THE ROLE OF UNUSED LOAN COMMITMENTS AND TRANSACTION DEPOSITS DURING THE RECENT FINANCIAL CRISIS

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ABSTRACT

Our study looks at the financial condition of banks during the recent financial crisis. We focus on the association between bank capital ratios and unused loan commitments and transaction deposits for depository institutions. We test empirically whether loan commitments had a different impact on the capital ratios of those banks that failed and did not fail during the recent financial crisis. We also analyze the role of transaction deposits, a liquidity measure, on the financial condition of depository institutions. We use a large data set for U.S. commercial banks between the first quarter of 2001 and the last quarter of 2010. Our results suggest that unused loan commitments and transaction deposits had a significant effect on the capital ratios of non-failed banks prior to the financial crisis, but only transaction deposits affected the bank capital ratios of non-failed banks during the crisis. For failed banks, large levels of unused loan commitments seem to be associated with capital ratios only during the financial crisis.

JEL: G21, G32, G33

KEYWORDS: Unused Loan Commitments, Transaction Deposits, Bank Capital Ratios

INTRODUCTION

More than 400 depository institutions have failed during the recent financial crisis. The default of subprime mortgage loans has been identified as the fundamental cause behind the deterioration of the financial condition of those institutions that failed after 2007. The relationship between the performance of mortgage loans and the financial condition of banks has been studied extensively in the literature (see for example Demyanyk and Van Hemert 2011, Ivashina and Scharfstein 2010). Besides the default of subprime loans, other banking activities might have influenced the financial condition of depository institutions, and helped their operations in order to survive the recent financial crisis. Two such activities are unused loan commitments and transaction deposits, both core operations of depository institutions, intrinsically related to the level of economic activity. Loan commitments are the ability to grant short-term credit to borrowers in the near future. Transaction deposits reflect the capability of financial institutions to accept funds that are used to purchase goods and services on a daily basis.

In this paper, we examine the role of unused loan commitments and transaction deposits on the capital ratios of commercial banks that failed and did not fail during the recent financial crisis. The events that unfolded after 2007 provide a natural setting for examining the link of unused loan commitments and transaction deposits to the financial condition of depository institutions. We use capital ratios as a proxy for the financial condition of commercial banks, as non-failed banks would have higher capital ratios than failed banks. We use quarterly data from the call reports on 9,879 U.S. commercial banks covering the period of 2001 to 2010. Our first objective is to determine if unused loan commitments have a direct effect on the financial condition of commercial banks. Loan commitments represent contingent obligations of commercial banks to grant credit to borrowers at specified rates plus fees. According to a recent Federal Reserve statistical release (E2), 89 percent of all commercial and industrial loans made by domestic commercial banks are made under commitment (80 percent by small domestic banks, 90 percent by large domestic banks). The popularity of loan commitments is due to the flexibility of the agreement

during periods of tight credit conditions, and the attractive structure of fees charged by lenders. Total unused loan commitments exceeded $5 trillion in December of 2011 (see Table 1). However, the largest banks, those with more than $1 billion in assets, held 95 percent of the unused loan commitments.

If there is a positive relationship between unused loan commitments and the financial condition of a commercial bank (see the following literature review), we should expect to see a higher volume of unused loan commitments, as a percentage of total loans or total assets, on the balance sheet of those commercial banks that did not fail during the recent financial crisis. Therefore, in this paper we propose to analyze unused loan commitments to see if they had an effect on bank capital ratios during the period 2001-2010. We find that unused loan commitments had a significant positive effect on the capital ratios of non-failed commercial banks prior to the financial crisis, but not after 2007. An opposite relationship is observed for those institutions that failed during the financial crisis. Commercial banks that did not fail might have experienced relative high levels of transaction deposits. As such, the volume of transaction deposits might be related to the financial condition of a depository institution, as measured by capital ratios.

A second objective of this paper is to examine the relation between transaction deposits and the financial condition of depository institutions, for failed and non-failed depository institutions. Transaction deposits include checking accounts, negotiable orders of withdrawal, and automatic transfer service accounts. Total transaction deposits exceeded $1.3 trillion in December 2011 (see Table 1). The largest banks, those with more than $1 billion in assets, held 81 percent of all the transaction deposits. With respect to the role of transaction deposits, we find that transaction deposits are important in explaining the capital ratios of those depository institutions that did not fail during the recent financial crisis, but they do not seem to affect the capital ratios of failed banks. Since the recent financial crisis has been associated with the defaults of subprime loans, we also examine the role of problem loans on the financial condition of commercial banks. We analyze the impact of past due loans and nonaccrual loans on the capital ratios of failed and non-failed banks, and find that problem loans are an important determinant in explaining the low capital ratios of those banks that failed during the 2008-2010 period. The remainder of the paper is organized as follows. Section 2 provides a literature review. Section 3 describes the dataset used in the empirical section. Section 4 describes the methodology used. Section 5 concludes.

LITERATURE REVIEW

This paper investigates the role of unused loan commitments and transaction deposits on the financial performance of commercial banks during the period 2001-2010. The literature on unused loan commitments is vast. Most of the literature is focused on the rationale, pricing, and policy implications of loan commitments (for a survey of the literature see Ergungor 2001). However, the relationship between unused loan commitments and the financial condition of banks has received little attention. Saunders and Cornett (2009) imply that a large volume of unused loan commitments is one of the characteristics of stronger commercial banks. Acharya, Almeida, and Campello (2012) explain that even though loan commitments are costly, they can increase a bank's reputation, if banks honor their commitments.

On the same subject, Boot, Greenbaum, and Thakor (1993), and Billett, Flannery, and Garfinkel (1995), explain that loan commitments are used as a positive signal by strong banks. In one of the first empirical papers linking loan commitments and risk exposure, Avery and Berger (1991), use call report data from 1,038 banks, and find that loan commitments are associated with fewer problem loans, and that loan commitments reduce risk exposure. Park (2010) argues that loan commitments serve as an insurance device because they provide credit to borrowers during recessions. Park and Kim (2011), use call reports from the Federal Reserve Bank of Chicago, and find that when credit spreads increase, borrowers draw down more from their lines of credit, and banks experience a decline in capital ratios. The authors use quarterly data from 2001 to 2009, but do not distinguish between failed and non-failed banks during the

sample period. Acharya and Mora (2011), using quarterly Call Report data from 2007-2009, found that banks with more unused loan commitments were more likely to fail during the financial crisis.

The volume of transaction deposits might affect the impact of unused loan commitments on the financial condition of a bank. For example, Gatev, Schuermann, and Strahan (2009) argue that bank risk, as measured by stock return volatility, increases as unused loan commitments increase. However, commercial banks with a high volume of unused loan commitments might be exposed to loan-liquidity risk only if they lack a high volume of transaction deposits. Gatev and Strahan (2006) explain that banks with a high level of pre-existing loan commitments show an increase in lending and deposits when the market for commercial paper is tight. Kashyap, Rajan, and Stein (2002) argue that banks with more demand deposits make more loan commitments. Cornett, McNutt, Strahan and Tehranian (2011) also explain that banks financed with core deposits continued to lend during the financial crisis. Song and Thakor (2007) explain that a positive correlation should exist between the level of a bank's relationship lending and its core deposit financing.

Deep and Schaefer (2004) show that medium-sized commercial banks with a high volume of loan commitments might have a low volume of liquid liabilities. This paper also examines the relationship between transaction deposits and capital ratios, for those commercial banks that failed and did not fail during the recent financial crisis, in the presence of unused loan commitments. Commercial banks that did not fail might have experienced relative large levels of transaction deposits. As such, the volume of transaction deposits, for a given level of unused loan commitments, might be related to the financial condition of a depository institution, as measured by capital ratios.

DATA

The dataset used in this study is gathered from the quarterly Report of Condition and Income call reports, found through the Federal Financial Institutions Examination Council (FFIEC) website. The appendix provides a description of all the variables used in the empirical section, with call report names and corresponding series codes. We collect data for approximately 10,115 FDIC-insured commercial banks in the U.S., from the first quarter of 2001 to the last quarter of 2010, corresponding to 340,906 bank-quarter observations. We also gather call reports from the website of the Federal Reserve Bank of Chicago, to complement some of the information obtained from the FFIEC's website. We match the firms and variables in both data sets, and drop all banks that were not found in both data sets. We also drop banks that report no assets, deposits, or loans. The resulting panel is unbalanced and includes 313,947 observations (9,879 banks) with detailed quarterly data from 2001 to 2010. The sample contains 279 banks that failed during the 2008 financial crisis, and 9,600 non-failed banks. We separate our sample into two periods, to account for the recent financial crisis, and examine bank capital ratios from the first quarter of 2001 to the second quarter of 2007, and from the third quarter of 2007, the beginning of the financial crisis, to the last quarter of 2010. Figures 1 through 8 provide graphical displays of data summary statistics.

This paper examines whether unused loan commitments and transaction deposits have an effect on the financial condition of commercial banks. We examine the impact of these two variables on the capital ratios of those commercial banks that failed and did not fail during the recent financial crisis. The dependent variable used in this study is a proxy for the financial performance of a bank. Following studies that associate capital ratios and bank failures (see Estrella, Park and Peristiani 2000), we use the bank's risk-based capital ratio as a proxy for the financial condition of commercial banks. In calculating capital ratios, we use two different measures: tier 1 risk-based capital ratio and total risk-based capital ratio. Both measures are obtained from the FFIEC call reports. Our first objective is to determine if the financial condition of banks is sensitive to the amount of unused loan commitments. As a measure of unused loan commitments, we use the ratio of total unused loan commitments as a percentage of total loans and leases.

Total unused loan commitments are calculated as the sum of revolving open-ended lines, credit card lines, commercial real estate, construction, and land development, securities underwriting and other unused loan commitments (for a detailed description refer to the appendix).

As previously mentioned, the relationship between the financial situation of a commercial bank and unused loan commitments is expected to be influenced by the volume of transaction deposits. Therefore, the volume of transaction deposits is another factor that might affect a bank's financial condition. We construct a measure for this variable by taking the ratio of total transaction deposits (including demand deposits) as a percentage of total deposits. Both variables are extracted from the FFIC call reports. Previous studies have documented that the financial condition of a bank is sensitive to the size of a depository institution, thus we control for this variable by using the logarithm of total assets (from the FFIC call report) as a proxy for the bank size. Finally, we also control for the effect of problem loans on the financial condition of commercial banks. Huang (2010) show that more distressed banks, as measured by the non-performing loan ratio, reported smaller takedown volumes on their loan commitments during the financial crisis. We measure problem loans as the ratio of past due loans and nonaccrual loans to total loans and leases. The problem loan variables (past due 30 to 89 days, 90 days or more, and nonaccrual) are obtained from the Chicago Fed website. Total loans and leases are extracted from the FFIC call reports. Since our sample period covers the financial crisis that began in 2007, we investigate the impact of the considered factors on the financial situation of the banks that failed and did not fail during the crisis.

A bank is counted as failed if its failure occurred during the 2008-2010 period. A list of failed banks is obtained from the FDIC website. We have 279 failed banks in our sample. Table 2 shows the distribution of the banks that failed during the 2008 financial crisis in our sample, with almost an even number of banks failing in 2009 and 2010. We expect the sample of non-failed banks to have more loan commitments than the sample of banks that failed during the period 2008-2010. We also expect the sample of non-failed banks to have more transaction deposits than the sample of banks that failed during the recent financial crisis. Table 1 shows that banks with assets between $100 million and $1 billion have a 92 percent ratio of transaction deposits to total unused loan commitments, while banks with more than $1 billion in assets, have a 22 percent ratio of transaction deposits to total unused loan commitments. The fact that small banks have, on average, a much higher proportion of transaction deposits than large banks might be important for this study since most of the banks that failed during the recent financial crisis have been rather small (average assets of $644M).

Table 1: Total Unused Loan Commitments and Transaction Accounts

	Assets<$100M	**Assets $100M - $1B**	**Assets>$1B**	**All Banks**
Revolving, open-end lines	$826,902	$16,988,506	$402,511,625	$420,327,033
	3%	8%	8%	8%
Credit card lines	$15,990,186	$116,258,676	$2,526,482,550	$2,658,731,412
	66%	53%	52%	52%
Commercial real estate, construction and land development	$1,044,169	$17,771,605	$121,102,279	$139,918,053
	4%	8%	2%	3%
Securities underwriting	-	-	$223,018	$223,018
Other unused commitments	$6,327,896	$68,236,964	$1,838,690,559	$1,913,255,419
	26%	31%	38%	37%
Total unused loan commitments	$24,189,153	$219,255,751	$4,889,010,031	$5,132,454,935
Transaction Accounts	$34,532,240	$201,733,162	$1,068,236,227	$1,304,501,629
Number of banks	2,143	3,633	514	6,290

This table shows total unused loan commitments and transaction accounts for small commercial banks, total assets less than $100 million, medium banks, assets between $100 million and $1 billion, large banks, total assets more than $1 billion, and the sum of all banks. Taken from the FDIC – Statistics on Depository Institutions Report on December 31, 2011. In thousands of dollars and percentages of total.

Summary statistics for all the variables used in the empirical analysis are presented in Table 3. We report summary statistics for both failed and non-failed commercial banks. The sample of non-failed banks has,

on average, higher total assets, unused loan commitments, and transaction deposits than the sample of failed banks. On the other hand, the group of failed banks had higher nonaccrual loans, about the same loans late less than 90 days, and fewer loans late more than 90 days than the sample of non-failed banks. Even though small commercial banks typically have higher capital ratios than large commercial banks, Table 3 shows that those banks that failed during the recent financial crisis had, on average, lower capital ratios (tier 1 and total capital) than the non-failed banks. Table 3 also shows that the mean for commercial real estate, construction and land development loan commitments, for the sample of failed banks, is significantly higher than that for the sample of non-failed banks (the ratio of commercial real estate, construction and land development loan commitments to total loans and leases was included in a regression equation, but its coefficient failed to show statistical significance for its effect on bank capital ratios). In addition, according to Table 3, the average ratio of unused loan commitments to total loans and leases was 25 percent for failed banks versus 77 percent for non-failed banks.

Table 2: Failed Depository Institutions

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
2008	2	2	6	10	20
2009	20	21	42	37	120
2010	37	43	32	27	139
Total	**59**	**66**	**80**	**74**	**279**

This table shows the distribution of commercial banks included in our sample that failed during the recent financial crisis as reported by the FDIC on its website, from 2008:Q1 to 2010:Q4.

Table 3: Summary Statistics: Failed and Non-Failed Banks

	Failed Banks N = 8,849		Non-failed Banks N = 305,098	
	Mean	**Std Dev**	**Mean**	**Std Dev**
Unused loan commitments (ULC):				
Revolving, open-end lines	$10,018	$41,455	$46,204	$1,191,553
Credit card lines	$35,706	$556,378	$370,334	$11,900,000
Commercial real estate, Construction, Land development (CRULC)	$61,058	$245,237	$27,597	$411,571
Securities underwriting	$0	$2	$228	$21,042
Other	$33,354	$130,246	$203,538	$5,022,826
All ULC	$140,136	$659,385	$647,902	$14,300,000
Total loans and leases	$458,927	$1,212,143	$603,781	$9,186,934
Total transaction deposits (TTD)	$56,328	$171,126	$85,349	$1,113,683
Total deposits	$470,745	$1,204,078	$589,011	$8,303,219
Total assets	$644,509	$1,803,726	$1,042,325	$18,900,000
Nonaccrual loans	$15,642	$85,118	$6,469	$128,213
Loans 30-90 days late	$7,075	$22,231	$6,970	$125,289
Loans 90+ days late	$1,143	$4,767	$2,504	$77,886
All nonaccrual + late loans	$23,859	$102,783	$15,942	$305,808
Total risk-based capital ratio	14.35%	15.43%	18.17%	18.83%
Tier 1 risk-based capital ratio	13.17%	15.50%	17.03%	18.72%
TULC = ALL ULC ÷Total loans and leases (TLL)	25.51%	82.17%	77.15%	3,594%
TTD = Total transaction deposits ÷ Total deposits	18.29%	12.27%	25.57%	13.05%
PL = All nonaccrual + late loans ÷ Total loans and leases	5.04%	7.43%	2.75%	4.09%

This table shows the summary statistics, mean and standard deviation for all the variables used in our empirical analysis, for those banks that failed (during the financial crisis) and did not fail, during the 2001:Q1 – 2010:Q4 period. In thousands of dollars and percentages.

METHODOLOGY AND RESULTS

In this section, we describe the statistical analysis used in the paper and present our main results. We use information from the FDIC website in order to classify each bank as failed or non-failed. Based on the status of each bank, we split the sample into two sub-samples: a sample of failed banks and a sample of non-failed banks. According to the FDIC classification, we consider a bank as failed if its failure occurred during the 2008-2010 period.

We start by comparing the averages for the group of failed and non-failed banks for our sample. A t-test for the difference in means (see Table 4) shows that those banks that did not fail after 2007, had significantly higher proportions of total loan commitments to total loans and leases (TULC) than the failed banks. However, an opposite relationship was found with respect to the ratio of commercial real estate, construction and land development loan commitments to total loans and leases (CRULC/TLL). In addition, those banks that did not fail during the recent financial crisis had significantly higher proportions of transaction deposits to total deposits (TTD) than the sample of failed banks. Finally, Table 4 also shows that the sample of non-failed banks had a lower ratio of problem loans to total loans and leases (PL) than the sample of failed banks, during the period 2001-2010. The Data section outlines some of the key factors that we expect to influence the financial condition of commercial banks: unused loan commitments, transaction deposits, bank size, and problem loans. In order to determine the effects of these factors on the financial condition of banks we estimate the following model:

$$CAPRAT_{it} = \beta_0 + \beta_1 TULC_{it} + \beta_2 TTD_{it} + \beta_3 PL_{it} + \beta_4 LTA_{it} + \alpha_i + \varepsilon_{it} \quad (1)$$

where $CAPRAT_{it}$ is the capital ratio for bank *i* at time *t* (tier 1 or total risk-based capital ratio) and is a proxy for the financial condition of the bank, $TULC_{it}$ are total unused loan commitments of the bank (total unused loan commitments as a percent of total loans and leases), TTD_{it} are total transaction accounts for the bank (total transaction accounts as a percent of total deposits), PL_{it} is the ratio of problem loans for the bank (late loans plus nonaccrual loans) to total loans and leases, LTA_{it} is a proxy for bank size (calculated as the natural logarithm of total assets), α_i is a bank specific unobservable fixed effect variable, and ε_{it} is the idiosyncratic error term. In the estimation, we allow errors to be clustered at the bank level.The discussion at the beginning of this section outlined different characteristics for the group of failed banks and the group of non-failed banks. Therefore, we estimate the model in (1) separately for each group. We also break our sample into two sub-periods, 2001-2007 and 2007-2010, to emphasize the recent financial crisis. Table 5 presents the results of the estimation for equation (1), prior to the financial crisis. The results for the period 2001:Q1–2007:Q4, reveal that total unused loan commitments (TULC) and transaction deposits (TTD) for the sample of failed banks, do not have an effect on bank capital ratios.

Table 4: T-Test Statistics for the Difference in Means: Non-Failed vs. Failed Banks

	TULC	TTD	PL	CRULC/TLL
Non-Failed Banks vs.	7.8659	54.9375	-28.9222	-49.0489
Failed Banks	(0.0000)	(0.0000)	(0.0000)	(0.0000)

This table shows the t-test statistics and the corresponding p-values in parentheses, for the difference in means for the two groups (failed and non-failed banks) used in our sample, during the 2001:Q1 – 2010: Q4 period. TULC is the ratio of total unused loan commitments to total loans and leases, TTD is the ratio of total transaction deposits to total deposits, PL is the ratio of late loans plus not accruing loans to total loans and leases, CRULC/TLL is the ratio of commercial real estate, construction and land development loan commitments to total loans and leases.

On the other hand, unused loan commitments and transaction deposits have a positive significant effect on the capital ratios of the sample of non-failed banks, during the period 2001-2007. For the sample of non-failed banks, a 1 percent increase in unused loan commitments, as a percent of total loans and leases, causes a very small increase on capital ratios, about 2 basis points. The impact of unused loan commitments is more than offset by the effect of transaction deposits on capital ratios. Table 5 shows that a 1 percent increase in total transaction deposits, as a percent of total deposits, causes an almost 8 percent increase in capital ratios of non-failed banks prior to the financial crisis. The positive relations between unused loan commitments, transaction deposits, and bank capital ratios for non-failed banks, prior to the financial crisis, corroborate the arguments presented by Saunders and Cornett (2009), and Gatev, Schuermann, and Strahan (2009). Prior to the financial crisis, stronger banks were able to keep high levels of unused loan commitments because they held large volumes of transaction deposits. As Mora (2010) explains, better-capitalized banks were able to gather more deposits, than less-capitalized banks, during 2007-2008, since depositors were concerned about the safety of their deposits.

The results shown in Table 5 also reveal that problem loan ratios (PL), as measured by late loans and nonaccrual loans as a percent of total loans and leases, have a marginal significant effect on bank capital ratios, for the sample of failed banks, but not for the group of non-failed depository institutions. In this case, a 1% increase in problem loans is associated with a 19% decrease in the capital ratio of a failed bank, prior to the financial crisis. The fact that capital ratios are not affected by problem loans shows the sample of non-failed banks had more than enough equity to support their operations, prior to the financial crisis.

Table 5: Fixed Effects Regressions: 2001: Q1 – 2007: Q2

Regression Number and Coefficient Estimates				
	Failed Banks		Non-failed Banks	
Variable	(1)	(2)	(3)	(4)
Intercept	1.4078***	1.411***	1.7082***	1.7156***
	(0.1702)	(0.1686)	(0.0727)	(0.0726)
TULC	0.0214	0.0212	0.0002***	0.0002***
	(0.0196)	(0.0195)	(0.0000)	(0.0000)
TTD	0.0706	0.0709	0.0772***	0.0769***
	(0.0734)	(0.0732)	(0.0208)	(0.0209)
PL	-0.1869**	-0.1772**	-0.0282	-0.0274
	(0.0880)	(0.0871)	(0.0289)	(0.0275)
LTA	-0.1051***	-0.1045***	-0.1331***	-0.1327***
	(0.0137)	(0.0135)	(0.0062)	(0.0062)
F-statistic	18.08***	18.08***	144.37***	128.43***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
R^2	0.1098	0.1078	0.0455	0.0428
N	6,269	6,269	205,666	205,666

*The dependent variable for regressions (1) and (3) is the tier 1 risk-based capital ratio. The dependent variable for regressions (2) and (4) is the total risk-based capital ratio. TULC is the ratio of total unused loan commitments to total loans and leases, TTD is the ratio of total transaction deposits to total deposits, PL is the ratio of late loans plus not accruing loans to total loans and leases, LTA is the log of total assets. Robust standard errors (p-values for F-statistic) appear in parentheses. *** and ** indicate significance at the 1 and 5 percent levels respectively.*

Table 6 shows the results for the period 2007:Q3–2010:Q4. During this period, unused loan commitments had a significant positive effect on the capital ratios of failed banks. However, transaction deposits did not affect the capital ratios of this group of failed banks. This finding suggests that troubled banks might have overextended their loan commitment, during the financial crisis, without an adequate level of transaction deposits, which increased bank risk and capital ratios. Table 6 also shows that only transaction deposits influenced capital ratios for non-failed banks, during the financial crisis. In this case, a 1 percent increase in transaction deposits, as a percent of total deposits, increased capital ratios by almost 20 percent, more than twice the effect compared to the 2001-2007 period.

Table 6: Fixed Effects Regressions: 2007: Q3 – 2010: Q4

Regression Number and Coefficient Estimates				
	Failed Banks		Non-failed Banks	
Variable	(1)	(2)	(3)	(4)
Intercept	0.3077	0.2440	2.8907***	2.8764***
	(0.3160)	(0.3174)	(0.1799)	(0.1792)
TULC	0.0082***	0.0087***	-0.0000	-0.0000
	(0.0011)	(0.0011)	(0.0001)	(0.0001)
TTD	0.0258	0.0250	0.1988***	0.1999***
	(0.0431)	(0.0451)	(0.0366)	(0.0366)
PL	-0.3293***	-0.3312***	-0.0011	0.0105
	(0.0159)	(0.0163)	(0.0434)	(0.0437)
LTA	-0.0149	-0.0088	-0.2319***	-0.2299***
	(0.0249)	(0.0250)	(0.0152)	(0.0151)
F-statistic	177.78***	176.13***	59.85***	59.20***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
R^2	0.2153	0.2161	0.0333	0.0306
N	2,580	2,580	99,432	99,432

*The dependent variable for regressions (1) and (3) is the tier 1 risk-based capital ratio. The dependent variable for regressions (2) and (4) is the total risk-based capital ratio. TULC is the ratio of total unused loan commitments to total loans and leases, TTD is the ratio of total transaction deposits to total deposits, PL is the ratio of late loans plus not accruing loans to total loans and leases, LTA is the log of total assets. Robust standard errors (p-values for F-statistic) appear in parentheses. *** indicates significance at the 1 percent level.*

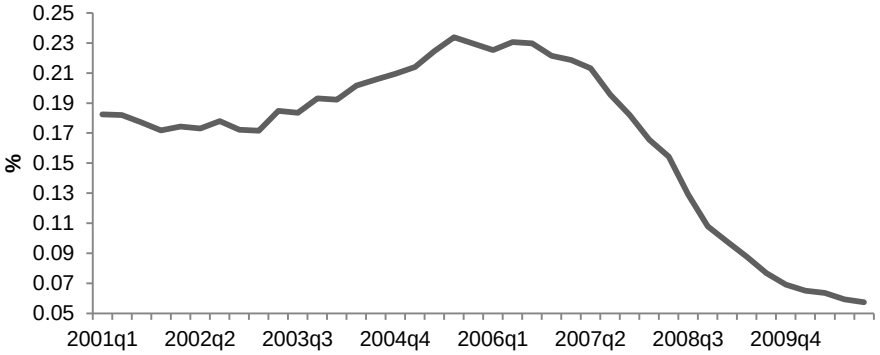
The results shown on Table 6 also reveal that problem loan ratios (PL), as measured by late loans and nonaccrual loans as a percent of total loans and leases, have a negative significant effect on bank capital ratios, for the sample of failed banks, but not for the group of non-failed depository institutions. In this case, a 1 percent increase in problem loans is associated with a 33 percent decrease in the capital ratio of a failed bank, compared to a 19 percent decrease prior to the financial crisis. Figures 1-8 show the median trend for the variables used in our regression equation, for our two bank samples. Figures 1 and 2 show that total unused loan commitments, as a percent of total loans and leases (TULC), started to decline around 2006 for the sample of failed banks. On the other hand, TULC for the sample of non-failed banks, started to decline two years later, around 2008.The graphs for total transaction deposits (Figures 3 and 4) show a more dramatic difference for the two samples used in this study.

The ratio of transaction deposits to total deposits (TTD), for the sample of failed banks, starts declining around 2003, and never recovered. On the other hand, the TTD ratio for the sample of non-failed banks starts declining almost three years later, around 2006. The fact that the sample of failed banks experienced a decline in TTD, several years before their failure, emphasizes the importance of transaction deposits in preventing a decline in capital ratios, and the eventual failure of the institution. Figures 5-8 also show that capital ratios of non-failed banks experienced quarterly fluctuations prior to 2007, a sharp decline around 2007, and a turnaround around 2009. The capital ratios of the sample of failed banks were somewhat stable prior to 2007, and started their continued decline around 2007.

CONCLUDING COMMENTS

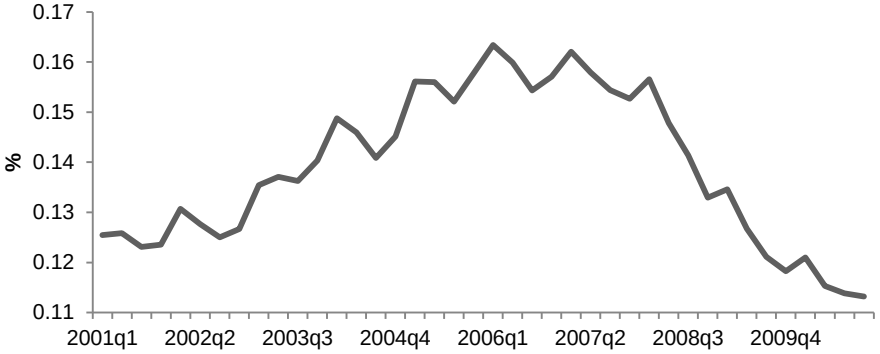
The failure of a large number of depository institutions during the recent financial crisis has resulted in an increased number of academic papers that have tried to explain the causes of such failures, and ways to avoid future failures. Our paper attempts to examine the core functions of commercial banking, the granting of credit and the gathering of funds used in daily transactions, to determine if the pattern of those banking functions had an effect on the financial condition of those banks that failed and did not fail during the period 2008-2010. Our results suggest that unused loan commitments and transaction deposits have a significant effect on the financial condition of stronger banks prior to the financial crisis. On the other hand, unused loan commitments affect the capital ratios of the sample of failed banks, during the financial crisis, but not the ratios of the sample of the non-failed banks. In addition, during the financial crisis, transaction deposits had a significant effect on the capital ratios of the non-failed banks, but did not affect the sample of failed banks. Future research should examine structural changes over time to determine the turning point when banks experienced the largest change in their financial condition, to see if there were significant changes in the composition of loans, loan commitments and deposits. In addition, other measures of the financial condition of a depository institution, like profitability and liquidity measures, should be incorporated into the analysis to obtain a more comprehensive view of the deterioration process experienced by those financial institutions that did not survive the recent financial crisis.

Figure 1: Median Values of TULC for Failed Banks



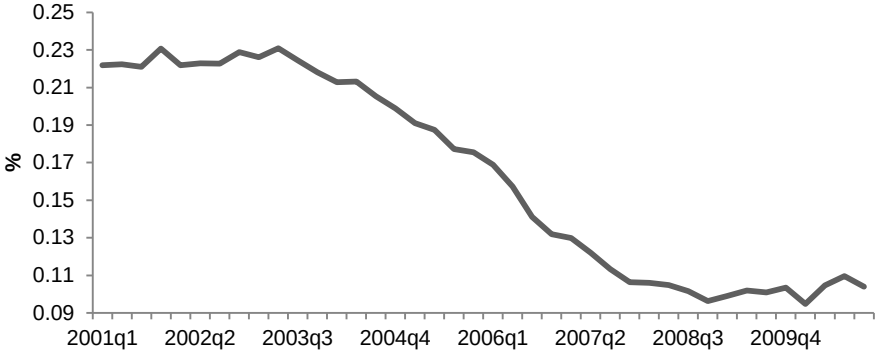
This figure shows the median quarterly values of total unused loan commitments divided by total loans and leases, for the group of failed banks used in our sample, during the 2001-2010 period.

Figure 2: Median Values of TULC for Non-Failed Banks



This figure shows the median quarterly values of total unused loan commitments divided by total loans and leases, for the group of non-failed banks used in our sample, during the 2001-2010 period.

Figure 3: Median Values of TTD for Failed Banks

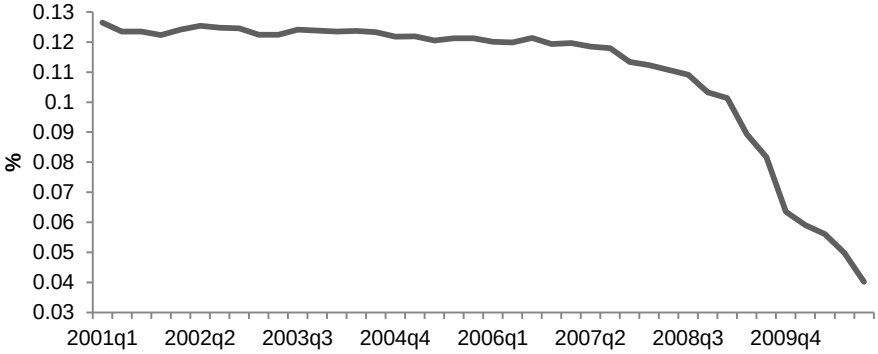


This figure shows the median quarterly values of total transaction deposits divided by total deposits, for the group of failed banks used in our sample, during the 2001-2010 period.

Figure 4: Median Values of TTD for Non-Failed Banks

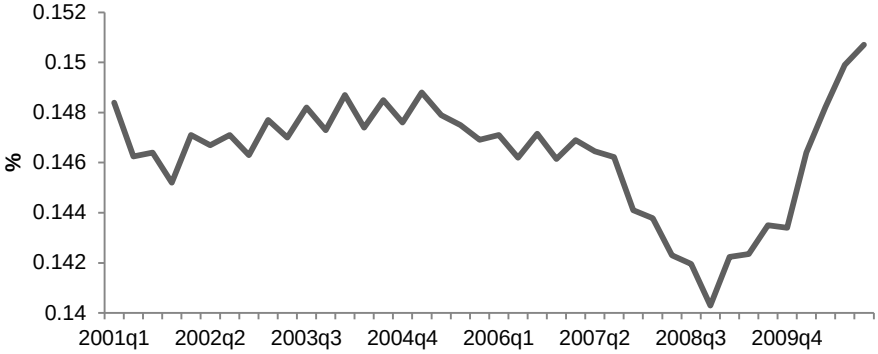
This figure shows the median quarterly values of total transaction deposits divided by total deposits, for the group of non-failed banks used in our sample, during the 2001-2010 period.

Figure 5: Total Risk-Based Capital Ratio (Median) for Failed Banks



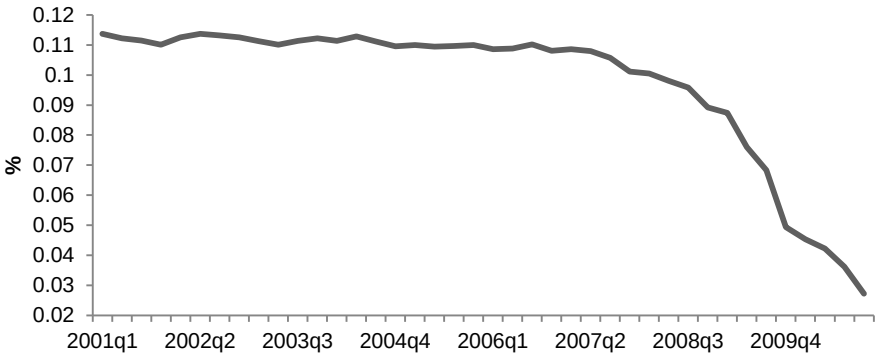
This figure shows the median quarterly values for the total risk-based capital ratio of the group of failed banks used in our sample, during the 2001-2010 period.

Figure 6: Total Risk-Based Capital Ratio (Median) for Non-Failed Banks



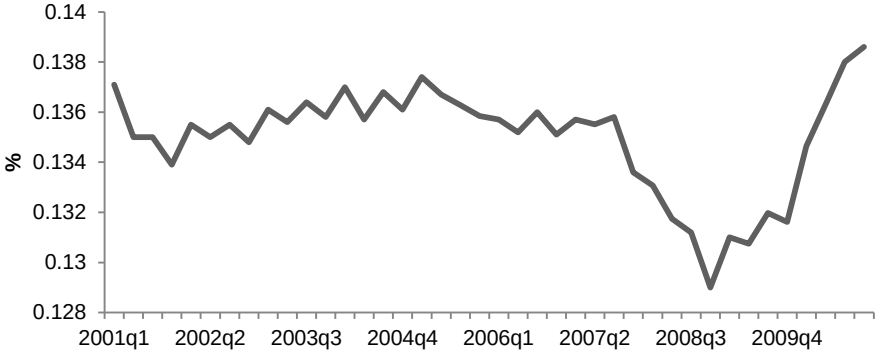
This figure shows the median quarterly value for the total risk-based capital ratio of the group of non-failed banks used in our sample, during the 2001-2010 period.

Figure 7: Tier 1 Risk-Based Capital Ratio (Median) for Failed Banks



This figure shows the median quarterly values for the tier 1 risk-based capital ratio of the group of failed banks used in our sample, during the 2001-2010 period.

Figure 8: Tier 1 Risk-Based Capital Ratio (Median) for Non-Failed Banks



This figure shows the median quarterly values for the tier 1 risk-based capital ratio of the group of non-failed banks used in our sample, for the 2001-2010 period.

APPENDIX

Appendix A: Variable Definitions

Unused loan commitments information from Schedule RC-L (call reports):
Revolving, open-end lines secured by 1-4 family residential properties (RCON/RCFD 3814)
Credit card lines (RCON/RCFD 3815)
Commercial real estate, construction, and land development (RCON3816, RCONF164, RCONF165, RCON6550, RCFD6550)
Securities underwriting (RCON3817, RCFD3817)
Other unused loan commitments (RCON3818, RCFD3818, RCONF457-459, RCONJ457-459)
Total loan information was obtained from Schedule RC-C:
Total Loans and leases, net of unearned income (RCON2122, RCFD2122)
Transaction deposits information was collected from Schedule RC-E:
Total transaction accounts, including demand deposits (RCON2215)
Deposit and Asset information was gathered from Schedule RC:
Total Deposits in domestic offices (RCON2200)
Total assets (RCON2170, RCFD2170)
Problem loan information was obtained from the Chicago Fed website (loans 90+ days late and nonaccrual loans) and complemented with the information gathered from the FFIEC's call report, Past Due and Nonaccrual Loans, Leases and other Assets, Schedule RC-N:
Past due 30 through 89 days and still accruing
Past due 90 days or more and still accruing
Nonaccrual
Capital ratios were gathered from Schedule RC-R:
Total risk-based capital ratio (RCON7205, RCFD7205)
Tier 1 risk-based capital ratio (RCON7206, RCFD7206)

This table shows the variable definitions, including the respective mnemonic and number reference, used in this study.

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