

# **Impact of Tight Money and/or Recessions on Small Business**

by

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Emeryville, CA**

for



under contract number SBAHQ-01-R-0011

Release Date: June 2003

The opinions and recommendations of the authors of this study do not necessarily reflect official positions of the SBA or other agencies of the U.S. government.

## Executive Summary

The long expansion, two recessions, and financial disruptions affected businesses of all sizes over the past dozen years. Small businesses may be particularly exposed to recessions, banking conditions, and monetary policy. The kinds of goods and services that small businesses produce may be either more or less vulnerable to economic recessions or expansions. Small businesses typically rely more for their credit on bank lending than larger firms do. As a consequence, smaller businesses may be more adversely affected when tighter monetary policies or deteriorating bank health reduce the supply of bank loans.

This study investigated how much and how differently small businesses were affected by banking conditions, by interest rates, and by local growth rates. We used annual, state-level data for 1990-2000 to answer the following questions:

- Do economic slowdowns, tighter monetary policy, or adverse conditions in banking sector affect small businesses more than larger businesses?
- During tight monetary periods or economic slowdowns, what are the effects on real economic activity at smaller businesses and in the overall economy of small, medium, and large-size bank capital and SBA-guaranteed loan programs?
- How much are various effects changed during economic slowdowns or when interest rates are high?

Tighter monetary policy and adverse conditions in banking reduced bank lending, economic growth, employment, and payrolls at businesses of all sizes. We also found that adverse conditions at small banks impinged more on small than on large businesses. For example, declining capital and rising loan delinquencies at small banks affected business failure and bankruptcy rates considerably more than adverse conditions at larger banks.

Some evidence indicated that SBA-guaranteed loans raised economic growth rates, employment, wages and salaries, and nonfarm proprietors' incomes. SBA-guaranteed loans were less pro-cyclical and more immune to capital pressures at banks than were non-guaranteed loans. As a result, SBA programs may have acted as an economic stabilizer.

During periods of slow growth or of tight monetary policy, small businesses tended to respond considerably more to changes in bank capital, loan delinquencies, and SBA-guaranteed loans. The larger responses suggest that ameliorating policies might be significantly more

effective during periods of economic or monetary stress than would be suggested by their average effects.

## **I. Introduction**

Smaller businesses rely more on bank lending as a source of credit than do larger firms. As a consequence, smaller businesses may be more adversely affected when tighter monetary policies or adverse conditions in banking reduce the overall supply of bank loans.<sup>1</sup> Thus, the Federal Reserve's monetary tightenings that began in the late 1980s, in the middle of the 1990s, and again in the late 1990s may well have impinged more on smaller businesses. Smaller businesses also may have been affected more by changes in other costs, terms, and availability of credit from banks. In fact, smaller businesses do seem to have been more affected when capital shortfalls reduced bank lending and when banks stiffened their lending standards during the 1990-1991 recession. In addition, because their costs and sales may differ systematically from those of larger businesses, smaller businesses may also be differentially affected by recessions.

To investigate these issues, we estimated: (1) whether tighter monetary policy or adverse conditions in banking affected small businesses more, (2) whether changes in the bank capital for small, medium, and large banks and the size of SBA-guaranteed loan programs affected smaller businesses or the economy more broadly, and (3) whether the effects of various factors on smaller businesses were particularly acute during periods of tight money or recession.

The U.S. economy suffered only one national recession during the 1990s. Over the past dozen years, however, the strength of the economies of individual states varied considerably. We collected annual data for economic activities at firms of different sizes and for banking

conditions for individual states for 1990-2000. We used their cross-sectional, as well as time series, variations to estimate the effects of tight money, banking conditions, and other factors on small businesses.

The effects of economic growth, monetary policy, banking conditions, and SBA-guaranteed loans on small businesses may change as conditions change. If so, their current (and likely future) effects are likely to differ from their past, average effects. To allow for the possibility that effects changed, we separately estimated effects for periods when monetary policy was tighter and when national economic growth was slower. Indeed, the estimated effects did vary considerably with interest rates and growth rates. Those large differences suggest that estimates of current and future effects of monetary policy and of other factors on small businesses benefit from taking these patterns into account.

Section II reviews the evidence on the effects of financial sector disruptions on smaller businesses. Section III then describes our model of small business activity. Section IV lays out some of the specific hypotheses that our estimates address. Section V describes the data that we used, while Section VI reports our regression estimates. Section VII summarizes our findings.

## **II. Literature Review**

### Financial sector disruptions and small business

During the 1990s, a number of studies documented that lending to small businesses and the economic activity of small businesses were affected by financial sector disruptions, such as the widespread merging of banks of all sizes and the capital shortfalls occasioned by large loan losses. Peek and Rosengren (1995a, 1998a, 1998b) showed that the mergers of commercial

banks tended to reduce lending to small businesses more than to other borrowers. Hancock and Wilcox (1998) estimated the effects on small businesses of several aspects of the financial sector. They found that the widespread bank capital crunch around 1990 had larger effects on smaller banks than on larger banks. Since smaller businesses tend to deal more with smaller banks, capital-related reductions in lending were greater at smaller businesses.

The Hancock and Wilcox (1998) findings were consistent with the findings by Kashyap and Stein (1994a, 1994b, 2000) that smaller banks were more useful for understanding how banking conditions influence the macroeconomy.<sup>2</sup> Hancock and Wilcox reported for the 1989-1992 period that capital shortfalls at smaller banks restrained economic activity more at smaller than at larger businesses. The numbers, employment, and payrolls of smaller businesses fell more in response to capital shortfalls at smaller banks. Concomitantly, the larger the reductions in capital and in lending at smaller banks in a state, the larger were the reductions in their broadest measure of local economic activity, gross state product (GSP).

Intriguingly, Hancock and Wilcox also found that, in the face of the bank capital crunch, the amounts of SBA-guaranteed loans outstanding fell less than did the amounts of loans outstanding that were not guaranteed by SBA. Hancock and Wilcox suggested that, in this regard, the SBA programs served as a shock absorber for small businesses.

Statistical connections between SBA lending and the macroeconomy need to be interpreted with circumspection. Increased SBA lending during recessions, periods of tight monetary policy, or times of reduced overall commercial lending need not imply that it replaced inefficient reductions in other lending. Rhyne (1988) noted that if SBA guarantees reduce banks' incentives to properly screen and monitor loans, rather than offsetting inefficient

reductions in others' lending, then SBA lending might be funding negative net present value (NPV) projects.

### Bank lending standards and loan rate markups

Banks reduce the effective supply of their loans when they impose tighter lending standards on their loans and borrowers, or when they raise the interest rates that they charge on loans relative to a benchmark rate, such as their cost of funding loans via the federal funds market. Borrowers are indifferent between increases in banks' loan rates due to larger markups of bank loan rates over funding costs and increases due to higher bank funding costs. Regardless of whether higher interest rates on loans emanate from higher markups or higher funding costs, higher loan interest rates reduce the quantity of bank loans demanded by businesses.

Lown, Morgan, and Rohatgi (2000) found that, in response to tighter lending standards, aggregate bank lending and output tended to decline. The recent period seemed to follow a qualitatively similar pattern. The Fed's surveys on lending standards showed that large banks began to tighten their lending standards in earnest early in 2000, after having changed standards little over the prior half dozen years (Federal Reserve 2003a). Standards applied to commercial real estate loans rose similarly. Consistent with the results reported by Lown et al., in the second half of 2000, the annual growth rate of banks' business loans outstanding fell sharply, from about 13 percent to about 3 percent. At the same time, the share of banks that raised their mark-ups of interest rates on business loans over their cost of funds also rose. Lending to so-called higher-risk borrowers also plummeted relative to lending to lower-risk borrowers. Thus, tighter lending standards signaled reductions in bank loan supply, at least to larger borrowers. In contrast,

Berger and Udell (2002) argued that lending to small businesses is largely based on relationship “soft” information that require banks to tailor their lending more to the credibility of individual borrowers and less to formalized lending standards.

Zandi (2001) claimed that the most recent experience was quite different from that of the early 1990s. He contended that because banks have generally had quite high capital ratios and quite low loan-to-asset ratios, they were capable of making more business loans. Nonetheless, he claimed, banks were unwilling to make many more loans. That unwillingness affected both the lending standards that banks applied and the interest rate spreads that they charged.

So far, however, little attention has been directed to the potentially differential effects of changes in bank lending standards or to the extent to which different segments may be subject to differential changes in lending standards. Such differences can be substantial. The Fed’s survey indicates that during 2001 about twice as many banks were raising their standards for lending as was the case during the financial turmoil of 1998. By contrast, only about half as many small businesses recently reported that credit was more difficult to come by compared to the 1998 period. Dunkelberg (2001) argues that, although such differences have not been widely recognized, they were not unusual. Noting the differences in the experiences of larger borrowers with those of smaller borrowers in the recent episode, he testified before Congress during 2001, in effect, that historically the contemporaneous correlation between changes in the Fed’s measures of lending standards and the National Federation of Independent Businesses (NFIB) measure of the credit problems of small businesses has been quite low.

One reason for the low correlation has been that the NFIB measure historically has trailed the Fed measure by about six quarters. Thus, it may have been just a matter of time before

similarly stiffer lending standards were applied to smaller businesses. Consistent with the Peek-Rosengren and Hancock-Wilcox papers noted above, another reason might well have been that smaller banks (which are not included in the Fed survey) and smaller businesses were affected differentially by various financial sector disruptions. Berger and Udell (2002) reported that the duration of bank-borrower relationships explains differences across small and large banks in the cyclical patterns of small business lending and interest rates. As lending standards tightened recently, they may have bound more tightly on the borrowing of larger firms, which may have operated closer to various margins than did borrowing by smaller firms.

Dunkelberg (2001) noted further that the balance sheets of smaller businesses may have improved considerably relative to those of larger borrowers. The increase in larger businesses' bond defaults beginning in the latter 1990s and the credit warnings flashed then by bank regulators suggested that the relative quality of smaller borrowers at banks probably rose during the recent period. If so, tighter standards likely impinged more on larger borrowers.

### **III. A Model of Small Business Activity**

Our model is built upon the framework developed by Hancock and Wilcox (1998). They presented a model and estimated the specifications that it implied. Their estimates indicated how much and how differently small businesses responded to banking sector difficulties and aggregate economic conditions during the 1989-1992 period. In their framework, employment, payrolls, and the number of firms by firm size, as well as gross state product, rose with the supply of bank loans and consumer sentiment, and fell when interest rates and loan delinquency rates rose. At the same time, some variables, such as interest rates, have indirect effects that

operate through the supply of bank credit.<sup>3</sup> This framework was not only designed to represent a mainstream approach to the determinants of economic activity; it was also designed to exploit the availability of annual data by state for a number of different measures of small business activity by firm size. For this study, we made some straightforward modifications of that framework to obtain estimates of the differential effects of macroeconomic aggregates, such as measures of monetary policy, across businesses of different sizes.

Although we retained the basic framework of the Hancock and Wilcox (1998) model, we modified it by adding two variables that measure the spreads of a lending interest rate above a higher quality interest rate. Including the spread variables and the federal funds rate separately allowed us to distinguish between two sources of bank loan supply associated with changes in the bank loan rates that businesses faced: those due to the effects of monetary policy, which most directly sets the federal funds rate, and changes in loan rates that arose for other reasons.

We also included as an explanatory variable each state's gross state product, which we assumed positively affected both the demand and the supply of bank loans through its signaling of current and future economic conditions. We also added as an explanatory variable the dollar value of disbursements of SBA-guaranteed loans, which may have increased the total supply of bank loans.

Measures of consumer sentiment were available for five multistate regions, but not for individual states. The multistate measures seemed to be inadequate measures of the sentiment in individual states. For example, sentiment measured over the entire Southeast region might closely follow sentiment in Florida but not sentiment in Louisiana—in fact, it might not measure sentiment accurately for any of the states in the Southeast. Inspection of the data, as well as of

the results based on the regional sentiment variables, led us to exclude consumer sentiment from the specifications for which we report results. The absence of data for banks' lending standards that was disaggregated to the state level precluded our including them.

#### **IV. Hypotheses**

We produced statistical evidence that bears on several hypotheses about the effects of banking and economic conditions, the SBA, and monetary policy on small business activity. In this section, we present several of these hypotheses.

We hypothesized that smaller businesses were affected more by shocks to monetary policy and to economic activity in their own states. If so, then we should expect to obtain larger estimated effects (in absolute value) on aggregate shocks in regressions that explain the activities of smaller businesses. For example, higher federal funds rates would be expected, *ceteris paribus*, to reduce economic activity more at smaller businesses than at larger businesses.

We also hypothesized that the effects on businesses of various sizes may have been systematically larger during periods of tight money or during recessions. In effect, such systematic variation implies that the effects of some of these variables were more accurately viewed as being nonlinear.

#### **V. Data and Variable Specification**

Annual data for private sector employment, numbers of employer firms, and payrolls by state, industry, and by size of firm is available starting in 1988 (U.S. Small Business Administration 2003b).<sup>4</sup> Hancock and Wilcox (1998) used these data for the 1988-1992 period.

This study used a panel data set of annual observations of those variables for 46 of the 50 states for the longer and more recent period of 1990 through 2000.<sup>5</sup> In addition, our data set also included state-level measures of the condition of commercial banks, of the amounts of (disbursements, i.e., flows, of) SBA-guaranteed loans, and of state-level and national economic conditions. The variables for individual commercial banks included their loan holdings, loan delinquencies, and capital positions. As proxies for state-level economic conditions, we used data for gross state product, personal income, wages and salaries, (nonfarm) proprietors' incomes, business failures, and business bankruptcies. We used the nominal federal funds rate and two interest rate spreads to measure national monetary and financial conditions.

#### Measures of small business activity

For research purposes, the SBA's Office of Advocacy defines a small business as "an independently owned and operated firm with fewer than 500 employees" (U.S. Small Business Administration 2003a). Thus, small businesses range from 499-employee manufacturing firms to one-employee, part-time businesses. We obtained data for employment, the number of firms, and annual payrolls by state for firms with less than 20, 20-99, 100-499, and 500 employees or more from the *Statistics of U.S. Businesses*, which was published by the SBA in conjunction with the U.S. Bureau of the Census (2003).<sup>6</sup>

No single data series available by state seemed adequate to summarize all the relevant aspects of the real economic activity of small businesses. Therefore, we used data for the private sector employment, numbers of firms, annual payrolls, and proprietors' income. To better focus on the characteristics of small businesses, we used data that, when available, were disaggregated

by firm size. We obtained data for proprietors' incomes from the U.S. Bureau of Economic Analysis. To our knowledge, data for proprietors' incomes by firm size are not publicly available. Our assessment was that the overwhelming majority of proprietorships were likely to fall under the SBA definition of small businesses.

Designating all businesses that had fewer than 500 employees as small businesses means that the overwhelming number of businesses were small. Small businesses employed a little more than half of all private sector employees and paid a little less than half of the aggregate dollar payrolls for private sector employment. Thus, like banks, most nonbank businesses were quite small, while a relatively small number of large businesses accounted for about half of total employment.

How large a role small business plays in the economy can be measured in various ways. The size of that role, or the small business intensity of the economy, has declined somewhat over the past decade. That decline can be measured by declines in the proportion of all firms, in the proportion of total employment, and in the proportion of aggregate dollar payrolls that were paid by small businesses. First, consider firms that had fewer than 100 employees. During the 1990s, the proportion of firms of this size declined by 0.4 percent, from 96.4 to 96.0 percent (Chart 1, top panel). The proportion of total employment accounted for by firms with fewer than 100 employees declined by 8.4 percent, from 39.2 to 35.9 (Chart 1, middle panel). And the proportion of aggregate dollar payrolls paid by these firms declined by 10.7 percent, from 34.6 to 30.9 percent (Chart 1, lower panel). Next, consider even smaller businesses--firms with fewer than 20 employees. The proportion of firms that had fewer than 20 employees declined by 0.7 percent, from 87.3 to 86.8 percent. Their proportion of total employment declined by 12.2

percent, from 20.3 to 18.1 percent. And their proportion of annual payroll declined by 14.6 percent, from 17.8 to 15.2 percent. Thus, the decline in small business intensity was more pronounced in the smallest of small businesses.

The decline in small business intensity is also evident in state-level data. Chart 2 presents each of the small business intensity measures for firms with fewer than 100 employees at the state level in 1990 and in 2000. In Chart 2, states were ranked in ascending order of the proportion of firms with fewer than 100 employees as of 1990. Interestingly, states with relatively low proportions of firms with fewer than 100 employees did not always have relatively low proportions of employment at firms with fewer than 100 employees. That is, the rank order of states was different for different measures of small business intensity.

Chart 3 presents the three small business intensity measures for firms with fewer than 20 employees at the state level in 1990 and in 2000, ranked in ascending order of the proportion of firms with fewer than 20 employees as of 1990. Only six states (Utah, Maryland, Massachusetts, New Jersey, New York, and Florida) had an increase in the proportion of firms with fewer than 20 employees. Every state had a decline in the proportion of employment and the proportion of annual payroll at firms with fewer than 20 employees from 1990 to 2000. What differed across states was the percentage change in these small business intensity measures across time.

### Measures of banking conditions

We collected data for individual banks' (book value) dollar amounts of holdings of loans, delinquent loans, and equity capital from the Call Reports that they filed with their regulators (Federal Reserve Bank of Chicago 2003). We used their data for the second quarter of each year

as a proxy for their annual data. We used the consumer price index (CPI) and state population to convert the nominal dollar series into real, per capita series (U.S. Bureau of Labor Statistics 2003, U.S. Bureau of the Census 2001). We used the second quarter value for the CPI to deflate nominal series. The sample of banks included commercial banks with U.S. offices.<sup>7</sup> We focused on total loans, commercial and industrial (C&I) loans, commercial real estate loans, and consumer loans. We calculated total loans as the sum of C&I loans, real estate loans, loans to individuals, agricultural loans, and lease financing receivables. We calculated delinquencies as the sum of the amount of loans past due 90 days or more plus the amount of nonaccrual loans. We calculated delinquency rates both for C&I loans and for real estate loans as the amount of delinquent loans in each category as a percent of total loans outstanding in that category. We used the Call Report definition that equity capital was the sum of perpetual preferred stock (including related surplus), common stockholders' equity, surplus, undivided profits, and capital reserves (adjusted for net unrealized losses on marketable equity securities).

We defined small banks to be banks that had less than \$1 billion of assets. Medium banks had between \$1 billion and \$10 billion of assets. Large banks had between \$10 billion and \$50 billion in assets. We defined "megabanks" to be banks that had more than \$50 billion of assets. Call Report data record the loans, loan delinquencies, and capital at each bank (and its headquarter's location). They do not record the location of the bank's branches that originated loans, of the bank's borrowers, or the bank's owners. The Interstate Banking and Branching Efficiency Act (1994) permits banks to operate branches (as opposed to separate bank subsidiaries) across state lines. Thus, creating meaningful state-level data for bank loans, capital, and delinquencies has become more difficult. Since the largest banks (1) tended to focus less on

small business lending and (2) were the leading promulgators of interstate branching, we excluded megabanks from our sample.

Our analysis generally required that we use differences (from one year to the next) of our data. Bank mergers made it a challenge to calculate the appropriate first-differences of our state-level bank measures. In a static market, it would not matter whether the data were aggregated and then differenced, or, instead, differences were calculated for each bank and then aggregated. However, bank mergers and the shifting of banks across size categories complicated our task.

To allow for these complications, we calculated differences for each bank first and then created state-level aggregates by adding up the differences by state and bank size category. As a result, a bank's data for any year were included only if the bank reported for both that year and for the year before. This method prevented *de novo* banks and bank failures from distorting the calculated first-differences.

To measure the first-differences when banks merged, we calculated the first-differences of data for a merged bank as the difference between the data for the surviving bank and the data for the previous year for the sum of the banks involved in the merger. For example, if banks A and B merged between the (second quarter) 1990 and 1991 observations, the first difference between 1990 and 1991 was calculated as the 1991 data for the surviving, merged bank minus the sum of the 1990 data for the banks involved in the merger (bank A and bank B). The first-difference for 1992 was calculated as the first-difference of the 1992 and 1991 data for the merged bank.

This procedure was relatively straightforward for mergers that produced a single surviving bank. However, many mergers were more complicated. Unfortunately, no data in the

Call Reports indicated how non-surviving banks were split up among a group of surviving banks. We prorated the data of non-surviving banks among multiple surviving banks with shares (for each data series) that were proportional to the change in the surviving banks' data from the quarter prior to the merger to the subsequent quarter.<sup>8</sup>

An additional challenge was how to allocate merged banks into bank size categories. Two medium-sized banks in the same state that merged to produce a bank that was still of medium size presented no issue. In that case, it did not matter how differences were calculated or how the data were categorized. On the other hand, when the merger of a small bank with a medium bank produced a large bank, it was less obvious how much growth in loans and other variables should be attributed to each of the size categories. This was a problem anytime a bank changed its size category over time, even in the absence of a merger. In these cases, we allocated the first-differences of the data to the size category measured in the current period. Therefore, in the small-medium-large example given above, the first-differences would be included in the large bank aggregate for the state of the surviving bank.

#### Data for SBA loan guarantees

Data for the number of SBA-guaranteed loans approved, the total dollar amount of loans approved by lenders, and the dollar amounts of the guarantees provided by the SBA were available for each SBA office (U.S. Small Business Administration 2003b). We aggregated these data to form state-level data for "gross loans" approved (i.e., the total amounts of the loans) and for guarantees approved by the SBA. These data were not the dollar amounts outstanding (i.e., the stock), but rather were the flows of newly extended loans.

The section 7(a) Loan Guaranty Program is one of the SBA's primary vehicles for providing loans to small businesses that were unable to secure financing on reasonable terms through normal lending channels.<sup>9</sup> This program guarantees loans provided by private-sector lenders to applicants that meet criteria with respect to (1) the type of business, (2) the size of the business, and (3) the use of the loan proceeds.<sup>10</sup> The vast majority of for-profit businesses with fewer than 500 employees are eligible for financial assistance through this program. The loans can be used for most business purposes, including the purchase of real estate to house the business operations, construction, renovation or leasehold improvements; acquisition of furniture, fixtures, machinery and equipment; purchase of inventory; and working capital. In each instance, the business must invest a reasonable amount of equity and have first relied upon alternative financing sources (including personal assets).

Although the Loan Guaranty Program is generally intended to encourage longer-term small business financing, the actual loan maturities are based on the ability to repay, the purpose of the loan proceeds, and the useful life of the assets financed. Maximum loan maturities are 25 years for real estate and equipment and 10 years for working capital. Interest rates are negotiated between the borrower and the lender, but are subject to maximum rates that are pegged to the prime rate of interest. For fixed-rate loans, the maximum interest rate depends on the prime rate, the amount of the loan, and the maturity of the loan. Variable rate loans can be pegged either to the prime rate or to a weighted average of rates the federal government pays for loans with maturities similar to the average loan that is guaranteed by the SBA. The SBA can guarantee up to 80 percent of loans up to \$100,000, and up to 75 percent of loans above \$100,000. There was no legislated limit to the total amount of the loan that can be requested from the lender, but the

maximum SBA guarantee amount was generally \$750,000.

For each state, we obtained annual data for the state-level gross loan amounts, as well as the SBA guaranteed amounts, for the Section 7(a) Loan Guaranty Program.<sup>11</sup> We converted nominal dollar amounts to real, per capita values by dividing by the national CPI and each state's population.

### Measures of aggregate real economic activity

We used several macroeconomic indicators either as dependent variables or as independent variables to control for state and national economic health. In most instances, we used four-quarter averages from the third quarter of the previous year to the second quarter of the current year as our measures of annual values. We obtained data for gross state product, personal income, and wages and salaries (including the private, nonprofit, as well as government sectors) from the U.S. Bureau of Economic Analysis (2003b, 2003a). We converted data for nominal dollar gross state product to real, per capita values by dividing by the national CPI and state population.

We obtained data for the number of business failures (also called business terminations) from the annual reports published by the Office of Advocacy of the U.S. Small Business Administration (2003b). We complemented data for failures with data for total business bankruptcies and Chapter 7 firm bankruptcies, as published by the Administrative Office of the U.S. Courts (2003).<sup>12</sup> A business bankruptcy is a legal recognition that a business is insolvent and that it must restructure (Chapter 11, or, for farm businesses, Chapter 12) or completely liquidate (Chapter 7). Bankruptcies were recorded when businesses filed bankruptcy petitions

under Chapters 7, 11, or 12 of the bankruptcy laws. The SBA's Office of Advocacy (U.S. Small Business Administration 1994) noted that business bankruptcy data were more likely to include self-employed persons and new, very small firms than were business failure data. An economic indicator particularly pertinent to the vitality of *de novo* businesses was the number of Chapter 7 bankruptcies.

We obtained the data for the federal funds interest rate, the prime (interest) rate, and Moody's Aaa and Baa long-term bond yields from the Federal Reserve (2003b). We expressed all interest rates in percentage rather than decimal form. The Federal Reserve aggressively reduced the federal funds rate during the 1990-1991 recession (Chart 4, top panel). Although the federal funds rate was almost 9 percent in 1989, it was only about 3 percent by 1993. The prime rate also declined during this period, but less dramatically. As a result, the spread between the prime rate and the federal funds rate rose through most of the 1990-1991 recession and into the recovery. Interestingly, this spread did not revert to its 1989 level during the 1990s.

Moody's Aaa and Baa long-term bond yields trended downward during the 1990s (Chart 4, bottom panel). The spread between these rates increased during the 1990-1991 recession and then declined modestly during the ensuing national economic expansion. The modest decline in the spread between long-term rates contrasted sharply with the increase in the spread between the prime interest rate and the federal funds interest rate.

According to a standard view of the monetary transmission process, monetary policy affects real economic activity by changing interest rates, particularly long-term interest rates. Clearly, both the Aaa and Baa long-term rates rose and fell with the Federal Reserve's setting of the federal funds rate. But, the responses of long-term yields were smaller than those of short-

term yields. As a result, the spread between the Moody's Aaa bond yield and the effective funds rate tended to grow when the Federal Reserve lowered the federal funds rate and to shrink when the Federal Reserve raised the federal funds rate.

## VI. Regression Results

Tables 1-7 present the results of ordinary least squares (OLS) regressions that estimated the effects of various factors--local and national, real and financial--on small businesses. The results were based on annual data for each of 46 states for 1991-2000. We used four categories of explanatory variables: bank capital, loan delinquency rates, (the flow of) SBA-guaranteed

loans, and economic conditions. The following equation shows the specification for the regression results reported in Table 1:

$$Y = \alpha + \beta_1 * B_S + \beta_2 * B_M + \beta_3 * B_L + \gamma_1 * R_S + \gamma_2 * R_M + \gamma_3 * R_L + \delta_1 * C_S + \delta_2 * C_M + \delta_3 * C_L + \eta_1 * G + \eta_2 * F + \eta_3 * S + \eta_4 * L + \epsilon$$

Each regression included a different dependent variable (Y), an intercept term ( $\alpha$ ), and an error term ( $\epsilon$ ). This equation denotes the effects of the independent variables on the dependent variables with numerically subscripted Greek letters ( $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\eta$ ). This core set of explanatory variables included three measures of the first-differences of state-level real, per capita bank capital (expressed as a percentage of lagged real, per capita gross state product), one each for the set of small ( $B_S$ ), medium ( $B_M$ ) and large ( $B_L$ ) banks operating in the state; measures of (one-year-) lagged real estate loan delinquency rates for each bank size category ( $R_S$ ,  $R_M$ ,  $R_L$ ) and the lagged C&I loan delinquency rate ( $C_S$ ,  $C_M$ ,  $C_L$ ), again measured separately at small, medium and large banks (with all delinquency rates expressed as a percentage of the respective type of loans);

and four measures of economic conditions. The four measures of economic conditions were the lagged percentage growth rate of real, per capita gross state product (G), the lagged nominal federal funds interest rate (F), the lagged spread between the prime rate and the federal funds rate (short-term spread, S), and the lagged spread between Moody's Baa and Aaa bond yields (long-term spread, L).

Tables 2-7 show the results of regressing alternative dependent variables on sets of explanatory variables that were nearly identical to the core set used in Table 1. The significance level (p-value) is shown in parentheses under each estimated regression coefficient in Tables 1-7.

#### Effects on bank loans of bank conditions and economic conditions

As dependent variables, the regressions reported in Table 1 used the first-differences of real, per capita bank loans (expressed as a percentage of lagged real, per capita gross state product) for various categories of loans. The bank loan regressions provide evidence on the mechanism through which changes in bank capital and bank loan delinquency rates ultimately affected real activity--by affecting bank lending.

The results presented in row 1 reaffirm the conventional wisdom that bank loans rose and fell with bank capital. Row 1 suggests that losses of bank capital reduced holdings of loans in bank portfolios (Hancock and Wilcox 1998; Peek and Rosengren 1995b). These estimates also testify to the procyclicality of bank lending (Berger and Udell 2002). The estimated effects were statistically significant for each bank size. Because both the dependent variable and the bank capital measures were scaled by lagged, real, per capita gross state product, the interpretation of the estimated effects is straightforward. A one-dollar increase (decrease) in bank equity capital

at small banks was associated with a \$1.98 increase (decrease) in total loans in bank portfolios. The estimated effect of bank capital was largest at medium-sized banks (\$3.78 per dollar change in bank capital).

The estimates in row 1 also suggest that higher loan delinquency rates reduced banks' holdings of total loans, with five of the six estimated effects being negative, but only one of the effects was statistically significant at the 5 percent significance level, and two were significant at the 10 percent level. Of the four measures of economic conditions, only the lagged federal funds interest rate had a significantly negative estimated effect.

The results for C&I loans, commercial real estate loans and consumer loans, which are displayed in rows 2-4, also used the explanatory variables from row 1. For C&I loans, the estimated effects of the three measures of bank capital were again positive and statistically significant at medium and large banks. However, the estimates suggest that an additional dollar of capital at large banks raised C&I loans by nearly one dollar, which was almost twice the estimated effect of an additional dollar of capital at medium-sized banks and more than three times the estimated effect of an additional dollar of capital at small banks. For both commercial real estate loans and consumer loans, the magnitudes of the estimated effects across bank size classes varied substantially. Only capital at medium-sized banks had an effect estimated to be significant. Rows 2-4 show that loan delinquency rates affected the loan categories much like they affected total loans. Most of their estimated effects were negative. However, only five of the 18 estimated effects were statistically significant and C&I loan delinquency rates at small banks raised C&I loans.

Higher federal funds rates significantly reduced banks' holdings of C&I and consumer

loans. Somewhat counterintuitively, C&I loans rose significantly with the spread between the prime rate and the federal funds rate. As expected, higher spreads between the Baa and Aaa yields reduced C&I loans.

We used the same explanatory variables in the remainder of Table 1 to obtain the results for the same four categories of bank loans at small, medium, and large banks.<sup>13</sup> As expected, positive effects at banks of the same size dominated: Large-bank loans responded most to large-bank capital, medium-bank loans responded most to medium-bank capital, and small-bank loans responded most to small-bank capital. Ten of these 12 own-size effects were statistically significant. In addition, the estimated effects of capital at banks of different sizes, the cross-effects, tended to be negative, but only a few of the estimated cross-effects were statistically significant.

At large banks, each dollar of bank capital raised their total loans by \$3.51. That exceeded the estimated \$3.00 effect of large bank capital on total loans at all banks. This suggested that smaller banks offset the reductions in large banks' lending when large bank capital declined. That was borne out by the negative (though insignificant) estimated effect of large bank capital on total loans held by medium-sized and by small banks. Similarly, the negative cross-effect appeared in the large bank regressions. Increases in medium bank capital tended to decrease loans held by large banks. Borrowers who were denied loans because their own banks were under capital pressure may have been able to turn to banks that were under less capital pressure. Of course, these estimates do not identify borrowers shifting between banks within a size class.

Borrower concentration limits may have also precluded some smaller banks from making

large loans to customers of capital-constrained larger banks. If so, the effects of declines in capital in one bank size class on the lending by banks in other size classes would not have been symmetric. In that case, the magnitude of negative cross-effects of smaller banks' capital on larger banks' loans would have been expected to be larger than vice versa. The estimated effects in Table 1 reveal such an asymmetry.

The estimated effects of the real estate loan delinquency rates matched our expectations. Estimated effects were significantly negative only for real estate loan delinquency rates at banks of the same size. Thus, delinquency rates at large banks reduced loans at large banks, medium bank delinquencies reduced medium bank loans, and small bank delinquencies reduced small bank loans. For C&I loan delinquency rates, the pattern was not quite as clear. Although, large bank C&I delinquencies had a significant negative effect on large bank C&I loans and medium bank C&I delinquencies had a significant negative effect on medium bank C&I loans, in contrast, small bank C&I delinquencies had a (insignificantly) negative effect on small bank C&I loans. Higher small bank C&I delinquencies raised large bank C&I loans significantly. This was consistent with small banks' C&I lending shrinking when their C&I loan portfolio deteriorated and with their borrowers shifting to larger banks.

Higher federal funds interest rates tended to reduce bank loans. The exception was commercial real estate loans.<sup>14</sup> Nine of the 12 estimated effects of the long-term spread were negative, with four being statistically significant. Six of the 12 effects were negative for the short-term spread, although none was significant. The estimated effects of the growth rate of real, per capita GSP was never significantly positive.

Thus, the patterns in Table 1 generally follow those reported by studies whose sample

periods ended in the early 1990s. The estimated effects of capital on bank loans for 1991-2000 were significant. While the own-size effects were positive, the cross-effects of capital on bank loans were typically negative, indicating that pressures on some banks were partially offset by other banks. While higher interest rates tended to reduce bank lending, state-level economic growth showed no consistent tendency to raise or lower lending.

#### Effects on gross state product, personal income, and small business activity

The estimates reported in Table 2 bear on the issue of whether the same factors that affected bank loans also affected real economic activity. Interest in the effects on bank loans, after all, stems primarily from concern that these factors did affect economic activity.

The dependent variables in Table 2 measure gross state product (GSP), personal income, and two components of personal income: wages and salaries and nonfarm proprietors' income. We specified each of these dependent variables as real, per capita first-differences (expressed as a percentage of the lagged real, per capita GSP). With this transformation, the GSP variable becomes the real, per capita percentage growth rate of GSP. Table 2 used the same core set of explanatory variables that we used in Table 1, except that we added SBA-guaranteed loan disbursements and deleted lagged GSP. We specified SBA-guaranteed loan disbursements as the first-difference of real, per capita SBA-guaranteed loan disbursements (expressed as a percentage of real, per capita GSP). We then lagged that SBA variable by one year.

Real, per capita GSP responded positively to each of the three measures of bank capital. The effects of medium and large banks' capital on GSP were statistically significant. An additional dollar of bank capital at large banks had a larger estimated effect on GSP than an

additional dollar of capital at either small or medium banks. One dollar of additional capital at large banks raised GSP by \$2.50, while an additional dollar of capital at small and medium banks raised GSP by one dollar less. Real estate loan delinquency rates did not have a significant effect on GSP. In contrast, C&I loan delinquency rates at large banks significantly reduced GSP. Medium bank C&I loan delinquency rates reduced GSP by less than half as much as delinquency rates at large banks.

SBA-guaranteed loan disbursements raised GSP, but the estimated effect was significant only at the 10 percent level. All three of the interest rate measures had the anticipated significant, negative effect on GSP.

Wages and salaries and nonfarm proprietors' income also reasonably closely track the performance of small businesses. Small business payrolls largely represent wages paid to non-owner employees. In contrast, proprietors' income represents a combination of (1) compensation for the owners' labor services and (2) returns on the owners' capital investments and their abilities to manage them. Data for wages and salaries, which were published by the U.S. Bureau of Economic Analysis, were not disaggregated by firm size and included wages paid to employees of nonprofit and government entities. Below, we report separately on private sector payrolls.

Substituting personal income or one of its components as the dependent variable produced estimates that shifted the relative importance of small banks compared to large banks. Large banks had larger, more significant effects on GSP than on its components, which we regarded as being more closely tied to small businesses. For example, only small bank capital had significant effects in each of the three specifications, as well as having a larger effect than

did large bank capital in each instance. Similarly, among the measures of loan delinquencies, only small bank C&I loan delinquencies had significant effects.

Table 2 shows that the same variables that affected bank loans also had important effects on real economic activity. Although bank loan delinquency rates had no discernible effects on real economic activity, capital pressures at banks significantly reduced economic activity. As we expected, higher interest rates clearly reduced activity. Although the SBA loan variable wasn't significant at the traditional 5 percent level in the GSP equation, its estimated effect was to raise economic activity by a factor of about six. (It was significant at better than the 10 percent level, however.) On the other hand, SBA-guaranteed loan disbursements did have a significant effect on each of the three components of GSP, which can be reasonably regarded as being more closely related to small business activity.

Table 3 presents the results of regressing private sector employment, number of firms, and annual payrolls, each disaggregated by firm size (as measured by the number of employees). Both employment and the number of firms were measured per thousand residents of each state and expressed as first-differences. Annual payrolls were measured as first-differences of real, per capita values (expressed as a percentage of lagged real, per capita GSP). We used the same explanatory variables to obtain the estimates in Table 3 that we used for Table 1, except for the addition of the variable for SBA-guaranteed loan disbursements.

Each of the three measures of bank capital raised total employment, although only those effects for small and large banks were significant. In contrast to the relative effects on GSP, small bank capital had the largest effect on employment. This suggests that capital at small banks was in a sense "high-powered capital," in terms of stimulating employment. The effect of

additional capital at large banks on employment was only about one-third as large as that at small banks. The effect of medium bank capital was even smaller.

Surprisingly, the largest difference between the effect of small bank capital and large bank capital on employment was for firms with 500 or more employees. The next largest difference was for the smallest firms, as might be expected, since small firms relied more on small banks for credit. For firms with 20 to 99 employees, the effects on employment of small bank capital were similar to that of large bank capital. All of the estimated effects of both real estate loan and C&I loan delinquency rates at large banks were negative, as predicted, although only three were statistically significant. At medium banks, the results were similar, with all estimated effects but one being negative. Surprisingly, most of the estimated effects of the delinquency rates at small banks were positive, with five being statistically significant.

SBA-guaranteed loan disbursements raised employment at firms of all sizes. The effects for all firms and for the largest firms were statistically significant. Each measure of economic conditions had a significant estimated effect for total employment. When the firms were disaggregated by size, the pattern of signs on the estimated effects persisted, with only two exceptions, with most of the effects retaining their statistical significance. However, the estimated effect of the long-term spread was positive and significant for firms with 100 to 499 employees.

The next panel on the table shows that having more small bank capital significantly increased the number of firms. While each estimated effect of large bank capital was positive (and two of the five were significant), they were each much smaller than the small bank capital effects. The estimated effects of medium bank capital were even smaller, and only one effect

was significant. Consistent with the employment results, small bank capital had a bigger “bang per buck” on the number of firms. The estimated effects of loan delinquency rates on the number of firms were mixed, with only six being significant. Although most of the effects were negative, the small bank delinquency rate effects were positive and often were significant. The two SBA-guaranteed loan disbursement effects that were significant were positive, although the other three estimated effects were negative. The general pattern of the effects of the interest rate variables on the number of firms was similar to those on employment. However, three of the estimated effects of GSP were negative and two of those were significant.

The payroll-based estimates in Table 3 tell a similar story.<sup>15</sup> Each of the estimated effects of small bank capital and large bank capital was significantly positive, but the estimated effects of small bank capital were always larger. Each of the estimated effects of medium bank capital was positive. Most estimated effects of delinquency rates were negative, but only three were significant. SBA-guaranteed loan disbursements had positive estimated effects, with four of the five being significant. The pattern of estimated effects of the economic conditions variables in terms of signs and significance was quite similar to those for the employment regressions.

Table 3 shows some of the differential effects across firm and bank sizes of capital and other variables. As in Table 2, in Table 3 capital tended to consistently affect real economic activity, while bank loan delinquency rates did not. Table 3 also shows significant effects of the SBA loan variable on many of the aggregated and disaggregated measures of economic activity.

### SBA-guaranteed loans as economic stabilizers

A government loan guarantee program might usefully increase the supply of loans when private-sector banks inefficiently reduce their supply of loans. Inefficiency might arise, for example, when a bank's capital requirement became binding or its economic net worth became negative and the bank could not raise sufficient capital to operate and lend. Banks were under varying amounts of capital pressure during the 1990s. Tables 1-3 indicated that capital pressures reduced activity at the firms that relied on banks. On the other hand, Tables 2 and 3 suggest that SBA-guaranteed loan disbursements might stimulate activity. The amounts of SBA-guaranteed loan disbursements might importantly be determined by political as well as economic considerations, and by secular as well as by cyclical considerations. Regardless, it is useful to know what has been the typical relation of SBA-guaranteed loan disbursements to the factors that affected banks, businesses, and employees.

Table 4 presents the results of regressing various measures of SBA Section 7(a) guaranteed loans on the same core set of independent variables that we used for Table 1. We used the following measures of (the flow of) SBA-guaranteed loans: the number of SBA-guaranteed loans approved per million residents; the real, per capita SBA gross loan amount approved (expressed as a percentage of lagged real, per capita GSP); and the real, per capita SBA loan guarantee amount (expressed as a percentage of lagged real, per capita GSP).

Row 1 shows the results for the number of SBA-guaranteed loans approved. We expected that more bank capital would produce more SBA-guaranteed loans to the extent that banks were then less capital-constrained and more willing to take on lending risks. To the extent that the guarantee associated with SBA-guaranteed loans made them less risky, banks would find

them more attractive. At small banks, precisely those one might expect to be most involved in small business lending, a reduction in bank capital was associated with an increase in the volume of SBA-approved loans, although the effect was not statistically significant. This contrasts sharply with Table 1, where a decline in bank capital was associated with a decline in bank loans overall. In that sense, the SBA program appeared countercyclical, providing a stabilizing influence on small business lending. At large banks, the effect was also negative, but not statistically significant, and at medium-sized banks the effect was positive and insignificant. However, even the absence of a decline in SBA-guaranteed loan approvals in the face of a decline in bank capital could be interpreted as a stabilizing influence.

Four of the six loan delinquency rates had significant effects on SBA-guaranteed loans, with half the estimated effects negative and half positive. Both the short-term and the long-term interest rate spread measures raised the number of SBA-guaranteed loans, suggesting that as the economic environment deteriorated, the number of loans approved increased, although only that for the short-term spread was significant. Again, this was consistent with the SBA-guaranteed loan program stabilizing lending over the business cycle.

Rows 2 and 3 present results for the gross loan amounts and the guaranteed portion of the loans. The difference between these two variables was the amount of the loan for which the bank was not guaranteed repayment, i.e., the amount at risk for the lender. Because that amount tended to be a fairly steady proportion of the gross loan amount, the estimated effects across the two rows were quite similar. Again, the estimated effects of small and large bank capital were negative; those of medium bank capital were positive. However, none were statistically significant. Still, the absence of strong significant positive estimated effects, as in Table 1 for all

loans, suggested that the SBA-guaranteed loan program stabilized bank lending to small businesses. The majority of the loan delinquency rates were significant. Small bank delinquency rates raised SBA-guaranteed loan amounts, while those at large banks lowered them. For medium banks, real estate loan delinquencies lowered SBA-guaranteed loan amounts, while C&I loan delinquencies had positive but insignificant effects. Both the federal funds rate and the short-term interest rate spread significantly reduced SBA-guaranteed loan amounts, while the long-term spread (insignificantly) raised the SBA guarantee amount.

SBA-guaranteed loans did not systematically respond to capital pressures on banks or to state-level real economic growth rates. Indeed, their failing to respond positively to bank capital and economic growth meant that SBA-guaranteed loans likely kept bank lending and economic growth stronger than they would have been otherwise.

#### Effects on business failures and business bankruptcies

Table 5 presents the results for business failures and business bankruptcies based on the explanatory variables used for Table 3. Failures of large businesses accounted for a minute proportion of the total numbers of business failures. Thus, we interpret the results in Table 5 as reflecting the outcomes of small businesses. Row 1 contains the results for business failures per thousand residents. Rows 2 and 3 contain the results for total business bankruptcies per thousand residents and per thousand firms, respectively. Rows 4 and 5 contain the results for Chapter 7 business bankruptcies per thousand residents and per thousand firms, respectively.

In Table 5, most of the estimated bank capital effects were positive, but only three were significant. One significantly negative estimated effect, however, was that of small bank capital

on business failures. None of the large bank capital effects were significant. The estimated effects of small bank real estate delinquency rates were each positive, with each being significant at better than the 10 percent level. In contrast, most estimated C&I loan delinquency rate effects were negative, but insignificant. Though never significant, the estimated effects of SBA-guaranteed loan disbursements tended to reduce the numbers of business failures and business bankruptcies. Higher values of the interest rate-related variables raised failures and bankruptcies less consistently than we expected. Higher federal funds interest rates raised failures and bankruptcies insignificantly. Larger spreads of short-term interest rates seemed to have reduced failures, while larger spreads of long-term interest rates raised them.

#### Sensitivity to recessions and monetary policy

Tables 6 and 7 show how differently small business activity responded during periods of slow growth and during periods of tight monetary policy. Tables 6a and 6b contain results for years of slower and of faster economic growth. Table 6a used the 40 percent of the sample that had the lowest growth rates of GSP; Table 6b used the 40 percent of the sample that had the highest GSP growth rates. Table 7a used only data for 1991 and 1992, the years that had the highest values of the (lagged) federal funds rate during 1991-2000 (approximately 8 percent). Table 7b used only data for 1994 and 1995, the years when the (lagged) federal funds rate took its lowest values of the 1991-2000 period (approximately 3 percent).<sup>16</sup> Table 7c used data for 1993 and 1996-2000, the years when the (lagged) federal funds rate took mid-range values of approximately 5 percent.

Comparison of the results in Tables 6a and 6b indicates that the estimated bank capital

effects on employment, numbers of firms, and annual payrolls tended to be larger, and often substantially larger, when growth was slower. Small bank capital tended to be significant in both periods. The estimated effects of medium and large bank capital, however, were much more significant in periods of slower growth. Nonetheless, some of the largest differences across the periods of slower and faster economic growth were obtained for the estimated effects of small bank capital on smaller businesses. Thus, bank capital had larger effects on real economic activity during recessions and during periods of slower growth generally.

Real estate loan delinquency rates at medium banks consistently reduced employment, numbers of firms, and annual payrolls during periods of slow growth. Real estate delinquencies at larger banks generally had insignificant effects. During periods of faster growth, real estate loan delinquency rates did not consistently affect these measures of real activity.

During the slower growth periods, SBA-guaranteed loan disbursements did not consistently affect real activity. During the faster growth periods, they more consistently raised real activity, although only three of the estimated effects were significant. Naturally, faster GSP growth tended to raise each of these measures of real activity. The three interest rate measures predominantly had negative estimated effects on real activity, though not consistently so.

Table 7 shows that tighter monetary policy, as measured by higher federal funds interest rates, tended to make the positive effects of bank capital even larger and more significant. Since tighter monetary policy was usually associated with a weakening economy, these results suggest that real economic activity responds more to bank capital in a deteriorating economy. Loan delinquency rates also tended to have larger and more significant, and thus more restraining, effects during these periods.

Larger SBA-guaranteed loan disbursements raised economic activity during periods of tighter monetary policy. In contrast, the estimated effects of disbursements were often negative during the periods of lower interest rates: Both of the significant effects in Table 7b and five of the eight significant effects in Table 7c were negative. The estimated effects of real, per capita GSP growth were all positive in the high federal funds rate subperiod, with about half being significant. In the other two tables, the effects were mostly positive, but less likely to be statistically significant.

Tables 6 and 7 suggest that various factors had larger effects during periods of slower economic growth or higher interest rates. The estimated effects of bank capital and loan delinquency rates were larger and more deleterious during recessions. During those same periods, on the other hand, the estimated effects of offsetting factors were larger. Thus, during periods of recession and higher interest rates, SBA-guaranteed loans might have stimulated business activity more.

## **VII. Conclusions**

Since the late 1980s, both the national economy and the financial sector have undergone considerable secular changes, have had considerable variation in their growth rates, and have been struck by shocks of considerable size that emanated from both the public and private sectors. Since the late 1980s, the national economy enjoyed a very long and vigorous expansion and weathered two recessions. Similarly, the financial sector prospered (and perhaps bubbled over) during the long expansion of the 1990s, weathered bouts of banking disruption in the early 1990s and again in the late 1990s, and counted hundreds of commercial bank mergers.

Small businesses have long been a vital part of the American economy. Firms with fewer than 100 employees accounted for one-third of all private-sector jobs and more than 95 percent of all firms. During this period, many new small businesses were started, many failed, many continued to prosper, and many prospered enough to no longer be categorized as “small.” Given their dependence on banks for credit, it would have been remarkable if small businesses had not been affected by recessions, monetary policy, and other national and local conditions.

We have presented estimates of the effects of economic growth, monetary policies, and a variety of other factors on businesses large and small. Lending at banks of all sizes declined in response to higher federal funds rates. Lower equity capital and higher loan delinquency rates at banks reduced their lending; they also reduced real activity at businesses of all sizes. Risk spreads on interest rates also reduced employment and payrolls at businesses of all sizes. The fortunes of smaller businesses in particular were tied to conditions at smaller banks.

Larger numbers and amounts of disbursements of SBA-guaranteed bank loans were associated with more output, employment, and dollar payrolls. Why the larger rather than smaller businesses recorded the largest responses to SBA activities remains to be explored and explained. Disbursements of SBA-guaranteed loans also tended to reduce, albeit modestly, business failures and bankruptcies. The estimated effects of disbursements were particularly stimulative during periods when monetary policy was tighter and economic growth was slower. In that light, SBA programs might be regarded as a stabilizing force.

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Table 1

## The Effects on Bank Loans of Bank Capital, Loan Delinquencies, and Economic Conditions

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
<b>All Banks</b>																	
1. Total loans	2.473 (0.01)	1.976 (0.01)	3.780 (0.00)	3.003 (0.00)	-0.308 (0.00)	-0.114 (0.06)	-0.113 (0.13)	0.063 (0.30)	-0.110 (0.06)	-0.039 (0.70)	0.009 (0.82)	-0.288 (0.00)	0.166 (0.12)	-0.435 (0.51)	0.52	1.526	37.03 (0.00)
2. Commercial and Industrial	1.222 (0.00)	0.291 (0.22)	0.507 (0.00)	0.958 (0.00)	-0.044 (0.13)	-0.007 (0.67)	-0.035 (0.10)	0.039 (0.03)	-0.038 (0.03)	-0.024 (0.42)	0.008 (0.49)	-0.102 (0.00)	0.062 (0.05)	-0.936 (0.00)	0.53	0.450	38.70 (0.00)
3. Commercial Real Estate	0.531 (0.01)	-0.111 (0.50)	0.261 (0.00)	0.041 (0.77)	-0.051 (0.01)	-0.053 (0.00)	-0.018 (0.24)	-0.010 (0.43)	-0.003 (0.78)	0.017 (0.41)	-0.003 (0.71)	0.001 (0.96)	-0.020 (0.36)	-0.136 (0.31)	0.28	0.310	13.43 (0.00)
4. Consumer	0.369 (0.39)	0.500 (0.17)	1.225 (0.00)	0.164 (0.61)	-0.004 (0.93)	0.001 (0.96)	-0.015 (0.65)	0.024 (0.38)	-0.034 (0.20)	-0.011 (0.81)	0.019 (0.28)	-0.125 (0.00)	0.011 (0.82)	0.211 (0.49)	0.21	0.692	9.00 (0.00)
<b>Large Banks</b>																	
1. Total loans	1.512 (0.12)	0.715 (0.71)	-0.892 (0.26)	3.512 (0.00)	0.060 (0.59)	0.018 (0.82)	-0.153 (0.00)	0.023 (0.69)	-0.030 (0.61)	-0.064 (0.38)	0.043 (0.35)	-0.174 (0.03)	-0.039 (0.72)	-0.282 (0.68)	0.45	0.961	11.00 (0.00)
2. Commercial and Industrial	1.075 (0.01)	0.073 (0.93)	-0.395 (0.23)	0.717 (0.00)	-0.026 (0.57)	0.012 (0.71)	-0.056 (0.01)	0.082 (0.00)	0.006 (0.80)	-0.068 (0.03)	0.007 (0.73)	-0.114 (0.00)	-0.012 (0.79)	-0.446 (0.12)	0.44	0.396	10.53 (0.00)
3. Commercial Real Estate	0.336 (0.22)	-0.923 (0.09)	-0.049 (0.83)	0.270 (0.07)	-0.019 (0.53)	-0.004 (0.85)	-0.020 (0.18)	-0.005 (0.78)	-0.006 (0.69)	0.000 (1.00)	0.004 (0.74)	-0.008 (0.71)	-0.041 (0.18)	-0.052 (0.79)	0.11	0.269	1.61 (0.09)
4. Consumer	0.809 (0.01)	0.016 (0.98)	-0.617 (0.02)	0.389 (0.02)	0.012 (0.73)	0.030 (0.24)	-0.031 (0.07)	-0.009 (0.61)	-0.020 (0.29)	0.021 (0.37)	-0.012 (0.43)	-0.082 (0.00)	-0.052 (0.14)	-0.334 (0.13)	0.16	0.308	2.66 (0.00)
<b>Medium Banks</b>																	
1. Total loans	0.698 (0.40)	-0.357 (0.62)	3.942 (0.00)	-0.629 (0.31)	-0.058 (0.52)	-0.131 (0.02)	0.038 (0.55)	0.046 (0.39)	-0.125 (0.02)	-0.038 (0.66)	-0.005 (0.89)	-0.149 (0.02)	0.069 (0.46)	0.355 (0.54)	0.36	1.308	18.48 (0.00)
2. Commercial and Industrial	0.569 (0.01)	-0.147 (0.41)	0.580 (0.00)	-0.117 (0.45)	0.004 (0.87)	-0.012 (0.39)	-0.009 (0.56)	0.017 (0.20)	-0.037 (0.01)	-0.014 (0.52)	-0.008 (0.34)	-0.045 (0.00)	0.020 (0.40)	-0.385 (0.01)	0.32	0.328	15.46 (0.00)
3. Commercial Real Estate	0.127 (0.30)	-0.217 (0.04)	0.327 (0.00)	-0.164 (0.07)	0.015 (0.26)	-0.055 (0.00)	0.005 (0.59)	0.002 (0.77)	-0.008 (0.28)	0.009 (0.48)	0.007 (0.15)	-0.004 (0.65)	-0.016 (0.26)	0.023 (0.79)	0.29	0.195	13.44 (0.00)
4. Consumer	0.127 (0.30)	-0.217 (0.04)	0.327 (0.00)	-0.164 (0.07)	0.015 (0.26)	-0.055 (0.00)	0.005 (0.59)	0.002 (0.77)	-0.008 (0.28)	0.009 (0.48)	0.007 (0.15)	-0.004 (0.65)	-0.016 (0.26)	0.023 (0.79)	0.29	0.195	13.44 (0.00)
<b>Small Banks</b>																	
1. Total loans	1.337 (0.00)	2.398 (0.00)	-0.035 (0.82)	-0.352 (0.19)	-0.300 (0.00)	-0.025 (0.27)	-0.029 (0.29)	0.046 (0.04)	0.055 (0.01)	0.007 (0.85)	-0.010 (0.47)	-0.089 (0.00)	0.074 (0.07)	-0.596 (0.02)	0.49	0.579	33.02 (0.00)
2. Commercial and Industrial	0.383 (0.00)	0.612 (0.00)	0.012 (0.78)	-0.047 (0.51)	-0.038 (0.00)	-0.010 (0.11)	-0.004 (0.63)	-0.005 (0.43)	0.004 (0.46)	0.022 (0.03)	0.005 (0.15)	-0.024 (0.00)	0.020 (0.06)	-0.333 (0.00)	0.54	0.152	41.08 (0.00)
3. Commercial Real Estate	0.295 (0.00)	0.138 (0.04)	-0.060 (0.07)	-0.086 (0.13)	-0.070 (0.00)	-0.004 (0.38)	-0.004 (0.49)	0.003 (0.54)	0.013 (0.00)	-0.001 (0.95)	-0.010 (0.00)	0.005 (0.36)	0.008 (0.38)	-0.128 (0.02)	0.32	0.123	16.00 (0.00)
4. Consumer	0.170 (0.28)	0.181 (0.18)	0.128 (0.06)	-0.079 (0.50)	-0.042 (0.01)	0.014 (0.15)	0.001 (0.95)	0.009 (0.34)	-0.004 (0.66)	-0.003 (0.85)	0.006 (0.36)	-0.032 (0.01)	0.022 (0.22)	-0.064 (0.56)	0.15	0.253	6.00 (0.00)

Table 2

The Effects on Gross State Product and Incomes of Bank Capital, Loan Delinquencies, SBA-Guaranteed Loans, and Economic Conditions

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions			R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
1. GSP	12.26 (0.00)	1.584 (0.12)	1.468 (0.01)	2.501 (0.01)	-0.065 (0.61)	0.129 (0.09)	0.028 (0.76)	-0.073 (0.34)	-0.136 (0.06)	-0.292 (0.02)	6.032 (0.08)	-0.525 (0.00)	-0.736 (0.00)	-6.220 (0.00)	0.30	1.94	14.37 (0.00)
2. Personal Income	5.676 (0.00)	3.855 (0.00)	0.627 (0.13)	2.127 (0.00)	0.123 (0.22)	-0.066 (0.27)	0.036 (0.62)	-0.153 (0.01)	0.052 (0.36)	-0.185 (0.07)	6.753 (0.01)	-0.254 (0.00)	-0.330 (0.00)	-2.703 (0.00)	0.23	1.52	10.37 (0.00)
3. Wages and Salaries	4.695 (0.00)	2.579 (0.00)	0.177 (0.46)	2.074 (0.00)	0.081 (0.16)	-0.062 (0.08)	-0.007 (0.86)	-0.073 (0.04)	0.011 (0.75)	-0.092 (0.12)	5.855 (0.00)	-0.180 (0.00)	-0.242 (0.00)	-2.883 (0.00)	0.38	0.89	21.23 (0.00)
4. Nonfarm Proprietors Income	1.419 (0.00)	0.455 (0.00)	0.050 (0.52)	0.210 (0.11)	0.008 (0.67)	-0.013 (0.24)	-0.001 (0.93)	-0.011 (0.35)	0.019 (0.08)	0.002 (0.90)	1.869 (0.00)	-0.061 (0.00)	-0.147 (0.00)	-0.749 (0.00)	0.20	0.29	8.46 (0.00)

Table 3

## The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA-Guaranteed Loans, and Economic Conditions

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
<b>Employment by number of employees</b>																		
1. All Firms	22.91 (0.00)	15.29 (0.00)	2.194 (0.09)	5.302 (0.02)	0.386 (0.21)	-0.089 (0.63)	-0.174 (0.45)	0.457 (0.01)	-0.219 (0.22)	-0.853 (0.01)	20.39 (0.02)	0.639 (0.00)	-2.110 (0.00)	-1.362 (0.00)	-9.157 (0.00)	0.51	4.73	33.61 (0.00)
2. > 499	12.64 (0.00)	8.280 (0.00)	0.725 (0.41)	1.192 (0.43)	-0.060 (0.78)	0.095 (0.46)	-0.059 (0.71)	0.081 (0.53)	-0.006 (0.96)	-0.320 (0.14)	16.012 (0.01)	0.289 (0.00)	-0.378 (0.02)	-0.392 (0.09)	-9.835 (0.00)	0.35	3.24	17.37 (0.00)
3. 100-499	3.009 (0.00)	2.239 (0.01)	0.214 (0.63)	1.652 (0.03)	0.118 (0.27)	-0.101 (0.12)	-0.033 (0.68)	0.135 (0.04)	-0.036 (0.56)	-0.197 (0.08)	3.613 (0.22)	0.155 (0.00)	-0.657 (0.00)	-0.378 (0.00)	1.839 (0.01)	0.29	1.65	12.81 (0.00)
4. 20-99	3.357 (0.00)	1.461 (0.04)	0.859 (0.02)	1.379 (0.03)	0.231 (0.01)	-0.052 (0.33)	-0.075 (0.25)	0.129 (0.02)	-0.107 (0.04)	-0.197 (0.03)	0.903 (0.71)	0.157 (0.00)	-0.655 (0.00)	-0.190 (0.05)	0.374 (0.53)	0.45	1.34	26.12 (0.00)
5. 0-19	4.076 (0.00)	3.318 (0.00)	0.392 (0.16)	1.085 (0.02)	0.099 (0.14)	-0.031 (0.45)	-0.008 (0.88)	0.113 (0.01)	-0.070 (0.07)	-0.138 (0.05)	0.023 (0.99)	0.038 (0.15)	-0.422 (0.00)	-0.419 (0.00)	-1.681 (0.00)	0.35	1.03	16.95 (0.00)
<b>Number of Firms by number of employees</b>																		
1. All Firms	1.584 (0.00)	0.775 (0.00)	0.061 (0.39)	0.232 (0.06)	0.035 (0.04)	-0.001 (0.89)	-0.005 (0.68)	0.025 (0.02)	-0.017 (0.10)	-0.023 (0.19)	-0.446 (0.35)	-0.010 (0.12)	-0.143 (0.00)	-0.168 (0.00)	-0.584 (0.00)	0.35	0.26	17.46 (0.00)
2. > 499	0.047 (0.00)	0.017 (0.00)	0.003 (0.36)	0.004 (0.50)	0.001 (0.17)	0.000 (0.88)	-0.001 (0.34)	0.002 (0.00)	0.000 (0.27)	-0.001 (0.07)	-0.011 (0.59)	-0.001 (0.04)	-0.001 (0.08)	-0.002 (0.02)	-0.042 (0.00)	0.25	0.01	10.36 (0.00)
3. 100-499	0.003 (0.76)	0.032 (0.00)	0.002 (0.67)	0.015 (0.02)	0.001 (0.15)	-0.001 (0.16)	0.000 (0.82)	0.001 (0.18)	0.000 (0.37)	-0.002 (0.07)	0.063 (0.01)	0.000 (0.27)	-0.002 (0.01)	-0.003 (0.01)	0.018 (0.00)	0.21	0.01	8.28 (0.00)
4. 20-99	0.055 (0.02)	0.091 (0.00)	0.025 (0.02)	0.040 (0.03)	0.008 (0.00)	-0.002 (0.23)	-0.001 (0.47)	0.002 (0.11)	-0.002 (0.17)	-0.006 (0.03)	0.158 (0.02)	0.003 (0.00)	-0.013 (0.00)	-0.006 (0.03)	0.021 (0.22)	0.33	0.04	16.00 (0.00)
5. 0-19	1.480 (0.00)	0.634 (0.00)	0.032 (0.62)	0.174 (0.12)	0.025 (0.11)	0.001 (0.89)	-0.004 (0.76)	0.020 (0.03)	-0.015 (0.11)	-0.015 (0.37)	-0.656 (0.13)	-0.014 (0.03)	-0.127 (0.00)	-0.158 (0.00)	-0.580 (0.00)	0.33	0.24	15.90 (0.00)
<b>Annual Payroll by number of employees</b>																		
1. All Firms	3.505 (0.00)	2.179 (0.00)	0.239 (0.27)	1.295 (0.00)	0.062 (0.24)	-0.028 (0.37)	-0.002 (0.96)	-0.070 (0.03)	0.031 (0.31)	-0.062 (0.25)	4.736 (0.00)	0.112 (0.00)	-0.175 (0.00)	-0.210 (0.00)	-1.936 (0.00)	0.39	0.80	20.65 (0.00)
2. > 499	1.326 (0.00)	1.190 (0.00)	0.125 (0.41)	0.587 (0.02)	0.015 (0.67)	-0.004 (0.86)	0.006 (0.81)	-0.054 (0.01)	0.024 (0.25)	-0.013 (0.73)	2.999 (0.00)	0.074 (0.00)	0.003 (0.92)	-0.029 (0.46)	-1.179 (0.00)	0.29	0.56	13.01 (0.00)
3. 100-499	0.502 (0.00)	0.290 (0.00)	0.026 (0.60)	0.284 (0.00)	0.019 (0.12)	-0.013 (0.06)	0.003 (0.75)	-0.007 (0.31)	0.003 (0.70)	-0.021 (0.09)	0.691 (0.04)	0.018 (0.00)	-0.057 (0.00)	-0.042 (0.00)	0.005 (0.95)	0.26	0.18	11.35 (0.00)
4. 20-99	0.834 (0.00)	0.292 (0.00)	0.086 (0.03)	0.209 (0.00)	0.020 (0.04)	-0.003 (0.56)	-0.007 (0.32)	-0.004 (0.51)	0.000 (0.96)	-0.016 (0.10)	0.486 (0.07)	0.015 (0.00)	-0.072 (0.00)	-0.060 (0.00)	-0.313 (0.00)	0.43	0.15	23.66 (0.00)
5. 0-19	0.842 (0.00)	0.410 (0.00)	0.001 (0.98)	0.216 (0.00)	0.007 (0.42)	-0.007 (0.18)	-0.004 (0.54)	-0.004 (0.46)	0.004 (0.43)	-0.011 (0.23)	0.565 (0.02)	0.005 (0.12)	-0.048 (0.00)	-0.079 (0.00)	-0.450 (0.00)	0.34	0.14	16.67 (0.00)

Table 4

## The Effects on SBA -Guaranteed Loans of Bank Capital, Loan Delinquencies, and Economic Conditions

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
SBA-Guaranteed Loans																	
1. Number of Loans	129.03 (0.09)	-27.56 (0.67)	33.55 (0.31)	-28.57 (0.62)	30.11 (0.00)	-24.94 (0.00)	-10.46 (0.08)	20.17 (0.00)	4.63 (0.32)	-16.77 (0.04)	-1.69 (0.58)	-8.50 (0.15)	25.52 (0.00)	12.00 (0.82)	0.29	123	13.76 (0.00)
2. Gross Loan Amount	0.240 (0.00)	-0.069 (0.11)	0.011 (0.62)	-0.026 (0.50)	0.019 (0.00)	-0.014 (0.00)	-0.009 (0.03)	0.014 (0.00)	0.000 (0.97)	-0.013 (0.02)	0.000 (0.83)	-0.022 (0.00)	-0.014 (0.01)	0.046 (0.20)	0.27	0.08	12.54 (0.00)
3. SBA 7(a) Guarantee Amount	0.170 (0.00)	-0.047 (0.17)	0.008 (0.65)	-0.021 (0.47)	0.015 (0.00)	-0.010 (0.00)	-0.007 (0.03)	0.011 (0.00)	0.000 (0.84)	-0.011 (0.01)	-0.001 (0.66)	-0.018 (0.00)	-0.011 (0.02)	0.056 (0.04)	0.28	0.06	13.43 (0.00)

Table 5

## The Effects on Business Failures and Bankruptcies of Bank Capital, Loan Delinquencies, SBA-Guaranteed Loans, and Economic Conditions

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
1. Business Failures	3.333 (0.00)	-1.239 (0.01)	0.278 (0.25)	-0.462 (0.27)	0.173 (0.00)	-0.078 (0.03)	-0.007 (0.88)	-0.034 (0.34)	0.041 (0.23)	0.017 (0.78)	-2.290 (0.16)	0.022 (0.33)	0.022 (0.61)	0.004 (0.95)	-0.260 (0.52)	0.06	0.90	1.88 (0.03)
2. Total Business Bankruptcies (per 1000 residents)	0.138 (0.03)	0.044 (0.41)	0.054 (0.05)	0.013 (0.78)	0.020 (0.00)	0.002 (0.62)	0.002 (0.66)	-0.006 (0.17)	0.000 (0.95)	-0.004 (0.59)	-0.179 (0.33)	0.000 (0.85)	0.006 (0.21)	-0.014 (0.05)	0.065 (0.15)	0.18	0.10	6.91 (0.00)
3. Total Business Bankruptcies (per 1000 firms)	4.426 (0.08)	3.230 (0.13)	1.905 (0.08)	1.246 (0.50)	0.637 (0.02)	0.353 (0.03)	0.135 (0.49)	-0.361 (0.02)	-0.146 (0.34)	-0.171 (0.53)	-5.631 (0.44)	-0.030 (0.77)	0.312 (0.12)	-0.574 (0.05)	4.240 (0.02)	0.23	4.02	9.52 (0.00)
4. Chap 7 Bus. Bankruptcies (per 1000 residents)	0.096 (0.00)	0.019 (0.01)	0.024 (0.25)	-0.001 (0.27)	0.012 (0.00)	0.000 (0.03)	-0.002 (0.88)	-0.003 (0.34)	0.001 (0.23)	-0.002 (0.78)	-0.121 (0.16)	0.000 (0.33)	0.004 (0.61)	-0.009 (0.95)	0.022 (0.52)	0.11	0.07	3.99 (0.00)
5. Chap 7 Bus. Bankruptcies (per 1000 firms)	3.027 (0.08)	1.728 (0.25)	0.739 (0.34)	0.316 (0.81)	0.351 (0.06)	0.150 (0.18)	-0.040 (0.77)	-0.155 (0.16)	-0.046 (0.67)	-0.070 (0.71)	-3.580 (0.48)	-0.024 (0.74)	0.219 (0.12)	-0.334 (0.10)	1.824 (0.15)	0.15	2.83	5.47 (0.00)

Table 6a  
The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA Loans, and Economic Conditions  
(Sample: 40 percent of total observations that had the lowest (lagged) growth rate of real, per capita GSP)

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
<b>Employment by number of employees</b>																		
1. All Firms	11.77 (0.03)	18.52 (0.00)	3.800 (0.02)	8.179 (0.04)	0.132 (0.72)	-0.348 (0.15)	-0.341 (0.18)	0.436 (0.07)	-0.046 (0.84)	-0.767 (0.03)	5.903 (0.59)	0.727 (0.01)	-2.136 (0.00)	-0.560 (0.39)	2.967 (0.48)	0.66	4.56	22.92 (0.00)
2. > 499	5.327 (0.14)	8.689 (0.00)	0.403 (0.71)	0.137 (0.96)	-0.086 (0.72)	0.096 (0.54)	-0.132 (0.43)	-0.038 (0.81)	-0.007 (0.96)	-0.224 (0.33)	12.45 (0.08)	0.184 (0.32)	-0.338 (0.10)	0.236 (0.58)	-2.647 (0.33)	0.38	2.96	7.30 (0.00)
3. 100-499	3.656 (0.06)	2.731 (0.05)	1.149 (0.05)	2.952 (0.03)	0.043 (0.74)	-0.166 (0.05)	-0.091 (0.31)	0.272 (0.00)	-0.041 (0.61)	-0.190 (0.13)	-2.198 (0.56)	0.015 (0.88)	-0.704 (0.00)	-0.475 (0.04)	1.503 (0.30)	0.45	1.60	9.90 (0.00)
4. 20-99	0.732 (0.66)	3.170 (0.01)	1.466 (0.00)	2.736 (0.02)	0.173 (0.13)	-0.167 (0.02)	-0.108 (0.17)	0.122 (0.10)	0.017 (0.81)	-0.208 (0.06)	-2.740 (0.41)	0.341 (0.00)	-0.701 (0.00)	-0.033 (0.87)	3.496 (0.01)	0.65	1.39	22.06 (0.00)
5. 0-19	2.207 (0.07)	3.889 (0.00)	0.779 (0.04)	2.368 (0.01)	0.000 (1.00)	-0.112 (0.04)	-0.012 (0.84)	0.083 (0.12)	-0.016 (0.75)	-0.144 (0.07)	-1.425 (0.55)	0.185 (0.00)	-0.394 (0.00)	-0.301 (0.04)	0.488 (0.59)	0.56	1.01	15.20 (0.00)
<b>Number of Firms by number of employees</b>																		
1. All Firms	1.159 (0.00)	0.807 (0.00)	0.084 (0.32)	0.271 (0.18)	0.012 (0.53)	-0.024 (0.05)	-0.009 (0.48)	0.011 (0.36)	0.003 (0.78)	-0.019 (0.30)	-1.234 (0.03)	0.025 (0.09)	-0.137 (0.00)	-0.142 (0.00)	-0.033 (0.88)	0.51	0.23	12.59 (0.00)
2. > 499	0.015 (0.22)	-0.002 (0.81)	0.004 (0.32)	0.007 (0.45)	0.001 (0.41)	-0.001 (0.03)	-0.001 (0.17)	0.001 (0.01)	0.001 (0.04)	-0.001 (0.21)	-0.003 (0.90)	-0.001 (0.03)	0.000 (0.99)	0.002 (0.21)	-0.015 (0.11)	0.30	0.01	5.21 (0.00)
3. 100-499	0.008 (0.62)	0.039 (0.00)	0.004 (0.40)	0.023 (0.05)	0.001 (0.54)	-0.001 (0.19)	0.000 (0.78)	0.001 (0.32)	0.000 (0.84)	-0.002 (0.14)	0.009 (0.77)	0.001 (0.40)	-0.003 (0.01)	-0.004 (0.05)	0.021 (0.08)	0.32	0.01	5.70 (0.00)
4. 20-99	-0.037 (0.46)	0.140 (0.00)	0.041 (0.01)	0.059 (0.09)	0.006 (0.08)	-0.006 (0.01)	-0.002 (0.34)	0.003 (0.22)	0.002 (0.39)	-0.006 (0.06)	0.042 (0.67)	0.008 (0.00)	-0.014 (0.00)	0.000 (0.95)	0.130 (0.00)	0.55	0.04	15.02 (0.00)
5. 0-19	1.173 (0.00)	0.631 (0.00)	0.035 (0.65)	0.183 (0.32)	0.005 (0.79)	-0.016 (0.16)	-0.006 (0.61)	0.007 (0.56)	0.001 (0.95)	-0.010 (0.54)	-1.282 (0.01)	0.017 (0.20)	-0.120 (0.00)	-0.140 (0.00)	-0.169 (0.39)	0.44	0.21	9.58 (0.00)
<b>Annual Payroll by number of employees</b>																		
1. All Firms	1.739 (0.08)	3.059 (0.00)	0.540 (0.07)	0.981 (0.16)	0.028 (0.67)	-0.073 (0.09)	-0.023 (0.61)	-0.008 (0.84)	0.047 (0.24)	-0.065 (0.30)	1.394 (0.47)	0.050 (0.32)	-0.289 (0.00)	-0.141 (0.22)	0.625 (0.39)	0.45	0.80	9.96 (0.00)
2. > 499	0.357 (0.59)	1.771 (0.00)	0.210 (0.29)	0.268 (0.56)	0.018 (0.68)	-0.015 (0.61)	-0.001 (0.97)	-0.035 (0.22)	0.025 (0.37)	-0.015 (0.72)	1.142 (0.37)	0.020 (0.55)	-0.055 (0.14)	0.007 (0.93)	0.170 (0.73)	0.21	0.54	3.29 (0.00)
3. 100-499	0.389 (0.07)	0.490 (0.00)	0.120 (0.06)	0.301 (0.05)	0.010 (0.48)	-0.021 (0.02)	-0.005 (0.65)	0.013 (0.15)	0.002 (0.86)	-0.018 (0.18)	-0.109 (0.79)	-0.002 (0.83)	-0.073 (0.00)	-0.043 (0.09)	0.206 (0.20)	0.44	0.18	9.44 (0.00)
4. 20-99	0.420 (0.02)	0.369 (0.01)	0.158 (0.00)	0.186 (0.15)	0.007 (0.60)	-0.017 (0.03)	-0.011 (0.19)	0.008 (0.34)	0.011 (0.15)	-0.020 (0.10)	0.094 (0.79)	0.024 (0.01)	-0.098 (0.00)	-0.037 (0.09)	0.291 (0.04)	0.64	0.15	21.04 (0.00)
5. 0-19	0.582 (0.00)	0.415 (0.00)	0.050 (0.29)	0.230 (0.04)	-0.008 (0.46)	-0.020 (0.00)	-0.006 (0.41)	0.006 (0.37)	0.011 (0.10)	-0.012 (0.24)	0.277 (0.36)	0.009 (0.25)	-0.064 (0.00)	-0.069 (0.00)	-0.047 (0.69)	0.51	0.13	12.37 (0.00)

Table 6b

## The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA Loans, and Economic Conditions

(Sample: 40 percent of total observations that had the highest (lagged) growth rate of real, per capita GSP)

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
<b>Employment by number of employees</b>																		
1. All Firms	20.46 (0.00)	14.82 (0.00)	-0.161 (0.94)	3.207 (0.32)	0.784 (0.26)	0.285 (0.47)	1.365 (0.08)	1.021 (0.01)	-0.198 (0.59)	-1.024 (0.27)	24.30 (0.17)	0.419 (0.12)	-1.284 (0.01)	-0.574 (0.28)	-16.82 (0.00)	0.31	4.53	5.48 (0.00)
2. > 499	13.64 (0.00)	9.713 (0.00)	1.534 (0.33)	2.194 (0.34)	-0.180 (0.72)	0.295 (0.29)	0.641 (0.26)	0.510 (0.07)	-0.105 (0.69)	-0.319 (0.63)	7.791 (0.54)	-0.003 (0.99)	0.013 (0.97)	-0.189 (0.62)	-14.57 (0.00)	0.27	3.23	4.43 (0.00)
3. 100-499	-0.014 (0.99)	2.454 (0.15)	-1.382 (0.11)	0.658 (0.60)	0.138 (0.61)	-0.070 (0.65)	0.277 (0.37)	0.107 (0.48)	0.051 (0.72)	-0.468 (0.20)	19.49 (0.01)	0.205 (0.05)	-0.357 (0.08)	-0.098 (0.64)	2.417 (0.08)	0.18	1.77	2.62 (0.00)
4. 20-99	2.592 (0.05)	0.095 (0.93)	-0.152 (0.78)	0.032 (0.97)	0.414 (0.02)	0.049 (0.62)	0.257 (0.20)	0.244 (0.01)	-0.212 (0.02)	-0.055 (0.81)	0.157 (0.97)	0.134 (0.05)	-0.505 (0.00)	-0.017 (0.90)	-0.941 (0.29)	0.27	1.14	4.56 (0.00)
5. 0-19	4.464 (0.00)	2.585 (0.00)	-0.149 (0.74)	0.333 (0.62)	0.417 (0.00)	0.012 (0.88)	0.185 (0.25)	0.157 (0.05)	0.066 (0.38)	-0.181 (0.34)	-2.838 (0.43)	0.082 (0.14)	-0.440 (0.00)	-0.287 (0.01)	-3.927 (0.00)	0.38	0.93	7.35 (0.00)
<b>Number of Firms by number of employees</b>																		
1. All Firms	1.715 (0.00)	0.833 (0.00)	0.083 (0.50)	0.198 (0.28)	0.097 (0.01)	0.020 (0.37)	0.062 (0.17)	0.054 (0.02)	-0.021 (0.31)	-0.038 (0.47)	0.124 (0.90)	0.019 (0.21)	-0.167 (0.00)	-0.140 (0.00)	-1.176 (0.00)	0.44	0.26	9.50 (0.00)
2. > 499	0.068 (0.00)	0.029 (0.01)	0.003 (0.63)	-0.005 (0.57)	0.002 (0.22)	0.001 (0.41)	0.000 (0.86)	0.003 (0.00)	0.000 (0.66)	-0.002 (0.39)	0.049 (0.28)	0.001 (0.14)	-0.003 (0.03)	-0.002 (0.08)	-0.072 (0.00)	0.38	0.01	7.32 (0.00)
3. 100-499	-0.036 (0.02)	0.035 (0.01)	-0.006 (0.40)	0.005 (0.63)	0.001 (0.56)	-0.001 (0.61)	0.007 (0.01)	0.002 (0.09)	0.000 (0.69)	-0.005 (0.06)	0.150 (0.01)	0.001 (0.13)	0.002 (0.31)	0.000 (0.84)	0.024 (0.02)	0.22	0.01	3.43 (0.00)
4. 20-99	0.040 (0.28)	0.025 (0.43)	0.000 (0.99)	0.016 (0.48)	0.008 (0.12)	0.005 (0.08)	0.009 (0.11)	0.007 (0.01)	-0.006 (0.02)	-0.004 (0.58)	0.111 (0.38)	0.004 (0.03)	-0.009 (0.02)	-0.001 (0.77)	-0.034 (0.17)	0.25	0.03	3.95 (0.00)
5. 0-19	1.643 (0.00)	0.744 (0.00)	0.086 (0.44)	0.182 (0.27)	0.086 (0.02)	0.015 (0.46)	0.047 (0.25)	0.042 (0.04)	-0.014 (0.46)	-0.027 (0.56)	-0.186 (0.84)	0.013 (0.36)	-0.157 (0.00)	-0.136 (0.00)	-1.094 (0.00)	0.44	0.23	9.37 (0.00)
<b>Annual Payroll by number of employees</b>																		
1. All Firms	3.176 (0.00)	1.757 (0.01)	0.149 (0.67)	1.281 (0.01)	0.044 (0.70)	0.037 (0.55)	0.116 (0.36)	-0.114 (0.07)	-0.009 (0.88)	-0.092 (0.54)	4.863 (0.09)	0.095 (0.03)	0.040 (0.63)	-0.063 (0.47)	-3.304 (0.00)	0.34	0.73	6.16 (0.00)
2. > 499	1.134 (0.08)	1.041 (0.06)	0.151 (0.58)	0.700 (0.08)	-0.018 (0.83)	0.015 (0.75)	0.062 (0.53)	-0.066 (0.17)	-0.006 (0.89)	0.005 (0.96)	2.821 (0.20)	0.055 (0.10)	0.124 (0.05)	0.050 (0.45)	-1.843 (0.00)	0.25	0.56	3.99 (0.00)
3. 100-499	0.175 (0.43)	0.154 (0.40)	-0.092 (0.32)	0.288 (0.04)	0.009 (0.77)	-0.004 (0.83)	0.032 (0.33)	-0.027 (0.11)	0.009 (0.57)	-0.069 (0.08)	1.966 (0.01)	0.025 (0.03)	-0.009 (0.68)	-0.006 (0.78)	0.009 (0.95)	0.15	0.19	2.07 (0.02)
4. 20-99	0.817 (0.00)	0.190 (0.11)	0.068 (0.25)	0.112 (0.20)	0.030 (0.12)	0.015 (0.16)	0.027 (0.20)	-0.007 (0.49)	-0.018 (0.06)	-0.013 (0.60)	0.268 (0.57)	0.011 (0.11)	-0.036 (0.01)	-0.038 (0.01)	-0.621 (0.00)	0.32	0.12	5.81 (0.00)
5. 0-19	1.030 (0.00)	0.385 (0.00)	0.024 (0.69)	0.182 (0.05)	0.022 (0.25)	0.011 (0.31)	-0.005 (0.82)	-0.015 (0.19)	0.007 (0.50)	-0.016 (0.55)	-0.179 (0.72)	0.003 (0.72)	-0.037 (0.01)	-0.067 (0.00)	-0.837 (0.00)	0.43	0.13	9.22 (0.00)

Table 7a  
The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA Loans, and Economic Conditions  
(Sample: 1991 and 1992, the years in which the (lagged) federal funds rate was highest--approximately 8 percent)

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions	R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>					
<b>Employment by number of employees</b>															
1. All Firms	-6.478 (0.00)	27.67 (0.00)	6.988 (0.16)	24.67 (0.00)	1.042 (0.03)	-0.867 (0.00)	-0.063 (0.86)	1.232 (0.00)	0.020 (0.95)	-1.121 (0.02)	13.05 (0.44)	1.112 (0.00)	0.69	5.02	16.17 (0.00)
2. > 499	-1.750 (0.04)	10.792 (0.01)	-2.794 (0.37)	3.927 (0.38)	0.265 (0.36)	-0.267 (0.14)	-0.118 (0.60)	0.536 (0.03)	0.086 (0.65)	-0.313 (0.31)	1.324 (0.90)	0.402 (0.02)	0.37	3.16	4.30 (0.00)
3. 100-499	-1.506 (0.00)	6.230 (0.01)	3.680 (0.03)	6.128 (0.01)	0.330 (0.03)	-0.190 (0.05)	-0.038 (0.75)	0.259 (0.04)	-0.014 (0.89)	-0.201 (0.21)	3.959 (0.48)	0.216 (0.02)	0.53	1.66	8.30 (0.00)
4. 20-99	-2.292 (0.00)	4.319 (0.06)	4.147 (0.01)	9.417 (0.00)	0.366 (0.02)	-0.268 (0.01)	0.046 (0.70)	0.350 (0.01)	-0.052 (0.60)	-0.393 (0.02)	3.973 (0.48)	0.311 (0.00)	0.62	1.65	12.07 (0.00)
5. 0-19	-0.931 (0.00)	6.325 (0.00)	1.955 (0.05)	5.199 (0.00)	0.082 (0.38)	-0.142 (0.02)	0.047 (0.52)	0.087 (0.25)	0.000 (1.00)	-0.213 (0.03)	3.792 (0.27)	0.183 (0.00)	0.66	1.01	14.43 (0.00)
<b>Number of Firms by number of employees</b>															
1. All Firms	-0.143 (0.02)	1.081 (0.00)	0.397 (0.08)	1.046 (0.00)	0.026 (0.22)	-0.030 (0.02)	-0.003 (0.85)	0.023 (0.17)	0.001 (0.92)	-0.020 (0.36)	1.372 (0.08)	0.019 (0.14)	0.55	0.23	8.97 (0.00)
2. > 499	0.004 (0.07)	-0.037 (0.00)	-0.006 (0.46)	0.010 (0.41)	0.000 (0.56)	-0.001 (0.13)	-0.001 (0.29)	0.001 (0.03)	0.000 (0.70)	-0.001 (0.22)	0.017 (0.57)	0.000 (0.54)	0.34	0.01	3.70 (0.00)
3. 100-499	-0.001 (0.72)	0.078 (0.00)	0.023 (0.06)	0.052 (0.00)	0.002 (0.11)	-0.002 (0.01)	0.000 (0.72)	0.002 (0.02)	0.000 (0.55)	-0.002 (0.13)	0.036 (0.39)	0.001 (0.03)	0.60	0.01	11.04 (0.00)
4. 20-99	-0.049 (0.00)	0.134 (0.04)	0.134 (0.00)	0.249 (0.00)	0.010 (0.02)	-0.008 (0.01)	0.002 (0.48)	0.010 (0.01)	-0.001 (0.80)	-0.011 (0.02)	0.384 (0.02)	0.007 (0.01)	0.62	0.05	12.01 (0.00)
5. 0-19	-0.097 (0.06)	0.906 (0.00)	0.247 (0.18)	0.735 (0.01)	0.013 (0.45)	-0.020 (0.07)	-0.005 (0.71)	0.010 (0.46)	0.001 (0.90)	-0.007 (0.72)	0.935 (0.15)	0.010 (0.34)	0.48	0.19	6.72 (0.00)
<b>Annual Payroll by number of employees</b>															
1. All Firms	-0.687 (0.01)	4.954 (0.00)	1.241 (0.18)	3.627 (0.01)	0.125 (0.15)	-0.068 (0.20)	0.019 (0.78)	0.079 (0.26)	0.031 (0.59)	-0.085 (0.34)	5.349 (0.09)	0.038 (0.46)	0.49	0.93	6.94 (0.00)
2. > 499	-0.271 (0.07)	2.507 (0.00)	0.086 (0.87)	1.396 (0.07)	0.054 (0.28)	-0.014 (0.66)	0.012 (0.76)	0.032 (0.43)	0.015 (0.65)	-0.018 (0.73)	1.088 (0.56)	0.015 (0.63)	0.31	0.55	3.21 (0.00)
3. 100-499	-0.145 (0.01)	0.918 (0.00)	0.521 (0.01)	0.727 (0.01)	0.038 (0.05)	-0.023 (0.05)	0.003 (0.83)	0.024 (0.13)	0.002 (0.89)	-0.020 (0.32)	1.112 (0.12)	0.006 (0.62)	0.49	0.21	7.05 (0.00)
4. 20-99	-0.198 (0.00)	0.722 (0.01)	0.520 (0.01)	0.850 (0.00)	0.029 (0.13)	-0.019 (0.11)	0.005 (0.73)	0.020 (0.19)	0.006 (0.60)	-0.033 (0.10)	1.623 (0.02)	0.015 (0.20)	0.52	0.20	8.01 (0.00)
5. 0-19	-0.073 (0.12)	0.807 (0.00)	0.114 (0.49)	0.654 (0.01)	0.003 (0.82)	-0.012 (0.21)	-0.001 (0.91)	0.003 (0.80)	0.007 (0.47)	-0.014 (0.38)	1.527 (0.01)	0.003 (0.72)	0.48	0.17	6.65 (0.00)

Table 7b

The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA Loans, and Economic Conditions

(Sample: 1994 and 1995, the years in which the (lagged) federal funds rate was lowest—approximately 3 percent)

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions	R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>					
<b>Employment by number of employees</b>															
1. All Firms	8.123 (0.00)	21.32 (0.00)	0.242 (0.93)	1.629 (0.68)	-0.554 (0.34)	0.103 (0.81)	-0.027 (0.94)	-0.400 (0.23)	-0.626 (0.27)	-0.274 (0.64)	-6.998 (0.72)	0.512 (0.01)	0.45	3.52	6.06 (0.00)
2. > 499	5.310 (0.00)	15.44 (0.01)	1.771 (0.38)	-0.166 (0.96)	-0.736 (0.10)	0.309 (0.35)	0.061 (0.83)	-0.465 (0.07)	-0.313 (0.48)	-0.150 (0.74)	-5.580 (0.72)	0.200 (0.20)	0.39	2.73	4.66 (0.00)
3. 100-499	1.112 (0.04)	2.495 (0.39)	-3.916 (0.00)	-0.159 (0.92)	0.088 (0.71)	-0.123 (0.48)	-0.022 (0.89)	0.011 (0.93)	0.027 (0.91)	0.011 (0.96)	-10.56 (0.20)	0.129 (0.12)	0.22	1.45	2.06 (0.03)
4. 20-99	1.466 (0.00)	0.592 (0.79)	1.586 (0.05)	0.612 (0.62)	0.024 (0.89)	-0.039 (0.76)	-0.031 (0.79)	0.015 (0.89)	-0.168 (0.34)	-0.104 (0.57)	4.047 (0.51)	0.119 (0.06)	0.22	1.08	2.06 (0.03)
5. 0-19	0.229 (0.39)	2.850 (0.05)	0.799 (0.14)	1.283 (0.12)	0.070 (0.55)	-0.042 (0.63)	-0.034 (0.65)	0.040 (0.56)	-0.172 (0.14)	-0.035 (0.78)	5.245 (0.20)	0.061 (0.14)	0.27	0.72	2.69 (0.01)
<b>Number of Firms by number of employees</b>															
1. All Firms	0.346 (0.00)	-0.424 (0.12)	0.336 (0.00)	0.014 (0.93)	-0.033 (0.15)	-0.008 (0.60)	-0.013 (0.38)	0.020 (0.13)	-0.039 (0.08)	-0.007 (0.78)	0.983 (0.20)	-0.014 (0.07)	0.33	0.14	3.55 (0.00)
2. > 499	0.017 (0.00)	-0.007 (0.68)	0.013 (0.04)	-0.003 (0.75)	0.000 (0.79)	-0.001 (0.17)	-0.001 (0.24)	0.000 (0.67)	0.002 (0.22)	-0.002 (0.25)	-0.056 (0.24)	0.000 (0.93)	0.32	0.01	3.48 (0.00)
3. 100-499	0.008 (0.02)	0.002 (0.92)	-0.023 (0.00)	-0.009 (0.43)	0.000 (0.86)	0.000 (0.68)	0.000 (0.97)	0.000 (0.69)	0.000 (0.75)	-0.001 (0.57)	-0.120 (0.03)	0.000 (1.00)	0.21	0.01	1.95 (0.04)
4. 20-99	0.025 (0.02)	0.025 (0.66)	0.034 (0.10)	0.000 (1.00)	0.003 (0.50)	-0.002 (0.62)	-0.001 (0.65)	0.001 (0.71)	-0.004 (0.37)	-0.003 (0.50)	0.127 (0.42)	0.003 (0.04)	0.24	0.03	2.35 (0.01)
5. 0-19	0.296 (0.00)	-0.444 (0.09)	0.313 (0.00)	0.025 (0.87)	-0.036 (0.09)	-0.005 (0.75)	-0.010 (0.45)	0.018 (0.14)	-0.036 (0.09)	-0.001 (0.97)	1.031 (0.17)	-0.018 (0.02)	0.31	0.13	3.22 (0.00)
<b>Annual Payroll by number of employees</b>															
1. All Firms	1.023 (0.00)	0.247 (0.77)	0.440 (0.16)	0.038 (0.94)	-0.113 (0.11)	0.024 (0.63)	0.092 (0.04)	0.002 (0.97)	-0.063 (0.36)	-0.144 (0.05)	-1.706 (0.48)	0.046 (0.06)	0.26	0.43	2.54 (0.01)
2. > 499	0.478 (0.00)	1.090 (0.10)	0.461 (0.06)	-0.190 (0.61)	-0.055 (0.31)	-0.007 (0.87)	0.091 (0.01)	-0.017 (0.58)	-0.050 (0.35)	-0.080 (0.16)	-0.573 (0.76)	0.051 (0.01)	0.35	0.33	3.89 (0.00)
3. 100-499	0.196 (0.00)	-0.164 (0.55)	-0.263 (0.01)	0.017 (0.91)	-0.021 (0.35)	0.011 (0.51)	0.014 (0.34)	0.004 (0.78)	-0.005 (0.80)	-0.029 (0.21)	-1.569 (0.05)	0.008 (0.31)	0.17	0.14	1.51 (0.14)
4. 20-99	0.236 (0.00)	-0.404 (0.06)	0.178 (0.02)	0.048 (0.68)	-0.016 (0.35)	0.005 (0.69)	-0.005 (0.65)	0.006 (0.56)	0.007 (0.67)	-0.022 (0.21)	0.137 (0.82)	-0.007 (0.25)	0.17	0.10	1.49 (0.15)
5. 0-19	0.110 (0.00)	-0.291 (0.06)	0.071 (0.21)	0.128 (0.14)	-0.020 (0.12)	0.014 (0.14)	-0.009 (0.28)	0.009 (0.22)	-0.013 (0.30)	-0.010 (0.42)	0.361 (0.40)	-0.005 (0.23)	0.20	0.08	1.77 (0.00)

Table 7c

## The Effects on Small Business Activity of Bank Capital, Loan Delinquencies, SBA Loans, and Economic Conditions

(Sample: 1993 and 1996-2000, the years in which the (lagged) federal funds rate was near its 1991-2000 average—approximately 5 percent)

Dependent Variables	Intercept	Bank Capital			Real Estate Delinquencies			C&I Delinquencies			SBA Loans	Economic Conditions				R <sup>2</sup>	RMSE	F (p)
		<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>	<i>Small Banks</i>	<i>Medium Banks</i>	<i>Large Banks</i>		<i>Real GSP</i>	<i>Federal Funds Rate</i>	<i>Short Term Spread</i>	<i>Long Term Spread</i>			
<b>Employment by number of employees</b>																		
1. All Firms	-14.17 (0.51)	3.537 (0.20)	1.960 (0.12)	3.654 (0.11)	-0.419 (0.41)	0.433 (0.17)	-0.536 (0.19)	0.523 (0.04)	0.267 (0.33)	-0.781 (0.14)	5.364 (0.62)	0.326 (0.02)	5.447 (0.08)	-3.565 (0.00)	-2.154 (0.80)	0.38	4.06	11.55 (0.00)
2. > 499	37.83 (0.03)	4.575 (0.03)	1.017 (0.30)	1.663 (0.35)	-0.722 (0.07)	0.436 (0.07)	-0.467 (0.14)	0.327 (0.09)	0.135 (0.52)	-0.128 (0.76)	22.30 (0.01)	0.289 (0.01)	-3.235 (0.19)	-0.489 (0.25)	-24.31 (0.00)	0.32	3.15	8.94 (0.00)
3. 100-499	-53.48 (0.00)	-1.239 (0.21)	0.329 (0.48)	1.329 (0.11)	-0.049 (0.79)	-0.140 (0.22)	0.122 (0.41)	0.069 (0.45)	0.070 (0.48)	-0.439 (0.02)	-4.414 (0.26)	-0.001 (0.99)	7.975 (0.00)	-1.641 (0.00)	24.35 (0.00)	0.35	1.48	10.23 (0.00)
4. 20-99	-10.64 (0.08)	-0.755 (0.32)	0.414 (0.24)	0.321 (0.61)	0.222 (0.12)	0.132 (0.13)	-0.159 (0.16)	0.031 (0.65)	-0.006 (0.93)	-0.109 (0.46)	-6.321 (0.03)	0.064 (0.11)	1.841 (0.03)	-0.696 (0.00)	4.212 (0.08)	0.19	1.12	4.35 (0.00)
5. 0-19	12.70 (0.01)	0.928 (0.11)	0.202 (0.46)	0.360 (0.46)	0.128 (0.24)	0.004 (0.95)	-0.039 (0.65)	0.098 (0.07)	0.064 (0.27)	-0.095 (0.40)	-5.988 (0.01)	-0.027 (0.38)	-1.184 (0.08)	-0.766 (0.00)	-6.743 (0.00)	0.44	0.86	14.76 (0.00)
<b>Number of Firms by number of employees</b>																		
1. All Firms	5.280 (0.00)	0.477 (0.00)	0.049 (0.53)	0.164 (0.25)	0.060 (0.05)	0.000 (1.00)	-0.011 (0.66)	0.012 (0.42)	0.005 (0.78)	-0.018 (0.58)	-1.982 (0.00)	-0.017 (0.05)	-0.553 (0.00)	-0.253 (0.00)	-2.487 (0.00)	0.52	0.25	19.83 (0.00)
2. > 499	0.144 (0.02)	0.022 (0.00)	0.005 (0.14)	0.004 (0.57)	-0.001 (0.67)	0.000 (0.63)	-0.001 (0.22)	0.001 (0.03)	0.001 (0.19)	0.000 (0.99)	-0.033 (0.26)	0.000 (0.98)	-0.011 (0.20)	-0.005 (0.00)	-0.100 (0.00)	0.41	0.01	13.06 (0.00)
3. 100-499	-0.763 (0.00)	-0.006 (0.39)	0.002 (0.60)	0.010 (0.12)	0.001 (0.59)	-0.001 (0.29)	0.001 (0.31)	0.000 (0.97)	0.000 (0.52)	-0.003 (0.07)	-0.047 (0.11)	-0.001 (0.07)	0.115 (0.00)	-0.016 (0.00)	0.301 (0.00)	0.49	0.01	17.69 (0.00)
4. 20-99	-1.140 (0.00)	0.010 (0.65)	0.014 (0.16)	0.010 (0.57)	0.007 (0.09)	0.003 (0.17)	-0.002 (0.47)	-0.001 (0.59)	0.000 (0.82)	-0.003 (0.44)	-0.232 (0.00)	0.001 (0.53)	0.178 (0.00)	-0.029 (0.00)	0.413 (0.00)	0.31	0.03	8.33 (0.00)
5. 0-19	7.040 (0.00)	0.452 (0.00)	0.029 (0.69)	0.140 (0.28)	0.054 (0.06)	-0.003 (0.88)	-0.008 (0.72)	0.012 (0.40)	0.003 (0.86)	-0.012 (0.68)	-1.669 (0.01)	-0.017 (0.04)	-0.835 (0.00)	-0.203 (0.00)	-3.101 (0.00)	0.52	0.23	20.36 (0.00)
<b>Annual Payroll by number of employees</b>																		
1. All Firms	5.496 (0.14)	0.972 (0.04)	0.176 (0.42)	1.170 (0.00)	-0.058 (0.51)	0.096 (0.07)	-0.069 (0.32)	-0.014 (0.74)	0.043 (0.35)	-0.022 (0.81)	4.731 (0.01)	0.134 (0.00)	-0.259 (0.63)	-0.006 (0.95)	-5.064 (0.00)	0.46	0.70	15.75 (0.00)
2. > 499	4.952 (0.09)	0.610 (0.09)	0.109 (0.52)	0.658 (0.03)	-0.084 (0.21)	0.075 (0.07)	-0.066 (0.22)	-0.005 (0.88)	0.014 (0.69)	0.029 (0.68)	4.677 (0.00)	0.097 (0.00)	-0.421 (0.31)	0.120 (0.10)	-3.869 (0.00)	0.40	0.54	12.57 (0.00)
3. 100-499	-3.495 (0.00)	-0.022 (0.85)	0.012 (0.83)	0.258 (0.01)	0.009 (0.67)	0.000 (0.99)	0.015 (0.40)	-0.009 (0.40)	0.013 (0.25)	-0.043 (0.06)	0.098 (0.83)	0.011 (0.08)	0.551 (0.00)	-0.068 (0.00)	1.326 (0.00)	0.16	0.17	3.48 (0.00)
4. 20-99	1.106 (0.08)	0.126 (0.11)	0.054 (0.15)	0.115 (0.09)	0.011 (0.44)	0.021 (0.02)	-0.016 (0.18)	-0.002 (0.77)	0.000 (0.99)	0.002 (0.89)	-0.251 (0.42)	0.018 (0.00)	-0.074 (0.42)	-0.025 (0.12)	-0.849 (0.00)	0.36	0.12	10.31 (0.00)
5. 0-19	2.991 (0.00)	0.265 (0.00)	-0.002 (0.95)	0.150 (0.03)	0.006 (0.71)	0.000 (1.00)	-0.001 (0.93)	0.002 (0.76)	0.016 (0.05)	-0.011 (0.51)	0.234 (0.48)	0.008 (0.08)	-0.325 (0.00)	-0.029 (0.08)	-1.693 (0.00)	0.43	0.12	13.86 (0.00)

Chart 1

Alternative Measures of Small Business Intensity

1990-2000

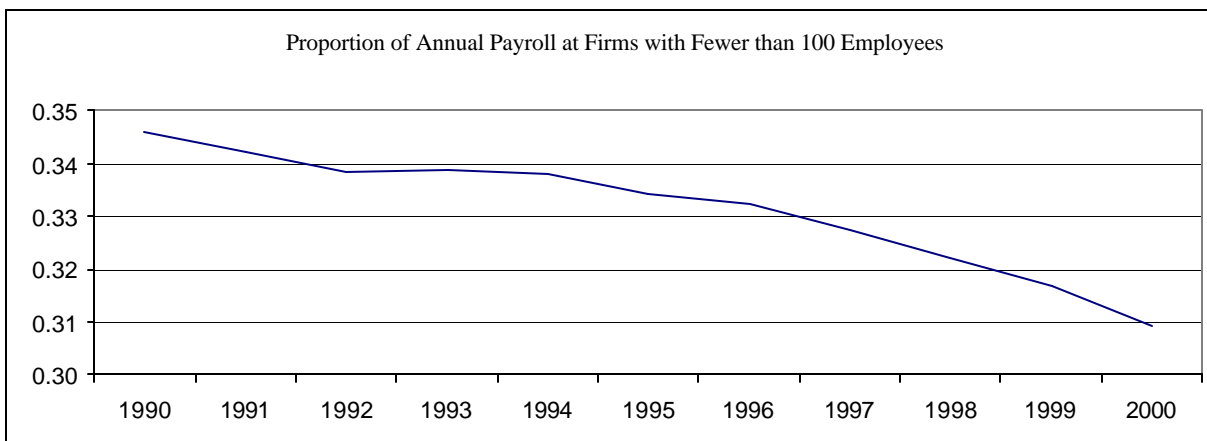
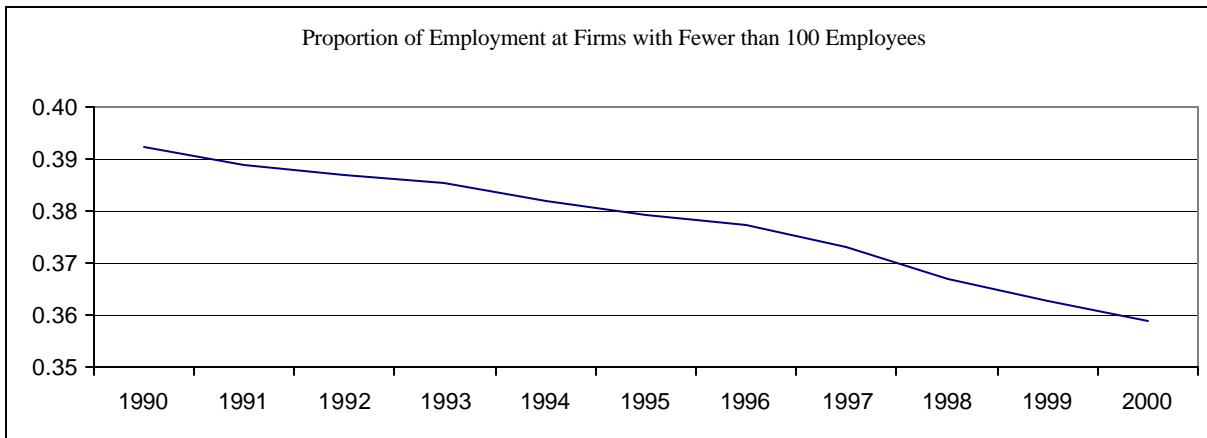
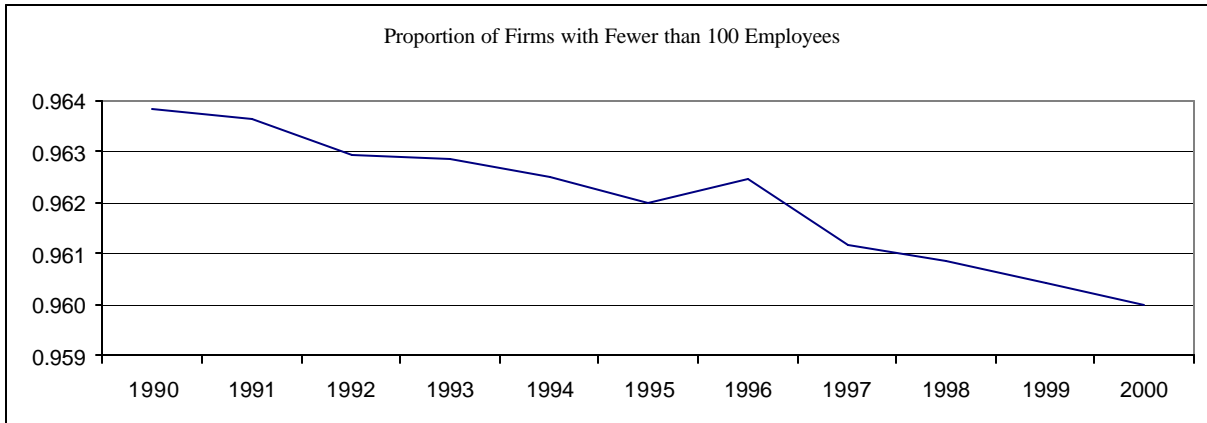


Chart 2

Alternative Measures of Small Business Intensity

Firms with Less than 100 Employees by State in 1990 and 2000

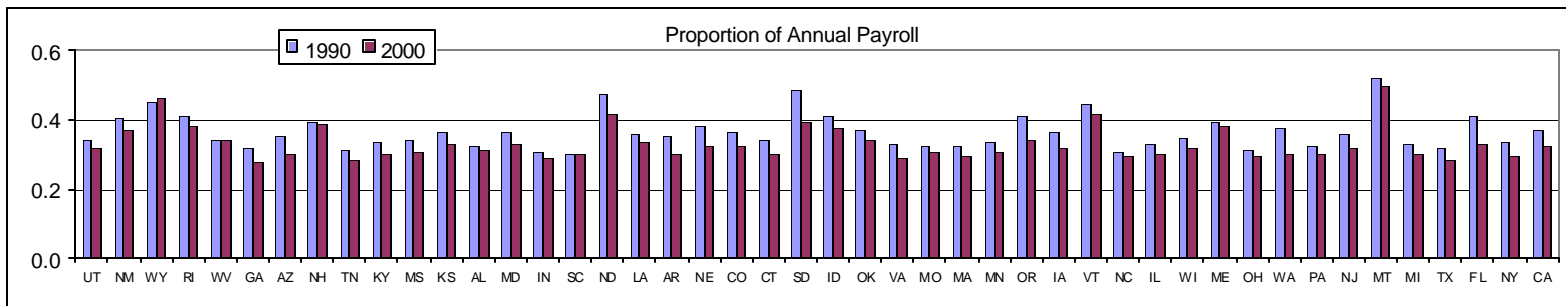
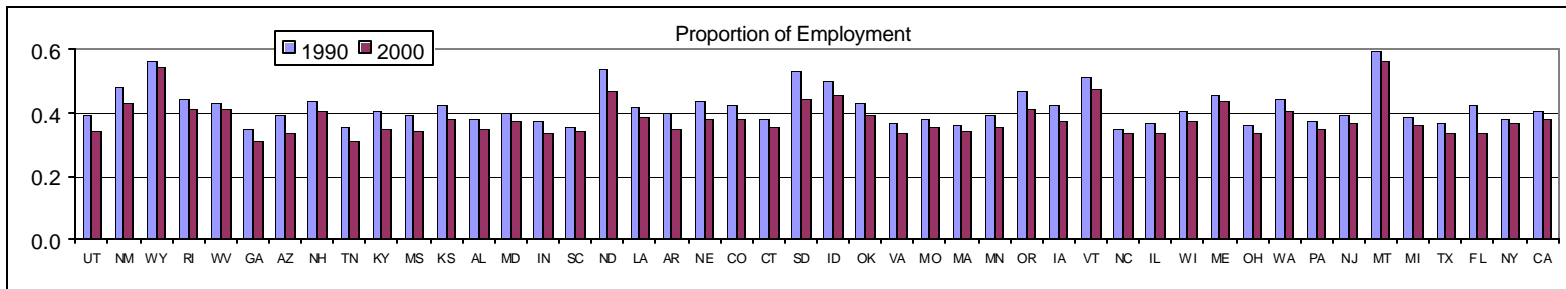
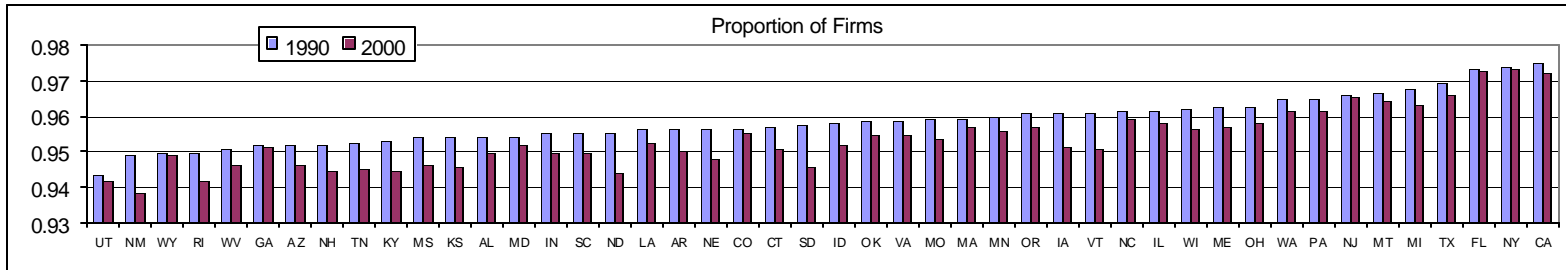


Chart 3

Alternative Measures of Small Business Intensity

Firms with Less than 20 Employees by State in 1990 and 2000

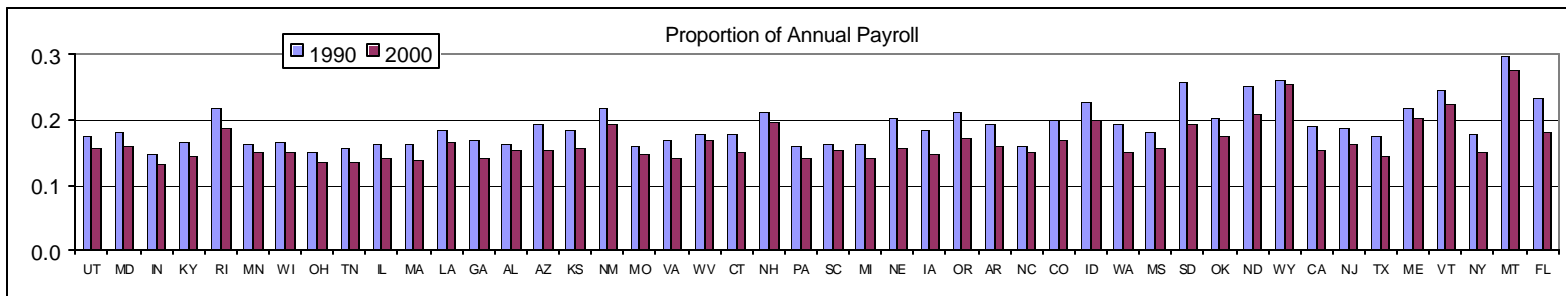
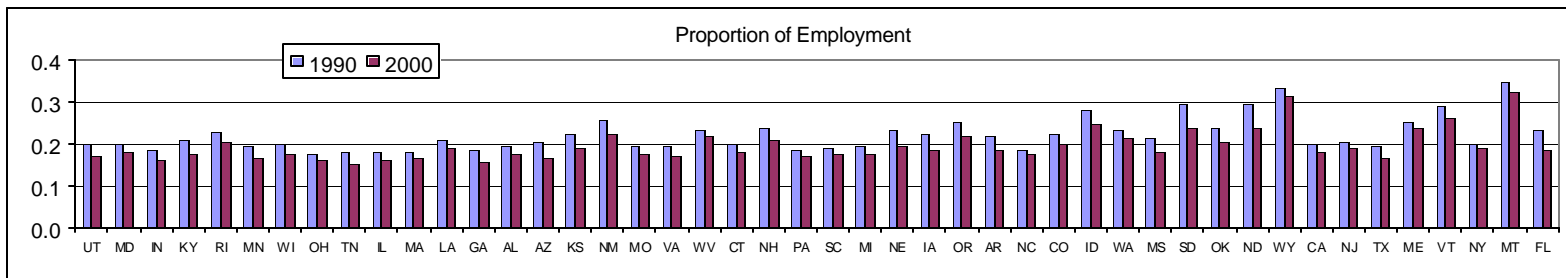
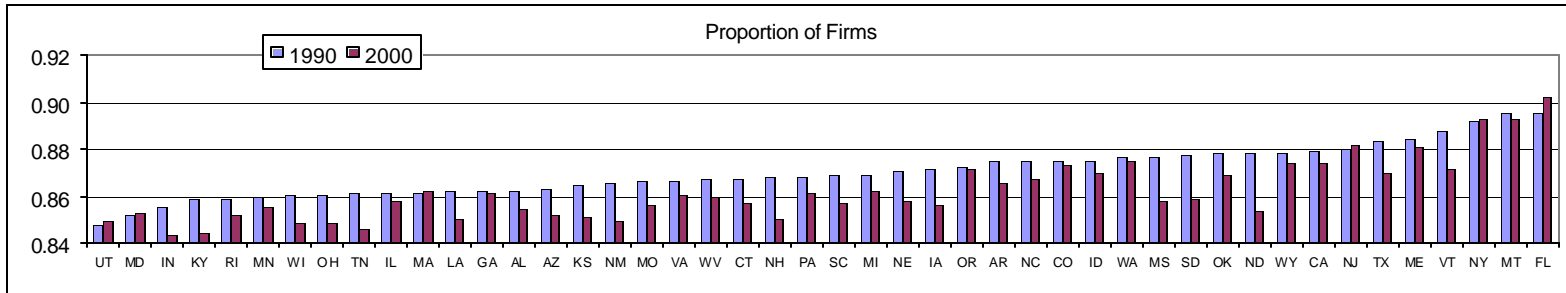
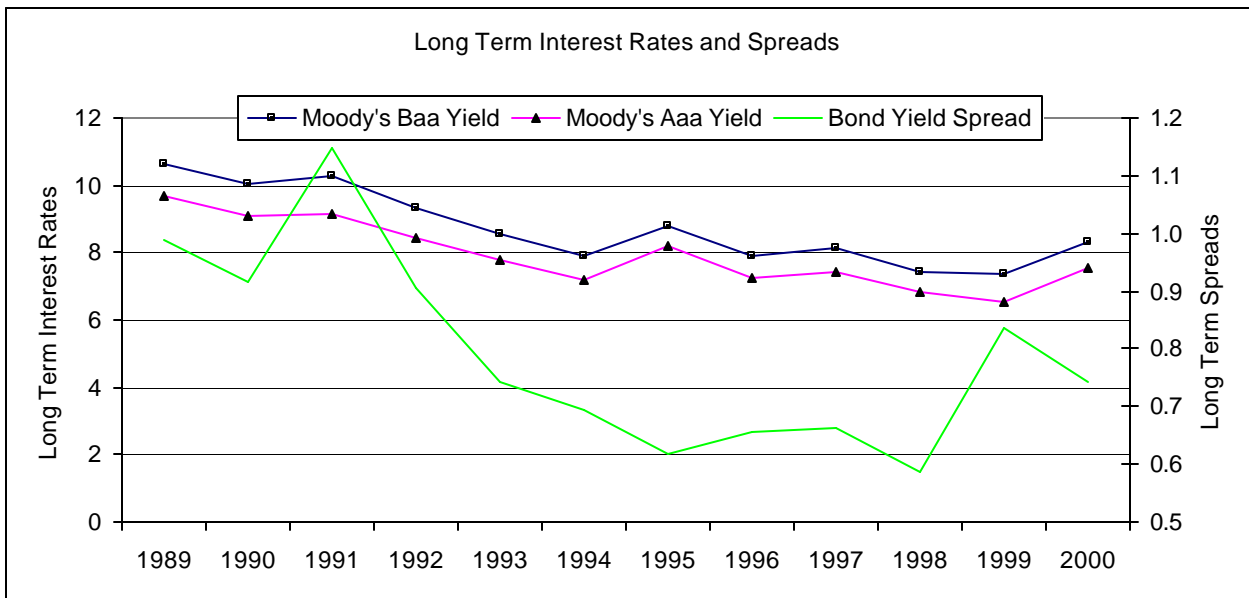
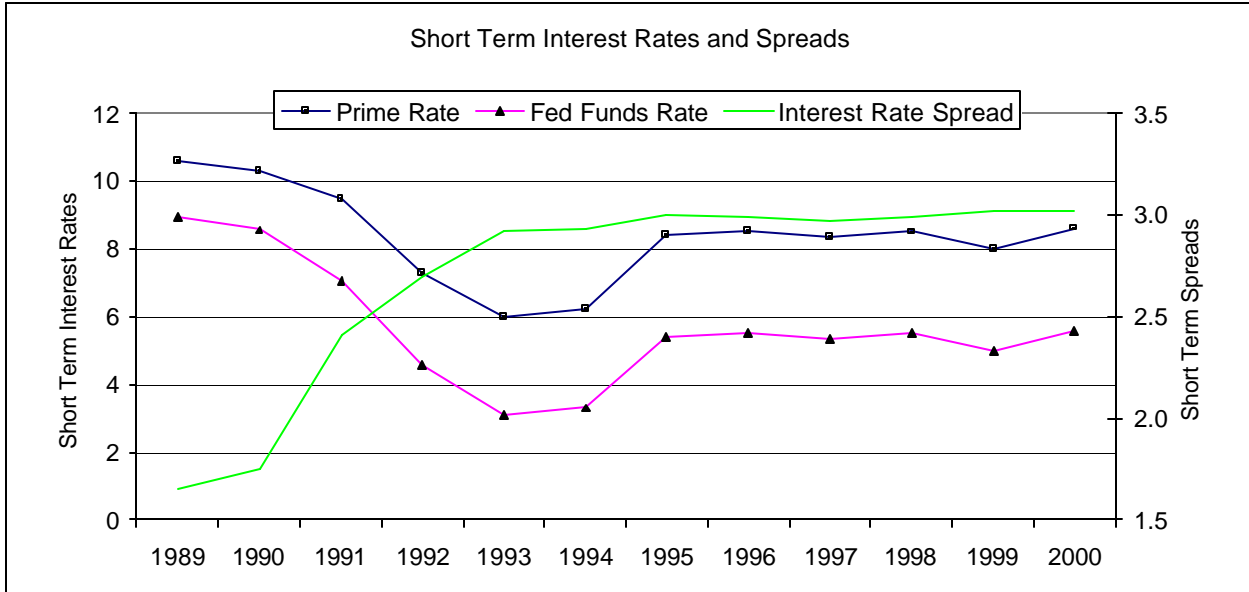


Chart 4

Short-Term and Long-Term Interest Rates and Spreads

1989-2000



## Endnotes

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<sup>1</sup> Small businesses are financed in many ways. Important sources of funds are their owners' savings; loans from family, friends, and financial institutions; and trade credit from larger businesses (Calomiris, Himmelberg, and Wachtel 1994). According to data for 1998, more than four out of five small businesses used some type of formal credit, with commercial banks being the leading supplier of funds to small businesses (U.S. Small Business Administration 2003a).

<sup>2</sup> A growing literature explores the links between the macroeconomy, small banks, and small businesses. For instance, Berger and Udell (1996) argued that financial innovation and changes in bank regulations during the 1980s and 1990s may have made banks less willing to lend to small firms. Also, whereas larger banks invest smaller proportions of their assets in small business loans, Berger, Rosen and Udell (2001) found that the likelihood that small businesses would borrow from banks of different sizes was roughly proportional to the local market presence of banks of each size. Cole, Goldberg and White (2002) found that larger banks based their small business lending decisions on standard criteria derived from business financial statements, while smaller banks relied far more on appraisals of the character of borrowers. These differences could importantly contribute to the cyclical patterns in lending to smaller businesses.

<sup>3</sup> Both in Hancock and Wilcox (1998) and in this study, as appropriate, variables are adjusted for inflation, expressed in per capita or per firm terms, as a percentage of loans or of gross state product, as levels, growth rates, or as first-differences.

<sup>4</sup> Reports and statistics published by the Office of Advocacy of the SBA are available at <http://www.sba.gov/advo/stats>.

<sup>5</sup> Data for Alaska, Hawaii, and Nevada were omitted because their real economic activity appeared to be dominated by factors beyond our specification. Delaware was omitted because the portfolios of credit-card banks dominated its state-level banking data.

<sup>6</sup> The main web page for this program is <http://www.census.gov/csd/susb/>. Similar statistics are available at <http://www.census.gov/epcd/www/smallbus.html>. All of the subsidiaries within a state that were affiliated with a particular company were considered part of one firm. Firms with operations in more than one state were counted more than once because firms are defined within states. Employment and annual payroll data depended on the location of the firm, not on the location of the residence of the employee.

<sup>7</sup> These banks have entity type 010 and country code 666. Banks in Puerto Rico and the Virgin Islands also have country code 666, but these are not included in the analysis. In addition, bank observations with negative or missing loan data were removed.

<sup>8</sup> Surviving (i.e., acquiring) banks with negative growth over the acquisition period are dropped from the merger allocation of the target bank.

<sup>9</sup> The SBA operates many other specialized lending-related programs. For instance, the Prequalification Pilot Loan Program assists prospective borrowers in developing viable loan applications. Other programs target specific types of financing needs. The *CommunityExpress* program targets low and moderate income areas. The *SBALowDoc* Loan Program provides loans with streamlined application procedures. The *SBAExpress* program specializes in loans under \$250,000. The *Microloan* Program specializes in loans under \$35,000. The *Commercial Adjustment and Investment Program (CAIP)* specializes in lending to areas adversely affected by NAFTA. The *International Trade Loan Program* and the *Export Working Capital Program* assist exporters and companies facing foreign competitors. The *DELTA* program specializes in defense-related business. The *Qualified Employee Trust Loan Program* assists the development of employee stock ownership plans. The *CAPLines* program provides assistance to businesses with short-term and cyclical working capital needs. The *Certified Development Companies (504)* loan program assists businesses through long-term fixed-rate finance for major fixed assets such as land and buildings.

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There are also programs and policies seeking to assist with pollution control and businesses owned by veterans. More information about these programs is available at <http://www.sba.gov/financing/fr7aloan.html>.

<sup>10</sup> The proceeds of a loan guaranteed by the SBA cannot be used to finance floor plan needs, to purchase real estate that will be held for investment purposes, to make payments to owners or pay delinquent taxes, or to pay existing debt unless it can be shown that refinancing will benefit the small business and that the need to refinance is not indicative of imprudent management practices. Special considerations apply to franchises, recreational facilities and clubs, farms and agricultural businesses, fishing vessels, and holding companies. Applications are not accepted from firms whose principals are incarcerated, on parole, or on probation. Businesses with speculative or gambling purposes are ineligible. More information is available at <http://www.sba.gov/financing/fr7aloan.html>.

<sup>11</sup> The data are publicly available for each branch of the SBA's Office of Financial Assistance. However, it is not easily collected nor is it aggregated at the state level. We obtained the state aggregates for 1989-2001 from the SBA.

<sup>12</sup> Data are from Table F-2 of the *Annual Report of the Administrative Office of the United States Courts*. This report is also known as the *Annual Report of the Director* or the report on *Judicial Business of the United States Courts*. Recent data are available electronically at <http://www.uscourts.gov>. However, historical data are available only in hard copy.

<sup>13</sup> During the period from 1990 through 2000, many states had no large banks and a small number of states had no medium banks. Our regressions excluded observations for state/years that had no medium or large banks. If no observations had been excluded, the regression coefficients that would have resulted can be inferred almost exactly by subtracting the sum of the reported effects of loans held by small and by medium banks from the effects of loans by all banks.

<sup>14</sup> Changes in real estate loans were likely to be predicted more accurately by long-term interest rates (e.g., 10-year Treasuries), which mirror mortgage rates more closely. The connection between monetary policy and long-term interest rates (e.g., mortgage rates) is likely looser than that between monetary policy and short-term interest rates.

<sup>15</sup> The specifications used to estimate (private sector) payrolls and (overall) wages and salaries differed slightly. The estimated effects and significance levels also differed slightly.

<sup>16</sup> Tables 7a and 7b each included data for only two years, which limited the number of national economic variables to one. One national variable would produce the same fit as if a dummy for the second year were included. Table 7a (7b) used a sample of years with the highest (lowest) interest rates. Thus, we excluded the three interest rate measures from Tables 7a and 7b.