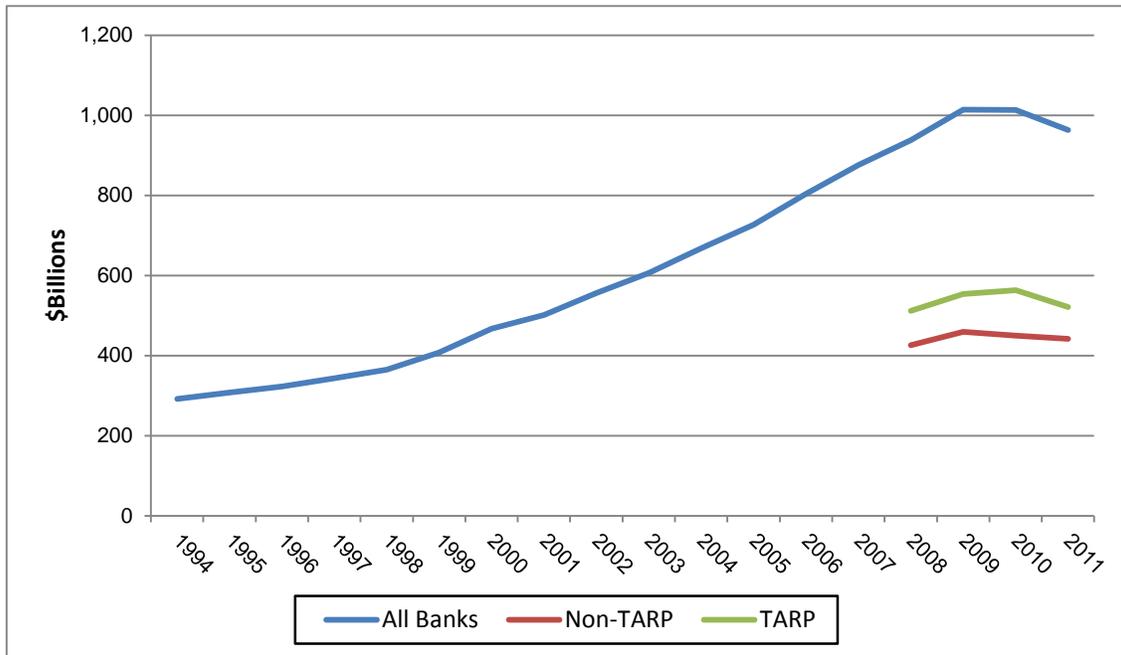


Figure 6:
Value of Total Commercial Real Estate Loans
All Banks and TARP Banks vs. Non-TARP Banks



In Figure 6, there is no discernible impact from the 2001 – 2003 recession on CRE lending, which steadily increased from \$292 billion in 1994 to \$467 billion in 2000; and then to a peak of \$1.014 trillion in 2009. CRE lending declined by about 5% from 2010 to 2011, to a low of \$963 billion. About two-thirds of this decline took place at TARP banks, where CRE lending fell by \$33 billion from 2010 to 2011. Lending at non-TARP banks peaked during 2010 before declining by 2% from 2010 to 2011.

**Figure 7:
Value of Total Small Business Loans
All Banks and TARP Banks vs. Non-TARP Banks**

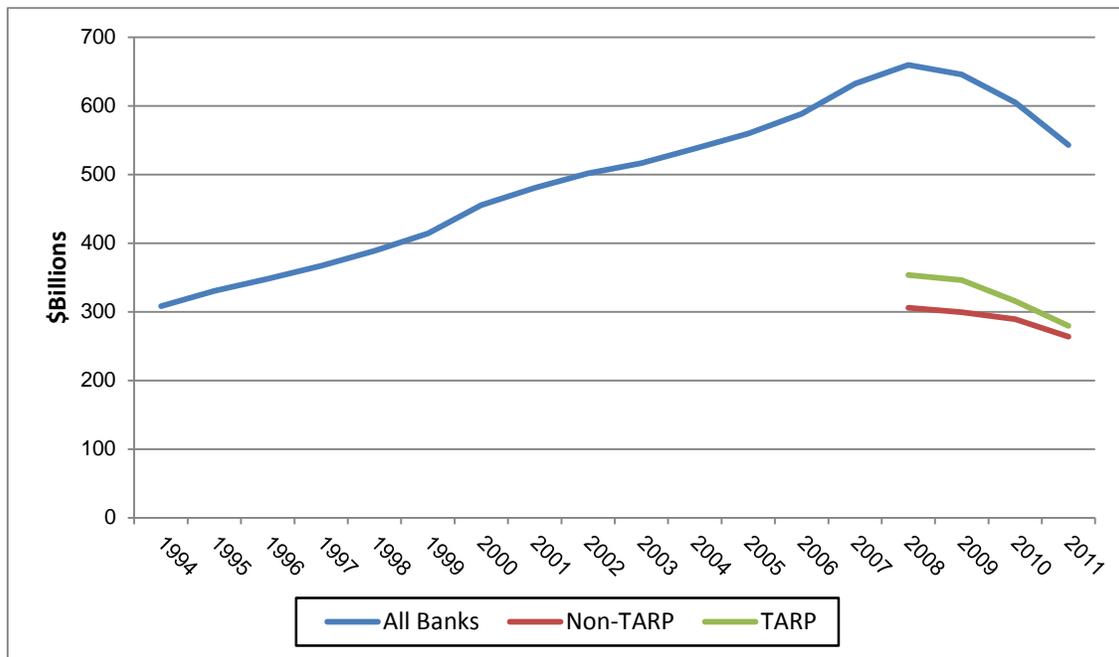


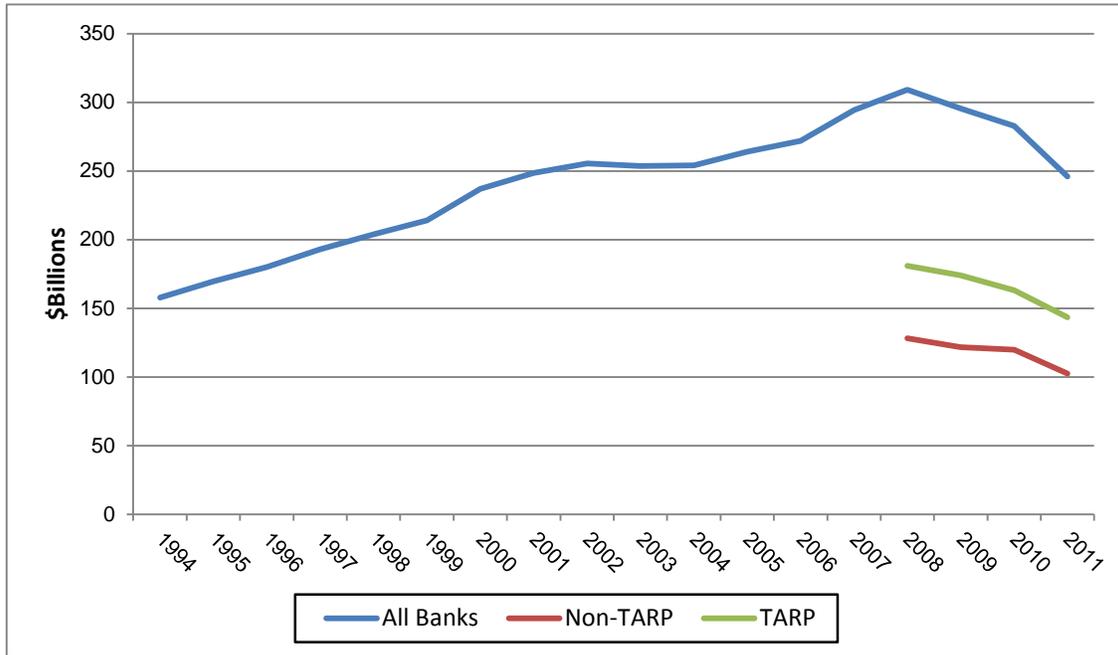
Figure 7 shows the nominal value of total small-business loans for all banks and separately for TARP and non-TARP banks. From 1994 – 2008, small-business lending grew in each year, even during the 2001 – 2003 recession—from \$308 billion in 1994 to \$456 billion in 2000 and \$659 billion in 2008. During the financial crisis, small-business lending declined by \$117 billion, or almost 18%, to only \$543 billion in 2011. Hence, the impact on the financial crisis fell more heavily on small businesses than at larger firms, as total business lending

declined by only 9%. At TARP banks, small-business lending declined by \$74 billion, or 21% from 2008 – 2011 whereas at non-TARP banks, the decline was only \$42 billion, or 14%.

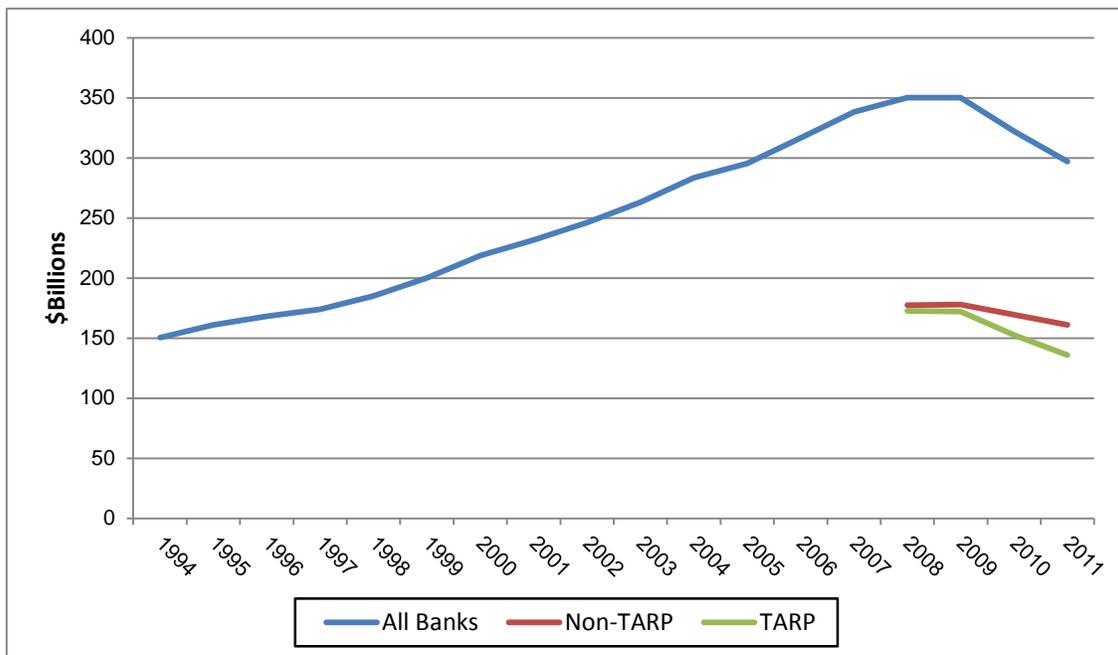
Figures 8 and 9 break down total small-business lending into its two components: small C&I loans and small CRE loans, respectively. As shown in Figure 8, small-business C&I lending was essentially flat following 9/11, in stark contrast to the 13% decline in total C&I lending from 2001 to 2003. Other than 2003, small C&I lending rose in each year from 1994 to 2008, from \$158 billion to \$237 billion in 2000 and \$309 billion in 2008; then collapsed by 20% to only \$246 billion in 2011. Hence, the financial crisis impacted small business slightly more severely than larger firms, as total C&I lending declined by only 18%. Moreover, small C&I lending continued to decline sharply from \$284 billion 2010 to \$246 billion in 2011, while total C&I lending began to rebound. The percentage decline in small-business C&I lending from 2008 to 2011 was about 20% at both TARP and non-TARP banks. The \$38 billion decline was much larger at TARP banks than the \$26 billion decline at non-TARP banks.

Figure 9 shows an uninterrupted growth in small-business CRE lending from 1994 through 2008, rising from \$150 billion in 1994 to \$219 billion in 2000 and \$350 billion in 2008 and 2009. From 2009 to 2011, small-business CRE lending declined by more than 15% to only \$297 billion. Hence, small businesses were far more severely impacted than larger firms, as total CRE lending declined by 5% from 2009 to 2011. In fact, the \$53 billion decline in CRE lending to small firms is more than the \$51 billion decline in total CRE lending, which means that CRE lending to larger firms actually increased during the financial crisis. Small-business CRE lending is almost evenly split between TARP and non-TARP banks, but the decline in small-business CRE lending was far more severe at TARP banks, where it declined by 21%, than at non-TARP banks, where it declined by only 9%.

**Figure 8:
Value of Small Commercial & Industrial Loans
All Banks and TARP Banks vs. Non-TARP Banks**



**Figure 9:
Value of Small Commercial Real Estate Loans
All Banks and TARP Banks vs. Non-TARP Banks**



To summarize our findings, the evidence shows that the financial crisis reduced lending to small businesses by significantly more than it reduced lending to larger firms. When we look at differences in lending by banks that did, and did not, receive capital injections from the TARP's CPP, we find that both total business lending and small-business lending declined by more at TARP banks than at non-TARP banks. This strongly suggests that the TARP failed in one of its principal goals—to spur bank business lending, especially to small businesses.

6.2 Multivariate Analysis

In this section, we present results from our multivariate regression analysis of bank lending. We estimate a series of ordinary-least-squares regressions with bank- and year-fixed effects that enable us to test for significant differences in the lending of TARP and non-TARP banks following the financial crisis. We also include a set of control variables for the level of lending, firm size, capital adequacy, asset quality, earnings, liquidity, and loan commitments.

Table 4 presents results for the annual percentage change in lending, while Table 5 presents the results for the annual change in the ratio of loans to assets, and Table 6 presents the results for the natural logarithm of loans. Each table presents results from a series of six regressions where the dependent variables are (1) total small business loans, (2) small C&I loans, (3) small CRE loans, (4) total business lending, (5) all C&I loans, and (6) all CRE loans. Each model includes a set of control variables measures as of the previous year, a set of year fixed effects (not shown for 1994 – 2006, shown for 2008 – 2011, with 2007 being the omitted category), a set of bank fixed effects (not shown), and a set of interaction terms between year-fixed effects for 2009, 2010, and 2011 and an indicator for banks receiving TARP CPP funds prior to that year. These interaction terms enable us to test whether lending by banks

participating in the TARP CPP increased (or decreased) their lending by more than banks not receiving capital injections from the TARP CPP.

6.2.1 Percentage Change in Business Loans

In Table 4, we analyze the percentage change in business loans over the period 1994 – 2011. For all six models, the adjusted R-square is greater than 0.30; by contrast, Berger and Udell (2004) report adjusted R-squares of less than 0.06. Our key variables of interest are the year fixed effects and the TARP interaction terms for 2009, 2010 and 2011; i.e., the period after the onset of the financial crisis. The dummy for 2007 is omitted so the interpretation of the coefficients is the percentage change in lending relative to 2007. For the year fixed effects, most of the coefficients for 2009, 2010 and 2011 are negative and significant at the 0.10 level or better in each of the six models. Most are significant at better than the 0.01 level.

For total small business loans, the coefficients indicate that the percentage decline in lending was 1.3% in 2009, 2.7% in 2010 and 4.0% in 2011 relative to the start of the crisis in 2007. For small C&I loans, the coefficients indicate that the percentage decline in lending was 5.4% in 2009, 6.5% in 2010 and 6.3% in 2011. For small CRE loans, the coefficients indicate that the percentage decline in lending was 0.6% in 2010 and 2.9% in 2011; however, for 2009, lending actually increased by 1.7%. This is most probably due to drawdowns on previously committed lines of credit following the crisis rather than to new lending.

For total business loans, the coefficients indicate that the percentage decline in lending was 1.3% in 2010 and 1.9% in 2011 relative to the start of the crisis in 2007; for 2009, lending increased slightly by a statistically insignificant 0.2%. For all C&I loans, the coefficients indicate that the percentage decline in lending was 6.7% in 2009, 7.0% in 2010 and 5.7% in 2011. For all CRE loans, the coefficients indicate that the percentage decline in lending was 0.5% in 2011; as

with small CRE lending, all CRE lending actually increased during 2009 by 3.7% and again in 2010 by 1.2%.

When we compare the year coefficients for total small-business lending with those of all business lending, we find that loans to small businesses declined by more than loans to all businesses. Hence, it appears that the decline in business lending to small firms was more severe than the overall decline in business lending to all firms. Within business lending, small firms appear to have fared somewhat better than all firms in C&I lending, but fared worse in CRE lending.

Next, we turn to the TARP interactions with year fixed effects. For 2010, all three of the small-business coefficients are negative and significant at the 0.10 level or better. For 2009, the coefficients on all small business lending and on small CRE lending are negative and significant; the coefficient on small C&I lending is negative but lacks statistical significance. For 2011, all three coefficients are negative, but lack statistical significance. Hence, the results suggest that TARP banks failed to increase lending to small businesses during the two years following implementation of the TARP; in fact, they reduced lending by about 2% - 4% more than did other banks.

For all business lending, the coefficients for 2009 are positive, but not significantly different from zero; for 2010, only C&I lending is negative and significant; and, for 2011, total business lending and total CRE lending were both positive, but lack statistical significance, as does the negative coefficient on total C&I lending. In simpler terms, TARP banks reduced lending during 2009 – 2011 by about the same amount as did other banks.

Among our control variables, we find that coefficients on the ratio of loans to assets, where “loans” corresponds to each of the six dependent variables (e.g., small business loans,

small C&I loans, small CRE loans, etc.) are negative and highly significant in each of the six regressions. This is consistent with mean reversion to a target loan-to-asset ratio.

Coefficients on the ratio of total equity to total assets are positive and highly significant in each of the six regressions, indicating that better capitalized banks increase their lending by more than less well capitalized banks. This refutes industry claims that higher capital ratios would adversely impact business lending.

Coefficients on the ratio of NPLs to total assets are negative and significant in each of the six regressions, indicating that worse asset quality leads to lower lending. This is consistent with past research showing that banks with asset quality problems tend to shed assets rather than grow assets, typically by curtailing new lending.

Coefficients on the ratio of net income to assets are negative and highly significant in each of the six regressions, indicating that more profitable banks increase lending by less than do less profitable banks. This is consistent with the existence of moral hazard due to deposit insurance; unprofitable banks double down by increasing their portfolio risk through increased business lending.

Coefficients on the ratio of liquid assets to total assets are negative and significant for small CRE loans and for total CRE loans, indicating that more liquid banks change CRE lending by more than do less liquid banks. The coefficients for both small and total C&I lending are positive but statistically insignificant, indicating that more liquid banks change C&I lending by no more than do less liquid banks. This may reflect the fact that CRE loans are typically longer in maturity than C&I loans and, hence, expose a bank to more funding, as we saw in 2008.

Coefficients on the ratio of core deposits to total assets are negative and significant in each of the three business lending regressions, but only for total loans C&I loans among the three

small business lending regressions. In general, this indicates that banks that rely more upon core deposits for funding increase business lending by less than other banks.

Coefficients on the ratio of business loan commitments to total credit are positive and highly significant in each of the six regressions, indicating that banks with more loan commitments increase subsequent lending by more than banks with fewer loan commitments. This is consistent with the findings of Cornett et al. (2011).

Coefficients on bank size are negative and highly significant in each of the six regressions, indicating that larger banks increase lending by less than smaller banks. Moreover, the coefficient on bank size for small-business lending is almost twice as large as for total-business lending. This is yet more evidence against allowing a handful of megabanks to control a growing share of industry assets, as small-business lending will be negatively impacted.

The indicator for *de novo* banks is positive and highly significant in each of the six regressions, consistent with our expectation that *de novo* banks increase lending by more than mature banks. This argues for policies that foster new banks, such as lower minimum capital requirements for a new bank charter.

6.2.2 Percentage Change in Ratio of Business Loans to Total Asset

In Table 5, we analyze the change in ratio of business loans to total assets over the period 1994 – 2011. Once again, the adjusted R-square for each of the six regressions is greater than 0.30.

For total small business loans, the coefficients indicate that the decline in the loan-to-asset ratio was 2.1% in 2009, 3.9% in 2010, and 6.1% in 2011 relative to the start of the crisis in 2007. For small C&I loans, the coefficients indicate that the decline in the loan-to-asset ratio was 6.1% in 2009, 7.6% in 2010 and 8.3% in 2011. For small CRE loans, the coefficients indicate

that the decline in the loan-to-asset ratio was 1.8% in 2010 and 4.7% in 2011 relative to the start of the crisis in 2007; for 2009, the ratio increased by a statistically insignificant 0.7%, most probably attributable to drawdowns of pre-existing commitments.

For total business loans, the coefficients indicate that the decline in the loan-to-asset ratio was 0.7% in 2009, 2.4% in 2010, and 3.9% in 2011 relative to the start of the crisis in 2007. For all C&I loans, the coefficients indicate that the decline in the loan-to-asset ratio was 7.2% in 2009, 8.0% in 2010 and 7.6% in 2011. For all CRE loans, the coefficients indicate that the loan-to-asset ratio increased by 2.6% in 2009, as pre-existing commitments were drawn down. In 2011, the ratio declined by 2.2% after remaining essentially flat in 2010.

When we compare the year coefficients for total small-business lending with those of all business lending, we find that the loan-to-asset ratio for small business loans declined by more than the corresponding ratio for all business loans. Hence, it appears that the decline in business lending to small firms was more severe than the overall decline in business lending to all firms. Within business lending, small firms appear to have fared about the same as all firms in C&I lending, but fared worse in CRE lending.

Next, we turn to the TARP interactions with year fixed effects. For both 2009 and 2010, all three of the small-business coefficients are negative; the coefficients on total small business lending are statistically significant at better than the 0.01 level in both 2009 and 2010, but are insignificant in 2011. The coefficient on small C&I lending is significant only for 2010, and the coefficient on small CRE lending is significant only for 2009.

For all business lending, the TARP coefficients for 2009 and 2010 are essentially zero and lack statistical significance; however, a significant positive coefficient of 3.1% is observed for 2011, after most TARP banks had repaid their TARP funds. For total C&I loans, the -2.2%

coefficient for 2010 is negative and significant; the coefficients for 2009 and 2011 are not significantly different from zero. For total CRE loans, all three coefficients are positive and significant. This is the only evidence we can find of any increase in lending by TARP banks relative to non-TARP banks.

With respect to the control variables, the results are largely consistent with what we observed in Table 4.

In summary, the results in Table 5 are generally consistent with those in Table 4, showing that TARP banks failed to increase lending to small businesses during the three years following implementation of the TARP; instead, the evidence shows that TARP recipients reduced small-business lending by more than non-TARP banks.

6.2.3 Natural Logarithm of Business Loans

In Table 6, we analyze the natural logarithm of business loans in each of the six categories over the period 1994 – 2011. Because we include the lagged value of the dependent variable as an explanatory variable, this regression is equivalent to estimating the percentage change in lending, but relaxing the constraint that the coefficient on the lagged dependent variable is equal to 1.00. Because we are analyzing a logarithmic dependent variable, the interpretation of coefficients on explanatory variables is the percentage change in lending for a one unit change in the explanatory variable.

In each of these six regressions, the adjusted R-square for each of the six regressions is greater than 0.90, which is primarily attributable to the fact that we are now explaining the level, rather than the change in the level, of lending, coupled with the high degree of auto-correlation in the dependent variable.

For total small business loans, all of the year coefficients are negative and significant at better than the 0.05 level, and indicate that the small-business loans declined by 2.1% in 2009, 2.4% in 2010, and 3.3% in 2011 relative to the start of the crisis in 2007. For small C&I loans, all of the year coefficients again are negative and significant at better than the 0.01 level, and indicate that small C&I loans declined by 6.1% in 2009, 6.4% in 2010 and 7.2% in 2011. For small CRE loans, however, all of the coefficients are positive and significant at better than the 0.10 level. These coefficients indicate that, relative to 2007 small CRE loans increased by 3.4% in 2009, 2.1% in 2010 and 1.9% in 2011. However, it is important to note that small CRE lending peaked during 2009 as banks made good on pre-existing commitments. As the coefficients show, small CRE lending declined in 2010 and 2011 relative to this 2009 peak.

For total business loans, each of the coefficients is negative, but only significant for 2011; they indicate that the total business lending declined by 0.2% in 2009, 0.9% in 2010 and 1.2% in 2011 relative to the start of the crisis in 2007. For all C&I loans, all three coefficients are negative and significant at better than the 0.01 level, and indicate that the C&I lending declined by 7.1% in 2009, 6.5% in 2010 and 6.2% in 2011 relative to 2007. For all CRE loans, however, each of the coefficients is positive and significant at better than the 0.01 level, and indicate that, relative to 2007, CRE lending grew by 6.0% in 2009, 4.2% in 2010 and 4.4% in 2011. Again, it is important to remember that all CRE lending peaked in 2009 because of takedowns of pre-existing commitments.

When we compare the year coefficients for total small-business lending with those of all business lending, we find that the log of small business loans declined by more than the log of all business loans for all business loans. Hence, it appears that the decline in business lending to small firms was more severe than at larger firms. Within business lending, small firms appear to

have fared about the same as all firms in C&I lending, but fared worse in CRE lending, even though CRE lending appears to have continued to grow during 2009 – 2011.

Next, we turn to the TARP interactions with year fixed effects. For 2009, 2010, and 2011, each of the three small-business coefficients is negative and significant at better than the 0.001 level, with the exception of small C&I lending for 2011. The magnitude of decline ranges from a low of 3.8% to a high of 11.9%. In other words, TARP banks reducing small-business lending by significantly more than did non-TARP banks. Consistent with the results in Tables 4 and 5, the results in Table 6 suggest that TARP banks not only failed to increase lending to small businesses during the three years following implementation of the TARP; instead, they significantly reduced lending to small businesses by even more than non-TARP banks.

For all business lending, each of the nine coefficients for 2009 – 2011 again is negative, but only the coefficients for 2010 are statistically significant. Again, this evidence suggests that TARP banks reduced business lending relative to non-TARP firms, although not as severely as small-business lending.

With respect to the control variables, the results are largely consistent with what we observed in Tables 4 and 5.

6.2.4 Robustness Tests

Not shown in the tables are the results of a number of robustness tests. First, we test alternative control variables. Following Berger and Udell (2004), we replace net income to total assets (ROA) with net income to total equity (ROE) and replace nonperforming assets to assets with loan-loss reserves to assets. Next, we include dummy variables for primary regulator. These alternative control variables do not qualitatively change our results regarding business lending following the crisis. ROE has the same sign and general level of significance as ROA, as also is

the case with Loss Reserves and Nonperforming Assets. The indicators for Fed and OCC (Office of the Comptroller of the Currency) are both negative and the indicator for OCC is highly significant, indicating that OCC banks grew small business lending more slowly than did banks regulated by the FDIC and the Fed.

Second, we reduce our time horizon, first to 2000 – 2011 and then to 2005 – 2011. These alternative sample periods do not qualitatively change our results regarding C&I lending, but do weaken the results regarding CRE lending. Some of the time fixed effects become positive and significant but the TARP-Year interactions remain negative and significant.

Third, we delete from our sample the more than 300 banks that failed during 2007 – 2011. Again, this alternative sample does not qualitatively change our results regarding business lending.

Fourth, we delete from our sample any bank that does not appear in the sample for at least five years. Again, this alternative sample does not qualitatively change our results regarding business lending.

Fifth, we delete *de novo* banks from our sample. Again, this alternative sample does not qualitatively change our results regarding business lending.

Sixth, we replace our time fixed-effects dummies with a set of variables chosen to control for loan demand. The most important of these is a variable from the National Federation of Independent Businesses (NFIB) survey of small firms asking whether the firm had any need for credit. In addition, we include the yield on the 10-year U.S. Treasury Bond and the national unemployment rate, collected from the Federal Reserve Economic Data (FRED) website at the St. Louis Federal Reserve Bank. Coefficients on each of these variables are highly significant, and the adjusted R-squares on the models are comparable to those with the time fixed-effects

dummies. Once again, this robustness test does not alter our findings in a qualitative way. To the contrary, it strengthens them, as t-statistics become even larger.

7. Summary, Conclusions, and Policy Relevance

In this study, we analyze how the financial crisis of 2007 – 2008 and its aftermath affected U.S. bank lending to businesses and, in particular, lending to small-businesses. We find that bank lending to businesses in the U.S. declined significantly following the crisis, and that it declined by significantly more for small firms than for larger firms. These results hold in both univariate and multivariate analyses.

We also find that banks receiving capital injections from the TARP's \$200 billion Capital Purchase Program decreased their lending to businesses both large and small by even more than did banks not receiving government capital. One of the key goals of the TARP was to boost business lending, especially to small businesses; in this respect, our results show that the TARP was a failure.

As the first rigorous analysis of how the financial crisis impacted bank lending to small U.S. businesses, this study provides both academics and policymakers with new insights into how the financial crisis affected the availability of credit to small firms, and how to tailor macroeconomic policies, regulations and taxes to help small businesses obtain needed credit. This is critically important because theory suggests that credit-constrained firms are smaller, less likely to hire new employees, and less likely to make new long-term investments that could improve economic growth, so policies that help these firms improve their capitalization should lead to higher growth in both employment and output (GDP).

As the first rigorous analysis of how the TARP's Capital Purchase Program impacted lending to small businesses by banks that did, or did not, receive capital injections from the

program, this study provides important new evidence on the success (or failure) of the CPP in one of its key stated goals—to increase bank lending in general and small business lending, in particular. Our findings strongly suggest that the TARP’s CPP failed to increase small-business lending at participating banks beyond what we observed at non-participating banks. Rather, the evidence strongly suggests that TARP banks decreased lending by *even more* than did non-TARP banks. In this respect, at least, it appears that the TARP’s CPP was a dismal failure.

Our analysis also reveals some other interesting results unrelated to lending during the crisis, but that provide important new evidence on the determinants of business lending. First, we find a strong and significant positive relation between bank capital adequacy and business lending. This has important policy implications for regulators who are considering proposals to increase minimum capital requirements, especially for systemically important institutions. Our results suggest that higher capital requirements will lead to *more* business lending rather than *less* business lending, as the banking lobby is claiming.

Second, we find a strong and significant negative relation between bank size and business lending. This has important policy implications for regulators who are considering proposals to limit and/or reduce the size of the nation’s largest banks. Our new evidence suggests that proposals to reduce the size of the largest banks would likely lead to more business lending.

Third, we find a strong and significant negative relation between bank profitability and business lending. Our new evidence is consistent with moral hazard induced by deposit insurance, which leads unprofitable banks to increase their risk exposure so as to exploit the subsidy from deposit insurance.

Fourth, we find a strong and significant positive relation between our indicator for *de novo* banks (less than five years old) and business lending. Our new evidence complements

existing studies of lending by *de novo* banks and suggests that regulators should enact policies to encourage the formation of new banks as one way to increase business lending.

REFERENCES

- Aghion, P., Howitt, P. 1988. *Endogenous Growth Theory*. Vol. 1, first ed. The MIT Press, Cambridge, Mass.
- Berger, A., Saunders, A., Scalise, J., Udell, G. 1998. The effects of bank mergers and acquisitions on small business lending. *Journal of Financial Economics* 50, 187-229
- Berger, A., Udell, G. 1995. Relationship lending and lines of credit in small firm finance. *Journal of Business* 68, 351-381.
- Berger, A., Udell, G., 1996. Universal banking and the future of small business lending. In: Saunders, A., Walter, I. (Eds.), *Financial System Design: The Case for Universal Banking*. Irwin, Burr Ridge, IL, pp. 559 – 627.
- Berger, A., Udell, G. 1998. The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle, *Journal of Banking and Finance* 22 (6-8), 613–673.
- Berger, A., Udell, G. 2004. The institutional memory hypothesis and the pro-cyclicality of bank lending behavior, *Journal of Financial Intermediation* 13, 458 – 495.
- Black, L., Hazelwood, L. 2011. *The Effect of TARP on Bank Risk-Taking*. Board of Governors of the Federal Reserve System International Finance Discussion Paper no. 1043.
- Cole, R. 1998. The importance of relationships to the availability of credit. *Journal of Banking and Finance* 22, 959-997.
- Cole, R. 2008. *What Do We Know about the Capital Structure of Privately Held Firms? Evidence from the Surveys of Small Business Finance*. U.S. Small Business Administration, Office of Advocacy, research study no. 324. Available at www.sba.gov/advo/research/rs324.pdf
- Cole, R. 2009. Who needs credit and who gets credit? Evidence from the surveys of small business finance. In *Small Business in Focus: Finance*. A compendium of research by the Small Business Administration, Office of Advocacy, July, 95-133. Available at www.sba.gov/advo/research/09finfocus.pdf.
- Cole, R. 2010. *Bank Credit, Trade Credit, or No Credit: Evidence from the Surveys of Small Business Finances*. U.S. Small Business Administration, Office of Advocacy, research study no. 365. Available at: www.sba.gov/advo/research/rs365.pdf.
- Cole, R., Goldberg, L., White, L. 2004. Cookie-cutter versus character: The micro structure of small-business lending by large and small banks. *Journal of Financial and Quantitative Analysis* 39, 227-251.

Cole, R., Walraven, N. 1998. *Banking Consolidation and the Availability of Credit To Small Businesses: Evidence from the 1993 National Survey of Small Businesses*. Paper presented at the Conference on Consolidation in the Financial Services Industry, sponsored by the Federal Reserve Bank of New York. New York, N.Y. March 27, 1998.

Cornett, M., McNutt, J., Strahan, P., Tehranian, H. 2011. Liquidity risk management and credit supply in the financial crisis. *Journal of Financial Economics* 101, 297-312.

Duchin, R., Sosyura, D. 2012. *Safer Ratios, Riskier Portfolios: Banks' Response to Government Aid*. University of Michigan Ross School of Business working paper no. 1165.

Ely, D., Robinson, K. 2001. Consolidation, technology and the changing structure of bank's small business lending. *Economic and Financial Review*, Federal Reserve Bank of Dallas, First Quarter, 23-32.

Goldberg, L., DeYoung, R. 1999. Youth, adolescence and maturity at banks: Credit availability to small businesses in an era of banking and consolidation. *Journal of Banking and Finance* 23, 463-492.

Goldberg, L., White, L. 1998, De novo banks and lending to small businesses: An empirical analysis. *Journal of Banking and Finance* 22, 851-867.

Ivashina, V., Scharfstein, D. 2010. Bank lending during the financial crisis of 2008. *Journal of Financial Economics* 97, 319-338.

King, R., Levine, R. 1993a. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* 108, 717-738.

King, R., Levine, R. 1993b. Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics* 32, 513-542.

Kwan, S. 2010, *Financial Crisis and Bank Lending*. Federal Reserve Bank of San Francisco working paper. Available at <http://ssrn.com/abstract=1571595>.

Li, L. 2011. *TARP Funds Distribution and Bank Loan Supply*. Boston College working paper. Available at <http://ssrn.com/abstract=1515349>.

Ou, C., Williams, V. 2009. Lending to small businesses by financial institutions in the United States. *Small Business in Focus: Finance*. A compendium of research by the Small Business Administration Office of Advocacy, 9-38. Available at <http://archive.sba.gov/advo/research/09finfocus.pdf>.

Peek, J., Rosengren, E. 1998. Bank consolidation and small business lending: It's not just bank size that matters. *Journal of Banking and Finance* 22, 799-819.

Petersen, M., Rajan, R. 1994. The benefits of lending relationships: Evidence from small business data. *Journal of Finance*, 46(1), 3-37.

Rajan, R., Zingales, L. 1998. Financial dependence and growth. *American Economic Review* 88, 559-586.

Schumpeter, J. 1934. *The Theory of Economic Development*. Translated by Redvers Opie. Harvard University Press, Cambridge, Mass.

Strahan, P., Weston, J. 1998. Small business lending and the changing structure of the banking industry. *Journal of Banking and Finance* 22, 821-845.

Wendt, P. 1947. The availability of capital to small businesses in California. *The Journal of Finance* 2 (2), 43-54.

TABLES

**Table 1:
Definition of Variables from FFIEC Call Report**

Definition of analysis variables taken from the FFIEC Call Reports for June 1993 – June 2011.

RCON and RCFD variables refer to official FFIEC Call Report variables. Call Reports can be downloaded from:

http://www.ffiec.gov/ffiec_report_forms.htm

Variable	Definition from FFIEC Call Report
Total Small Bus. Loans	SBL = SUM(SBLCNI, SBLCRE);
Small C&I Loans	IF RCON6999 EQ 0 THEN SBLCNI = SUM(RCON5571, RCON5573, RCON5575); ELSE SBLCNI = RCON1766;
Small CRE Loans	IF RCON6999 EQ 0 THEN SBLCRE = SUM(RCON5565, RCON5567, RCON5569); ELSE SBLCRE = RCON1480;
Bus. Loans	BL = SUM(RCON1766, RCON1480);
C&I Loans	CNI = RCON1766;
CRE Loans	CRE = RCON1480;
Liquid Assets	LIQ = SUM(CASH, FFP, SECAFS, SECHTM);
Cash & Due From	CASH = SUM(RCFD0071, RCFD0081);
Fed Funds Purchased/Sec Purchased	IF YEAR LE 2001 THEN FFS = RCFD1350; IF YEAR GT 2001 THEN FFS = SUM(RCFDB987, RCFDB989);
Securities Held to Maturity	SECHTM = RCFD
Securities Available for Sale	SECAFS = RCFD
Total Equity	EQUITY = RCFD3210;
NPLs	NPL = SUM(PD90, NA, REO)
PD90	PD90 = RCON1407;
Nonaccrual	NA = RCON1406;
OREO	OREO = RCFD2150;
Loss Reserve	ALL = RCFD3123;
Net Income	NETINC = RIAD4340;
Bus. Commitments	BCOMMIT = SUM(RCFD3816, RCFD3817, RCFD3818, RCFD6550);
Total Commitments	TCOMMIT = RCFD3423;
Core Deposits	CORE = SUM(RCON2215, RCON6648);
Total Assets	TA = RCFD2170;
Total Loans	TL = RCFD1400;
Total Credit	TC = SUM(TA, TCOMMIT);
TARP	TARP = 1 if bank received TARP injection during 2008 - 2009 TARP = 0 otherwise.
YEAR	YEAR = FLOOR(DATE / 10000);
De Novo	DENOVO = YEAR - FLOOR(RSSD9950 / 10000);

**Table 2:
Descriptive Statistics for Full Sample**

Descriptive statistics are for analysis variables over the period from 1993 – 2011. Data are taken for each bank in each year from the June FFIEC Call Report; the total number of observations equals 153,869. For each variable, the table presents the median, mean, minimum and maximum. Change variables are winsorized at 100%. Net income to assets is winsorized at -400 and +400 basis points.

Variable	Median	Mean	Min	Max
<i>Dependent Variables</i>				
Pct. Chg. Small Bus. Loans	0.069	0.125	-1.000	1.000
Pct. Chg. Small C&I Loans	0.061	0.130	-1.000	1.000
Pct. Chg. Small CRE Loans	0.073	0.158	-1.000	1.000
Chg. Ratio Small Bus. Loan to Assets	0.003	0.048	-1.000	1.000
Chg. Ratio Small C&I Loan to Assets	-0.008	0.057	-1.000	1.000
Chg. Ratio Small CRE Loan to Assets	0.008	0.087	-1.000	1.000
Pct. Chg. Bus. Loans	0.094	0.146	-1.000	1.000
Pct. Chg. C&I Loans	0.079	0.143	-1.000	1.000
Pct. Chg. CRE Loans	0.102	0.181	-1.000	1.000
Chg. Ratio Bus. Loan to Assets	0.025	0.066	-1.000	1.000
Chg. Ratio C&I Loan to Assets	0.008	0.068	-1.000	1.000
Chg. Ratio CRE Loan to Assets	0.034	0.107	-1.000	1.000
<i>Control Variables</i>				
Ratio Small Bus. Loan to Assets	0.150	0.167	0.000	0.978
Ratio Small C&I Loan to Assets	0.066	0.079	0.000	0.978
Ratio Small CRE Loan to Assets	0.073	0.088	0.000	0.775
Ratio Bus. Loan to Assets	0.193	0.216	0.000	0.978
Ratio C&I Loan to Assets	0.079	0.095	0.000	0.978
Ratio CRE Loan to Assets	0.096	0.121	0.000	0.857
Ratio Equity to Assets	0.096	0.113	-0.062	1.000
Ratio NPLs to Asset	0.005	0.010	0.000	0.557
Ratio Net Income to Assets	0.011	0.010	-0.040	0.040
Ratio Liq. Assets to Assets	0.333	0.355	0.000	1.000
Ratio Bus. Commitments to Credit	0.055	0.066	0.000	0.993
Ratio Core Deposits to Assets	0.527	0.501	0.000	0.947
Log of Assets	11.358	11.505	3.850	21.232
De Novo Indicator	0.000	0.066	0.000	1.000
<i>TARP Indicators</i>				
TARP2009	0.000	0.005	0.000	1.000
TARP2010	0.000	0.005	0.000	1.000
TARP2011	0.000	0.006	0.000	1.000

**Table 3:
Descriptive Statistics: TARP vs. Non-TARP**

Descriptive statistics (means and standard errors) are for analysis variables based upon data from June 2009 FFIEC Call Reports. Statistics are presented for all banks and separately for 6,562 non-TARP banks and 853 TARP banks. In the last column are the results of a t-test for differences in the means of the non-TARP and TARP banks. Change variables are measured from June 2008 to June 2009 and are winsorized at 100%. Other variables are measured as of June 2008. Net income to assets is winsorized at -400 and +400 basis points.

Variable	All Banks		Non-TARP Banks		TARP Banks		Difference	t-Stat	
	Mean	S.E.	Mean	S.E.	Mean	S.E.			
<i>Dependent Variables</i>									
Pct. Chg. Small Bus. Loans	0.082	0.004	0.084	0.004	0.070	0.010	0.014	1.26	
Pct. Chg. Small C&I Loans	0.059	0.004	0.062	0.005	0.040	0.012	0.022	1.65	
Pct. Chg. Small CRE Loans	0.131	0.004	0.133	0.005	0.113	0.012	0.021	1.61	
Chg. Ratio Small Bus. Loan to Assets	0.014	0.003	0.019	0.004	-0.019	0.009	0.037	3.71	***
Chg. Ratio Small C&I Loan to Assets	-0.003	0.004	0.002	0.004	-0.042	0.012	0.044	3.57	***
Chg. Ratio Small CRE Loan to Assets	0.067	0.004	0.072	0.004	0.030	0.011	0.042	3.41	***
Pct. Chg. Bus. Loans	0.114	0.003	0.112	0.004	0.125	0.009	-0.013	-1.31	
Pct. Chg. C&I Loans	0.064	0.004	0.064	0.004	0.060	0.011	0.005	0.39	
Pct. Chg. CRE Loans	0.169	0.004	0.166	0.004	0.189	0.010	-0.022	-2.00	**
Chg. Ratio Bus. Loan to Assets	0.042	0.003	0.044	0.003	0.028	0.007	0.015	1.91	*
Chg. Ratio C&I Loan to Assets	-0.001	0.004	0.003	0.004	-0.027	0.010	0.030	2.80	***
Chg. Ratio CRE Loan to Assets	0.101	0.004	0.102	0.004	0.095	0.009	0.007	0.68	
<i>Control Variables</i>									
Ratio Small Bus. Loan to Assets	0.166	0.001	0.166	0.001	0.171	0.003	-0.005	-1.48	
Ratio Small C&I Loan to Assets	0.069	0.001	0.069	0.001	0.069	0.002	0.000	0.16	
Ratio Small CRE Loan to Assets	0.098	0.001	0.097	0.001	0.103	0.002	-0.006	-2.16	**
Ratio Bus. Loan to Assets	0.258	0.002	0.248	0.002	0.342	0.005	-0.094	-17.64	***
Ratio C&I Loan to Assets	0.093	0.001	0.089	0.001	0.120	0.003	-0.030	-9.76	***
Ratio CRE Loan to Assets	0.166	0.001	0.158	0.001	0.222	0.004	-0.064	-15.12	***
Ratio Equity to Assets	0.126	0.001	0.128	0.001	0.113	0.003	0.015	4.56	***
Ratio NPLs to Asset	0.013	0.000	0.013	0.000	0.013	0.000	0.000	-0.36	
Ratio Net Income to Assets	0.007	0.000	0.0072	0.000	0.0042	0.000	0.003	7.46	***
Ratio Liq. Assets to Assets	0.292	0.002	0.303	0.002	0.210	0.005	0.093	17.86	***
Ratio Bus. Commitments to Credit	0.080	0.001	0.076	0.001	0.106	0.002	-0.030	-14.05	***
Ratio Core Deposits to Assets	0.424	0.002	0.437	0.002	0.331	0.005	0.106	21.16	***
Log of Assets	11.919	0.016	11.758	0.015	13.161	0.059	-1.403	-23.01	***
De Novo Indicator	0.091	0.003	0.087	0.003	0.116	0.011	-0.029	-2.49	**

Table 4:
Loan Growth Tests:
Annual Percentage Change in the Dollar Value of Loans

Results are from an OLS fixed-effects model with both time- and bank-fixed effects where the dependent variable is the annual percentage change in the dollar value of bank lending in one of six business loan categories: total small business loans; small commercial & industrial loans, small commercial real estate loans, total business loans, total commercial & industrial loans and total commercial real estate loans. Total business loans is defined as the sum of commercial & industrial loans and commercial real estate loans in order to be consistent with bank reporting of small business loans. The analysis is based upon 153,869 bank-year observations from 1994 – 2011 gathered from the June FFIEC Call Reports. *Loans* is the ratio of loans in the loan category of the dependent variable to total assets. *Total Equity* is the ratio of total equity to total assets. *NPLs* is the ratio of nonperforming assets to total assets. *Net Income* is the ratio of net income to total assets. *Core Deposits* is the ratio of core deposits to total assets. *Commitments* is the ratio of business loan commitments to total credit, which is defined as the sum of total assets and total loan commitments. *Bank Size* as measured by the log of total assets. *De Novo* is an indicator for *de novo* banks less than five years old. Each bank control variable is measured as of year $t - 1$. *Y2008 – Y2011* are time fixed effects relative to the omitted year of 2007. For brevity, other time fixed effects for 1994 – 2006 are not shown. *TARP2009 – TARP2011* are interactions between time-fixed effects and an indicator for 853 banks that received capital injections during late 2008 – 2009 as part of the TARP's Capital Purchase Program. Bank fixed effects are included in each model, but are not shown.

	Small Bus. Lending			Small C&I Lending			Small CRE Lending			Bus. Lending			C&I Lending			CRE Lending			
Variable	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	
<i>Controls</i>																			
Loans	-1.537	0.014	-110.8 ***	-2.480	0.024	-103.0 ***	-2.790	0.025	-112.6 ***	-1.060	0.012	-85.7 ***	-1.999	0.021	-94.1 ***	-1.830	0.020	-90.7 ***	
Total Equity	0.254	0.018	13.8 ***	0.319	0.023	13.7 ***	0.197	0.025	8.0 ***	0.411	0.016	25.0 ***	0.413	0.022	18.7 ***	0.352	0.023	15.3 ***	
NPLs	-2.249	0.058	-38.7 ***	-2.392	0.073	-32.6 ***	-1.753	0.078	-22.4 ***	-2.304	0.052	-44.5 ***	-2.416	0.070	-34.7 ***	-1.865	0.073	-25.5 ***	
Net Income	-2.394	0.104	-22.9 ***	-1.864	0.132	-14.2 ***	-2.045	0.140	-14.6 ***	-2.304	0.093	-24.8 ***	-1.667	0.125	-13.3 ***	-1.970	0.131	-15.0 ***	
Liquid Assets	-0.057	0.009	-6.3 ***	0.007	0.011	0.7	-0.080	0.012	-6.8 ***	0.013	0.008	1.5	0.061	0.010	5.8 ***	-0.030	0.011	-2.7 **	
Core Deposits	-0.026	0.011	-2.4 **	-0.076	0.013	-5.7 ***	-0.012	0.014	-0.8	-0.093	0.009	-10.0 ***	-0.100	0.013	-7.9 ***	-0.108	0.013	-8.2 ***	
Commitments	0.411	0.023	17.6 ***	0.397	0.030	13.4 ***	0.313	0.031	10.0 ***	0.643	0.021	30.8 ***	0.636	0.028	22.6 ***	0.473	0.029	16.1 ***	
Bank Size	-0.140	0.002	-62.0 ***	-0.134	0.003	-47.4 ***	-0.123	0.003	-41.0 ***	-0.079	0.002	-39.8 ***	-0.100	0.003	-37.4 ***	-0.053	0.003	-19.0 ***	
De Novo	0.136	0.005	30.1 ***	0.132	0.006	23.3 ***	0.109	0.006	18.0 ***	0.127	0.004	31.7 ***	0.133	0.005	24.6 ***	0.098	0.006	17.3 ***	
<i>Time Effects</i>																			
Y2008	0.007	0.004	1.7 *	-0.005	0.005	-0.9	0.014	0.005	2.6 **	0.025	0.004	6.9 ***	0.003	0.005	0.6	0.033	0.005	6.4 ***	
Y2009	-0.013	0.004	-3.0 ***	-0.054	0.005	-10.1 ***	0.017	0.006	3.0 ***	0.002	0.004	0.6	-0.067	0.005	-13.1 ***	0.037	0.005	6.9 ***	
Y2010	-0.027	0.004	-6.2 ***	-0.065	0.006	-11.8 ***	-0.006	0.006	-1.0	-0.013	0.004	-3.4 ***	-0.070	0.005	-13.2 ***	0.012	0.006	2.2 *	
Y2011	-0.040	0.005	-8.9 ***	-0.063	0.006	-11.1 ***	-0.029	0.006	-4.7 ***	-0.019	0.004	-4.8 ***	-0.057	0.005	-10.5 ***	-0.005	0.006	-0.8 ***	
<i>TARP Indicators</i>																			
TARP2009	-0.030	0.010	-3.1 ***	-0.017	0.012	-1.4	-0.034	0.013	-2.6 ***	0.005	0.009	0.6	0.001	0.012	0.1	0.019	0.012	1.6	
TARP2010	-0.036	0.010	-3.6 ***	-0.035	0.013	-2.8 ***	-0.024	0.013	-1.8 *	-0.015	0.009	-1.7 *	-0.036	0.012	-3.1 ***	0.007	0.013	0.6	
TARP2011	-0.015	0.010	-1.4	-0.015	0.013	-1.1	-0.017	0.014	-1.2	0.010	0.009	1.1	-0.011	0.012	-0.9	0.020	0.013	1.5	
<i>Bank Fixed Effects</i>	Yes			Yes			Yes			Yes			Yes			Yes			
<i>Adj. R-Square</i>	0.384			0.349			0.316			0.422			0.361			0.326			

**Table 5:
Loan Growth Tests**

Annual Percentage Change in the Ratio of Bank Loans to Total Assets

Results are from an OLS fixed-effects model with both time and bank fixed effects where the dependent variable is the annual change in the ratio of bank loans to total assets, where bank loans is in one of six business loan categories: total small business lending; small commercial & industrial loans, small commercial real estate loans, total business loans, total commercial & industrial loans and total commercial real estate loans. Total business loans is defined as the sum of commercial & industrial loans and commercial real estate loans in order to be consistent with bank reporting of small business loans. The analysis is based upon 154,135 bank-year observations from 1994 – 2011 gathered from the June FFIEC Call Reports. *Loans* is the ratio of loans in the loan category of the dependent variable to total assets. *Total Equity* is the ratio of total equity to total assets. *NPLs* is the ratio of nonperforming assets to total assets. *Net Income* is the ratio of net income to total assets. *Core Deposits* is the ratio of core deposits to total assets. *Commitments* is the ratio of business loan commitments to total credit, which is defined as the sum of total assets and total loan commitments. *Bank Size* as measured by the log of total assets. *De novo* is an indicator for *de novo* banks less than five years old. Each bank control variable is measured as of year $t - 1$. *Y2008 – Y2011* are time fixed effects relative to the omitted year of 2007. For brevity, other time fixed effects for 1994 – 2006 are not shown. *TARP2009 – TARP2011* are interactions between time-fixed effects and an indicator for 917 banks that received capital injections during late 2008 – 2009 as part of the TARP's Capital Purchase Program. Bank-fixed effects are included in each model but are not shown.

Variable	Small Bus. Lending			Small C&I Lending			Small CRE Lending			Bus. Lending			C&I Lending			CRE Lending		
	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat
<i>Controls</i>																		
Loans	-1.706	0.013	-130.1 ***	-2.701	0.023	-116.6 ***	-3.046	0.024	-125.3 ***	-1.220	0.011	-106.6 ***	-2.196	0.020	-108.3 ***	-2.022	0.020	-102.5 ***
Total Equity	0.216	0.017	12.4 ***	0.243	0.022	10.9 ***	0.185	0.024	7.6 ***	0.410	0.015	27.0 ***	0.364	0.021	17.3 ***	0.370	0.023	16.4 ***
NPLs	-0.471	0.055	-8.6 ***	-0.802	0.071	-11.4 ***	-0.096	0.077	-1.3	-0.413	0.048	-8.6 ***	-0.795	0.066	-12.0 ***	-0.096	0.071	-1.4
Net Income	-1.578	0.099	-16.0 ***	-1.137	0.127	-9.0 ***	-1.745	0.138	-12.7 ***	-1.563	0.086	-18.2 ***	-0.968	0.119	-8.1 ***	-1.843	0.128	-14.4 ***
Liquid Assets	0.135	0.009	15.8 ***	0.191	0.011	18.1 ***	0.100	0.012	8.6 ***	0.211	0.008	26.9 ***	0.250	0.010	25.0 ***	0.160	0.011	14.6 ***
Core Deposits	0.005	0.010	0.5	-0.048	0.013	-3.8 ***	0.004	0.014	0.3	-0.067	0.009	-7.7 ***	-0.071	0.012	-5.9 ***	-0.100	0.013	-7.7 ***
Commitments	-0.043	0.022	-1.9 *	-0.027	0.028	-0.9	-0.084	0.031	-2.7 ***	0.155	0.019	8.0 ***	0.183	0.027	6.8 ***	0.041	0.029	1.4
Bank Size	-0.055	0.002	-26.0 ***	-0.055	0.003	-20.3 ***	-0.051	0.003	-17.3 ***	0.010	0.002	5.4 ***	-0.021	0.003	-8.1 ***	0.023	0.003	8.3 ***
De Novo	0.043	0.004	10.0 ***	0.047	0.005	8.7 ***	0.029	0.006	4.8 ***	0.025	0.004	6.7 ***	0.043	0.005	8.3 ***	0.011	0.006	1.9 ***
<i>Time Effects</i>																		
Y2008	-0.006	0.004	-1.4	-0.017	0.005	-3.6 ***	0.003	0.005	0.6	0.011	0.003	3.3 ***	-0.010	0.005	-2.1 **	0.020	0.005	4.0 ***
Y2009	-0.021	0.004	-5.3 ***	-0.060	0.005	-11.9 ***	0.007	0.006	1.2	-0.007	0.004	-1.9 *	-0.072	0.005	-14.9 ***	0.026	0.005	5.0 ***
Y2010	-0.039	0.004	-9.3 ***	-0.076	0.005	-14.7 ***	-0.018	0.006	-3.1 ***	-0.024	0.004	-6.6 ***	-0.080	0.005	-15.9 ***	0.001	0.005	0.1
Y2011	-0.061	0.004	-14.1 ***	-0.083	0.005	-13.0 ***	-0.047	0.006	-7.9 ***	-0.039	0.004	-10.5 ***	-0.076	0.005	-14.8 ***	-0.022	0.006	-4.0 ***
<i>TARP Indicators</i>																		
TARP2009	-0.036	0.009	-4.0 ***	-0.019	0.012	-1.6	-0.035	0.013	-2.8 ***	0.004	0.008	0.5	0.000	0.011	0.0	0.020	0.012	1.7 *
TARP2010	-0.027	0.009	-2.8 ***	-0.022	0.012	-1.8 *	-0.011	0.013	-0.9	-0.001	0.008	-0.1	-0.022	0.011	-1.9 *	0.024	0.012	2.0 **
TARP2011	-0.002	0.010	-0.2	0.005	0.013	0.4	0.000	0.014	0.0	0.031	0.009	3.6 ***	0.010	0.012	0.9	0.047	0.013	3.7 ***
<i>Bank Fixed Effects</i>	Yes			Yes			Yes			Yes			Yes			Yes		
<i>Adj. R-Square</i>	0.364			0.351			0.312			0.388			0.361			0.301		

**Table 6:
Loan Growth Tests
Log of Dollar Value of Loans**

Results are from an OLS fixed-effects model with both time and bank fixed effects where the dependent variable is the natural logarithm of the dollar value of bank lending in one of six business loan categories: total small business lending; small commercial & industrial loans, small commercial real estate loans, total business loans, total commercial & industrial loans and total commercial real estate loans. Total business loans is defined as the sum of commercial & industrial loans and commercial real estate loans in order to be consistent with bank reporting of small business loans. The analysis is based upon 154,135 bank-year observations from 1994 – 2011 gathered from the June FFIEC Call Reports. *Loans* is the ratio of loans in the loan category of the dependent variable to total assets. *Total Equity* is the ratio of total equity to total assets. *NPLs* is the ratio of nonperforming assets to total assets. *Net Income* is the ratio of net income to total assets. *Core Deposits* is the ratio of core deposits to total assets. *Commitments* is the ratio of business loan commitments to total credit, which is defined as the sum of total assets and total loan commitments. *Bank Size* as measured by the log of total assets. *De Novo* is an indicator for *de novo* banks less than five years old. Each bank control variable is measured as of year $t - 1$. *Y2008 - Y2011* are time fixed effects relative to the omitted year of 2007. For brevity, other time fixed effects for 1994 – 2006 are not shown. *TARP2009 - TARP2011* are interactions between time-fixed effects and an indicator for 917 banks that received capital injections during late 2008 – 2009 as part of the TARP's Capital Purchase Program. Bank-fixed effects are included in each model but are not shown.

	Small Bus. Lending			Small C&I Lending			Small CRE Lending			Bus. Lending			C&I Lending			CRE Lending			
Variable	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	Coef.	S.E.	t-Stat	
<i>Controls</i>																			
Loans	0.576	0.002	271.4 ***	0.644	0.002	328.1 ***	0.567	0.002	280.0 ***	0.628	0.002	304.4 ***	0.677	0.002	356.1 ***	0.595	0.002	301.0 ***	
Total Equity	1.962	0.033	60.4 ***	2.003	0.042	47.6 ***	2.171	0.048	45.7 ***	2.310	0.029	79.0 ***	2.299	0.040	57.6 ***	2.439	0.045	53.9 ***	
NPLs	-2.384	0.101	-23.5 ***	-3.069	0.132	-23.2 ***	-2.060	0.149	-13.8 ***	-2.123	0.091	-23.3 ***	-2.762	0.126	-22.0 ***	-1.929	0.142	-13.6 ***	
Net Income	-3.635	0.182	-20.0 ***	-3.608	0.238	-15.2 ***	-6.268	0.268	-23.4 ***	-3.875	0.164	-23.7 ***	-3.531	0.225	-15.7 ***	-6.638	0.255	-26.0 ***	
Liquid Assets	-0.232	0.015	-15.3 ***	-0.056	0.019	-2.9 ***	-0.272	0.022	-12.3 ***	-0.090	0.014	-6.5 ***	0.072	0.018	3.9 ***	-0.178	0.021	-8.4 ***	
Core Deposits	-0.027	0.018	-1.5	-0.080	0.024	-3.3 ***	-0.048	0.027	-1.8 ***	-0.125	0.016	-7.6 ***	-0.127	0.023	-5.6 ***	-0.172	0.026	-6.7 ***	
Commitments	0.194	0.041	4.7 ***	0.396	0.053	7.4 ***	0.242	0.060	4.0 ***	0.498	0.037	13.6 ***	0.653	0.051	12.9 ***	0.458	0.057	8.0 ***	
Bank Size	0.204	0.004	48.7 ***	0.147	0.005	28.0 ***	0.222	0.006	37.6 ***	0.241	0.004	60.8 ***	0.175	0.005	34.5 ***	0.285	0.006	49.5 ***	
De Novo	0.065	0.008	8.3 ***	0.084	0.010	8.2 ***	0.095	0.012	8.2 ***	0.043	0.007	6.1 ***	0.071	0.010	7.3 ***	0.073	0.011	6.7 ***	
<i>Time Effects</i>																			
Y2008	-0.001	0.007	-0.2	-0.019	0.009	-2.0 **	0.024	0.010	2.3 **	0.018	0.006	2.8 ***	-0.005	0.009	-0.6	0.050	0.010	5.1 ***	
Y2009	-0.021	0.007	-2.8 **	-0.061	0.010	-6.3 ***	0.034	0.011	3.1 ***	-0.002	0.007	-0.4	-0.071	0.009	-7.8 ***	0.060	0.010	5.8 ***	
Y2010	-0.024	0.008	-3.2 ***	-0.064	0.010	-6.3 ***	0.021	0.011	1.8 *	-0.009	0.007	-1.3	-0.065	0.010	-6.9 ***	0.042	0.011	3.9 ***	
Y2011	-0.033	0.008	-4.2 ***	-0.072	0.010	-7.0 ***	0.019	0.012	1.7 *	-0.012	0.007	-1.7 *	-0.063	0.010	-6.4 ***	0.044	0.011	4.0	
<i>TARP Indicators</i>																			
TARP2009	-0.035	0.017	-2.1 **	-0.048	0.022	-2.2 ***	-0.067	0.025	-2.7 **	-0.012	0.015	-0.8	-0.033	0.021	-1.6	-0.033	0.024	-1.4	
TARP2010	-0.074	0.017	-4.3 ***	-0.080	0.023	-3.5 ***	-0.119	0.026	-4.6 ***	-0.062	0.016	-4.0 ***	-0.077	0.021	-3.6 ***	-0.103	0.024	-4.2 ***	
TARP2011	-0.046	0.018	-2.5 **	-0.038	0.024	-1.6	-0.093	0.027	-3.5 ***	-0.025	0.016	-1.5	-0.027	0.022	-1.2	-0.048	0.025	-1.9 *	
<i>Bank Fixed Effects</i>	Yes			Yes			Yes			Yes			Yes			Yes			
<i>Adj. R-Square</i>	0.953			0.935			0.932			0.968			0.948			0.947			

**Appendix Table 1:
Selected June Call Report Data for FDIC-Insured Banks by Year and Bank Size (\$ Billions)**

LT \$100M	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	6,105	5,279	4,952	4,603	4,280	4,171	3,991	3,727	3,431	3,325	3,157	3,024	2,992	2,883	2,688	2,512	2,322	
Assets	204,772	198,477	189,686	183,663	174,450	166,492	169,404	169,403	162,567	153,410	154,011	150,312	148,111	149,563	150,976	142,161	137,238	131,153
Loans	111,982	111,895	108,233	107,959	103,874	98,290	104,631	105,058	100,115	92,513	94,298	93,863	93,667	94,022	95,579	88,835	83,295	83,523
C&I	17,574	17,199	16,917	16,984	16,463	15,772	17,049	17,645	16,301	14,700	14,739	14,534	14,119	14,210	14,572	12,701	11,529	10,343
CRE	14,956	14,738	14,036	14,074	13,588	13,366	15,039	15,628	16,361	15,815	16,734	17,116	17,021	17,519	18,975	18,844	17,523	15,983
SB Loans	31,526	31,009	29,940	29,848	28,741	27,678	30,495	31,247	30,293	28,055	28,522	28,301	27,568	27,326	27,612	25,759	23,656	21,135
SB C&I	17,122	16,810	16,449	16,407	15,878	15,099	16,390	16,766	15,405	13,821	13,674	13,333	12,975	12,787	12,718	11,205	10,147	9,061
SB CRE	14,404	14,199	13,491	13,441	12,863	12,579	14,105	14,482	14,889	14,234	14,847	14,968	14,594	14,539	14,894	14,554	13,509	12,074
\$100M-\$300M	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	3,299	3,164	3,134	3,025	3,013	2,966	2,875	2,794	2,816	2,870	2,795	2,695	2,666	2,652	2,687	2,676	2,629	2,493
Assets	364,560	360,502	369,305	366,392	371,973	377,183	381,689	381,567	393,144	408,696	413,475	408,047	420,193	432,424	462,193	458,528	456,499	442,786
Loans	206,392	211,564	220,844	224,883	228,867	234,659	247,436	247,104	253,722	260,266	271,394	273,182	287,393	298,162	321,160	312,513	299,623	300,443
C&I	32,758	33,848	35,766	36,329	37,483	39,054	41,472	41,088	40,651	40,993	41,840	41,280	43,023	44,989	48,123	44,691	41,239	37,947
CRE	38,290	38,630	40,974	42,420	43,486	47,048	52,044	53,111	59,939	64,583	70,834	71,458	74,627	76,280	84,710	87,218	87,895	83,955
SB Loans	63,109	64,686	67,191	68,137	69,706	72,587	77,413	77,525	80,321	83,278	85,207	83,990	85,624	85,783	88,941	85,272	80,878	74,473
SB C&I	29,774	30,955	32,171	32,348	33,218	34,192	35,950	35,599	34,401	34,698	34,569	33,761	34,255	34,777	35,715	33,110	30,191	27,312
SB CRE	33,335	33,731	35,020	35,789	36,488	38,395	41,463	41,926	45,919	48,579	50,638	50,228	51,368	51,006	53,226	52,162	50,687	47,161
\$300M-\$1B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	1,198	1,192	1,152	1,160	1,177	1,175	1,190	1,228	1,279	1,347	1,353	1,428	1,456	1,445	1,411	1,449	1,423	1,307
Assets	394,975	404,702	405,127	421,363	434,575	442,009	464,431	494,698	529,020	564,281	578,500	634,730	682,441	703,503	726,622	739,745	726,897	676,192
Loans	236,829	249,007	248,936	264,038	267,941	277,661	303,257	323,377	343,621	363,081	381,953	435,291	475,920	495,690	520,336	518,784	486,147	487,477
C&I	36,063	37,918	38,745	41,667	41,883	45,460	49,645	53,997	55,180	55,744	56,806	61,757	65,447	68,143	72,522	70,493	63,835	58,727
CRE	44,508	46,701	47,604	52,198	55,094	61,193	69,463	78,123	90,744	100,364	109,725	127,459	137,207	140,466	151,351	158,465	158,858	146,773
SB Loans	56,855	60,286	60,528	65,038	67,941	72,899	79,244	84,921	90,516	93,335	96,914	107,287	114,050	112,796	112,677	110,883	105,605	93,092
SB C&I	26,088	27,279	27,779	30,138	30,921	32,898	35,545	38,030	38,592	37,603	38,752	41,173	43,448	43,380	43,596	42,058	38,433	33,390
SB CRE	30,767	33,008	32,749	34,899	37,021	40,001	43,700	46,891	51,924	55,732	58,162	66,114	70,602	69,416	69,081	68,826	67,171	59,702
\$1B-\$10B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	495	482	466	450	445	449	425	422	419	458	465	477	477	490	481	511	484	461
Assets	974,236	997,698	950,124	930,056	913,307	927,225	925,928	932,235	926,630	988,412	1,037,420	1,074,071	1,160,516	1,199,912	1,255,121	1,276,454	1,229,154	1,177,274
Loans	595,148	637,717	610,174	584,347	573,289	573,958	577,390	591,364	564,640	593,556	648,924	695,547	771,548	815,418	874,827	866,104	788,972	791,130
C&I	110,569	118,934	112,720	109,965	106,559	110,570	112,534	114,587	106,665	105,883	113,731	117,907	133,272	139,734	149,223	136,103	124,266	123,651
CRE	88,674	89,065	87,723	87,112	85,311	98,226	107,768	114,066	125,275	140,262	161,199	171,802	194,933	208,879	224,640	245,909	243,051	231,783
SB Loans	79,984	83,971	86,456	83,955	81,967	88,249	90,096	93,123	95,821	103,456	109,440	115,183	127,312	127,171	129,772	126,293	116,408	110,606
SB C&I	41,588	42,610	44,066	42,406	41,814	43,950	45,677	47,335	49,209	50,944	51,293	53,195	59,695	57,449	57,207	51,023	45,383	42,825
SB CRE	38,396	41,361	42,389	41,549	40,153	44,299	44,419	45,787	46,612	52,511	58,147	61,988	67,617	69,722	72,565	75,270	71,025	67,781
GT \$10B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	98	103	107	91	92	96	100	101	104	108	102	97	103	99	88	91	88	84
Assets	2,163,976	2,417,581	2,721,271	3,098,632	3,527,137	3,797,540	4,311,024	4,674,758	5,025,697	5,729,264	6,214,408	6,742,798	7,503,506	8,227,943	9,140,109	9,454,351	9,670,490	9,959,669
Loans	974,903	1,166,488	1,352,647	1,556,366	1,771,664	1,973,360	2,351,882	2,488,612	2,582,948	2,888,384	3,174,356	3,479,823	3,837,781	4,152,852	4,512,750	4,694,500	4,756,131	4,769,140
C&I	269,004	320,089	351,895	407,686	488,116	559,867	660,431	647,840	580,789	556,216	536,430	623,563	689,381	770,457	918,238	866,063	740,375	762,019
CRE	105,376	118,925	132,851	147,596	167,137	187,931	222,887	239,891	264,128	284,727	309,537	339,121	379,901	432,795	458,398	503,148	506,142	484,876
SB Loans	76,737	90,458	104,064	119,840	140,379	152,671	178,319	193,459	204,881	208,614	217,615	224,664	233,936	279,391	300,477	297,571	278,358	243,628
SB C&I	43,207	51,857	59,659	71,601	81,916	87,842	103,359	110,840	117,906	116,652	115,876	122,559	121,598	145,873	160,040	158,181	158,719	133,434
SB CRE	33,530	38,601	44,405	48,239	58,463	64,829	74,959	82,619	86,975	91,962	101,739	102,105	112,339	133,518	140,437	139,390	119,640	110,195
All Banks	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	11,195	10,653	10,138	9,678	9,330	8,966	8,761	8,536	8,345	8,214	8,040	7,841	7,726	7,678	7,508	7,415	7,136	6,667
Assets	4,102,520	4,378,961	4,635,513	5,000,106	5,421,443	5,710,450	6,252,477	6,652,660	7,037,059	7,844,062	8,397,814	9,009,958	9,914,767	10,713,345	11,735,022	12,071,240	12,220,278	12,387,074
Loans	2,125,254	2,376,670	2,540,833	2,737,593	2,945,635	3,157,929	3,584,595	3,755,514	3,845,046	4,197,800	4,570,925	4,977,007	5,466,309	5,856,145	6,324,652	6,480,735	6,414,170	6,431,713
C&I	465,967	527,988	556,042	612,630	690,504	770,723	881,131	875,157	799,585	773,536	763,547	859,041	945,243	1,037,534	1,202,677			

**Appendix Table 2:
Selected June Call Report Data for FDIC-Insured Banks by Year and Bank Size (% of Industry Assets)**

LT \$100M	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	6,105	5,712	5,279	4,952	4,603	4,280	4,171	3,991	3,727	3,431	3,325	3,157	3,024	2,992	2,883	2,688	2,512	2,322
Assets	5.0%	4.5%	4.1%	3.7%	3.2%	2.9%	2.7%	2.5%	2.3%	2.0%	1.8%	1.7%	1.5%	1.4%	1.3%	1.2%	1.1%	1.1%
Loans	2.7%	2.6%	2.3%	2.2%	1.9%	1.7%	1.7%	1.6%	1.4%	1.2%	1.1%	1.0%	0.9%	0.9%	0.8%	0.7%	0.7%	0.7%
C&I	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
CRE	0.4%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%
SB Loans	0.8%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%
SB C&I	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
SB CRE	0.4%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
\$100M-\$300M	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	3,299	3,164	3,134	3,025	3,013	2,966	2,875	2,794	2,816	2,870	2,795	2,695	2,666	2,652	2,687	2,676	2,629	2,493
Assets	8.9%	8.2%	8.0%	7.3%	6.9%	6.6%	6.1%	5.7%	5.6%	5.2%	4.9%	4.5%	4.2%	4.0%	3.9%	3.8%	3.7%	3.6%
Loans	5.0%	4.8%	4.8%	4.5%	4.2%	4.1%	4.0%	3.7%	3.6%	3.3%	3.2%	3.0%	2.9%	2.8%	2.7%	2.6%	2.5%	2.4%
C&I	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%
CRE	0.9%	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.9%	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%
SB Loans	1.5%	1.5%	1.4%	1.4%	1.3%	1.3%	1.2%	1.2%	1.1%	1.1%	1.0%	0.9%	0.9%	0.8%	0.8%	0.7%	0.7%	0.6%
SB C&I	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%
SB CRE	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.6%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%
\$300M-\$1B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	1,198	1,192	1,152	1,160	1,177	1,175	1,190	1,228	1,279	1,347	1,353	1,428	1,456	1,445	1,411	1,449	1,423	1,307
Assets	9.6%	9.2%	8.7%	8.4%	8.0%	7.7%	7.4%	7.4%	7.5%	7.2%	6.9%	7.0%	6.9%	6.6%	6.2%	6.1%	5.9%	5.5%
Loans	5.8%	5.7%	5.4%	5.3%	4.9%	4.9%	4.9%	4.9%	4.9%	4.6%	4.5%	4.8%	4.8%	4.6%	4.4%	4.3%	4.0%	3.9%
C&I	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%
CRE	1.1%	1.1%	1.0%	1.0%	1.0%	1.1%	1.1%	1.2%	1.3%	1.3%	1.3%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.2%
SB Loans	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%	1.2%	1.1%	1.0%	0.9%	0.9%	0.8%
SB C&I	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%
SB CRE	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%
\$1B-\$10B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	495	482	466	450	445	449	425	422	419	458	465	464	477	490	481	511	484	461
Assets	23.7%	22.8%	20.5%	18.6%	16.8%	16.2%	14.8%	14.0%	13.2%	12.6%	12.4%	11.9%	11.7%	11.2%	10.7%	10.6%	10.1%	9.5%
Loans	14.5%	14.6%	13.2%	11.7%	10.6%	10.1%	9.2%	8.9%	8.0%	7.6%	7.7%	7.7%	7.8%	7.6%	7.5%	7.2%	6.5%	6.4%
C&I	2.7%	2.7%	2.4%	2.2%	2.0%	1.9%	1.8%	1.7%	1.5%	1.3%	1.4%	1.3%	1.3%	1.3%	1.3%	1.1%	1.0%	1.0%
CRE	2.2%	2.0%	1.9%	1.7%	1.6%	1.7%	1.7%	1.7%	1.8%	1.8%	1.9%	1.9%	2.0%	1.9%	1.9%	2.0%	2.0%	1.9%
SB Loans	1.9%	1.9%	1.9%	1.7%	1.5%	1.5%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%
SB C&I	1.0%	1.0%	1.0%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%	0.4%	0.3%
SB CRE	0.9%	0.9%	0.9%	0.8%	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.5%
GT \$10B	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	98	103	107	91	92	96	100	101	104	108	102	97	103	99	88	91	88	84
Assets	52.7%	55.2%	58.7%	62.0%	65.1%	66.5%	68.9%	70.3%	71.4%	73.0%	74.0%	74.8%	75.7%	76.8%	77.9%	78.3%	79.1%	80.4%
Loans	23.8%	26.6%	29.2%	31.1%	32.7%	34.6%	37.6%	37.4%	36.7%	36.8%	37.8%	38.6%	38.7%	38.8%	38.5%	38.9%	38.9%	38.5%
C&I	6.6%	7.3%	7.6%	8.2%	9.0%	9.8%	10.6%	9.7%	8.3%	7.1%	6.4%	6.9%	7.0%	7.2%	7.8%	7.2%	6.1%	6.2%
CRE	2.6%	2.7%	2.9%	3.0%	3.1%	3.3%	3.6%	3.6%	3.8%	3.6%	3.7%	3.8%	3.8%	4.0%	3.9%	4.2%	4.1%	3.9%
SB Loans	1.9%	2.1%	2.2%	2.4%	2.6%	2.7%	2.9%	2.9%	2.9%	2.7%	2.6%	2.5%	2.4%	2.6%	2.6%	2.5%	2.3%	2.0%
SB C&I	1.1%	1.2%	1.3%	1.4%	1.5%	1.5%	1.7%	1.7%	1.7%	1.5%	1.4%	1.4%	1.2%	1.4%	1.4%	1.3%	1.3%	1.1%
SB CRE	0.8%	0.9%	1.0%	1.0%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.2%	1.1%	1.1%	1.2%	1.2%	1.2%	1.0%	0.9%
All Banks	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	11,195	10,653	10,138	9,678	9,330	8,966	8,761	8,536	8,345	8,214	8,040	7,841	7,726	7,678	7,550	7,415	7,136	6,667
Assets	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Loans	51.8%	54.3%	54.8%	54.8%	54.3%	55.3%	57.3%	56.5%	54.6%	53.5%	54.4%	55.2%	55.1%	54.7%	53.9%	53.7%	52.5%	51.9%
C&I	11.4%	12.1%	12.0%	12.3%	12.7%	13.5%	14.1%	13.2%	11.4%	9.9%	9.1%	9.5%	9.5%	9.7%	10.2%	9.4%	8.0%	8.0%
CRE	7.1%	7.0%	7.0%	6.9%	6.7%	7.1%	7.5%	7.5%	7.9%	7.7%	8.0%	8.1%	8.1%	8.2%	8.0%	8.4%	8.3%	7.8%
SB Loans	7.5%	7.5%	7.5%	7.3%	7.2%	7.3%	7.3%	7.2%	7.1%	6.6%	6.4%	6.2%	5.9%	5.9%	5.6%	5.3%	5.0%	4.4%
SB C&I	3.8%	3.9%	3.9%	3.9%	3.8%	3.7%	3.8%	3.7%	3.6%	3.2%	3.0%	2.9%	2.7%	2.7%	2.6%	2.4%	2.3%	2.0%
SB CRE	3.7%	3.7%	3.6%	3.5%	3.4%	3.5%	3.5%	3.5%	3.5%	3.4%	3.4%	3.3%	3.2%	3.2%	3.0%	2.9%	2.6%	2.4%