

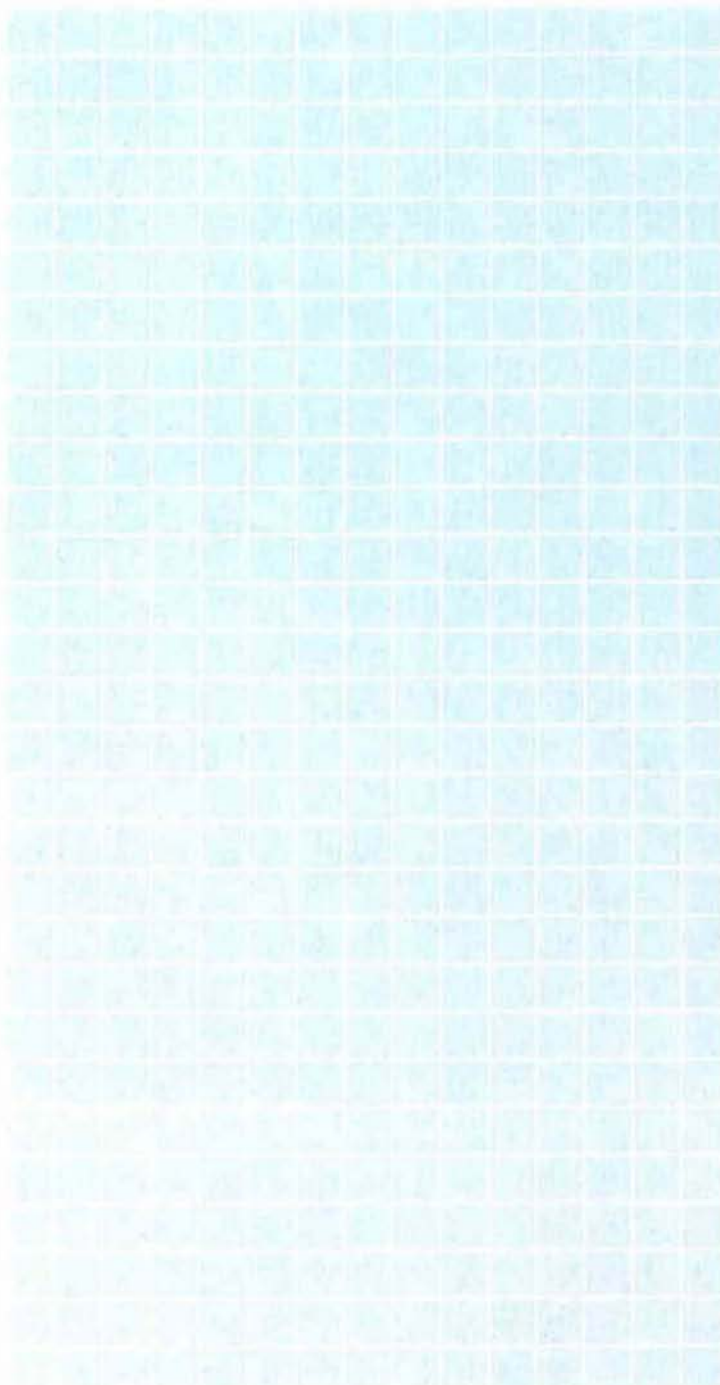
Economic Review

*Banking and
the Economy:
What Are the Facts?*

Cara S. Lown

*Performance of Eleventh
District Banks in 1989:
Progress but not Profits*

Robert T. Clair



Economic Review

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*Banking and
the Economy:
What Are the Facts?*

Cara S. Lown

Cara S. Lown explores the banking industry's role in the economy and finds evidence supporting the idea that fluctuations in bank credit are related to fluctuations in economic activity. She also finds that bank asset holdings adjust before changes in economic activity and that the banking system's security-to-asset ratio strongly predicts economic growth. By analyzing terms of bank lending over the business cycle, Lown concludes that variations in lending terms are consistent with the argument that restrictions on bank credit adversely affect the economy. Lown's study reflects the renewed interest in the role of banking in the economy that has coincided with the failure of many banks and savings and loan associations.

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*Performance of Eleventh
District Banks in 1989:
Progress but not Profits*

Robert T. Clair

Commercial banks in the Eleventh Federal Reserve District reduced their losses substantially in 1989 but still collectively reported a loss for the year. The improvement primarily resulted from increases in fee income. In addition, Eleventh District banks reduced their nonperforming loans and the costs associated with these loans. Despite the improvement, District banks still have relatively large holdings of nonperforming loans and repossessed real estate.

Balance sheets of Eleventh District banks show the effects of correcting the problems of low-quality assets. Charging off nonperforming loans reduced capital at District banks. In response to reduced capital, banks contracted their lending activity and invested in liquid assets. Asset growth has been very weak, and this growth resulted primarily from banks acquiring failed savings and loan associations.

Cara S. Lown

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Banking and the Economy: What Are the Facts?

An unprecedented number of banks and savings and loan associations failed in the United States during the 1980s, and more than half of the failures occurred in Texas. Many of the Texas failures can be attributed to oil price movements in the early 1980s and the resultant downturn in the Southwest region. Excessive risk-taking has also been cited as a contributing factor (see Gunther 1989). Some observers have argued that the 1980s downturn in the Texas economy was made worse by the bank failures. Moreover, even though the Texas economy has been recovering since 1987, some blame the slow pace of the recovery on the unwillingness of banks to lend.¹ They argue that banks in Texas and throughout the country have reacted to recent bank failures by limiting the supply of credit. This reluctance to lend hurts investment and economic growth.²

The argument that bank failures deepen economic downturns and slow economic recoveries is based on the belief that the banking industry plays a special role in the economy, intermediating between borrowers and lenders. Not only do bank failures lead directly to job losses, but, more important, the failures interrupt the flow of credit from lenders to borrowers. Interruption of this process hurts firms that depend on banks for funds. Those that are unable to obtain funds elsewhere will be forced to cut back on investment. If enough firms are affected, aggregate economic activity will be curtailed.

Partly in response to the recent bank failures, a wave of theoretical studies has been undertaken to examine how banks operate and the role they play in the economy. Empirical studies have also been undertaken to test the validity

of the theoretical work. But a number of hypotheses put forth by the theoretical literature have not yet been examined empirically. In this article, I examine these hypotheses and, in doing so, uncover several interesting empirical regularities between bank lending and economic activity.

First, I find that adjustments in bank asset holdings tend to occur before changes in economic activity. Bank loans tend to fall, and security holdings tend to rise, before an economic downturn. The opposite occurs prior to or along with an economic upturn. I also find that, relative to other banking system variables, the security-to-asset ratio has the strongest predictive link with real economic activity. This link has not been explored previously.

An examination of the terms of bank lending over the business cycle reveals that the percentage of short-term bank loans relative to long-term loans increases before economic downturns and decreases before upturns. Such a relationship is consistent with the idea that banks restrict credit by shortening the maturity of the loans granted. This restriction, in turn, adversely affects economic activity. Finally, I find that the percentage of loans made under commitment is negatively

The author would like to thank Donald W. Hayes for research assistance and Evan F. Koenig, Robert T. Clair, and William C. Gruben for helpful comments.

See Clair (1989)

See Gupta (1990). For a more moderate view attributing the decline in credit to both demand and supply factors, see Salomon Brothers (1990).

related to real output. This finding suggests that when firms not holding commitments are unable to borrow, economic growth is curtailed.

The article proceeds as follows. The next section reviews the main theoretical arguments supporting the notion that bank behavior has an impact on economic growth. The predictive links between various bank balance sheet measures and real economic activity are then examined. Next, to determine the validity of the theoretical work, I explore the relationship between bank loans and various interest rate measures. The results from examining the terms of bank lending over the business cycle are then presented, followed by an analysis of the link between bank capital and bank lending.

Theoretical background

Recent emphasis on understanding the microfoundations of macroeconomic behavior has generated a renewed interest in the role of the banking sector in the economy.³ And while non-bank financial institutions and the commercial paper market have increasingly provided alternative sources for loanable funds, bank lending in the past ten years as a percentage of total short-term business credit has declined only 3 percentage points, from 64 percent to 61 percent. Further, in 1989, roughly 40 percent of income earned by manufacturing firms was generated by firms that obtained the bulk of their short-term borrowing from banks.⁴

In this section, I present three arguments that have been given to support the hypothesis that bank behavior—in particular, banks' willingness to lend—has a significant impact on real economic activity. I also discuss the implications

these arguments have for the behavior of several macroeconomic variables.

In 1981, Stiglitz and Weiss argued that because banks cannot screen out bad borrowers sufficiently, interest rates are not necessarily the equilibrating mechanism in the credit market. As interest rates rise, the riskiness of a bank's portfolio will increase if relatively safe borrowers, unwilling to pay high rates, drop out of the loan market (the adverse selection effect). Additionally, borrowers who are willing to borrow at high interest rates may do so only because their probability of repayment is low (the moral hazard effect). With a riskier portfolio, bank profits could fall. To avoid such a scenario, banks choose not to use the loan rate to equilibrate loan supply with loan demand. Instead, banks ration borrowers.

The credit rationing theory proposed by these authors predicts that if the real interest rates available on securities rise in response to tight monetary policy, bank loan rates will fail to keep up and the supply of bank credit will be curtailed. Hence, beyond some point, interest rates in the securities markets should be inversely related to the supply of bank loans. Movement in these interest rates, hereafter referred to as *market interest rates*, should also produce a positive relationship between the supply of loans and the spread between loan rates and market rates.

A second theory emphasizing the importance of credit for real economic activity is put forth by Bernanke and Blinder (1988). They argue that, even without the assumption of credit rationing, changes in the allocation of a bank's portfolio can affect the real economy. If bonds and bank loans are imperfect substitutes, shocks that reduce the supply of bank credit will reduce the total amount of credit extended. For example, an increase in the perceived riskiness of loans could produce such a shock. As a result, investment would be reduced. The idea behind this argument is that firms that are unable to obtain bank financing for a project will likely find it difficult to obtain funding elsewhere. When banks shift away from issuing loans, they shift into holding securities, a substantial portion of which are U.S. government securities. Because government bonds do not represent the same level of investment as private bonds or bank loans, such a shift produces a fall in aggregate investment.

³ For a review of the literature on the role of banks, see Gertler (1988).

⁴ Manufacturing firms with assets of \$250 million or less obtain roughly 85 percent of their short-term borrowing from banks. These firms generate 25 percent of the income earned by manufacturing firms. Firms with assets between \$250 million and \$1 billion obtain 70 percent of their short-term borrowing from banks and generate 15 percent of manufacturing income. See U.S. Bureau of the Census (1990), 2-5, 116-34.

A widespread shift among banks away from issuing loans toward holding securities will be associated with an increase in interest rates on loans and a decrease in interest rates on bonds. A decrease in the supply of credit will, therefore, be associated with an increase in the spread between loan rates and bond rates. Similarly, an increase in the supply of credit should be associated with a decrease in the spread between loan rates and bond rates. In other words, in contrast to Stiglitz and Weiss, Bernanke and Blinder hypothesize that the amount of loans issued is inversely related to the spread between loan rates and market interest rates.

The last hypothesis about bank behavior that I will present is from Bernanke and Gertler (1987). These authors develop a model of the banking sector in which the size of bank capital and the perceived quality of potential assets play a role in investment. A decline in either of these two measures produces a shift toward safe, low-return investments (that is, government securities). Their work, then, provides further motivation for why, as Bernanke and Blinder argue, banks might shift out of loans and into securities. If such a shift proves to be widespread, aggregate investment and output will be affected.

The theories presented here have implications for monetary policy. If the amount of credit extended has an impact on investment, attention should focus on policy's impact on credit as well as on interest rates. Further, in situations where bank capital is close to the minimum level required by law, monetary policy may be an ineffective tool for expanding credit.⁵

Bank portfolio holdings over the business cycle

In this section, I consider whether decreases in the percentage of bank assets held as loans, and increases in the percentage held as securities, precede declines in real economic activity. Conducting such an examination is not new. In the 1970s, Wood (1975) noted that bank holdings of securities relative to loans decrease during expansions and increase during recessions. But he did not examine whether these movements precede changes in aggregate investment or merely coincide.

More recently, Bernanke and Blinder (1989) examined how a change in monetary policy—as measured by a change in the federal funds rate (the rate at which banks lend to each other)—affects the banking system's balance sheet variables. Using impulse response functions, they found that, for the first nine months following a contraction in monetary policy, bond holdings contract and loan holdings change very little. Subsequently, however, security holdings begin to rebuild, while loans begin to fall steadily. They also found that changes in the unemployment rate occur nine to twelve months after a policy change. They argue that this coincidence of timing suggests that, in addition to operating through the money supply, monetary policy may very well work through bank loans. But these authors did not *directly* compare changes in the banking system's balance sheet with changes in aggregate investment and output.

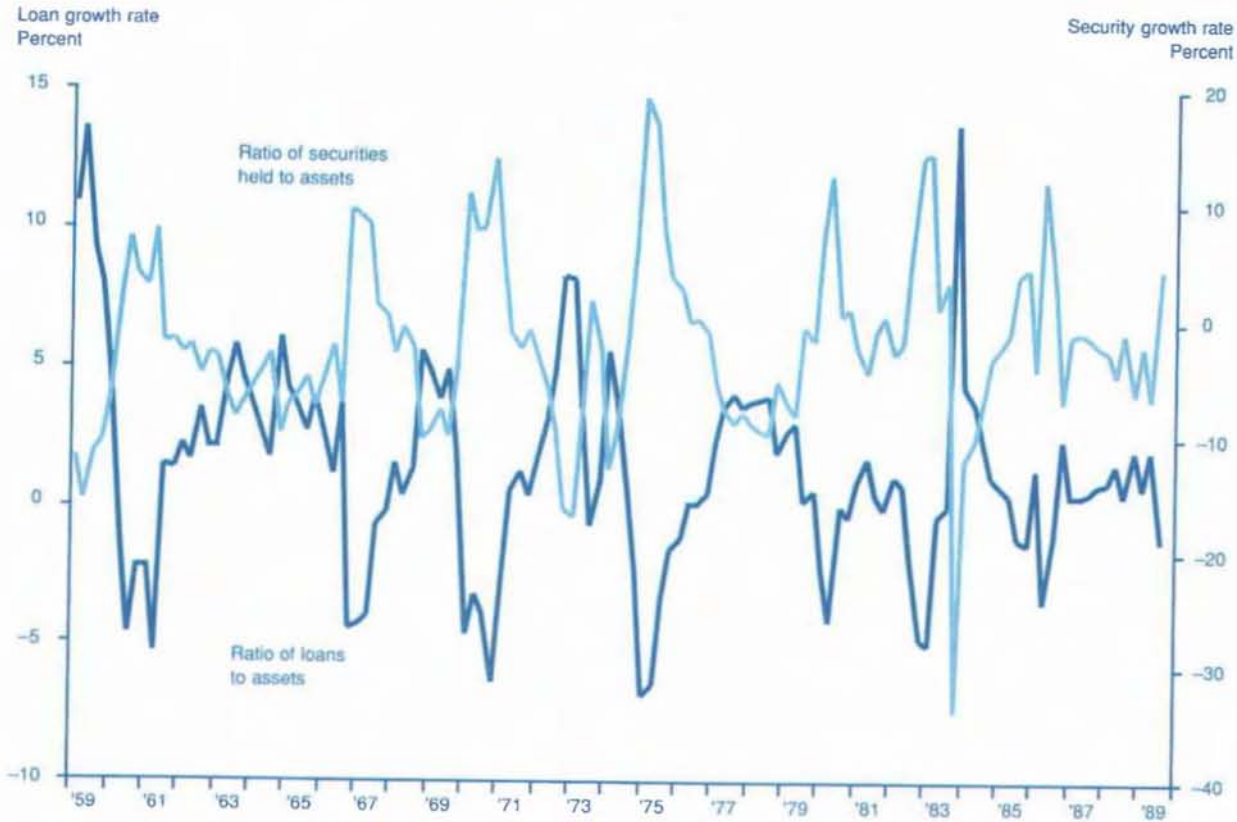
Economists have also examined whether movements in the growth rate of bank credit have preceded movements in the growth rate of output. King (1986) found little support for such a relationship, while Bernanke (1986), Lown (1988), and Lown and Hayes (1990) found that such a relationship does exist. But little attention has been paid to the relationship between loan growth and investment growth and to the relationship between changes in the *composition* of the banking system's balance sheet and changes in investment and output.

Chart 1 depicts movements in bank assets around business cycle turning points. The chart presents the growth rates of the ratio of total loans to total assets and the ratio of total securities to total assets held by the banking sector from 1959 to 1989. The darker areas mark recessionary periods.

With the exception of the 1981–82 recession, the loan ratio levels off or declines and the security ratio levels off or rises before every recession since 1959. During the 1981–82 recession, the two series reverse course only as the recession begins. Following recessions, the loan ratio begins to

⁵ Clair (1989) offers several possible policy responses to aid bank recapitalization.

Chart 1
 Growth Rates of the Ratio of Total Bank Loans to Total Bank Assets
 and the Ratio of Total Bank Securities to Total Bank Assets



SOURCE OF PRIMARY DATA: Board of Governors, Federal Reserve System.

increase and the security ratio begins to fall, roughly at the same time or just after the expansions get under way. Thus, there appears to be some evidence supporting the idea that adjustments in bank asset holdings take place before changes in economic activity.

Empirical tests

This section presents the results from statistically examining the relationship between each of the banking system's balance sheet variables and aggregate investment and output. This section also presents, for comparison, results from examining the relationship between the money supply and investment and output. Granger causality tests are used for this purpose. Despite their name,

these tests only determine whether movements in one variable temporally precede, or help predict, movements in another variable. Therefore, while they cannot determine whether movements in bank asset holdings *cause* movements in economic activity, these tests can determine whether changes in the balance sheet variables *precede* changes in economic activity.

In previous work, I have focused on the predictive relationship between total loans and output (Lown 1988) and between a broader measure of credit and output (Lown and Hayes 1990). Here, the focus is on movements in loan and security holdings *relative* to total asset holdings. For comparison, however, I examine the levels of loan and security holdings as well. In addition to the relationship with output, the relationship with

investment is also considered for each variable.

The independent variables used in the tests are the commercial banking sector's total loans, total security holdings, loan-to-asset ratio, and security-to-asset ratio and the monetary aggregates M1 and M2. The dependent variables (the variables to be explained) are real gross national product (GNP) and the gross investment component of real GNP. Hence, six regressions are estimated for each dependent variable; the data used are seasonally adjusted, quarterly data for the years 1959–89.

Before conducting the causality tests, I put each series in stationary form. This procedure guarantees that a relationship between two variables is not based merely on trends in the data. With the exception of total loans and the security-to-asset ratio, each series was found to be stationary in its growth rate. The detrended series were found to be appropriate for total loans and the security-to-asset ratio.

Next, the number of lagged dependent variables to be included in each regression must be determined. The idea is that past values of a variable may contain information about its present value. This information is included first. Additional variables are then considered to see if they provide further information.

Akaike's final prediction error (FPE) is used to determine the appropriate lag length of both the dependent variables and the independent variables.⁶ The FPE statistic measures a regression's mean square prediction error. Lagged values of the dependent and independent variables are included in a regression as long as their inclusion lowers the FPE. Further, if inclusion of a variable lowers an equation's mean square prediction error, that variable helps to predict the dependent variable. Therefore, the FPE statistic is also used to determine which independent variables have a Granger causal relationship with each dependent variable.

Table 1 gives the results from the Granger causality tests. The table reports the lowest FPE obtained from a regression including only lagged values of each dependent variable and the lowest FPE obtained from adding lagged values of each independent variable. If inclusion of an independent variable lowers an equation's FPE, the additional variable is said to "Granger-cause" the

dependent variable. Marginal significance levels for the test that each variable does not aid in predicting economic activity are also reported. A number smaller than 0.05 implies rejection of the hypothesis that economic activity is not Granger-caused by the variable at the 5-percent significance level.

As Table 1 shows, each independent variable has a predictive relationship with investment and output. In every case, the FPE of the equation falls when the independent variable is included. The security-to-asset ratio has the lowest FPE with respect to real investment. Thus, this variable has the strongest predictive relationship with investment. M2, total security holdings, and total loans have the next lowest FPEs. The subset *F* tests also indicate that each variable significantly predicts real investment.

With respect to real GNP, the security-to-asset ratio again produces the lowest FPE, followed by total loans. The subset *F* tests indicate that, with the exception of M1, all the variables are highly significant in predicting real GNP. M1 is significant at the 6-percent level—a finding consistent with its relatively high FPE.⁷

The results presented here suggest that the banking system's balance sheet variables contain predictive information for economic activity. Of particular interest is the significance of the security-to-asset ratio. This relationship indicates not only that the amount of credit extended has predictive content for economic growth but that adjustments in bank asset holdings are especially important in predicting economic activity.⁸

⁶ See Akaike (1969, 1970) for derivation of this statistic.

⁷ Because the total loan series borders on being nonstationary, I also conducted the causality tests by using the growth rate of this series. The FPE for real investment increases to 2.32. The FPE for real output becomes 8.71. Thus, the significance of total loans in predicting real investment changes very little, but its importance in predicting real output falls.

⁸ I also performed the tests with each of the variables in real terms. With respect to real investment, the FPEs of the variables change slightly, but their marginal significance levels remain the same. The order of predictive importance of the variables is not affected. For real GNP, the FPE of M2 falls, so real M2 has a slightly lower FPE than does the

Table 1
**Bivariate Tests of Predictive Content for Investment
 and Gross National Product, 1959:1–1989:4**

	<i>RINV</i>			<i>RGNP</i>		
	FPE × 10 ³	MS	Number of lags	FPE × 10 ⁵	MS	Number of lags
Lagged dependent variable	2.48		1	8.76		2
<i>TL</i>	2.22	.00	1	7.97	.00	1
<i>LAR</i>	2.34	.00	1	8.42	.01	1
<i>TS</i>	2.21	.00	1	8.31	.01	1
<i>SAR</i>	1.97	.00	6	7.69	.00	2
<i>M1</i>	2.38	.01	1	8.63	.06	3
<i>M2</i>	2.20	.00	1	8.32	.01	1

NOTE: *RINV* = real gross investment, and *RGNP* = real gross national product. FPE = final prediction error, and MS = marginal significance level. Commercial bank measures: *TL* = total loans, *LAR* = loan-to-asset ratio, *TS* = total securities, and *SAR* = security-to-asset ratio. *M1* and *M2* are the monetary aggregates.

Finding that changes in bank asset holdings have a predictive relationship with real economic activity is consistent with the story that banks' willingness to lend has an impact on the real economy. But it is also possible that both the movements in asset holdings and the movements in economic activity are the result of changes in firms' willingness to borrow. If firms' demand for credit were to fall, investment and economic growth would most likely be affected. Thus, we

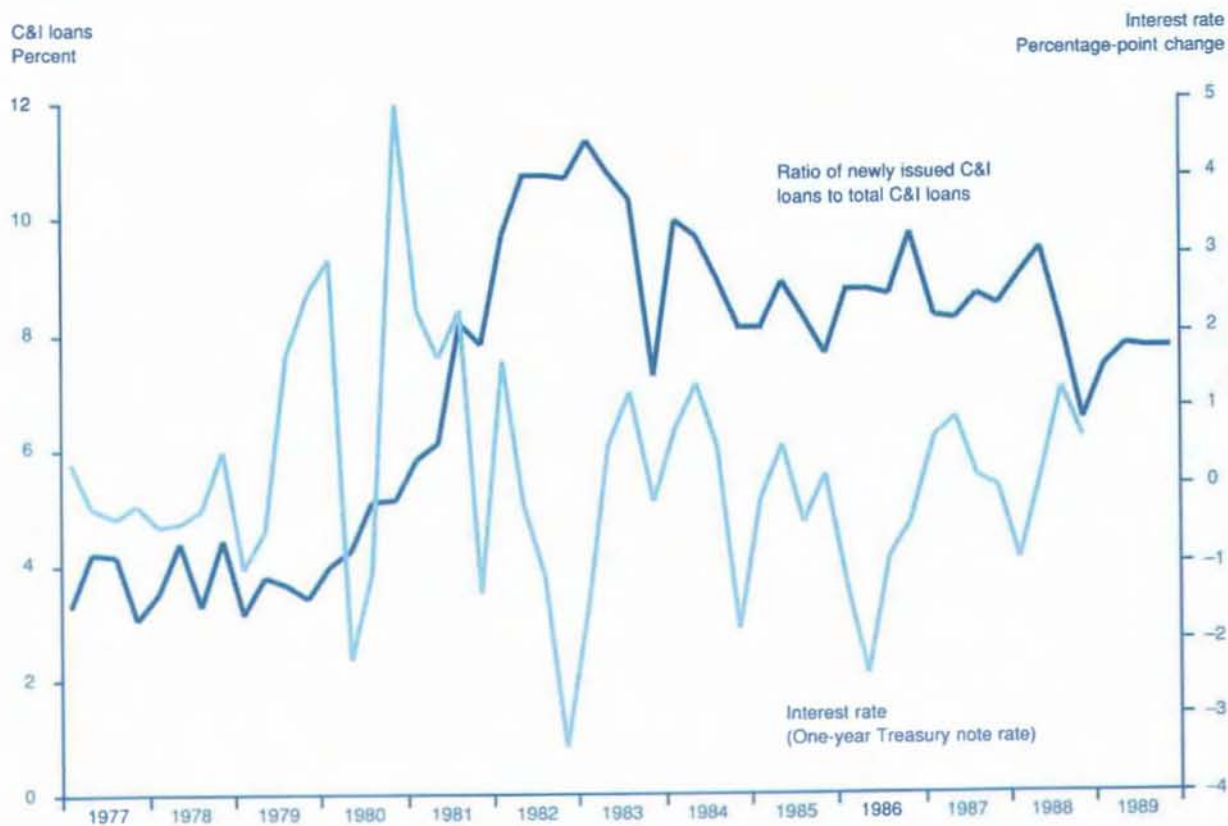
cannot say definitively that movements in economic activity occur because of a change in banks' willingness to lend. But we can conclude that changes in the composition of bank assets tend to precede changes in economic activity.

Interest rates and the composition of bank portfolios

According to the credit rationing story presented by Stiglitz and Weiss, banks become less willing to lend as market interest rates rise. Beyond some point, then, market interest rates and the quantity of loans extended should be inversely related. Further, as market interest rates

security-to-asset ratio. Total loans in real terms do not help to predict real output.

Chart 2
Newly Issued Commercial and Industrial Loans and the Real Interest Rate



SOURCE OF PRIMARY DATA: Board of Governors, Federal Reserve System.

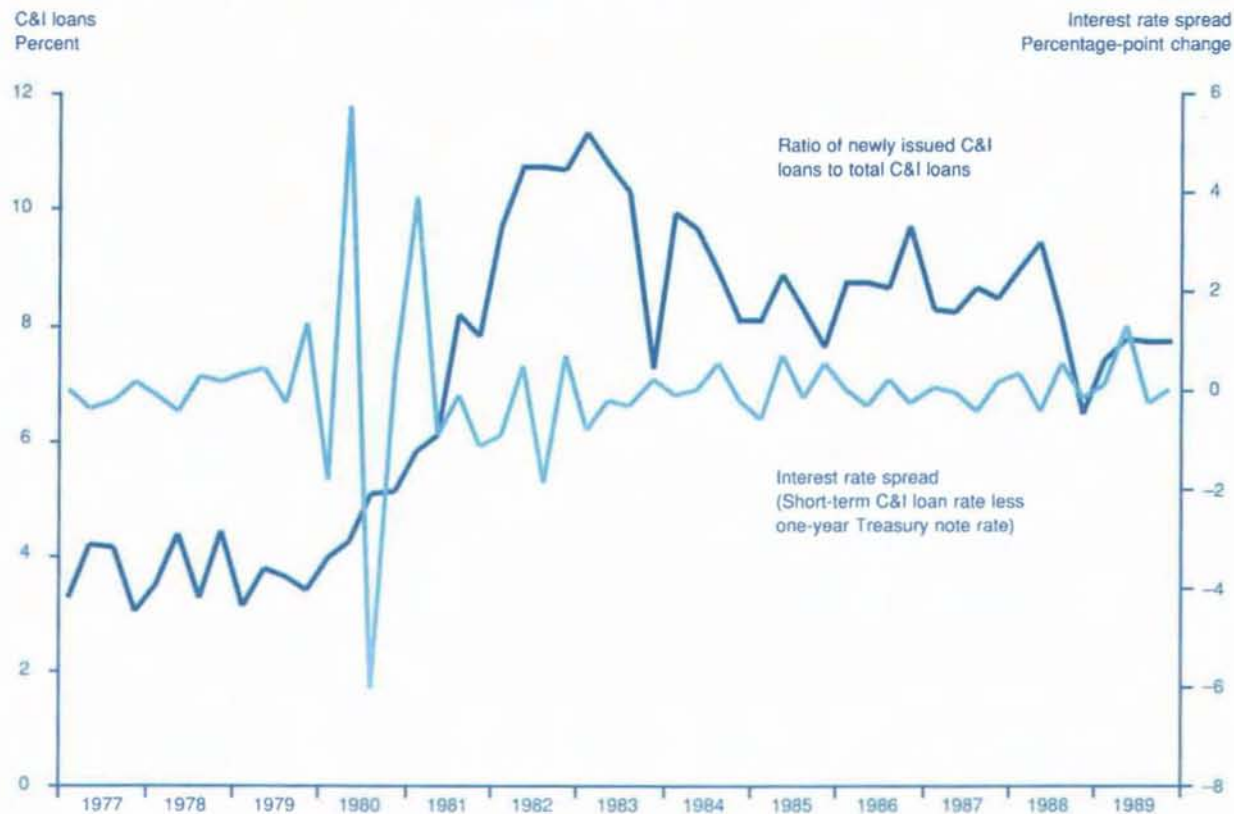
rise, loan rates are hypothesized to rise less rapidly, narrowing the spread between loan rates and market rates. The quantity of loans issued and the spread between loan rates and market rates should, therefore, be directly related.

Similar relationships between movements in interest rates and movements in credit could also arise from changes in loan demand. If firms shifted away from bank borrowing and toward bond issuance, loan rates would fall and bond rates would rise, producing a positive relationship between loans issued and the spread between loan and market rates. Thus, an examination of loan and interest rate data will, at best, prove to be consistent with the credit rationing hypothesis. Credit demand would also have to be accounted for to prove, definitively, that credit rationing occurs.

The relationships between interest rates and loans extended are reversed if movements in the quantity of credit are principally the result of supply shocks, as argued by Bernanke and Blinder. That is, market interest rates and loans extended should be positively related, while the spread should be inversely related to loans. This section considers the validity of these arguments by examining loan and interest rate data.

Since 1977, the Federal Reserve has collected survey data, quarterly, on newly issued commercial and industrial (C&I) loans. While the survey only covers one category of loans—C&I loans—this category makes up roughly one-third of all bank lending and almost all lending to businesses. Chart 2 presents the relationship between newly issued C&I loans as a percentage of total C&I loans and the change in market interest rates.

Chart 3
 Newly Issued Commercial and Industrial Loans and the Interest Rate Spread



SOURCE OF PRIMARY DATA: Board of Governors, Federal Reserve System.

The real one-year U.S. Treasury note rate is used as the interest rate measure. The real rate is used here because it represents the rate of return to credit beyond that which merely compensates for inflation. And because newly issued loans, less an adjustment for expired loans, represent the change in total loans outstanding, for consistency the real interest rate is used in first-difference form.

As the chart shows, there is not an obvious relationship, positive or negative, between the two series. Computing the correlation between newly issued loans and the change in the real interest rate confirms the lack of a relationship between them. If two series moved identically, they would have a correlation of 1.0. If their movements were completely unrelated, they would have a zero correlation. Over the 1977-89

period, newly issued loans have a negative but not significant correlation with changes in the real interest rate.

Because of the upward trend in the loan series during 1980 and 1981, I also computed the correlation coefficient for these two series beginning with 1982. For 1982-89, newly issued loans and the change in the real interest rate, lagged one quarter, have a significant correlation of -0.39 . This finding supports the credit rationing hypothesis.

Chart 3 plots newly issued C&I loans as a percentage of total C&I loans and the change in the spread between the interest rate on short-term C&I loans (loans with maturity of one year or less) and the one-year Treasury note rate. Again, because newly issued loans represent the change in total outstanding loans, the first difference of

the spread is presented in the chart to be consistent. As was the case in Chart 2, the two series do not appear to exhibit much of a relationship. The correlation coefficient indicates that for 1977-89, the two series have a negative but not significant relationship. But for 1982-89, the negative correlation between the two series is significant. The highest and most significant correlation occurs when the spread variable is lagged two quarters: the correlation is -0.44 at a significance level of 1 percent.

The negative relationship between newly issued loans and the change in the interest rate spread runs counter to the credit rationing story hypothesized by Stiglitz and Weiss. But this relationship is consistent with the notion of credit supply shocks and imperfect substitution as discussed by Bernanke and Blinder. In contrast, the negative relationship between newly issued loans and the change in the real interest rate is consistent with credit rationing. (This latter relationship is also consistent with shifts in the demand for bank loans.) Thus, the data examined here are inconclusive in characterizing bank behavior.⁹

Terms of bank lending over the business cycle

Besides denying loans to customers, banks may ration credit in other less severe ways. Greenwald and Stiglitz (1987) note that during periods of tight credit, even for firms that do obtain loans, credit may be somewhat restricted. For example, banks may insist on shorter maturities for the loans they issue, and the size of the loans they issue may fall. An increase in the percentage of bank loans made under loan commitment agreements may also reflect tighter credit standards. Under such an arrangement, a bank promises to issue a borrower a loan up to an agreed-upon amount as long as the borrower satisfies the terms of the contract. Because rationing of loans can only affect firms that do not have such agreements, the percentage of total loans made under commitments should increase during periods of tight credit.

The Federal Reserve's quarterly survey on commercial and industrial loans includes data on the terms under which loans are issued. Data are collected on the number of short- and long-term

C&I loans issued, their average size, average maturity, and the percentage of C&I loans made under commitment.¹⁰ This section presents regression results with real GNP and each series to determine the extent to which the terms of bank credit vary over the business cycle.

As with the previous empirical work, before estimation of the equations, the series are examined for stationarity. With the exception of the average maturity on short-term loans, each series is found to be stationary in its growth rate. The detrended growth rate of the maturity variable is the appropriate specification for this series.

Table 2 presents the regression results. As the table shows, two of the four variables have the hypothesized relationship with real output. The ratio of short-term C&I loans to total newly issued C&I loans, lagged one quarter, has a significant negative relationship with real output. Such a relationship is consistent with the hypothesis that banks restrict credit by issuing fewer long-term loans and that this restriction has a negative impact on economic activity.

The percentage of C&I loans made under commitment also has a significant negative relationship with real output. When firms without loan commitment agreements hold a smaller percentage of new loans, output is negatively affected. This finding suggests that economic activity is hurt when firms are unable or unwilling to borrow. While distinguishing between ability and willingness is not possible in this analysis, the result is at least consistent with the notion that economic activity is hurt when banks restrict credit.

The other two series examined do not exhibit the hypothesized relationship. Short-term C&I loans constitute 80 percent of new C&I loans issued, but their average size has a significant

⁹ I also examined the relationship between the growth rate of total outstanding C&I loans and the interest rate variables. The correlation between the growth rate of C&I loans and the change in the real interest rate for 1977-89 is 0.25, significant at the 9-percent level. For 1982-89, the correlation is 0.40, significant at the 3-percent level. The spread variable is not significantly correlated with the growth of outstanding loans in either period.

¹⁰ Short-term loans are loans with a maturity of up to one year.

Table 2
**Gross National Product and Terms
of Bank Lending, 1977:1–1989:4**

	Independent variables			
	<i>RSTTL</i>	<i>LUC</i>	<i>ASSTL</i>	<i>AMSTL</i>
Constant	.005 (2.77)	.006 (3.46)	.008 (3.60)	.005 (2.88)
<i>RGNP</i> _{<i>t-1</i>}	.309 (2.08)	.277 (1.93)	.168 (1.03)	.275 (1.75)
<i>t</i>	-.048 (-1.15)	-.045 (-2.34)	.003 (.29)	-.002 (-.12)
<i>t-1</i>	-.099 (-2.07)	-.027 (-1.21)	-.026 (-2.55)	.013 (1.02)
<i>t-2</i>	.006 (.12)	-.043 (-2.03)	-.032 (-2.88)	.015 (1.15)
<i>t-3</i>	.050 (1.20)	-.015 (-.76)	-.010 (-1.00)	.017 (1.37)
Breusch–Godfrey statistic	.29	.89	.94	.96
\bar{R}^2	.16	.15	.22	.07

NOTE: C&I loan measures: *RSTTL* = ratio of newly issued short-term loans to total newly issued loans, *LUC* = percentage of newly issued loans made under commitment, *ASSTL* = average size of short-term loans, and *AMSTL* = average maturity of short-term loans. *RGNP* = real gross national product, the dependent variable. Figures in parentheses are *t* statistics.

negative, rather than positive, relationship with output. This result runs counter to the idea that if banks restrict credit by issuing smaller loans, the economy is adversely affected. Finally, the average maturity of short-term C&I loans has no significant relationship with GNP. Thus, although the percentage of short-term loans relative to long-term loans seems to matter for economic activity, the average maturity within the class of short-term

loans does not appear to be relevant.

In sum, the ratio of newly issued short-term loans to total commercial and industrial loans appears to reflect the Stiglitz and Weiss credit rationing story, as does the number of C&I loans issued under commitment. But for 1977–89, the data on average size and average maturity do not suggest a relationship between credit and economic activity.

Table 3
**Relationship Between Equity and Assets
of Commercial Banking System, 1959–89**

	TL			SAR		
	FPE × 10 ³	MS	Number of lags	FPE × 10 ³	MS	Number of lags
Lagged dependent variable	1.8		2	3.8		2
Equity of commercial banks	1.7	.10	2	3.6	.09	1

NOTE: TL = total loans issued by commercial banks, and SAR = security-to-asset ratio of commercial banks.
FPE = final prediction error, and MS = marginal significance level.

Equity and bank lending

The last set of data to evaluate concerns the relationship between equity and lending in the banking sector. Bernanke and Gertler note that the health of the banking sector plays a role in the determination of bank asset holdings. To test this hypothesis, I examine the Granger causal relationship between the equity of the commercial banking system and two bank balance sheet measures, the security-to-asset ratio and total loans.¹¹ These two variables are used here because they were found to have the most significant relationships with real economic activity.

Because I was only able to obtain annual data on equity, the bank balance sheet measures are transformed into annual series. Further, to avoid a correlation due to inflation, the equity and total loan series are deflated by the fixed-weight GNP price deflator. The procedure is then identical to that followed earlier. First, the three series are examined for stationarity. Each is found to be stationary in its growth rate. The number of lagged dependent variables to include in each regression is then determined by the FPE criteria.

Finally, the independent variable, equity, is added to each regression, and the resultant FPE is calculated.

The results are presented in Table 3. When lags of only the dependent variables are included, the lowest FPEs are obtained with two lags of the security-to-asset ratio and two lags of total loans. Including the equity series lowers the FPE of each equation further. The marginal significance levels of the *F* tests for the equity series are 9 percent and 10 percent, respectively. Thus, the evidence provides weak support for the notion that movements in equity of the banking system precede changes in bank asset holdings.

¹¹ The hypothesized relationship between equity and bank lending is based on the market value of bank equity. But data are only available on the book value of equity. A shock to the market value of equity, which affects bank lending, might be muted or not apparent in the book value series. Therefore, the use of book value data creates a stringent test for the equity-lending relationship.

Conclusion

In this article, I examined the validity of recent arguments that the composition of bank portfolios and the willingness of banks to lend have an impact on economic activity. I found that movements in bank asset holdings do tend to predict changes in economic activity. The ratio of security holdings to total assets has a particularly strong predictive relationship with economic activity. These relationships can be explained either by changes in banks' willingness to lend or by changes in firms' willingness to borrow. Therefore, we cannot definitively conclude that changes in banks' willingness to lend cause changes in economic activity. But we can conclude that changes in the composition of bank assets tend to precede changes in economic activity.

The correlations between interest rate movements and bank loans do not provide clear evidence as to how banks operate. The negative relationship between newly issued loans and the real interest rate is consistent with the idea that banks ration credit. This relationship could also be explained by changes in credit demand. The negative relationship between bank loans and the spread between loan rates and market interest rates suggests that bank behavior may be better characterized by changes in credit supply and imperfect substitution between bank loans and securities than by credit rationing. It could be the case that shocks to credit supply better explain bank behavior during some periods and that bank behavior during other periods is better characterized by credit rationing. Moreover, determining the importance of credit supply movements in

characterizing bank behavior is difficult because changes in the demand for credit could also be occurring. These changes have their own effects on interest rates and perhaps obscure the relationship between movements in credit supply and movements in interest rates.

The behavior of some measures of bank lending terms over the business cycle is consistent with credit rationing, however. Newly issued short-term C&I loans, as a percentage of total newly issued C&I loans, have a negative relationship with real output, as does the percentage of C&I loans issued under commitment. The former relationship is consistent with the idea that banks issue a higher percentage of short-term loans as a way to restrict credit and that this strategy adversely affects economic activity. The latter relationship is consistent with the hypothesis that economic growth is adversely affected when firms without loan commitments become less able to obtain credit.

In sum, while the work presented here could not distinguish between the two hypotheses of bank behavior, the work does support the idea that fluctuations in bank credit are related to fluctuations in economic activity. Changes in bank asset holdings do tend to precede changes in economic activity, and there is some evidence to support a link between bank capital and bank lending. Finally, the relationship between output and the terms of bank lending is consistent with the notion that restrictions on bank lending adversely affect the economy. These results suggest that further research on the relationship between bank behavior and the real economy is warranted.

Appendix

Sources of Banking and Interest Rate Data

Data used for the first set of causality tests are quarterly, seasonally adjusted, for the period 1959:1–1989:4. Real investment (*RINV*) and real gross national product (*RGNP*) are from the national income and product accounts (U.S. Department of Commerce).

Total loans (*TL*) are total loans issued by commercial banks. Total securities (*TS*) are total securities held by commercial banks. *LAR* and *SAR* are, respectively, total loans and total securities divided by total assets of commercial banks, with total assets being the sum of total loans and total securities. Data for 1959:1–1970:4 are from *Banking and Monetary Statistics, 1941–1970* (Federal Reserve Board), table 1.4. Data for 1971:1–1972:4 are from the *Annual Statistical Digest, 1970–1979* (Federal Reserve Board), table 15. Data for 1973:1–1989:4 can be obtained from the *Digest*, the *Federal Reserve Bulletin*, or the Citibase data bank. The monetary aggregates, M1 and M2, are quarterly averages of monthly data from the Federal Reserve Board data bank.

The real interest rate variable used in computing the correlations is the one-year U.S. Treasury note rate, adjusted for inflation by the consumer price index. The interest rate

spread variable is the short-term commercial and industrial loan rate less the one-year Treasury note rate. The Treasury note rate data are quarterly averages of monthly data from the Federal Reserve Board data bank. The consumer price index is from the Citibase data bank, and the short-term C&I loan rate is from Federal Reserve survey data, as published in *Business Conditions Digest* (Commerce Department). The data for 1959:1–1988:4 are from the September 1989 issue. The data for 1989:1–1989:4 are from the March 1990 issue.

The data on terms of bank lending are quarterly for the period 1977:1–1989:4 and are from the Federal Reserve Survey of Terms of Bank Lending. The data are from various issues of the *Federal Reserve Bulletin*.

Data used for the second set of causality tests are annual for the period 1959–89. Total loans (*TL*) and the ratio of total securities to total assets (*SAR*) are fourth-quarter figures from the quarterly data described above. The equity series is the fourth-quarter figure from the quarterly Consolidated Reports of Condition and Income for commercial banks. The data are from the Federal Reserve Board data bank.

References

- Akaike, Hirotugu (1969). "Fitting Autoregressive Models for Prediction." *Annals of the Institute of Statistical Mathematics* 21: 243-17.
- (1970). "Statistical Predictor Identification." *Annals of the Institute of Statistical Mathematics* 22: 203-17.
- Bernanke, Ben S. (1986). "Alternative Explanations of the Money-Income Correlation." *Carnegie-Rochester Conference Series on Public Policy* 25: 49-99.
- , and Alan S. Blinder (1988). "Credit, Money, and Aggregate Demand." *American Economic Review* 78 (May, Papers and Proceedings, 1987): 435-39.
- , and ——— (1989). "The Federal Funds Rate and the Channels of Monetary Transmission" (Princeton University, February, Photocopy).
- , and Mark Gertler (1987). "Banking and Macroeconomic Equilibrium." in *New Approaches to Monetary Economics*, ed. William A. Barnett and Kenneth J. Singleton (New York: Cambridge University Press), 89-111.
- Clair, Robert T. (1989). "Credit Shortage Slows Texas Recovery." *The Southwest Economy*. Federal Reserve Bank of Dallas, January, 1-4.
- Gertler, Mark (1988). "Financial Structure and Aggregate Economic Activity." *Journal of Money, Credit, and Banking* 20 (August, pt. 2): 559-88.
- Greenwald, Bruce, and Joseph E. Stiglitz (1987). "Money, Imperfect Information and Economic Fluctuations." NBER Working Paper Series, no. 2188 (Cambridge, Mass.: National Bureau of Economic Research, March).
- Gunther, Jeffery W. (1989). *Texas Banking Conditions: Managerial Versus Economic Factors*. Financial Industry Studies, Federal Reserve Bank of Dallas (Dallas, October).
- Gupta, Udayan (1990). "Small-Business Borrowers Are Feeling Credit Squeeze." *Wall Street Journal*, March 1, Southwest edition, B1, B2.
- King, Stephen R. (1986). "Monetary Transmission: Through Bank Loans or Bank Liabilities?" *Journal of Money, Credit, and Banking* 18 (August): 290-303.
- Lown, Cara S. (1988). "The Credit-Output Link vs. the Money-Output Link: New Evidence." Federal Reserve Bank of Dallas *Economic Review*, November, 1-10.
- , and Donald W. Hayes (1990). "Another Look at the Credit-Output Link." Federal Reserve Bank of Dallas Research Paper no. 9001 (Dallas, January).
- Salomon Brothers (1990). *Comments on Credit*, May 25, 1-2.
- Stiglitz, Joseph E., and Andrew Weiss (1981). "Credit Rationing in Markets with Imperfect Information." *American Economic Review* 71 (June): 393-410.
- U.S. Bureau of the Census (1990). *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*, Fourth Quarter 1989, Series QFR-89-Q4 (Washington, D.C.: Government Printing Office, April).
- Wood, J.H. (1975). *Commercial Bank Loan and Investment Behaviour* (London: John Wiley & Sons).

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Performance of Eleventh District Banks in 1989: Progress but not Profits

Commercial banks in the Eleventh Federal Reserve District significantly reduced their losses in 1989.¹ Even though the improvement was substantial, these efforts were not sufficient to generate a profit for the industry. The banks in the Eleventh District are still recovering from the effects of the regional recession, which caused severe financial distress. Despite the improvement in the region's economy beginning in 1987, banks continued to report losses and, in some cases, fail. During 1989, 144 commercial banks failed in the District. If the pace of improvement generated in 1989 can be maintained, however, the outlook is promising.

In this article, I analyze the performance of banks in the Eleventh District in 1989 to determine how banks reduced their losses, the progress made in resolving the troubled assets, and the current condition of the banks. I also separate banks by their asset size to analyze differences in the profitability and financial conditions of small, midsize, and large banks.

Several important trends are clear from the analysis of the banks' financial statements. First, losses were reduced in 1989, but the industry has not yet achieved profitability. Second, the problem of troubled assets was addressed both by banks as they charged off the uncollectible loans and by the Federal Deposit Insurance Corporation (FDIC) as it resolved bank failures. A substantial amount of troubled assets, however, continue to adversely affect bank performance. Third, the banks improved their capital adequacy. Fourth, the banking industry continued to consolidate in the District. Fifth, banks were very liquid but slow to expand lending. Sixth, banks reduced the cost

and increased the stability of their sources of funds.²

Bank performance in the Eleventh District

Financial performance of banks in the Eleventh District improved in 1989 as they progressed in resolving troubled assets, but these banks still reported losses for the year. The banking industry collectively reported a total loss of \$523 million in 1989, but this is a substantial improvement over the \$2.2 billion lost in 1988 and the \$2.7 billion lost in 1987 (Chart 1).³ While the banking industry in aggregate reported a loss, the majority of banks reported profits in 1989. These profits at the majority of banks, however, were offset by losses at a minority of unprofitable banks.

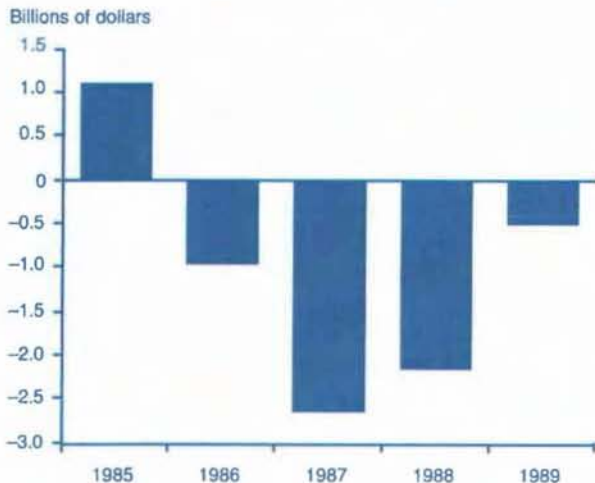
The progress the District banks made in resolving troubled assets was reflected in their balance sheets and income statements. In 1989, the provision for loan losses declined \$417 million from its 1988 level, reducing reported losses, and loans charged off in 1989 declined \$682 million,

¹ The Eleventh Federal Reserve District comprises the entire state of Texas, southern New Mexico, and northern Louisiana.

² The banking data used in this analysis are available from the author. Please contact the author at Research Department, Federal Reserve Bank of Dallas, Station K, Dallas, Texas 75222.

³ All dollar figures are reported in nominal terms and are not adjusted for inflation.

Chart 1
Net Income
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

slowing the rate of decline in primary capital.⁴ The level of troubled assets declined \$150 million as increases in the category of other real estate owned were more than offset by decreases in nonperforming loans (Chart 2).

Resolving these troubled assets placed a substantial burden on bank capital at District banks. Primary capital, the sum of equity capital and allowance for loan loss, fell \$149 million in 1989. The decline in capital combined with a small increase in assets caused the primary capital-asset ratio to fall from 6.61 percent in 1988 to 6.26 percent in 1989.

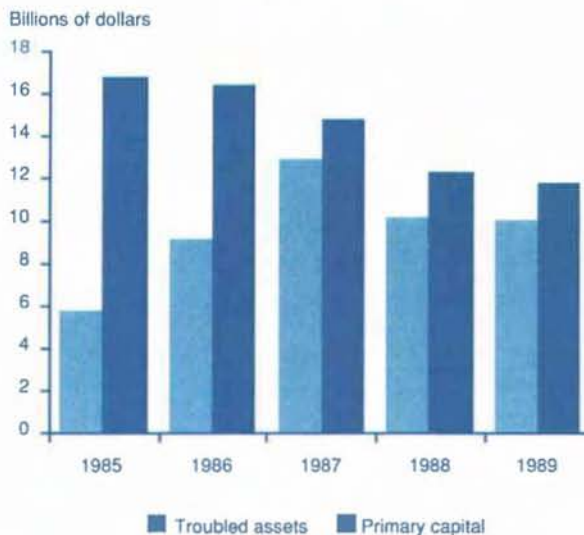
The resolution of the failed financial institutions in the District generated asset growth at District banks. After falling for the previous three years, total assets at District banks rose \$2.7 billion in 1989. A large portion of this asset growth resulted from bank acquisitions of failed savings

and loan associations (S&Ls). Similarly, the decline in nonperforming loans was partly the result of the FDIC absorbing these losses while resolving failed banks. Nonperforming loans declined \$3.6 billion since their peak in 1987.

District banks did not increase their lending during 1989 despite the growth in assets (Chart 3). These new assets are being placed in very liquid investments. Their loan-to-asset ratio dropped from 52.1 percent in 1988 to 47.4 percent in 1989, and total loans declined \$7.2 billion. Furthermore, these banks reduced their reliance on large time deposits, which are expensive and quick to respond to interest rate changes. Instead, they increased their use of stable core deposits, such as savings deposits and small time deposits.

In contrast to loans, securities holdings of District banks increased over the last four years, and the composition of the security portfolio shifted to federal government obligations. There are two reasons for this shift. First, changes in the tax code reduced the advantages of investing in tax-exempt state and local government bond issues for banks. Further, the remaining advantages exist only for institutions earning a positive net

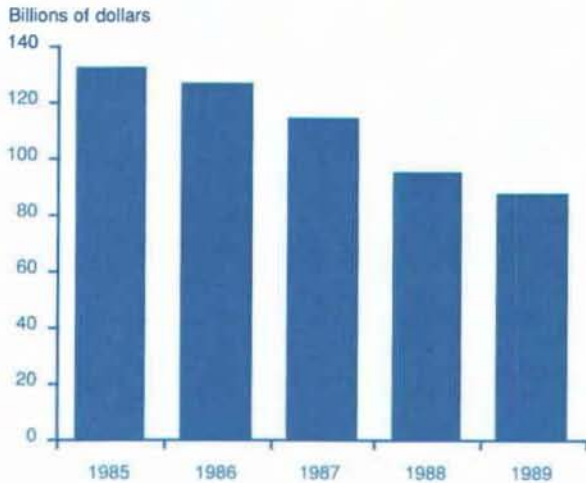
Chart 2
Troubled Assets and Primary Capital
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

⁴ For a complete description of how troubled loans affect bank financial statements, see the box titled "How Troubled Loans Affect Bank Balance Sheets and Income Statements."

Chart 3
Loans
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

income and incurring a tax liability. Over this time period, many of the banks were reporting losses; thus, the potential tax advantages were worthless.

Second, the new risk-based capital standards will soon become effective. Under these standards, banks can reduce the required capital by reducing their holdings of state and local government securities and investing these funds in federal government obligations. Every dollar shifted from state and local government securities to federal government securities reduces required capital by \$.016.

Despite the improvement in bank performance, numerous banks failed in the Eleventh District in 1989. During the year, 144 commercial banks failed, an increase from 121 in 1988 (Robinson 1990). These failures included several large banks, such as MBank Dallas and Texas American Bank Fort Worth, N.A. At year-end 1989 there were 1,441 banks in this District.

Bank performance in the Eleventh District compared poorly with that of banks in the rest of the nation. While District banks lost money in 1989, banks outside the District earned a return on assets of 50 basis points. The difference in performance is most directly attributable to higher

ratios of troubled assets at District banks. The percentages of loans that were charged off or nonperforming were more than twice as high in the District as outside the District. The resolution of these troubled loans left the primary capital-asset ratio of the District's banks barely above the regulatory minimum of 6 percent. By comparison, out-of-District banks had a primary capital-asset ratio of 7.82 percent in 1989.

Banks outside the District grew much faster than District banks because of their health and the strong national economy. In 1989, total assets rose nearly 14 percent, and total loans rose more than 16 percent at banks outside the District, compared with only 1.5-percent asset growth at District banks and a 7-percent contraction of total loans. Because of their relatively weak capital position and the modest pace of the regional economic recovery, District banks placed their assets in liquid investments rather than booking new loans. The District banks' loan-to-asset ratio was 16 percentage points lower than the average loan-to-asset ratio of banks outside the District, which was more than 63 percent.

Analyzing the performance and condition of the District banks as a group fails to identify important performance differences in some sub-categories of banks. One important distinction between bank groups is based on bank asset size. To determine key differences in performance and condition, banks were divided into three size categories. Small banks were defined as those with end-of-year assets of \$100 million or less, midsize banks as those with assets of more than \$100 million and less than \$1 billion, and large banks as those with assets of \$1 billion or more.⁵

The banking industry in the Eleventh District has a very large number of relatively small institutions. In the District there are 1,198 small banks, 229 midsize banks, and only fourteen large

⁵ The different size categories were not determined by any precise statistical methodology. That is not to say the categories were chosen arbitrarily. These size categories match those used in previous articles published by the Federal Reserve Bank of Dallas. Thus, the use of these categories improve the reader's ability to compare the result of this analysis with previous reports.

How Troubled Loans Affect Bank Balance Sheets and Income Statements

Loan losses resulting from borrowers failing to repay interest and principal on their loans have several different effects on bank financial statements. Loans do not typically default instantly, but rather they deteriorate over time in stages. Each stage has different financial effects on the bank condition.

In the first stage of a troubled loan, a borrower fails to make scheduled payments. Once this occurs, the loan is considered past due. A loan is considered a troubled loan when the payment is 90 days or more past due. The loan might still be considered to be accruing interest. In this stage, the loan has little effect on the bank's financial statements, but it has a negative effect on the bank's cash flow.

In the second stage, the loan is placed on nonaccrual status. During this stage, the bank's net interest margin will be affected adversely. During the second stage, the bank continues to carry the loan as an asset, and the bank must fund the loan with deposits and capital. The deposits are generating an inter-

est expense, while this asset generates no interest income. At this stage, the bank suffers a decline in interest income and no change in interest expense. As a result, the bank's net interest income and net interest margin are reduced.

Eventually, if the borrower continues to fail to make payments and there is little prospect of future repayment, then the loan must be charged off the bank's books as uncollectible. In this third stage of asset deterioration, gross loans are reduced by the amount of the charged-off loan. The bank must also reduce a special reserve account—held aside to absorb loan losses—called the *allowance for loan and lease losses*. If the uncollectible loan was a real estate loan, then typically the bank would foreclose on the real estate at this point. The bank carries the real estate on its balance sheet as *other real estate owned*, and the size of the charge-off is reduced by the current appraised value of the repossessed real estate.

(continued)

banks. Though numerous, the small banks control only \$46 billion in assets, which is less than a quarter of total banking assets in the District (Chart 4). The fourteen large banks control \$88 billion in assets, nearly half the banking assets in the District.

Small banks in the Eleventh District

The most important difference of small banks in the Eleventh District compared with the industry as a whole is that in 1989 the small banks reported a profit for the first time in four years. The improvement in net income at the District's small banks was primarily the result of improving credit quality. Small District banks earned a tiny profit of slightly less than \$1 million, and because

the profit was so small, return on assets was barely above zero (Chart 5).

Of course, financial performance was not even across small banks. The top-performing 70 percent of these small banks earned profits totaling \$320.3 million in 1989, barely offsetting the losses of the unprofitable banks. The top 10 percent of the banks had an average return on assets of 1.1 percent, well above the national average of 0.76 percent for small banks.

The progress these small banks made in resolving their troubled credits helped them earn a profit (Chart 6). Nonperforming loans at small District banks shrank at three times the overall rate of District banks, and the total other real estate owned declined at small banks, while it rose in the District. This improvement in troubled as-

How Troubled Loans Affect Bank Balance Sheets and Income Statements — Continued

This third stage does not adversely affect the bank's net income, but it does reduce the bank's primary capital. A bank's primary capital is the sum of the bank's allowance for loan and lease losses and its equity capital. Because banks must maintain a minimum primary-capital-to-asset ratio, a decline in primary capital might require a bank to reduce its other assets or raise additional capital.

Even after a loan has been charged off, the bank still pursues the borrower to repay the loan; that is, charging off the loan does not eliminate the borrower's obligation to repay. If the loan should be repaid in total or in part, then the funds received are recorded as a recovery. Recoveries are added to the allowance for loan and lease losses and improve the bank's primary capital ratio.

Replenishing the allowance for loan and lease losses is traditionally the fourth stage of a troubled loan.¹ To replenish this reserve account, banks must make a provision for loan and lease losses to add to the account. This provision is an expense item in the bank's income statement. At this stage, the loan loss

directly reduces net income.

If loan losses are severe, the provisions may be so large that the bank reports a net loss. In this fifth stage, loan losses will reduce the bank's equity capital. Again, this would reduce a bank's primary capital and may cause a contraction in bank assets.

Another cost generated by troubled loans occurs at virtually every stage of deterioration. Bank management must monitor these deteriorating loans much more regularly and more intensively than performing loans. This monitoring generates noninterest expenses, especially in the form of labor costs. Furthermore, the process of collecting a troubled loan will likely generate attorney fees and other expenses.

¹ There have been reports that the bank examination process has changed, and the reserves to absorb loan losses are required to be increased before the loans in question actually become nonperforming.

sets permitted the small banks to make a smaller provision for loan and lease losses and likely contributed to the decline in noninterest expense.

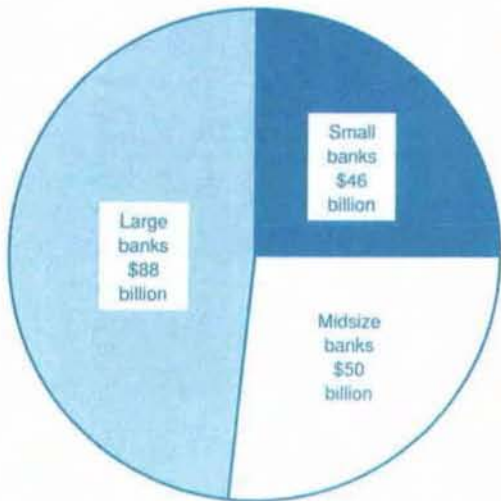
Small bank profitability also helped these banks rebuild their capital adequacy. In contrast to the decline in capital ratios in the District, small banks increased their primary capital-asset ratio from 8.38 percent in 1988 to 8.72 percent in 1989. Capital adequacy was also helped by the FDIC closing many small, insolvent banks. The remaining small banks were healthier and better capitalized, on average. At year-end 1989, small banks could charge off 61.4 percent of their nonperforming loans against the existing allowance for loan and lease losses, compared with only 52.2 percent at year-end 1988.

Future increases in profitability at the Dis-

trict's small banks depend largely on the banks continuing to reduce their troubled assets. Despite the progress made, the troubled-asset ratio at these banks is much higher than at their counterparts in the rest of the nation. Further reduction in problem assets will likely raise the net interest margin, reduce noninterest expenses, and allow for a smaller provision for loan and lease losses.

In contrast to the small increase in total banking assets in the District, assets at the small banks declined more than 10 percent in 1989 (Chart 7). This decline was partly the result of bank failures and conversions of small banks into branches of larger banks. Furthermore, small banks are less likely than large banks to purchase failed banks or S&Ls. At the more poorly capitalized small banks, bank management probably

Chart 4
Shares of Total Banking Assets
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

reduced asset holdings to maintain capital-asset ratios. The contraction of assets was concentrated in the loan portfolio overall and in commercial and industrial loans specifically.

Midsize banks in the Eleventh District

The performance of midsize banks in the Eleventh District deviated very little from that of the District banking industry as a whole. These banks reduced their losses in 1989 but were not profitable. They made some progress in improving their asset quality, but there is room for further improvement. These banks increased their liquidity as their lending activity declined. In addition, the structure of their funding shifted away from large time deposits and toward more stable sources of funds. There were, however, some differences between the performance of midsize banks and the District banking industry overall.

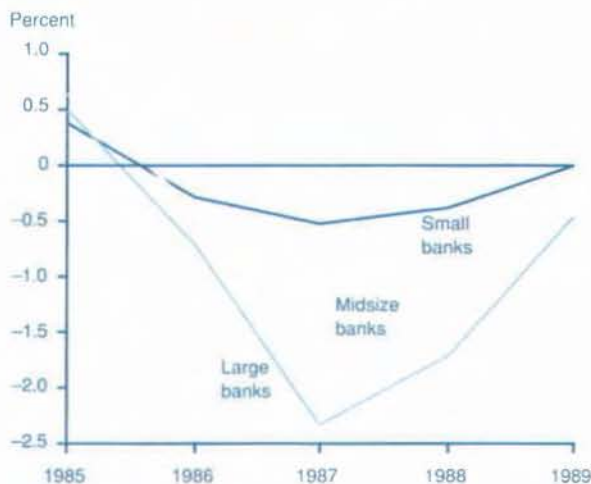
Midsize banks reduced their losses by \$528 million in 1989 by improving asset quality and controlling expenses, but these banks still reported a net loss of \$164 million. The poor performance of this group is greatly affected by a minority of unprofitable banks. Roughly two-

thirds of midsize banks recorded profits in 1989, but these profits were more than offset by the losses reported by the other one-third of midsize banks.

As occurred at all banks in the District, smaller provision for loan and lease losses helped midsize banks reduce their net loss. These banks also reduced their noninterest expenses. As stated previously, the improvement in asset quality can reduce the need for staff to monitor troubled credits. Consequently, these banks were able to reduce noninterest expense as troubled credits fell. Nonperforming loans fell 32 percent in 1989, and repossessed real estate declined nearly 19 percent. In contrast to the District totals, noninterest income was lower at midsize banks in 1989.

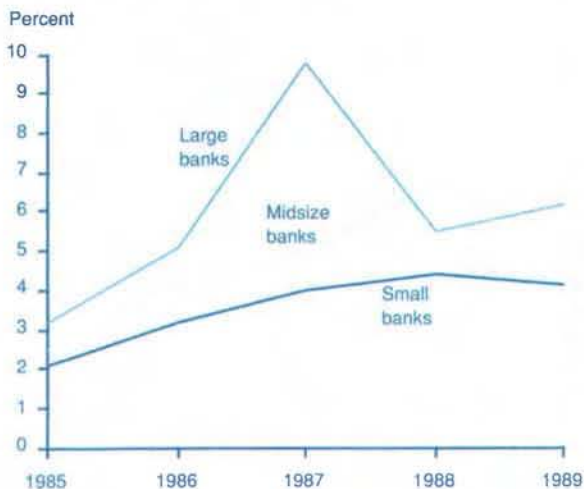
Although capital adequacy deteriorated for District banks overall, it improved at the midsize District banks. The primary capital-asset ratio rose from 6.8 percent in 1988 to 7.2 percent in 1989. Midsize District banks had sufficient loan loss reserves to charge off approximately half of their nonperforming loans as of year-end 1989. Still, their counterparts outside the District could charge off almost 65 percent of their nonperforming loans.

Chart 5
Return on Assets
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

Chart 6
Troubled Asset Ratios
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).

Although total banking assets increased in the District, assets contracted at the midsize banks. The contraction in assets was concentrated in the loan portfolio, which fell \$1.2 billion at midsize District banks in 1989. Both real estate loans and commercial and industrial loans declined substantially. Offsetting a small part of the decline in loans was a \$543 million increase in securities. Similar to other banks both inside and outside the District, investment at midsize banks shifted toward U.S. Treasury securities and obligations of federal agencies and away from securities issued by state and local governments.

Large banks in the Eleventh District

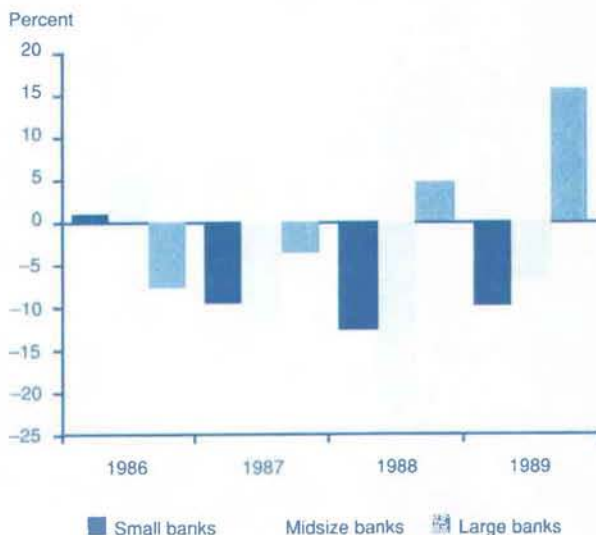
The financial performance of the District's large banks was similar to the District's overall performance. This is to be expected because these banks control nearly half of all banking assets in the District. As occurred at midsize banks, the large banks reduced their losses substantially in 1989 but still reported a net loss for the year. Other similarities between the large banks and the other District banks included smaller charge-offs for uncollectible loans, a lower loan-to-asset ratio,

and a shift away from expensive, less stable sources of funds, such as large time deposits and other borrowed liabilities, toward more stable funds, such as small time and savings deposits. There were, however, some interesting differences between these large banks and the small and midsize banks in the District.


Large banks in the Eleventh District reduced their losses by \$1 billion in 1989, but these large banks, just as the midsize banks, reported an aggregate loss of \$360 million for the year. Only 35 percent of the large banks reported profits, however, while more than two-thirds of small and midsize banks were profitable.

The source of improved performance at large banks was a sharp rise of \$1.5 billion in noninterest income that was partially offset by a bigger provision for loan and lease losses. These changes are in sharp contrast to the changes at the smaller banks, where there was little change in noninterest income, and declines in the provision for loan and lease losses accounted for the improvement in performance. The large increase in noninterest income suggests that these banks

Chart 7
Asset Growth
Eleventh District Commercial Banks



SOURCE OF PRIMARY DATA: Consolidated Reports of Condition and Income (Board of Governors, Federal Reserve System).



are selling more banking services. One possible buyer of these services may be the FDIC. When a bank fails, the FDIC usually takes the worst of the troubled assets out of the bank portfolio. After the FDIC resolves the failure, it often contracts with the acquiring bank to provide management services for these troubled assets that are now owned by the FDIC. Six of the fourteen large District banks were associated with FDIC-assisted recapitalizations and may now be earning fees for managing the FDIC's troubled assets.

The improvement at large banks was partly offset by an increase of \$580 million in noninterest expense, which may be related to the higher noninterest income. Generating additional noninterest income usually implies that the bank is increasing the services it is providing to its customers. Providing additional services typically generates additional noninterest expense. Again, this contrasts sharply with the declines in noninterest expense reported by small and midsize banks.

The capital-asset ratio for large banks fell in 1989, counter to what occurred at small and midsize banks. The decline may be seriously overstated, however. At year-end 1989, the FDIC was in the process of resolving three large bank failures. Consequently, two banks reported negative equity capital, and one bank reported zero equity capital. When these cases are resolved with capital injections from the FDIC and the acquiring institutions, the capital ratios will increase sharply.

The large banks appear to be making less progress on reducing their troubled assets than small and midsize banks are. Charge-offs fell at all three sizes of banks, but nonperforming loans and other real estate owned are rising only at the large banks. Again, this negative trend in the quality of assets may reverse itself after the FDIC resolutions of the three failed banks are completed.

Strong asset growth is another difference between the large banks and the small and midsize banks in the District. Assets at the large banks grew more than 15 percent in 1989 and are now higher than their 1985 level. At the same time, the assets of small and midsize banks shrank 10 percent and 7 percent, respectively. To a large degree, the asset growth at large institutions reflects the consolidation of banking assets into the large banks. First, many small banks in bank holding

companies were consolidated as branches of the lead bank of the holding company. Second, these large banks acquired failed banks and thrifts. The NCNB Texas National Bank acquisition of University Savings accounted for nearly 40 percent of the total asset growth among large banks in 1989.


Asset growth at the large District banks did not translate into much loan growth. While total loans declined in the District at all banks, lending actually rose slightly—less than 2 percent—at the large banks. The growth that did occur was in loan categories least related to local business conditions. Real estate, consumer, and agricultural loans declined. Commercial and industrial loans rose, but the increase was only \$234 million, or 1.26 percent.

Conclusions

The performance of Eleventh District banks will likely continue to improve over time. The regional recession affecting this District ended in 1987, and the banks are working through the residual problems left by that downturn. If bank performance continues to improve at its 1989 rate, Eleventh District banks will return to profitability in 1990.

District banks have room for improvement. Nonperforming loans as a percent of total loans are more than twice as high in the Eleventh District as in the rest of the country. Further improvement in reducing troubled assets will likely improve the net interest margin, permit a smaller provision for loan and lease losses, and reduce noninterest expenses, including salaries. Labor productivity is roughly 10 percent lower at the District banks because of the labor-intensive process of monitoring troubled assets. Currently, District banks employ one full-time employee for each \$2 million in assets, while banks outside the District average more than \$2.2 million in assets per employee.

Lending has not increased in the District despite the regional economic recovery in general business conditions. Either a lack of demand from qualified borrowers or low levels of bank capital at some banks may constrain lending. Credit conditions in the District are generally tight and have been for several years. More conservative credit policies were expected as the normal response to the extreme loan losses and bank failures of the



past several years. Even banks that are in strong financial condition, however, are very slow to expand lending. Tight credit conditions in this region will likely continue in the future.

Some analysts argue that the lack of credit is slowing the region's economic recovery. While that may be true, little can be done to alleviate the tight credit. This region is experiencing a transition in which banks are adopting more conservative credit policies and are slowly becoming financially stronger. Businesses are facing more stringent standards to qualify for credit. This period of tight credit is the price that must be paid for returning the banking industry to prudent banking practices.



References

Clair, Robert T., and Jeffery W. Gunther (1987). "Problem Loans and the Profitability of Eleventh District Commercial Banks in 1986," Federal Reserve Bank of Dallas *Economic Review*, November, 15-28.

Robinson, Kenneth J. (1990). "The Performance of Eleventh District Financial Institutions in the 1980s: A Broader Perspective," Federal Reserve Bank of Dallas *Financial Industry Studies*, May, 13-24.