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New Evidence from the FDIC-Induced Failure of Healthy Banks

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Are Banks Really Special? New Evidence from the FDIC-Induced Failure of Healthy Banks

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Abstract

The FDIC used cross-guarantees to close thirty-eight subsidiaries of First RepublicBank Corporation in 1988 and eighteen subsidiaries of First City Bancorporation in 1992 when lead banks from each of these Texas-based bank holding companies were declared insolvent. I use this exogenous failure of otherwise healthy subsidiary banks as a natural experiment for studying the impact of bank failure on local-area real economic activity. I find that the closings of the subsidiaries were associated with a significant decline in bank lending that led to a permanent reduction in real county income of about 3 percent.

Key words: bank failures, cross-guarantee, uniqueness of banks

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1. Introduction

Why are banks so highly-regulated? There are probably several reasons, but one of the more important is a belief that bank failures are costly. While the most direct mechanism through which failures affect real economic activity is the loss of real wealth by parties holding bank liabilities and equity, even the parties that do not lose wealth suffer from illiquidity while they wait for assets to be liquidated. In the presence of borrowing constraints, this illiquidity affects real spending. Bank failures also disrupt or destroy long-standing credit relationships between a bank and its borrowers. If customers are unable to replace these relationships with other lenders on equal terms, this contraction in the supply of bank credit can also have an effect on real activity.

Bernanke (1983) first highlighted the role that the financial system played in amplifying other shocks during the Great Depression, emphasizing the effect that weak firm balance sheets and bank failures had in contracting the supply of credit. He documents the severe contraction in bank lending in the early 1930s, and develops evidence that failed bank deposits have marginal explanatory power over and above monetary aggregates in explaining industrial production.[1] More recently, Calomiris and Mason (2003) use an instrumental variables strategy with panel data in order to identify loan supply shocks and their effect on local area income over 1930-1932. The authors estimate an elasticity of real state income

[1] This view is not uncontested. It is not immediately clear that the observed contraction in bank lending was actually driven by bank failures, as it could reasonably have been caused by a decline in loan demand related depressed business conditions or a prompted by a deflation-induced deterioration in firm creditworthiness. Rockoff (1993) argues that the more important effect of bank failures is the illiquidity of suspended deposits. When using a quality-adjusted measure of the money supply, Rockoff determines that non-monetary variables are not necessary to explain the severity of the downturn.

growth to bank loan supply growth of 45 percent, where a one standard deviation decrease in loan growth over three years (17.9 percent) reduces output growth over three years by about 7 percentage points.[2]

While the existing literature suggests that bank failures were important during the 1930s, this paper addresses the question of whether or not bank failures still matter. The answer to this question is not obvious for at least three reasons. First, the creation of deposit insurance has significantly reduced the negative wealth effect of failures directly for depositors and indirectly for equity holders as the under-pricing of deposit insurance induced banks to increase leverage. Second, establishing the FDIC as receiver has minimized the illiquidity of failed bank deposits, as well as the claims of other creditors, and shortened the overall contraction in loan supply. Finally, the U.S. economy has likely become less bank dependent since the 1930s. In particular, Ashcraft (2003) estimates that the elasticity of real state income to bank loan supply is close to zero, and is definitely no larger than 10 percent. Together, these three changes in the financial system raise the question of whether or not bank failures still matter.

This question takes on greater relevance as a recent empirical literature has struggled to establish a convincing connection between bank failures and local area economic activity. In a study of rural counties in Kansas, Nebraska, and Oklahoma over 1981-1986, Gilbert and Kochin (1989) find weak evidence that bank failures are followed by a decline in economic

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[2] Anari, Kolari, and Mason (2003) separately conclude that the stock of suspended deposits is as important as money stock in explaining output change over forecast horizons of one to three years during the 1930s. It follows that both the illiquidity of suspended deposits and the contraction in lending played an important role.

activity, but only if the bank is closed. In another paper, Clair (1994) finds little correlation between bank failures and rural county output in Texas during the 1980s. While there are likely severe endogeneity problems associated with a simple regression of local area real economic activity on lags of failed bank deposits, as is done in the literature, the most natural bias is that such an analysis overstates the effect of bank failure.

Ideally, one would like to randomly assign failures to banks, then step back and watch what happens to real economic activity. Fortunately or unfortunately, the regulators lack the authority to run such experiments, so we are left to identifying bank failures that occurred for reasons that have little to do with local area economic activity. In this paper, I study two incidents when healthy subsidiaries of a multi-bank holding company failed when the lead banks failed:

1. In January 1988, the FDIC provided $1 billion of open-bank assistance to the lead banks of *First RepublicBank Corporation* in the form of a six-month loan. The note was guaranteed by the other 38 subsidiaries of the holding company and was collateralized by the equity that the parent had in these subsidiaries. When the FDIC chose not to renew the assistance loan in July 1988, the lead banks defaulted on the note and the insurer claimed its collateral, failing the non-lead banks in the holding company.

2. The cross-guarantee provision of FIRREA permits the FDIC to charge off any expected losses related to the failure of one subsidiary bank of a multi-bank holding company to the capital of a related subsidiary bank. In October 1992, the

FDIC exercised this authority when the lead banks of *First City Bancorporation* were declared insolvent. As the insurer expected losses of $500 million and the 18 other subsidiaries only held less than $300 million in primary capital, these other banks also failed.

In each of these cases, subsidiary banks of a multi-bank holding company failed for reasons that were arguably independent of local area economic conditions. Figure 1 makes this point clear by illustrating the relationship between a bank's primary capital ratio and the number quarters to failure for these 56 healthy bank failures (circles) and all other Texas bank failures that occurred 1980-2000 (triangles). While both sets of banks begin with similar primary capital ratios two years before failure, the losses associated with a traditional bank failure eat up bank capital in each quarter until the bank is finally insolvent. In contrast, the primary capital ratio of the healthy banks is remarkably steady, implying that there is clearly something different about these bank failures.

The paper proceeds as follows. Section 2 investigates the simple lessons learned from OLS, while Section 3 describes the main institutional details behind the FDIC-induced failure and resolution of healthy banks. Section 4 describes the data and analysis related to the natural experiments, while Section 5 concludes.

2. A first pass

Before turning to the natural experiments, it is useful to take a careful look at the correlation between bank failure and local area real economic activity. Using data from the *Bureau of*

Economic Analysis, I construct a panel of annual real county income for 1969-2000, deflating by the national consumer price index. I also use the FDIC's *Historical Statistics on Banking* (HSOB) web site in order to identify the failure of and assistance to commercial banks and thrifts over 1969-2002. While the FDIC report only identifies the city and state of the failing bank, I match this to county using the FDIC's *Summary of Deposits* (SUMD) in order to establish a mapping between city and county. The size of each transaction is measured using deposits from the HSOB report relative to county income, where the average failure involves deposits approximately equal to 15 percent of county income.

Table 1 describes summary statistics from more than 3,000 thrift and bank failures since 1969. The average failure involves an institution with a little more than $300 million in assets, although the median has assets of only $50 million. Failures are costly to the insurer, as the second row indicates the average transaction requires resources equal to about 25 percent of assets. Failing banks and thrifts are resolved in one of three different ways. In a Type I resolution, which includes open-bank assistance, the institution's charter is preserved. On the other hand, in a Type II resolution, which includes the purchase of assets and assumption of liabilities, the institution's charter is discontinued and some assets and deposits are transferred to another institution. Finally in a Type III resolution, insured deposits are paid off and the institution's assets and liabilities are liquidated. The table indicates that 80 percent of all failures involve bank closure, although the average cost of assistance is about the same as the average cost of a Type II transaction.

A first pass at measuring the effect of bank failure on real economic activity can be done using an OLS regression of county income k years after failure $\ln(y_{c,t+k})$ on lags of county

income before failure and the ratio of failed bank deposits to county income $\theta_{c,t}$ in the year of failure.

$$(1) \qquad \ln(y_{c,t+k}) = \Sigma_{j=1}^{3} \beta_j * \ln(y_{c,t-j}) + \delta_k * \theta_{c,t} \qquad k \in \{0,1,..,5,6\}$$

The regression includes a full set of time effects, uses robust standard errors, and clusters standard errors at the county level. Panel A of Table 2 reports OLS estimates of δ_k. In order to interpret these coefficients, consider a failure involving a ratio of deposits to income of 20 percent. Controlling for the effect of pre-existing local area economic conditions, this failure is followed by a decline in real income equal to 0.23 percent in the year of failure. Three years after failure, real income has fallen by about 0.40 percent, and shows now signs of recovery even six years after failure.

One might want interpret the estimates in Panel A as the effect of bank failure on real activity, controlling for the effect of pre-existing economic conditions. However, bank failure does not occur randomly conditional on the level and trend of real county income. In particular, if the reason why a bank fails in one county and not another has anything to do with how county income would evolve if the bank did not actually fail, OLS estimates will not accurately measure the effect of bank failure on the local economy. Since the risky part of a bank's asset portfolio is just made up of loans to local area firms, it seems especially hard to argue that bank failure is in any sense exogenous to the counterfactual path of income.

While it is hard to disentangle the effect of bank failure on real economic activity, it might be easier to identify differences in the effect of bank failure on county income across some measure of bank "specialness." Since small banks tend to concentrate lending with small firms, which are presumably more bank-dependent, one reasonable difference seems to be across bank size. The specification above permits for larger banks to have a larger effect on real economic activity simply because they have a larger presence in the market. If small banks are more special, however, one might expect that the failure of small banks to have a larger effect on economic conditions per dollar of failed bank deposits.

In order to develop evidence on this hypothesis, I permit the effect of deposits relative to income to be different for small ($\theta_{c,t} < 0.3$) and large ($\theta_{c,t} > 0.3$) failures, where 30 percent is about equal to the 90th percentile of failed deposits to income. Estimates of δ_k broken out across failure size are reported in Panel B of Table 2 and indicate that small bank failures have a much larger effect on real economic activity per dollar of deposits. The coefficients imply that for a failure involving a deposit to income ratio of 20 percent, county income declines in the year of failure by 1.76 percent using the small coefficients and only 0.18 percent using the large coefficients. After six years, the small failure has reduced real income by 4.31 percent while the large failure has reduced real income by 0.30 percent.

While this pattern is consistent with small banks being more special than large banks, it is possible to tell a reasonable story that gives cause for concern. Since small banks largely lend to local area businesses, one might expect small bank performance to be more closely tied to the local economy than that of large banks. It follows that small bank failures are a better

signal of a negative shock to the local economy than large bank failures, and the differences across size may not accomplish much to solve our original endogeneity problem.

The effect of failure on real activity should also depend on the manner in which the institution in resolved. Since a Type III resolution involves the permanent destruction of relationships between the institution and its customers, one might expect this to have the most significant effect on real activity. Panel C of Table 2 reports estimates of δ_k broken out across resolution type, which support the view that a Type III resolution has a much larger effect on real county income growth than the other two resolution types. For an institution with a ratio of deposits to income of 20 percent, a Type I resolution is associated with a decline in output in the year of failure of 0.12 percentage points and a Type II resolution is associated with a decline of 0.26 percentage points. On the other hand, in a Type III resolution, output falls by 0.85 percentage points.

While this pattern is again consistent with banks being special, one might be concerned that the insurer typically gets to choose how a bank is resolved. In particular, the FDIC is mandated to choose the resolution method that minimizes the cost to the taxpayer. As this cost likely depends in part on expected local area economic conditions, it is not clear that the observed larger effect of a Type III resolution reflects the destruction of relationships or how the insurer chooses resolution type.

In summary, bank failures are typically followed by modest declines in local area economic activity. The decline in real county income is larger per dollar of deposits for small banks than large banks, consistent with the greater concentration of local area claims in small bank

loan portfolios. Finally, the negative effect of failure is much larger when the bank is closed, consistent with the idea that it is difficult for firms to replace long-standing relationships. While all of this evidence is consistent with banks being special, it is not possible to dismiss some reasonable concerns.

3. The Failure and Resolution of Healthy Banks

Why would the FDIC let healthy banks fail? Why would the failure of healthy banks have any effect on real economic activity? The following two sections provide detailed explanations to each of these questions.

3.1 The FDIC-induced failure of healthy banks

The most severe of the regional banking crises in the late 1980s occurred in the Southwest, which represented one-half of the total failure-resolution costs incurred by the FDIC from 1986 to 1994, and corresponded to 71 percent of the banks that failed in from 1987 to 1989. The collapse of the banking industry was particularly dramatic in Texas. From 1980 to 1989, 425 commercial banks failed in Texas, including 9 of the 10 largest bank holding companies. The state also accounted for 18 percent of the Resolution Trust Corporation's resolutions of thrifts and 30 percent of its resolution costs.[3]

Figures 2a and 2b illustrate the number and total deposits of Texas thrifts and banks that either failed or received open-bank assistance from the FDIC since 1981. By either measure,

the banking crisis in Texas clearly peaks in 1988 where financial institutions with more than $70 billion in deposits, representing almost one-third of deposits in the state, either failed or received assistance.

At the core of the state's banking crisis was the importance of oil production for the local economy and a slow decline in the price of oil that started in 1981. As oil markets weakened, banks shifted their lending focus to commercial real estate, which was booming given the decline in interest rates, new asset powers of the Savings and Loan industry, and tax changes in 1981. A collapse of oil prices in 1986 wrecked havoc on the region's economy and contributed to the collapse of real estate prices. The combination of losses on real estate loans, energy loans, and stiff competition from thrifts explains most of the bank failures in Texas during the late 1980s.

First RepublicBank Corporation

Table 3 describes summarizes problems in the Texas banking industry during 1988, the worst year of the regional banking crisis. Highlighted in Panel A is failure of *First Republic* in July, the largest ($33.4 billion in assets) and costliest ($3.9 billion) in FDIC history. *First Republic* was the largest bank holding company in Texas with more than 160 offices throughout the state. Its banks had major correspondent relationships with over 1,000 banks, held 20 percent of all loans made in Texas, and managed $50 billion in trust assets. The holding company was created as a merger between *RepublicBank Corporation* and *InterFirst*

[3] This description of the banking crisis in the Southwest draws on Chapter 9 from FDIC (1997): "Banking Problems in the Southwest," History of the Eighties: Lessons for the Future.

Corporation in June 1987 as a means to assist the later holding company, which was struggling at the time.[4]

It soon became clear, however, that the former *RepublicBank* subsidiaries were not as strong as previously thought. By the end of 1987, regulators forced the bank holding company to recognize troubled loans leading to a loss of more than $650 million. Panel A of Table 4 illustrates that these problems were concentrated in the lead banks in Houston and Dallas, as problem loans increased from about 2 percent in 1985 to almost 12 percent in 1987. The table illustrates that the non-lead banks also suffered during the downturn of the Texas economy, but not nearly to the extent of the Dallas and Houston banks. Loan performance of non-lead banks did deteriorate more rapidly than that of their peers in Panel B, but not nearly to the extent of the lead banks relative to their peers.

As bad news affected funding, the lead banks were forced to raise funds from their other subsidiaries due to losses in demand deposits and correspondent business. In the first quarter of 1988, the lead banks lost $1.8 billion in deposits, creating a liquidity crisis that forced the Dallas bank to borrow $2.6 billion from *Federal Reserve Bank of Dallas*. Since the Dallas bank was on the verge of failure, the FDIC approved a six-month open-bank assistance agreement of $1 billion in March to the lead banks of the holding company.[5] For the first time since *Continental Illinois*, the FDIC assured all depositors and creditors of the banks – and not the bank holding company – that they would be fully protected against loss. The note was subordinated to depositors, paid 50 basis points over the 6 month U.S.

[4] The description here of the *First RepublicBank* failure draws on a case study appearing in Chapter 6 of Part II of FDIC (1998): "First RepublicBank Corporation," Managing the Crisis, pp. 595-616.
[5] ibid.

Treasury note, and was guaranteed by all other subsidiaries of the bank holding company and collateralized by the equity stake the parent held in them.

While the FDIC assistance plan slowed the outflow of deposits from the lead banks, the condition of lead banks continued to deteriorate. The last column of Table 4 indicates that stockholder's equity in the holding company was negative $1.1 billion at the end of the second quarter of 1988. The dire problems faced by the lead banks are illustrated in Panel A of Table 5, which indicates that only 50 percent of assets were financed by deposits while almost 30 percent financed by federal funds loans. Panel B of the table illustrates that these loans originated in the non-lead banks, which had drawn down on liquid assets and slowed lending so much that federal funds loans were more than 40 percent of assets.

On July 29, 1988 the FDIC notified regulators that open-bank assistance would not be renewed. *The Federal Reserve Bank of Dallas* requested repayment of its loan to the Dallas bank, and when it was unable to repay it was declared insolvent and closed by the OCC.[6] In turn, when the Dallas and Houston banks were unable to repay the $1 billion note to the FDIC, the insurer charged the loan off against the capital accounts of all other subsidiary banks. This charge and losses on inter-bank funding the rendered all of the non-lead banks in the holding company insolvent, prompting the failure of otherwise healthy banks.[7]

[6] ibid.

[7] If the non-lead banks were truly healthy banks, why was their resolution so costly? From Table 3, the cost of resolving the non-lead banks was $1.4 billion, and from Panel B of Table 5 these banks had in aggregate a little less than $450 million in equity capital on their second quarter Call Report. Together, these figures suggest that the FDIC recognized losses in the amount of $1.945 billion in resolving the non-lead banks. Since these banks held a little under $5 billion in federal funds loans, the losses on inter-bank funding are more than enough to explain the resolution cost.

First City Bancorporation

Table 6 takes a closer look at the tail end of the banking crisis in 1992 and 1993. Standing out relative to other institutions is the failure of 20 subsidiaries of *First City Bancorporation* in 1992, not only because of their consolidated size at $7.5 billion in deposits, but also because the transaction involved no cost to the FDIC. *First City Bancorporation* failed on October 30, 1992 when regulators declared its lead banks in Dallas and Houston to be insolvent. According to the third quarter Call Report documented in Table 7, these two lead banks with about $4 billion in assets had posted a net loss of $86 million over the first nine months of the year and $450 million over the previous 45 months. One month before failure, the Dallas and Houston subsidiaries declared only $31 million in equity capital and $111 million in loan loss allowances against more than $300 million in problems loans.[8]

Later on the same day that the lead banks were closed, the FDIC exercised the "cross-guarantee" provision of FIRREA, permitting the insurer to charge off to the capital of solvent subsidiary banks any expected losses related to the failure of the lead banks. As the FDIC's original estimate of loss was $500 million and the remaining subsidiaries only had $276 million in primary capital as of the third quarter Call Report, the regulators also closed down all of these other banks. In contrast to the lead banks, Table 7 illustrates that these other subsidiaries were actually profitable over the previous 45 months with net income of about $35 million. Moreover, even though the solvent subsidiaries had about $4 billion in assets, they only held one-fifth the amount of problem loans as the lead banks and on a consolidated basis maintained a primary capital ratio of almost 7 percent.

3.2 The FDIC's resolution of healthy bank failures

The FDIC is authorized by the *Competitive Equality Banking Act* (CEBA) of 1987 to create bridge banks in the resolution of failed banks. A bridge bank is a national bank chartered by the OCC that is operated by the FDIC for a period of less than two years. The creation of a bridge bank gives the insurer time to stabilize the failed bank's situation, effectively market the franchise to potential acquirers, and perform due diligence on the asset portfolio. The FDIC typically uses its bridge bank authority in the resolution of large, complex banking organizations, replacing the prior use of open bank assistance. *First RepublicBank Corporation* and *First City Bancorporation* were both resolved using bridge banks.[9]

Between 1987 and 1994, the FDIC used its authority 10 times to resolve 114 failed banks into 32 bridge banks with total assets of about $90 billion. Most of these failures occurred in the Northeast or the Southwest and involved institutions with assets of at least $1 billion. Except for two cases, the bridge bank operated for less than seven months. A bridge bank operates in a conservative manner, attempting to preserve franchise value and lessen any disruption of failure to the local community. In the early bridge banks, there was little lending until the acquirers assumed complete control. In later bridge banks, however, the FDIC selected a CEO and appointed a Board of Directors. Moreover, the FDIC tried to prevent a significant outflow of commercial and retail loan customers by making limited loans and honor commitments to the local community that would not increase losses.

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[8] The description here of the *First City* failure draws on a case study appearing in Chapter 5 of Part II of FDIC (1998): "First City Bancorporation," Managing the Crisis, pp. 567-594.

[9] The description here of the FDIC's use of bridge banks draws on Chapter 6 of Part I of FDIC (1998): "Bridge Banks," Managing the Crisis, pp. 171-192.

In practice, what happens to lending when an institution is placed in a bridge bank? Panel A of Table 9 documents selected variables for 10 bridge banks that were used to resolve 50 failed banks, a group that does not include the subsidiary banks of the bank holding companies involved in the two natural experiments. The table reports the level of each variable in the quarter of failure, and in other quarters reports each variable as a percent of its value on the quarter of failure. Bridge bank operations are documented in during quarters after failure, while balance sheets are aggregated across all resolved banks in prior quarters. Lending must be inferred from changes in the stock of loans, but this poses an immediate challenge as several of these bridge banks moved problem loans into special asset pools, creating a jump down in the stock of loans unrelated to lending. In order to construct a consistent time series, I add loans net of allowances for loss to the balance of the bank's Other Real Estate Owned (OREO) and Other Assets accounts, and attribute changes in the level of this variable over time to lending. The third column of the panel suggests that bridge bank lending is modest as the stock of loans grows by 3.4 percent in the first quarter of operations. On the other hand, there is a dramatic collapse in the stock of unused loan commitments (41.1 percent) and standby (24 percent) and commercial (21.5 percent) letters of credit. Total extensions of credit, on and off the balance sheet, fall by about 8 percent in the first quarter following failure, and are 20 percent below the level two quarters prior to failure.

First RepublicBank Corporation

On July 30, 1988, the FDIC placed all 40 subsidiary banks into the bridge bank NCNB Texas. The insurer had selected NCNB to acquire the bridge bank, but did not finalize the sale until November 22, 1988. In the transaction, the FDIC purchased 100 percent of nonvoting stock in the new bank holding company for $840 million while NCNB purchased 100 percent of voting stock for $210 million. In addition, the bank holding company placed $9.2 billion of troubled loans in a separate asset pool and the assets were written down to market value. The FDIC funded the write-down of these liabilities by assuming $1 billion of the bridge bank's debt to the Federal Reserve and forgave $131.8 million of bridge bank's $300 million debt to the insurer in a revolving credit agreement. In April 1989, 9 months after failure, NCNB assumed control of the bridge bank by acquiring a portion of the FDIC's interest.[10]

Panel B of Table 9 illustrates the lending of the bridge bank, demonstrating that the stock of net loans actually fell by about 5 percent in the first quarter and another 5 percent in the second quarter of operation.[11] In addition, over three quarters of FDIC control there was also a collapse in unused commitments (30.1 percent) as well as standby (25.3 percent) and commercial (75 percent) letters of credit. Total extensions of credit, on and off the balance sheet, fell by almost 14 percent two quarters after and by almost 23 percent since two quarters before failure.

[10] The description here of the *First RepublicBank* resolution draws on a case study appearing in Chapter 6 of Part II of FDIC (1998): "First RepublicBank Corporation," Managing the Crisis, pp. 595-616.

[11] The last column in Panel B of Table 9 indicates that this reduction in the stock of loans was not driven by the sale of loans with recourse. Moreover, there is no evidence from the income statement indicating extraordinary income related to losses from the loan sales, as would have been the case for a non-recourse sale.

First City Bancorporation

In resolving the subsidiaries of *First City Bancorporation*, the FDIC established 20 separate bridge banks to assume the deposits of each failed subsidiary bank. At the time failure, the FDIC expected losses from four of the subsidiary banks: the two lead banks in Dallas and Houston and as well as two subsidiary banks in Austin and San Antonio that failed to meet minimum regulatory capital adequacy guidelines. In the sixteen other subsidiaries, the FDIC transferred all deposits, including $140 million in uninsured deposits, to new bridge banks. In the four banks where losses were expected, all insured deposits were transferred to bridge banks and the FDIC paid an 80 percent advance dividend on $260 million in uninsured deposits.[12]

The breaking up the bank holding company into small pieces permitted smaller institutions to bid for the bridge banks when they were eventually sold as the FDIC received 111 bids for the 20 bridge banks from 32 financial institutions. On January 27, 1993, the FDIC announced the sale of the bridge banks with about $9 billion in assets to 12 financial institutions at an aggregate premium of $434 million. In 17 of the failed banks, the acquiring institutions agreed to absorb all losses while the acquirers of the Dallas, Houston, and Austin entered into loss-sharing agreements of $2.5 billion with the FDIC.

After bidding, the FDIC announced another 10 cents for every dollar of uninsured claims for depositors in Dallas and for uninsured depositors and other unsecured creditors of the Austin and San Antonio banks. The Dallas bank was chartered by the state, and Texas had a

depositor preference law requiring that all depositors be paid before other creditors. On March 30, the FDIC announced that all creditors with valid claims against the receivership would receive the full principal amount of their claims and forecast a surplus of $60 million to be returned to the shareholders of the bank holding company. As these shareholders projected a receivership surplus of more than $500 million, they sued the FDIC for the improper closure of Dallas and Houston banks as well as improper use of cross-guarantees to the other subsidiary banks. The FDIC settled the lawsuit seeking $1 billion in compensatory damages and $2 billion in punitive damages for about $350 million in January 1994, and the agreement was approved by the bankruptcy court in May 1995.

The FDIC has two explanations for why the resolution of First City involved no cost to the insurer. First, there was a turnaround in Texas real estate, so the cost to the insurer on the $2.5 billion in loss-sharing assets was quite small, less than 3 percent. More importantly, the FDIC was pleasantly surprised with the bids it received for the 20 bridge banks, where it the breaking up of the bank holding company into small pieces facilitated a "diversification discount" in reverse as small banks with relatively high valuations of the bridge banks were seeking opportunities to expand.

Since each failed bank was placed into a separate bridge bank, it is possible to examine the lending of the lead and non-lead bank bridge banks separately. Panel C indicates that total extensions of credit fell by only about 4 percent for the lead banks, where this was driven by a collapse in off-balance sheet commitments. The behavior of non-lead bank bridge bank lending is illustrated in Panels D and E of the Table, where the former focuses on the

[12] The description here of the *First City* resolution draws on a case study appearing in Chapter 5 of Part II of FDIC (1998): "First City Bancorporation," Managing the Crisis, pp. 567-594.

problem banks in Austin and San Antonio. Total extensions of credit collapsed by about 44 and 45 percent in the healthy and problem non-lead banks, respectively. Moreover, there is no evidence to suggest that this decrease in the stock of loans is driven by loan sales, implying a fairly significant decline in bridge bank lending.

4 Data and Analysis

The fundamental unit of analysis is a county in a given year, where I implicitly treat each of the 255 Texas counties as a separate banking market. I use the FDIC's *Summary of Deposits* in order to measure market size (total deposits) and market concentration (deposit Herfindahl index). The latter is constructed by aggregating the underlying branch data to the bank-county level and using the sum of squared market shares for each bank within a county.

The FDIC's *Historical Statistics on Banking* web site is used in order to produce a report for the state of Texas regarding the failure and assistance of banks and thrifts in each year. In addition to the date of each transaction, I collect information on the type (failure or open-bank assistance), charter class (bank or thrift), location (name of city or town) of the head office, and FDIC certificate number (for banks only). In order to identify the banking markets affected by each bank failure, I identify the location of all bank branches by matching the certificate number to the *Summary of Deposits*. Figures 3a and 3b illustrate the location of branches of the lead and non-lead banks of the *First RepublicBank* and *First City* bank holding companies, respectively. In each case, the lead banks had branches concentrated in the Dallas and Houston metro areas while the non-lead banks had branches that were spread throughout other parts of the state. I construct the deposit market share of

banks that either fail or receive open-bank assistance in each Texas county-year. Without a certificate number, I match failing thrifts to counties using the city or town of each institution, and construct the number of failing thrifts in each county-year.

In addition, I construct an annual data set of bank examination (CAMEL) ratings, using the most recent composite rating in the analysis of the 1992 cross-section. These ratings are also aggregated to the county level, in order to measure county-year financial condition of Texas banks. I also use data from the FDIC's *Call Reports of Income and Condition* in order to construct county-level bank balance sheet and performance measures. The bank data is aggregated using the deposit market share in a county in order to construct county-year data. Finally, county income is taken from the *Bureau of Economic Analysis* 1969-2002, and is combined with the national consumer price index in order to construct a measure of real county income.

If the location of each healthy bank failures was randomly assigned throughout the state of Texas, the analysis would be straightforward. Since there would be no pre-existing differences between the counties that were affected by the FDIC-induced failure and those that are not, I could simply focus on the behavior of real variables following the failure. It follows that any difference between these two groups is attributable to the effect of bank failure.

Unfortunately, the location of the healthy subsidiaries of our two failing bank holding companies was not randomly assigned. Since the parent companies chose to purchase banks in these counties and not other counties, one might be concerned that there is something

different between the counties where there are healthy failures and the counties where there are not. If this is the case, then the naive analysis described above is not the right thing to do. For example, if the parent purchased banks in markets with fast growth or little competition, we want to be sure that we are using markets that had fast growth or little competition in the control group of unaffected counties.

Summary statistics are displayed in Table 10, broken out across affected and unaffected counties for each of the natural experiments analyzed below. Counties affected by the failure of lead banks or problem non-lead banks are removed from the sample, as they are neither in the treatment nor the control groups. The affected counties appear to be a little more urban than the unaffected counties, as county income is much larger and banking market concentration as measured by the Herfindahl index (HHI) is much lower. There is no obvious pattern over two years for bank failures or county income growth, but it does seem to be the case that affected counties were more likely to have experienced thrift failures.

The natural solution to this potential problem is to control for county characteristics in the years before failure, and this is done through a lagged dependent variable specification. For a county (c) experiencing a healthy bank failure at time (t), we can analyze the effect of failure on real variables at time (t+k) using the following model:

$$(2) \qquad \ln(y_{c,t+k}) = \alpha+\Sigma_{j=1}^{3} \beta_i*\ln(y_{c,t-j})+\Sigma_{j=1}^{3} \gamma_i*x_{c,f-j}+\delta_k*\theta_{c,t}+\varepsilon_{c,t} \qquad k \in \{0,1,..,5,6\}$$

This is just a cross-section of Texas counties. The dependent variable is a measure of real economy activity (y) in county (c) at time (t+k). I control for pre-existing differences in the level and trend of the dependent variable before healthy failure using three lags of the dependent variable (the β_j's). In addition, I control for other differences in county banking markets using three lags of county-level characteristics (γ_j's) before the healthy failure. These characteristics include the log of county deposits, the county deposit Herfindahl index, the deposit market share of failed banks, the number of failed thrifts, deposit-weighted bank balance sheet variables, and in the 1992 cross-section the county CAMEL rating. Finally, the effect of bank failure is taken from the coefficient on the ratio of healthy bank deposits to income.

Table 11 reports the effects of healthy bank failure on local area economic activity, reporting the OLS estimate of δ_k and standard errors, which have been corrected for heteroskedasticity. In order to interpret these coefficients, I consider a bank failure with a ratio of deposits to county income of 20 percent, approximately equal to the mean of affected counties from Table 10. I apply the estimated coefficients and standard errors in order to gauge the magnitude of the estimated effects and construct a 90 percent confidence interval. Figure 4a illustrates the average effect of healthy bank failure on log county income for the non-lead banks of *First RepublicBank Corporation*. After three years, real income has fallen by about 2.5 percent, while after six years real income has fallen by about 3.8 percent. Figure 4b illustrates the average effect of healthy bank failure on log county income for the healthy non-lead banks of *First City Bancorporation*. After three years real county income has fallen by about 3.5 percent, while the effect remains at 3 percent after six years.

In each figure, the magnitude of the estimated effects are economically and statistically significant. While the effects might seem large, they are broadly in line with the OLS estimates for small bank failures in Panel B of Table 2. At the same time, the measured effect of the average healthy bank failure is smaller than estimates of the effect of branch deregulation, which Strahan and Jayaratne (1996) conclude increased per capita state income growth by as much as one percentage point. The implied elasticity of real income to bank loan supply is not unusually large. As healthy non-lead bank extensions of credit fell by 44 percent in the First City failure and these banks had an average deposit market share of 20 percent, this corresponds to a reduction in aggregate county lending of 11 percent (assuming no response by other banks in the county). As county income fell by 1 percent in the year of failure, this implies a contemporaneous elasticity of real output to loan supply of less than 10 percent, consistent with Ashcraft (2003). The long-run elasticity is a little higher at 30 percent, but this is harder to interpret without knowing what happened to lending after control of the bridge banks shifted from the FDIC to the acquirers.[13]

4. Conclusions

This paper has developed evidence that healthy bank failures have significant and apparently permanent effects on real economic activity. Much of this effect can be explained by a severe contraction of failed bank lending shortly before failure and while the failed banks were under direct control of the FDIC. These results potentially have important implications for the supervision of small banks, which have been largely exempted from proposed changes in revised Basle Accord.

[13] It is not possible to put together a consistent time series for county loan supply after control shifted from the FDIC,

One might object that the lessons to be learned from the failure of healthy banks are very narrow. While this might be a clever way of disentangling the effect of pre-existing economic conditions from the effect of bank failure on real economic activity, it might have little to say about the effect of more typical bank failures. In particular, since banks often fail because of poor underwriting standards, the contraction in credit following a traditional bank failure is likely to be much more severe since other banks in the market are likely unwilling to extend credit on the same terms. In addition, it is possible that liquidating bank assets has a larger effect when economic activity is depressed, and since bank failures typically reflect weakness in the local economy, healthy bank failures likely understate the effect of this liquidation on real activity. So while healthy bank failures are undoubtedly different from traditional bank failures, it seems reasonable to think that they will understate the effect of a typical bank failure on real economic activity.

On the other hand, while one might be limited in making inferences about the effect of traditional bank failure on real economic activity, the failure of a healthy bank might be considered the ideal experiment in which to study the question of whether or not banks are special. In each of these healthy failures, there is a severe contraction in bank credit that is unrelated to local area economic activity, and the question is whether or not loan customers are able to replace this credit on equal terms at other banks. This seems like the perfect framework for evaluating the real macroeconomic importance of bank-specific relationships, and the costs of their destruction.

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since acquirers typically came from other counties and absorbed the bridge bank onto their balance sheet.

The micro literature surveyed by James and Smith (2000) generally supports the hypothesis that bank loans are special, but the macro literature has been less conclusive. Peek and Rosengren (2000) find evidence that changes in U.S. real estate lending by Japanese banks related to the collapse of the Nikkei caused a changes in U.S. real estate output. On the other hand, Driscoll (2003) fails to find any evidence that shifts in state bank loan supply created by money demand shocks have any effect on state income. In addition, Ashcraft (2003) concludes that bank loans are not special enough for monetary economists to care. In particular, the lending channel is an insignificant part of the transmission mechanism largely because real state income is so insensitive to state loan supply.

Why does bank lending matter in some places, i.e. Peek and Rosengren (2000) and in this paper, while not in others? If Japanese banks were making loans on the margin that were not being made by U.S. banks, it is not surprising that these changes in loan supply have important real effects. On the other hand, the frictions related to the lending channel generate loan supply shocks that are fairly small. Ashcraft (2003) exploits differences in access to external funds across affiliation with a multi-bank holding company, and finds that differences in the response of bank lending to a 100 basis point increase in the federal funds rate are no more than 1 percentage point across affiliation.[14] It follows that one reasonable way to reconcile the above results with Ashcraft (2003) is that firms are able to use non-bank sources of credit or draw down on liquid assets in order to shield investment from small bank loan supply shocks, but not large ones.

[14] Using the sensitivity of bank loan growth to insured deposit growth as a measure of the severity of financial constraints, affiliation has the same effect on financial constraints as a fairly substantial change in bank capital. It follows that fairly large changes in the severity of financial constraints lead to fairly small changes in the response of lending to monetary policy, implying that the loan shocks associated with the lending channel are fairly small.

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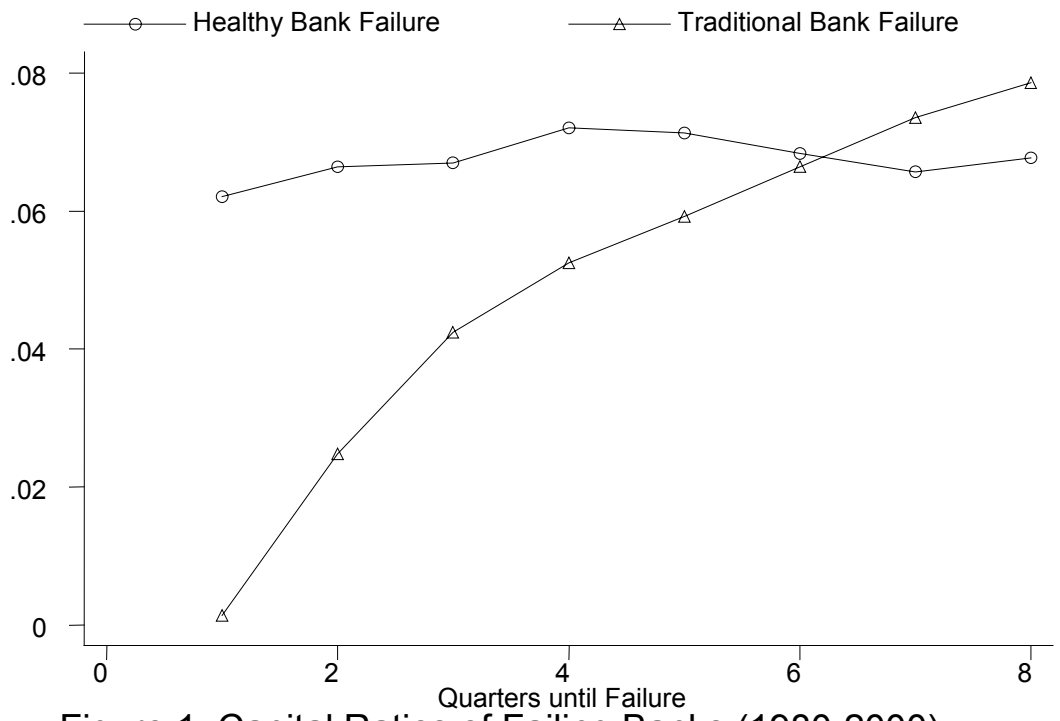

Figure 1: Capital Ratios of Failing Banks (1980-2000)

Figure 2a: Number of Thrift and Bank Failures in Texas

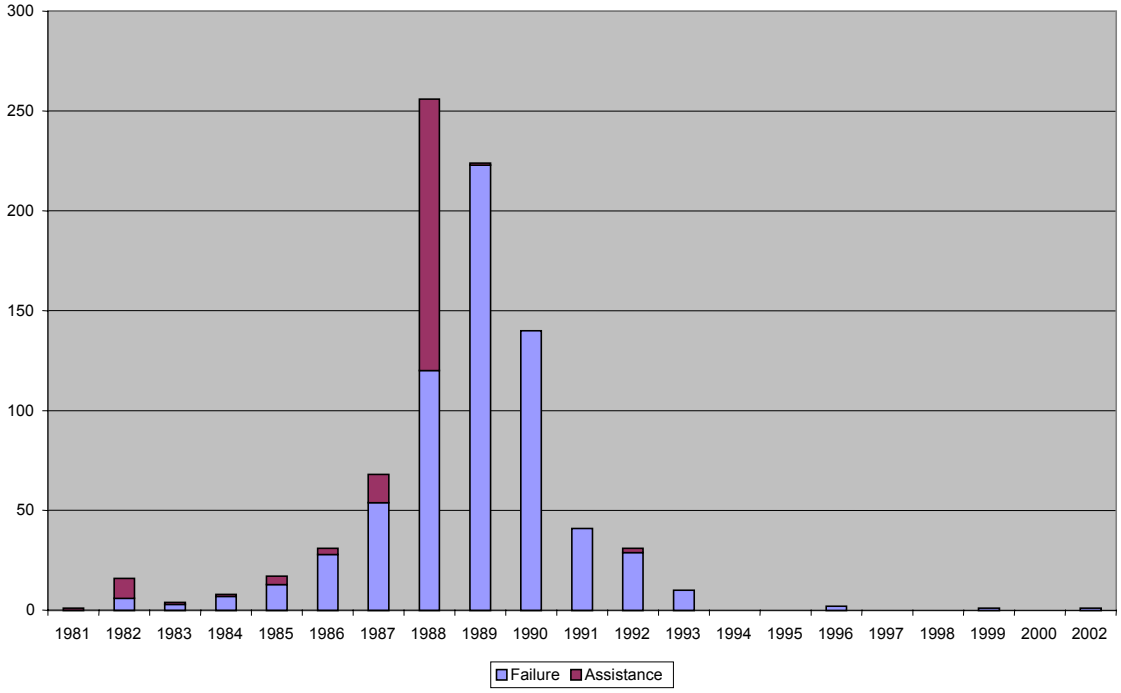

Figure 2b: Deposits of Thrift and Bank Failures in Texas

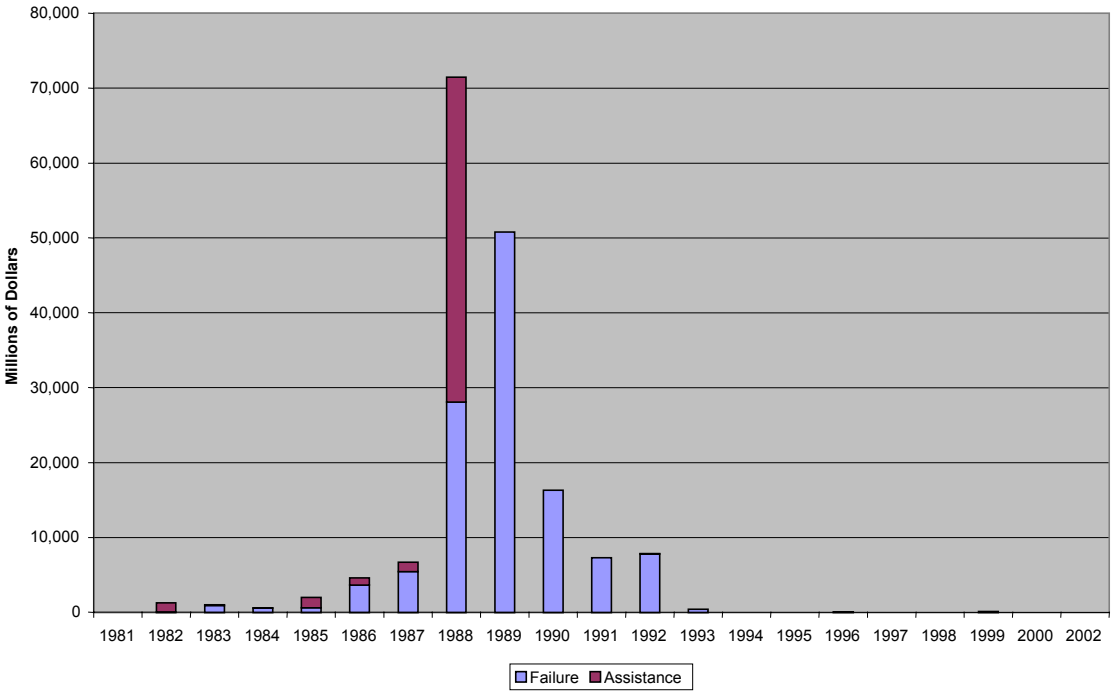

Figure 3a: Subsidiaries of First RepublicBank Corporation

June 1987

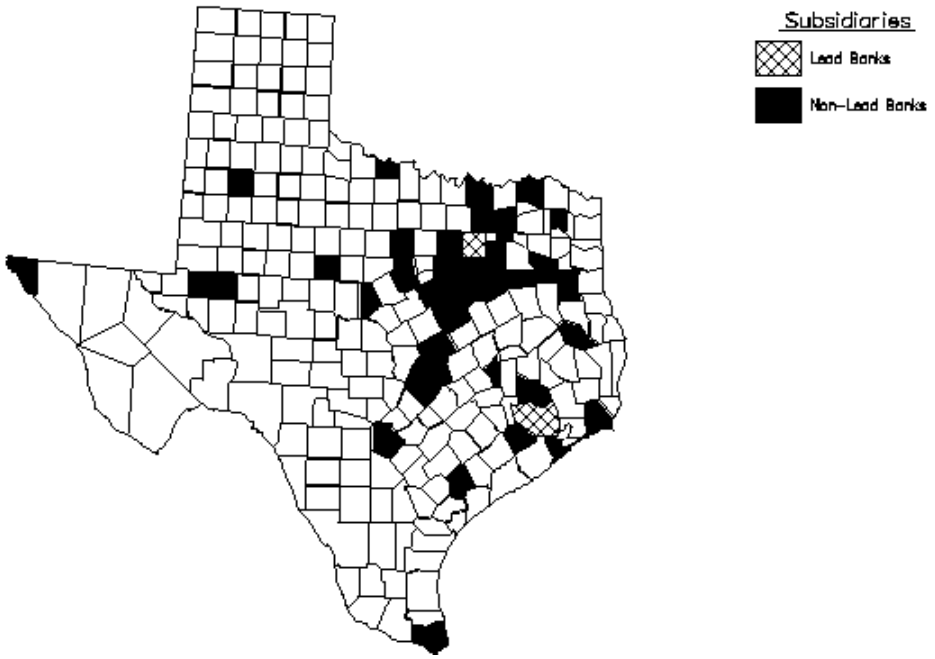

Figure 3b: Subsidiary Banks of First City Bankcorporation

June 1992

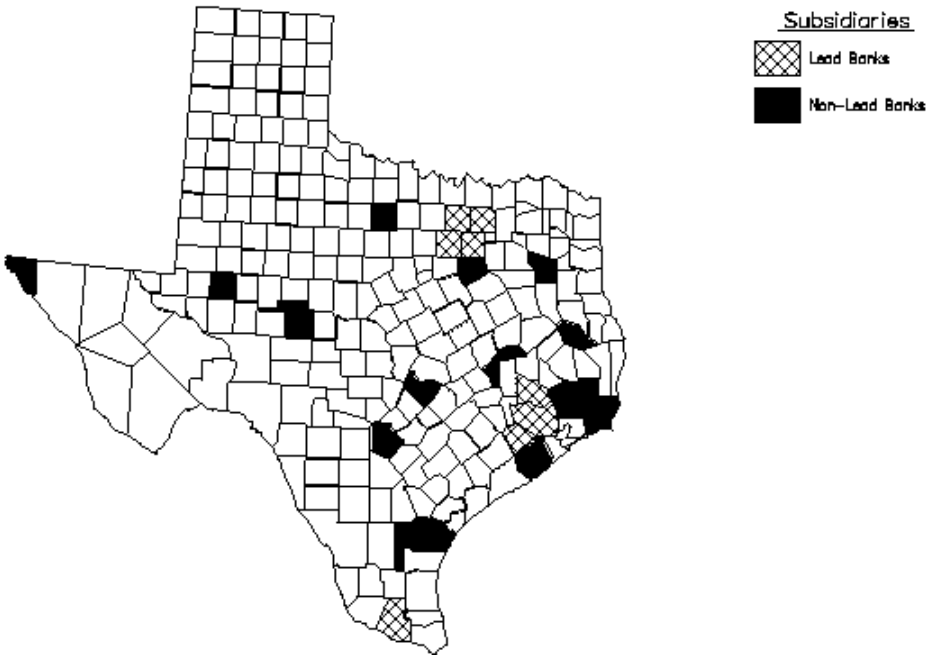

Figure 4a: Healthy First RepublicBank Failures

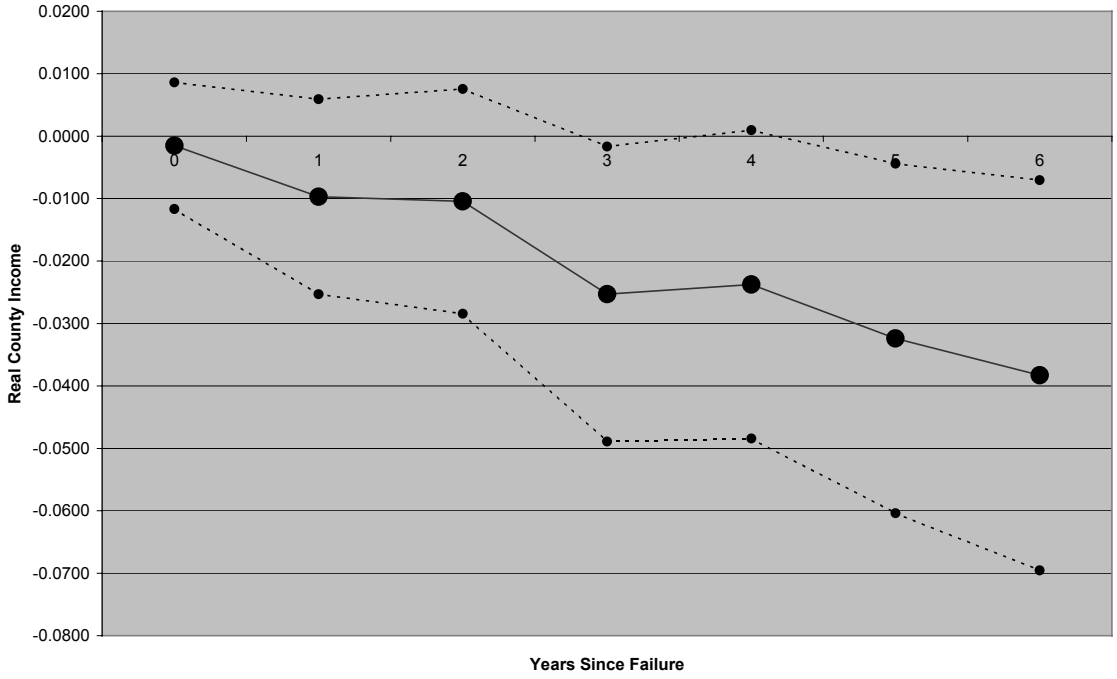

Figure 4b: Healthy First City Bankcorporation Failures

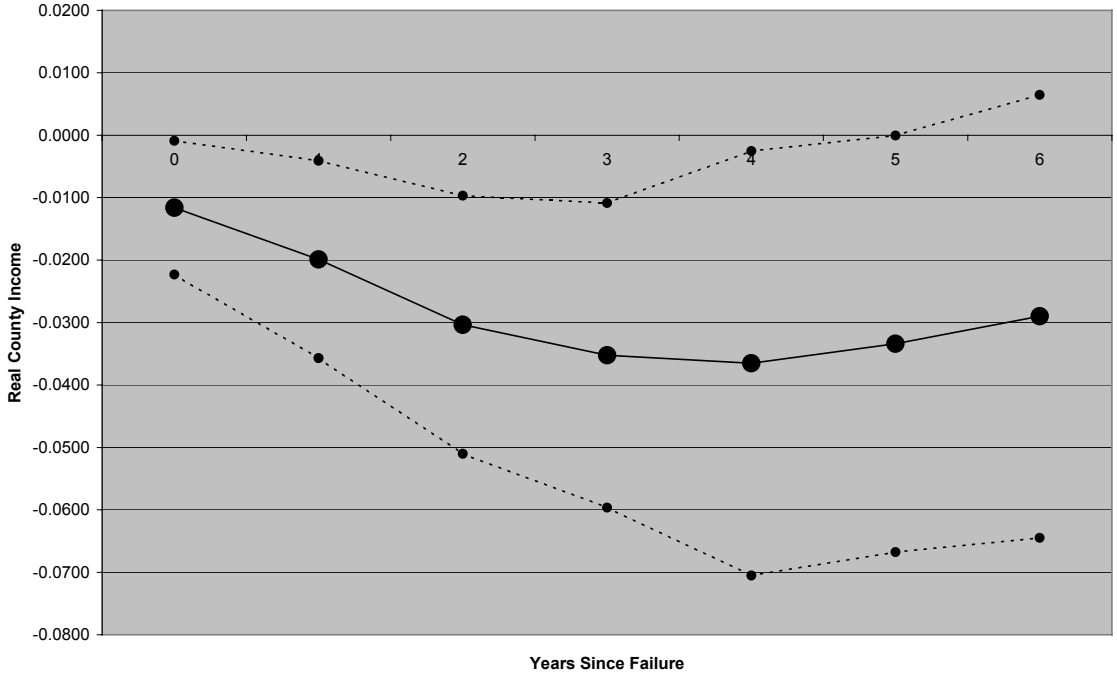

Table 1: The Failure of and Assistance to Banks and Thrifts, 1969-2002

		Insurance Fund		Resolution Type		
	All	**SAIF**	**BIF**	**I**	**II**	**III**
Assets	305,195	457,428	189,395	462,186	293,172	90,148
Cost/Assets	25.94%	32.55%	20.66%	24.77%	24.56%	38.83%
Insurance Fund						
Bank Insurance Fund	56.80%	0.00%	100.00%	24.20%	66.58%	49.84%
Charter						
National Bank	21.33%	0.00%	37.55%	9.98%	25.07%	16.50%
Non-member Bank	28.87%	0.15%	50.71%	10.49%	33.93%	28.16%
Savings Association	43.33%	99.85%	0.34%	75.80%	33.65%	49.84%
Savings Bank	2.14%	0.00%	3.76%	2.71%	2.28%	0.00%
State Member Bank	4.34%	0.00%	7.64%	1.02%	5.07%	5.50%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Resolution Type						
Type I Resolution	19.13%	33.56%	8.15%	100.00%	0.00%	0.00%
Type II Resolution	70.87%	54.83%	83.08%	0.00%	100.00%	0.00%
Type III Resolution	10.00%	11.61%	8.77%	0.00%	0.00%	100.00%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Bridge Bank	29.55%	59.78%	6.55%	7.78%	34.98%	32.69%
Timing						
1960-1979	2.78%	0.00%	4.90%	0.85%	2.51%	8.41%
1980-1989	66.34%	67.04%	65.81%	98.14%	57.63%	67.31%
1990-2002	30.87%	32.96%	29.29%	1.02%	39.86%	24.27%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Observations	3,090	1,335	1,755	591	2,190	309

Table notes: the data are derived from the FDIC's *Historical Statistics on Banking*, and include all bank and thrift failures 1969-2002. Assets are in thousands of dollars. A Type I resolution usually involves assistance to an institution which retains its charter, while a Type II resolution typically involves the purchase of assets and assumption of liabilities by the insurer, discontinuing the institution's charter. A Type III resolution involves a payoff of insured deposits and liquidation of assets and liabilities.

Table 2: OLS Estimates of the Effect of Failure on Real Economic Activity

	Lead k of Real County Income Growth						
	k = 0	**k = 1**	**k = 2**	**k = 3**	**k = 4**	**k = 5**	**k = 6**
A. Baseline Specification							
δ_k	-0.0113*	-0.0170*	-0.0177*	-0.0189*	-0.0209*	-0.0207*	-0.0206*
	(0.0041)	(0.0066)	(0.0086)	(0.0085)	(0.0097)	(0.0102)	(0.0108)
B. Broken Out Across Failure Size							
δ_k*Small	-0.0879*	-0.1430*	-0.1940*	-0.1793*	-0.1955*	-0.2179*	-0.2153*
	(0.0113)	(0.0162)	(0.0202)	(0.0225)	(0.0263)	(0.0296)	(0.0325)
δ_k *Large	-0.0090*	-0.0134*	-0.0125	-0.0143*	-0.0158*	-0.015*	-0.015*
	(0.0032)	(0.0052)	(0.0064)	(0.0065)	(0.0076)	(0.0077)	(0.0085)
C. Broken Out Across Resolution Type							
δ_k *(Type = I)	-0.0058*	-0.0132*	-0.0089	-0.0100	-0.0137	-0.0141	-0.0167
	(0.0025)	(0.0055)	(0.0068)	(0.0071)	(0.0086)	(0.0091)	(0.0100)
δ_k *(Type = II)	-0.0131*	-0.0174*	-0.0203*	-0.0216	-0.0225	-0.0231	-0.0214
	(0.0066)	(0.0095)	(0.0130)	(0.0128)	(0.0142)	(0.0154)	(0.0158)
δ_k *(Type = III)	-0.0426*	-0.0733*	-0.0811*	-0.0836*	-0.0914*	-0.0555	-0.0638
	(0.0248)	(0.0289)	(0.0349)	(0.0451)	(0.0493)	(0.0469)	(0.0548)
D. Broken Out Across the use of a Bridge Bank							
δ_k *(Bridge = 1)	-0.0065*	-0.0090*	-0.007	-0.0075*	-0.0091*	-0.0074	-0.0067
	(0.0022)	(0.0037)	(0.0045)	(0.0036)	(0.0052)	(0.0049)	(0.0056)
δ_k *(Bridge = 0)	-0.0439*	-0.0714*	-0.0949*	-0.1019*	-0.1070*	-0.1180*	-0.1221*
	(0.0093)	(0.0127)	(0.0182)	(0.0199)	(0.0198)	(0.0224)	(0.0223)
Observations	85,724	82,650	79,576	76,502	73,428	70,356	67,285

Table notes: Author's calculations. The table reports coefficients and standard errors from OLS estimates of δ_k from equation (1) in the text: $\ln(y_{c,t+k}) = \Sigma_{j=1}^{3} \beta_j * \ln(y_{c,t-j}) + \delta_k * \theta_{c,t}$. Standard errors have been corrected for heteroskedasticity. Coefficients accented by one asterisk are statistically significant at the 10 percent level.

Table 3: Failures of Texas Banks and Thrifts, 1988

Institution Name	Institutions	OBA	Deposits	Cost	Cost Ratio
A. First RepublicBank Corporation					
Austin	1	No	1,314,891	45,905	3.49%
College Station	1	No	95,773	11,681	12.20%
Abilene	1	No	201,164	52,258	25.98%
Brownwood	1	No	118,839	28,485	23.97%
Cleburne	1	No	110,894	14,550	13.12%
Clifton	1	No	76,899	22,952	29.85%
Conroe	1	No	200,637	48,774	24.31%
Corsicana	1	No	186,918	15,985	8.55%
Dallas	1	No	7,680,063	2,017,552	26.27%
Denison	1	No	136,310	29,100	21.35%
El Paso	1	No	208,191	35,043	16.83%
Ennis	1	No	90,622	21,313	23.52%
Forney	1	No	50,879	16,395	32.22%
Ft. Worth	1	No	1,568,528	155,133	9.89%
Galveston	1	No	242,631	13,935	5.74%
Greenville	1	No	79,582	16,190	20.34%
Harlingen	1	No	193,137	47,339	24.51%
Henderson	1	No	119,410	36,888	30.89%
Hillsboro	1	No	63,008	20,903	33.18%
Houston	1	No	2,275,270	551,471	24.24%
Beaumont	1	No	223,894	46,929	20.96%
Lubbock	1	No	475,829	1,639	0.34%
Lufkin	1	No	192,393	21,518	11.18%
Malakoff	1	No	47,271	16,599	35.11%
Midland	1	No	574,547	72,751	12.66%
Mineral Wells	1	No	168,305	53,077	31.54%
Mt. Pleasant	1	No	137,048	32,789	23.93%
Odessa	1	No	165,964	38,117	22.97%
Paris	1	No	74,097	20,493	27.66%
Plano	1	No	182,873	37,502	20.51%
Richmond	1	No	92,479	29,305	31.69%
San Antonio	1	No	726,755	57,381	7.90%
Stephenville	1	No	116,809	19,673	16.84%

Table notes: the data are collected from the FDIC's *Historical Statistics on Banking*, and pertain to either the failure or receipt of open-bank assistance (OBA) by Texas banks and thrifts over 1988. The deposits and cost to the FDIC are stated in thousands of dollars, and the cost ratio is simply the ratio of cost to deposits.

Table 3: Failures of Texas Banks and Thrifts, 1988 (continued)

Institution Name	Institutions	OBA	Deposits	Cost	Cost Ratio
Temple	1	No	150,365	13,935	9.27%
Tyler	1	No	536,496	67,627	12.61%
Victoria	1	No	163,033	21,518	13.20%
Waco	1	No	591,858	59,020	9.97%
Wichita Falls	1	No	270,730	42,421	15.67%
Austin	1	No	42,024	14,550	34.62%
Ft. Sam Houston	1	No	501,900	96,933	19.31%
First RepublicBank Corporation	40	No	20,448,316	3,965,629	19.39%
B. All other banks and thrifts					
	80	No	7,616,302	5,194,495	68.20%
	136	Yes	43,378,929	27,779,046	64.04%

Table notes: the data are collected from the FDIC's *Historical Statistics on Banking*, and pertain to either the failure or receipt of open-bank assistance (OBA) by Texas banks and thrifts over 1988. The deposits and cost to the FDIC are stated in thousands of dollars, and the cost ratio is simply the ratio of cost to deposits.

Table 4: Asset Quality and Solvency of First Republic Subsidiary and Peer Banks

A. First Republic Subsidiary Banks

	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead
	1985:IV		1986:IV		1987:IV		1988:II	
Problem Loans	185,661	383,832	324,919	607,566	573,482	2,690,273	809,254	3,438,094
Allowances	82,114	180,345	133,634	244,476	186,065	976,280	353,982	2,008,529
Equity	694,121	893,057	647,106	904,755	702,157	587,649	444,256	-1,148,034
Provisions	50,422	82,895	168,071	161,720	145,759	665,587	305,738	1,611,926
Net Income	70,771	109,212	-36,476	59,869	-75,271	-571,404	-368,452	-1,915,411
Charge Offs	59,853	77,145	126,045	104,426	119,563	290,318	169,893	629,363
Assets	11,108,593	18,352,746	11,445,576	16,636,810	12,247,799	23,286,116	12,114,266	19,797,663
Net Loans	6,209,530	11,486,806	5,706,014	10,865,968	5,366,518	15,127,342	5,030,526	13,116,370
Problem Loans	1.67%	2.09%	2.84%	3.65%	4.68%	11.55%	6.68%	17.37%
Allowances	0.74%	0.98%	1.17%	1.47%	1.52%	4.19%	2.92%	10.15%
Equity	6.25%	4.87%	5.65%	5.44%	5.73%	2.52%	3.67%	-5.80%
Provisions	0.45%	0.45%	1.47%	0.97%	1.19%	2.86%	2.52%	8.14%
Net Income	0.64%	0.60%	-0.32%	0.36%	-0.61%	-2.45%	-3.04%	-9.67%
Charge Offs	0.54%	0.42%	1.10%	0.63%	0.98%	1.25%	1.40%	3.18%
Net Loans	55.90%	62.59%	49.85%	65.31%	43.82%	64.96%	41.53%	66.25%

B. Banks in Same County as First Republic Subsidiary Banks

	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead
	1985:IV		1986:IV		1987:IV		1988:II	
Problem Loans	1,035,595	946,370	1,132,088	1,988,324	1,575,230	2,759,350	1,647,129	2,457,342
Allowances	499,534	359,308	550,193	857,651	766,190	1,360,336	767,233	1,064,488
Equity	3,755,053	2,523,254	3,035,282	2,557,628	2,835,028	1,823,094	2,759,365	2,589,722
Provisions	492,689	421,254	633,650	1,047,835	738,339	1,061,186	411,956	354,701
Net Income	351,990	119,299	-19,583	-579,731	-347,024	-1,209,979	-247,112	-424,633
Charge Offs	424,148	465,695	479,850	751,907	614,740	691,781	459,459	890,712
Assets	56,343,421	39,278,402	47,021,221	49,655,358	48,517,488	48,991,512	50,098,803	57,492,606
Net Loans	33,401,920	24,466,370	26,465,295	30,621,056	26,523,725	29,723,249	26,546,499	32,910,878
Problem Loans	1.84%	2.41%	2.41%	4.00%	3.25%	5.63%	3.29%	4.27%
Allowances	0.89%	0.91%	1.17%	1.73%	1.58%	2.78%	1.53%	1.85%
Equity	6.66%	6.42%	6.46%	5.15%	5.84%	3.72%	5.51%	4.50%
Provisions	0.87%	1.07%	1.35%	2.11%	1.52%	2.17%	0.82%	0.62%
Net Income	0.62%	0.30%	-0.04%	-1.17%	-0.72%	-2.47%	-0.49%	-0.74%
Charge Offs	0.75%	1.19%	1.02%	1.51%	1.27%	1.41%	0.92%	1.55%
Net Loans	59.28%	62.29%	56.28%	61.67%	54.67%	60.67%	52.99%	57.24%

Table notes: the table reports aggregated asset quality data from the FDIC's *Call Reports of Income and Condition*. Panel A reports data for subsidiary banks of First Republic Bancorporation, aggregated for the lead and non-lead banks separately. Panel B reports data for banks that operate in the same county as First Republic subsidiaries, aggregated by proximity to lead and non-lead banks separately. The figures at the top of each panel are in $1,000. The ratios in the bottom of each panel are constructed with respect to total assets.

Table 5: Balance Sheets of First Republic Subsidiary and Peer Banks

A. First Republic Lead Banks

	FR	Peer		FR	Peer
Cash	9.84%	11.29%	Deposits	50.29%	72.31%
Securities	11.42%	14.86%	Federal Funds	30.51%	14.77%
Federal Funds	3.14%	8.47%	Minority Interest	0.00%	0.01%
Net Loans	66.25%	57.24%	Subordinated Debt	1.10%	0.23%
Goodwill	0.66%	0.14%	Equity	-5.80%	4.50%
Assets	19,797,663	57,492,606	Primary Capital	5.45%	6.59%
Real Estate Loans	25.70%	21.28%	Brokered Deposits	0.25%	0.70%
C&I Loans	32.12%	21.47%	Large Time Deposits	13.03%	21.63%
Allowances	10.15%	1.85%			

B. First Republic Non-lead Banks

	FR	Peer		FR	Peer
Cash	6.15%	10.28%	Deposits	86.62%	88.04%
Securities	4.99%	17.69%	Federal Funds	5.42%	3.77%
Federal Funds	41.08%	12.17%	Minority Interest	0.00%	0.00%
Net Loans	41.53%	52.99%	Subordinated Debt	0.12%	0.09%
Goodwill	0.71%	0.03%	Equity	3.67%	5.51%
Assets	12,114,266	50,098,803	Primary Capital	6.71%	7.13%
Real Estate Loans	22.81%	23.85%	Brokered Deposits	0.58%	0.24%
C&I Loans	11.13%	15.86%	Large Time Deposits	29.85%	26.01%
Allowances	2.92%	1.53%			

Table notes: the table reports aggregated balance sheet data for 1988:II from the FDIC's *Call Reports of Income and Condition.* Assets are in $1,000. Panel A highlights differences in aggregated balance sheets for the lead banks of First Republic and for banks operating in lead bank counties separately. Panel B displays aggregated balance sheets for the non-lead banks of the holding company and for banks operating in non-lead bank counties separately. All ratios are constructed relative to total assets.

Table 6: Failures of Texas Banks and Thrifts, 1992-1993

Date	Institution Name	OBA	Deposits	Cost	Cost Ratio
1-23-92	First State Bank	No	16,416	2,977	18.13%
2-6-92	Landmark Bank of Fort Worth	No	80,517	17,483	21.71%
3-19-92	Independence Bank	No	20,846	2,809	13.48%
3-19-92	Southside National Bank	No	12,049	3,294	27.34%
4-9-92	Red Bird Bank of Dallas	No	37,666	10,532	27.96%
6-25-92	American National Bank	No	25,067	4,454	17.77%
6-25-92	Castle Hills National Bank	No	13,718	429	3.13%
7-23-92	First National Bank of Texas	No	91,348	14,241	15.59%
9-10-92	The First National Bank of Yorktown	No	34,512	7,614	22.06%
10-16-92	Freedom Bank	Yes	20,338	3	0.01%
10-30-92	First City Bancorporation (20)	No	7,456,060	0	0.00%
12-10-92	Citizens State Bank	Yes	12,779	247	1.93%
1992	All institutions (31)	2	7,821,316	64,083	0.82%
2-5-93	American Bank of Haltom City	No	100,195	14,480	14.45%
2-25-93	The Planters National Bank of Rosebud	No	13,636	1,499	10.99%
3-18-93	United Bank	No	49,016	161	0.33%
4-1-93	First State Bank	No	20,743	2,828	13.63%
6-10-93	Bankcentral Amarillo	No	34,059	2,515	7.38%
7-1-93	Westheimer National Bank	No	28,116	8,175	29.08%
7-22-93	Fidelity National Bank	No	50,348	5,473	10.87%
7-29-93	The Wolfe City National Bank	No	32,231	4,851	15.05%
8-25-93	Tarrant Bank	No	59,718	7,328	12.27%
10-14-93	Plaza Bank of New Braunfels	No	56,897	2,725	4.79%
1993	All institutions (10)	0	444,959	50,035	11.24%

Table notes: the data are collected from the FDIC's *Historical Statistics on Banking*, and pertain to either the failure or receipt of open-bank assistance (OBA) by Texas banks and thrifts over 1992-1993. The deposits and cost to the FDIC are stated in thousands of dollars, and the cost ratio is simply the ratio of cost to deposits.

Table 7: Asset Quality and Solvency of First City Subsidiary and Peer Banks

A. First City Subsidiary Banks

	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead
	1989:IV		1990:IV		1991:IV		1992:III	
Problem Loans	44,208	116,320	92,405	335,577	116,842	413,318	68,890	304,947
Allowances	40,088	91,241	75,427	238,602	39,421	155,478	33,850	111,560
Equity	284,601	492,487	253,779	302,241	262,385	117,744	242,775	31,602
Provisions	28,442	53,140	57,019	223,228	23,797	244,129	7,180	19,116
Net Income	31,815	56,463	-16,103	-200,105	36,139	-225,033	-16,784	-86,142
Charge Offs	26,710	48,968	24,871	79,707	64,253	334,101	16,078	79,244
Assets	5,206,354	10,211,741	5,448,864	9,146,330	4,797,986	5,322,306	3,953,757	4,161,222
Net Loans	2,099,968	6,357,946	2,274,589	5,666,991	1,853,467	3,769,602	2,142,800	2,455,459
Problem Loans	0.85%	1.14%	1.70%	3.67%	2.44%	7.77%	1.74%	7.33%
Allowances	0.77%	0.89%	1.38%	2.61%	0.82%	2.92%	0.86%	2.68%
Equity	5.47%	4.82%	4.66%	3.30%	5.47%	2.21%	6.14%	0.76%
Provisions	0.55%	0.52%	1.05%	2.44%	0.50%	4.59%	0.18%	0.46%
Net Income	0.61%	0.55%	-0.30%	-2.19%	0.75%	-4.23%	-0.42%	-2.07%
Charge Offs	0.51%	0.48%	0.46%	0.87%	1.34%	6.28%	0.41%	1.90%
Net Loans	40.33%	62.26%	41.74%	61.96%	38.63%	70.83%	54.20%	59.01%

B. Banks in Same County as First City Subsidiary Banks

	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead	Non-lead	Lead
	1989:IV		1990:IV		1991:IV		1992:III	
Problem Loans	3,483,769	2,983,645	1,334,306	937,452	1,134,646	834,871	3,660,656	997,077
Allowances	1,593,351	1,276,801	1,349,589	1,043,729	1,175,567	909,168	4,113,929	1,173,249
Equity	4,832,949	3,697,359	6,650,581	5,418,690	7,364,920	6,036,548	40,471,364	10,187,464
Provisions	1,653,816	1,426,053	385,893	251,130	365,749	294,697	1,338,553	313,794
Net Income	-234,741	-109,490	725,390	709,254	970,975	891,525	6,116,955	1,373,807
Charge Offs	1,371,435	1,182,379	926,992	732,790	690,659	544,544	1,523,013	406,713
Assets	106,819,377	88,817,965	114,593,442	95,202,861	119,078,336	98,745,637	673,110,460	158,424,513
Net Loans	47,391,436	39,464,579	51,268,845	43,299,163	53,212,266	45,495,055	315,640,745	74,897,168
Problem Loans	3.26%	3.36%	1.16%	0.98%	0.95%	0.85%	0.54%	0.63%
Allowances	1.49%	1.44%	1.18%	1.10%	0.99%	0.92%	0.61%	0.74%
Equity	4.52%	4.16%	5.80%	5.69%	6.18%	6.11%	6.01%	6.43%
Provisions	1.55%	1.61%	0.34%	0.26%	0.31%	0.30%	0.20%	0.20%
Net Income	-0.22%	-0.12%	0.63%	0.74%	0.82%	0.90%	0.91%	0.87%
Charge Offs	1.28%	1.33%	0.81%	0.77%	0.58%	0.55%	0.23%	0.26%
Net Loans	44.37%	44.43%	44.74%	45.48%	44.69%	46.07%	46.89%	47.28%

Table notes: the table reports aggregated asset quality data from the FDIC's *Call Reports of Income and Condition*. Panel A reports data for subsidiary banks of First City, aggregated for the lead and non-lead banks separately. Panel B reports data for banks that operate in the same county as First Republic subsidiaries, aggregated by proximity to lead and non-lead banks separately. The figures at the top of each panel are in $1,000. The ratios in the bottom of each panel are constructed with respect to total assets.

Table 8: Balance Sheets of First City Subsidiary and Peer Banks

A. First City Lead Banks

	FC	Peer		FC	Peer
Cash	7.38%	7.50%	Deposits	91.97%	78.64%
Securities	13.74%	29.90%	Federal Funds	1.97%	8.83%
Federal Funds	9.52%	10.18%	Minority Interest	0.00%	0.00%
Net Loans	59.01%	47.28%	Subordinated Debt	0.00%	0.53%
Goodwill	0.00%	0.13%	Equity	0.76%	6.43%
Assets	4,161,222	158,424,513	Primary Capital	3.44%	7.70%
Real Estate Loans	17.36%	18.16%	Brokered Deposits	0.01%	0.43%
C&I Loans	26.31%	16.14%	Large Time Deposits	7.81%	9.36%
Allowances	2.68%	0.74%			

B. First City Non-lead Banks

	FC	Peer		FC	Peer
Cash	5.32%	7.21%	Deposits	91.79%	75.76%
Securities	28.20%	29.21%	Federal Funds	1.11%	11.16%
Federal Funds	7.80%	11.57%	Minority Interest	0.00%	0.00%
Net Loans	54.20%	46.89%	Subordinated Debt	0.00%	0.57%
Goodwill	0.00%	0.11%	Equity	6.14%	6.01%
Assets	3,953,757	673,110,460	Primary Capital	7.00%	7.20%
Real Estate Loans	17.39%	18.53%	Brokered Deposits	0.01%	0.57%
C&I Loans	18.07%	16.86%	Large Time Deposits	12.86%	9.17%
Allowances	0.86%	0.61%			

Table notes: the table reports aggregated balance sheet data for 1992:III from the FDIC's *Call Reports of Income and Condition*. Assets are in $1,000. Panel A highlights differences in aggregated balance sheets for the lead banks of First Republic and for banks operating in lead bank counties separately. Panel B displays aggregated balance sheets for the non-lead banks of the holding company and for banks operating in non-lead bank counties separately. All ratios are constructed relative to total assets.

Table 9: Bridge Bank Operations

Quarter	Assets	Liquid Assets	Net Loans	Unused Loan Commitments	Standby Letters of Credit	Commercial Letters of Credit	Loans Sold with Recourse
A. Other Bridge Banks (10 banks)							
-2	109.50%	103.00%	112.50%	112.70%	125.90%	123.60%	282.40%
-1	105.40%	107.60%	104.40%	105.50%	113.60%	102.70%	120.90%
0	46,300,000	13,200,000	31,900,000	11,000,000	822,188	153,298	644,561
1	94.00%	71.60%	103.40%	58.90%	76.00%	78.50%	28.20%
B. First Republic Bridge Bank							
-2	111.30%	117.00%	109.00%	108.70%	142.00%	51.40%	110.70%
-1	95.60%	91.10%	98.00%	105.60%	119.10%	54.80%	147.90%
0	31,900,000	11,200,000	19,900,000	8,281,199	1,549,221	388,355	1,173,575
1	80.30%	52.50%	94.50%	93.10%	93.00%	83.50%	69.20%
2	80.30%	64.30%	89.90%	82.20%	72.00%	66.50%	58.50%
3	82.40%	69.20%	91.00%	79.90%	74.70%	25.00%	41.20%
C. First City Lead Bank Bridge Banks (Dallas and Houston)							
-2	120.40%	81.00%	140.80%	136.70%	NA	256.50%	93.70%
-1	104.70%	97.80%	108.40%	122.50%	NA	151.70%	228.20%
0	4,161,222	1,275,123	2,651,642	1,466,697	0	13,421	151,084
1	120.10%	169.60%	106.50%	78.80%	NA	50.90%	43.30%
D. First City Non-Lead Problem Bank Bridge Banks (Austin and San Antonio)							
-2	115.40%	141.90%	93.70%	114.60%	NA	200.00%	841.30%
-1	108.60%	115.20%	103.30%	110.60%	NA	100.00%	213.00%
0	611,187	269,835	315,866	104,027	0	79	46
1	79.60%	107.10%	62.50%	30.10%	NA	82.30%	0.00%
E. First City Non-Lead Healthy Bank Bridge Banks (14 banks)							
-2	114.70%	125.80%	106.90%	105.30%	NA	111.30%	94.30%
-1	107.10%	111.10%	104.50%	104.70%	NA	102.70%	34.20%
0	2,934,117	1,220,032	1,644,519	486,838	0	1,499	15,392
1	87.80%	124.70%	64.10%	29.50%	NA	45.20%	0.00%

Table notes: the table constructs pro forma balance sheet data for 110 failed banks that were resolved into 31 bridge banks over 1987-1993, using the FDIC's *Call Reports of Income and Condition*. The *First Republic* pro forma bridge bank is reported in panel B and *First City* pro forma bridge banks are reported in panels C, D, and E. All other bridge banks are reported in Panel A. For each panel, quarter 0 is the quarter of bank failure. The table reports the level of each variable in thousands of dollars in quarter 0 and reports percent of quarter 0 value for other quarters. Liquid Assets include cash, federal funds sold, and securities. Net loans also include the balance of OREO and Other Assets.

Table 10: County Summary Statistics

	First Republic (1988)		First City (1992)	
	Unaffected	**Affected**	**Unaffected**	**Affected**
County Income	476,262	4,085,722	426,590	2,274,971
	(2,600,344)	(8,607,604)	(661,484)	(2,186,925)
County Deposits	433,696	3,545,697	335,932	1,437,478
	(2,817,707)	(8,226,273)	(612,049)	(1,485,387)
Deposits/Income	0.8469	0.8301	0.8345	0.6401
	(0.4070)	(0.2460)	(0.4665)	(0.2013)
HHI	4,954	2,161	4,759	2,293
	(002,515)	(000,914)	(002,497)	(001,094)
$\theta^{\text{healthy bank}}{}_{c,t}$	0.0000	0.2067	0.0000	0.1834
	(0.0000)	(0.1504)	(0.0000)	(0.1841)
$\theta^{\text{all banks}}{}_{c,t-1}$	0.0121	0.0156	0.0056	0.0000
	(0.0555)	(0.0391)	(0.0479)	(0.0000)
$\theta^{\text{all banks}}{}_{c,t-2}$	0.0182	0.0082	0.0174	0.0250
	(0.0914)	(0.0184)	(0.0587)	(0.0548)
Thrift Failures (-1)	0.0190	0.0526	0.0181	0.1176
	(0.1370)	(0.2263)	(0.1336)	(0.3321)
Thrift Failures (-2)	0.0571	0.1316	0.0950	0.1765
	(0.2878)	(0.4140)	(0.3371)	(0.3930)
$\Delta\ln(y_{c,t-1})$	-0.0034	-0.0111	0.0012	0.0317
	(0.0923)	(0.0231)	(0.0686)	(0.0220)
$\Delta\ln(y_{c,t-2})$	-0.0398	-0.0043	0.0311	0.0278
	(0.0747)	(0.0381)	(0.0551)	(0.0235)
$CAMEL_{c,t-1}$			2.0940	2.2010
			(0.6117)	(0.3169)
$CAMEL_{c,t-2}$			2.3478	2.7485
			(0.7100)	(0.2383)
Observations	210	38	221	17

Table notes: Author's calculations. The table reports the mean and standard deviation for several county-level variables. The first two columns refer to Texas counties in 1988 while the second two columns refer to Texas counties in 1992. In each unaffected column there were no healthy bank failures while in each affected column there was at least one healthy bank failure. $\theta_{c,t}$ represents the ratio of failed bank deposits to income.

Table 11: The Effect of Healthy Bank Failure on Real Activity

	Lead of Real County Income						
	k = 0	k = 1	k = 2	k = 3	k = 4	k = 4	k = 6
A. First RepublicBank Corporation							
δ_k	-0.0077	-0.0485	-0.0522	-0.1265*	-0.1187	-0.162*	-0.1914*
	(0.0307)	(0.0473)	(0.0546)	(0.0716)	(0.0748)	(0.0848)	(0.0947)
Observations	248	248	248	248	248	248	248
B. First City Bancorporation							
δ_k	-0.0580*	-0.0995*	-0.1518*	-0.1763*	-0.1826*	-0.1670*	-0.1450
	(0.0325)	(0.0479)	(0.0626)	(0.0739)	(0.1030)	(0.1011)	(0.1075)
Observations	238	238	238	238	238	238	238

Table notes: Author's calculations. The table reports the coefficient estimate and standard error on δ_k from estimation of equation (2) in the text, $\ln(y_{c,t+k}) = \alpha+\Sigma_{i=1}^{3} \beta_i*\ln(y_{c,t-j})+\Sigma_{i=1}^{3} \gamma_i*x_{c,t-j}+\delta_k*\theta_{c,t}+\varepsilon_{c,t}$, where $\theta_{c,t}$ is the ratio of healthy failed bank deposits to county income. Panel A corresponds to a cross-section of Texas counties in 1988 while Panel B corresponds to a cross-section of Texas counties in 1992. In column k, the dependent variable is the log of real county income k years after failure. Standard errors have been corrected for heteroskedasticity. Coefficients accented by one asterisk are statistically significant at the 10 percent level.