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Pieces of Eight

An Economic Perspective on the 8th District

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THE EIGHTH FEDERAL RESERVE DISTRICT

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Pieces of Eight—An Economic Perspective on the 8th District is a quarterly summary of agricultural, banking and business conditions in the Eighth Federal Reserve District. Single subscriptions are available free of charge by writing: Research and Public Information Department, Federal Reserve Bank of St. Louis, Post Office Box 442, St. Louis, MO 63166. The views expressed are not necessarily official positions of the Federal Reserve System.

The District Real Economy in 1990: Losing Its Fizz

by Thomas B. Mandelbaum

Thomas A. Pollmann provided research assistance.

In addition to the Iraqi invasion of Kuwait, 1990 will be long-remembered as the year in which the nation's second-longest economic expansion since World War II came to a halt. The national economy, already sluggish in the first half of the year, officially entered a recession in July. As the U.S. economy weakened, the Eighth District economy also softened.[1] Nonetheless, the surprising strength of the Arkansas and Kentucky economies allowed employment in the District to rise through year's end.

District Income and Employment

Comparing the first and second halves of the year reveals the deteriorating conditions that characterized the District's economy in 1990. Real District income rose at a 2.1 percent rate in the first half of the year, but fell at a 2 percent rate in the year's second half. Increasing energy prices, declining farm income and falling dividends, interest and rent contributed to the decline.

After rising at a 1.7 percent rate in the year's first half, District nonfarm payroll employment growth slowed to a 0.7 percent rate of increase in the second half. In comparison, U.S. payroll employment declined at a 0.6 percent rate after midyear. District unemployment rates, which had fallen from 5.7 percent in IV/1989 to 5.4 percent in II/1990, rose to 6.2 percent by the final quarter of 1990 as employment growth decelerated.

These developments produced a District economic performance that, on net, was similar to the nation's weak showing for 1990. As table 1 shows, real personal income was essentially flat in both the District and the nation, while nonfarm payroll employment grew slightly faster regionally. The rough similarity between District and national economic growth in 1990 is what we might have expected. Throughout the last two decades, there has been a close correspondence in regional and national employment and personal income growth.[2] The employment relationship is shown in figure 1. This correspondence stems from the structural similarities of the two economies and the common factors, such as interest and exchange rates, that affect consumers and businesses throughout the nation. Also, since many District businesses now serve national markets, they are affected directly when national spending fluctuates. Despite the long-run similarity, District employment growth has been slightly stronger than the U.S. average in recent years. As figure 2 shows, before weakening in 1990, District employment had grown at a 3.2 percent annual rate since the end of 1985, compared with a 2.6 percent national rate.

The national-regional correspondence can be seen in the 1990 job growth of the District's largest sectors shown in table 1. Wholesale/retail trades and services, which together employ almost half the District's nonfarm workers, showed job growth just slightly faster than the national average. The lack of significant job growth in the trades sector reflects flat retail sales. After adjusting for inflation, retail sales fell slightly nationally, as they did in Missouri and Tennessee, the two District states for which consistent sales data are available.

As in previous years, services' job growth outpaced the other sectors, as the demand for medical, business and other services continued to expand.[3] Because services tend to be less affected by business cycles than manufacturing, the shift of District jobs from manufacturing to services has been a stabilizing influence on the regional economy. In fact, District services jobs expanded just as fast in the second half of 1990 as in the first.

District manufacturing employment, which accounts for about one-fifth of total employment, fell 1.1 percent between the fourth quarters of 1989 and 1990, a drop not quite as steep as nationally. As is typical in times of national downturn, most durables sectors in the District downsized their workforces—most notably, transportation equipment, electrical equipment and industrial machinery. On the other hand, several large nondurables sectors—food processing, chemicals and printing and publishing—showed small employment gains.

Table 1 shows that both residential and nonresidential building activity declined sharply last year, both regionally and nationally. While building activity is always sensitive to national downturns, this decline is a continuation of a trend since 1987. The Tax Reform Act of 1986 precipitated this decline by eliminating federal income tax provisions that had encouraged a mid-1980s building boom and, in many areas, a glut of multifamily and commercial structures. In 1990, the number of housing permits fell 14.1 percent in the District and 17.6 percent nationally, with the multifamily sector being especially hard hit. District single-family homebuilding held up relatively well, falling just 5.3 percent compared with a much steeper national decline. The value of nonresidential build-

Table 1
1990 Percent Change in Selected Indicators

	United States	District	Arkansas	Kentucky	Missouri	Tennessee
Real personal income[1]	0.2%	0.0%	1.0%	0.8%	-0.5%	-0.4%
Payroll employment[2]	0.9	1.2	3.1	2.6	0.3	0.4
Goods-producing sectors						
Manufacturing	-2.7	-1.1	0.6	-0.2	-2.2	-1.3
Construction	-3.8	-0.8	5.6	0.9	1.7	-6.6
Mining	3.1	0.4	-4.7	1.6	0.6	-3.2
Service-producing sectors						
Services	3.6	3.8	7.8	4.9	2.4	3.1
Wholesale/retail trades	0.2	0.7	2.3	1.9	-0.9	1.1
Government	2.3	2.2	2.4	4.3	1.7	1.1
Transportation, communications and public utilities	2.8	0.9	2.8	3.4	0.3	-0.7
Finance, insurance and real estate	0.9	0.5	1.2	0.4	1.3	-0.6
Housing permits[3]	-17.6	-14.1	-1.2	-9.6	-18.1	-16.4
Single-family	-14.3	-5.3	8.0	-1.9	-10.0	-6.6
Multifamily	-24.9	-36.9	-25.6	-25.1	-38.6	-46.7
Nonresidential building contracts[4]	-13.0	-17.2	-40.7	-17.3	-5.9	-16.8

[1]Deflated by personal consumption expenditures price index. Growth rates are percent changes from IV/1989 to IV/1990.
[2]Growth rates are percent changes from IV/1989 to IV/1990.
[3]Growth rates compare total for 1990 to total 1989. Multifamily includes building with two or more dwelling units.
[4]Growth rates compare total for 1990 to total 1989. Nominal value of nonresidential building contracts, excludes non-building construction. SOURCE: F.W. Dodge *Construction Potentials* (December 1990).

ing contracts awarded in the District fell 17.2 percent in 1990. The District economy was not alone in this regard: all U.S. regions posted declines last year, except for the Pacific Northwest.

Interstate Variations: The Good News And The Bad

Despite the similar performance of the Eighth District and U.S. economies, a noteworthy feature of 1990 was the divergent performances of individual states. The Arkansas and Kentucky economies showed surprisingly strong growth, given the national context, while the Missouri and Tennessee economies showed little growth throughout the year and even trailed the national average. As the table on page of this publication shows, this pattern of job growth continued through the first quarter of 1991.

Arkansas: Chickens Hatch, Services Explode

Arkansas experienced the most rapid income and nonfarm job growth in the District in 1990. To some extent, this growth is related to the gradual recovery of the Southwest economies, especially Texas, where many Arkansas products are sold. Also, the state has a relatively small exposure to the auto sector—Arkansas has no large vehicle assembly plants—which hampered growth in many areas. Most importantly, however, services boomed, with the number of jobs rising almost 8 percent.

State real personal income rose 1 percent in 1990, following a 2 percent annual rate of growth between the final quarters of 1985 and 1989. Payroll employment rose a strong 3.1 percent last year, matching the state's annual rate in the previous four years and outpacing the national average (see figure 2). The state's largest metropolitan area, Little Rock, contributed to the state's job growth in 1990: its payroll employment rose 2.5 percent.

Arkansas' unemployment rate dipped sharply in the first quarter, but rose to 7.2 percent in the

Figure 1
Payroll Employment Growth

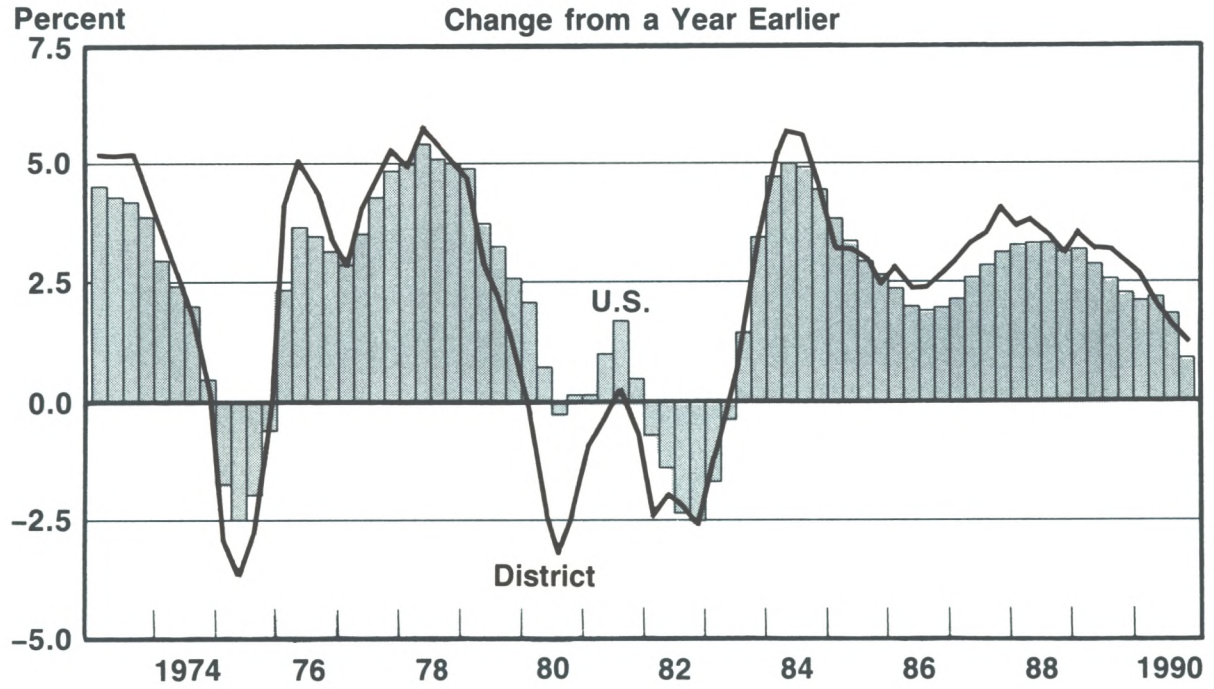
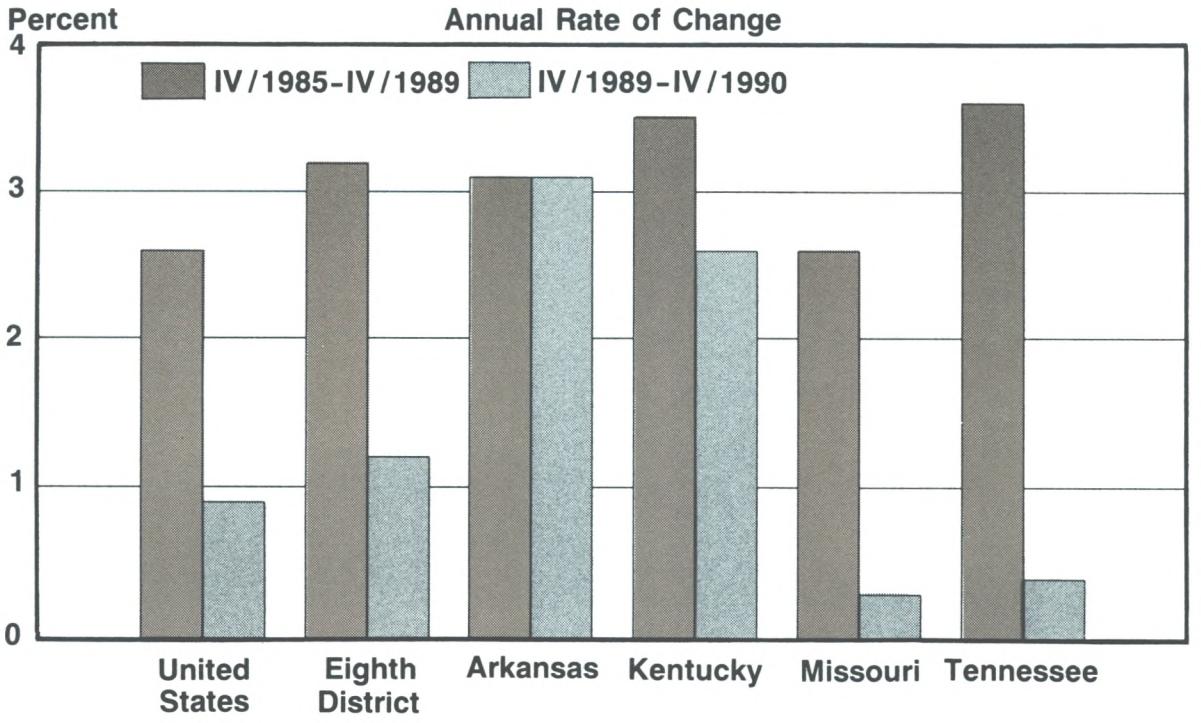


Figure 2
Payroll Employment Growth in District States



final quarter of 1990, as figure 3 shows. The slight increase in the jobless rate over the year reflects a rise in the number of unemployed workers, while the state's labor force was virtually flat.[4]

Arkansas gained more than 28,000 new jobs in 1990. In 1990, employment in the services sector rose at twice the U.S. rate, providing half of Arkansas' new jobs. Many of these jobs provided relatively low earnings, however, holding back state earnings growth somewhat. In part, the low earnings reflect the part-time nature of many of these services jobs.[5] In addition to services, many—almost 5,000—of the state's new jobs were in the wholesale/retail trades, particularly in eating and drinking establishments, which on average do not provide high incomes. Most new manufacturing jobs were in food processing, again a sector in which comparatively low wages are the norm. The food processing job gains occurred largely in expanding poultry processing operations in Arkansas.

Employment declined in some manufacturing sectors, including the chemicals industry and several durables industries. The steepest decline was a 5.1 percent drop in electrical equipment manufacturing. As U.S. homebuilding activity waned, demand weakened for electric appliances, such as the refrigerators made in Fort Smith. Were it not for an increase in manufactured exports, Arkansas' weakness in durables manufacturing would have been even more severe.

Despite a mild decline in the number of housing permits and a sharp drop in the value of nonresidential building contracts, 1990 was not a bad year for the Arkansas construction industry. Construction employment rose 5.6 percent during the year, as more workers were needed to build more single-family homes; the housing permit decline was due solely to a drop in multifamily dwellings. The decline in nonresidential contracts reflects a return to more normal contract levels following record levels in 1989. Construction activity continues on several industrial projects that were contracted last year, such as a $300 million paper plant in southwestern Arkansas.

Kentucky: A Thoroughbred Performance on a Muddy Track

After a severe contraction that lasted from 1979 through 1983, the Kentucky economy has rebounded strongly. This momentum was evident in 1990, as the state showed net economic gains through the end of the year. Real personal income in 1990 was 0.8 percent higher than a year earlier, outpacing the national average for the second straight year. Payroll employment grew a strong 2.6 percent, the fourth consecutive year in which it outpaced the national average.

While some weakening in state economic growth was evident in the second half of 1990, it was less severe than at the national level. Real income contracted slightly, in part because farm income fell sharply. Payroll employment, on the other hand, continued to rise moderately. Unemployment rates rose after the first quarter, but less so than in Arkansas, Missouri or Tennessee. As figure 3 shows, Kentucky's jobless rate fell rapidly in 1988 and 1989.

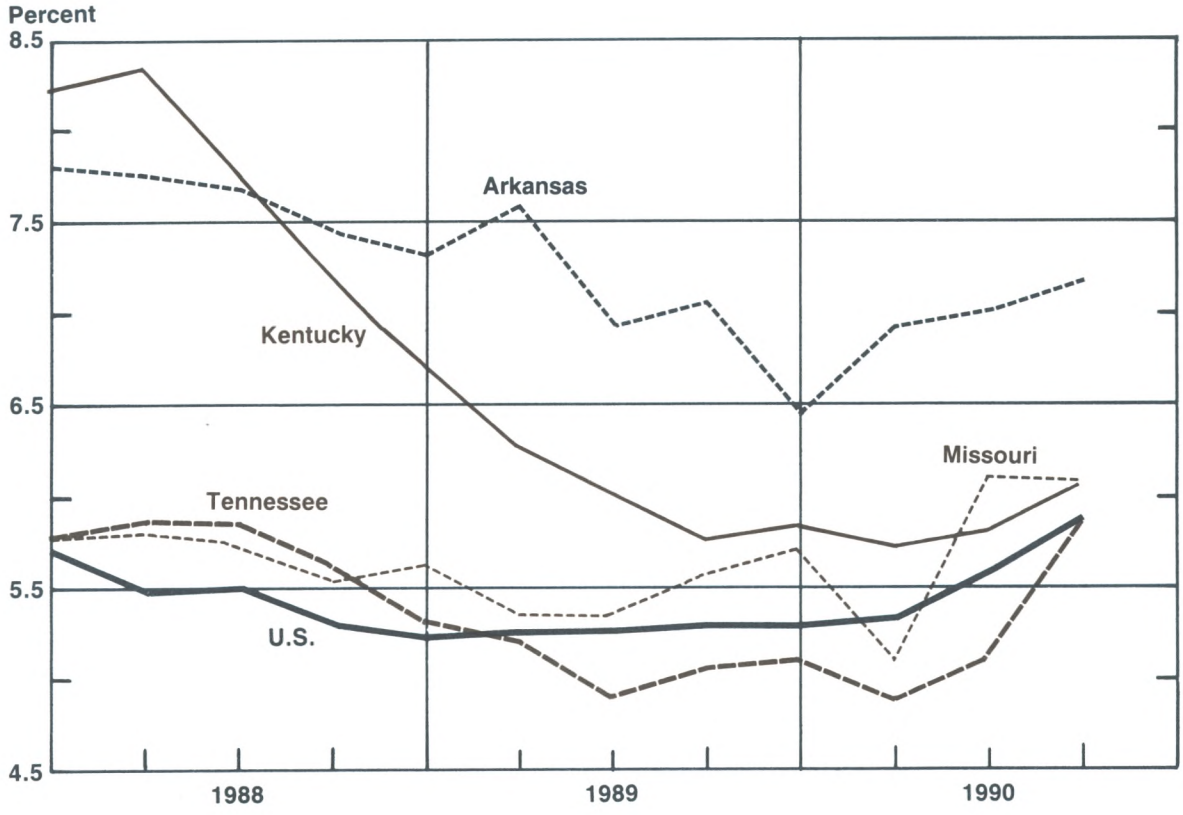
To some extent, the state's recent strength reflects manufacturing's rebound from its sharp declines in the early 1980s; between 1985 and 1989, state manufacturing employment rose at a 3 percent rate. In 1990, manufacturing employment was essentially flat, which, when compared with the nation's substantial decline, should be considered a good performance.

Employment fell in several of the largest manufacturing industries: apparel/textile mill products, industrial machinery and electrical equipment. Makers of home appliances and other consumer durables cut production after the first quarter as the probability of recession increased. These declines, however, were offset by increases in several other industries. Producers of transportation equipment—led by the suppliers and assemblers of Ford trucks and sports/utility vehicles in Louisville, GM sports cars in Bowling Green and Toyotas near Lexington—increased their workforce 4.4 percent last year. Fabricated metals producers, many of which make products tied to the region's vehicle production, saw similar job gains.

While manufacturing employment was stable, most of the state's growth came from the five services-producing sectors shown in table 1. The services sector alone accounted for almost 16,000 of the state's 37,770 new jobs, with health and business services growing rapidly. In Louisville, Humana, Inc. consolidated and expanded operations, while other medical providers also expanded. Approximately 11,000 government jobs were created in Kentucky in 1990, with strong gains at all levels.

Housing permits and nonresidential building contracts showed declines in 1990. As in many parts of the nation, most of the residential decline stemmed from the multifamily sector; single-family housing permits fell just slightly. Louisville, however, bucked state and national trends, as steady gains in homebuilding continued, with total housing permits up 3.7 percent and single-family permits up 7.4 percent. The value of nonresidential building contracts awarded in Kentucky fell sharply last year, after growing at a 6.3 percent annual rate over the previous four years, twice the U.S. rate. Growth in both industrial building, especially in central Kentucky, and commercial building throughout the state contributed to the prior increases. Many of these projects are still under construction

Figure 3
Unemployment Rates Rise in 1990



and account, in part, for the slight gain in construction employment in 1990.

In addition to the gains in services and homebuilding already noted, the Louisville metropolitan area enjoyed widespread growth across most sectors. Payroll employment rose 2.9 percent in 1990, its fourth consecutive year of strong growth.

Missouri: Cars Crash, Defense Retreats

Two of Missouri's leading industries, vehicle assembly and defense contracting, have tended to follow differing cycles. Car and truck production, of course, is sensitive to national business cycles, while regional defense activity primarily reflects military and political decisions and the success of area contractors in winning contracts. In the early 1980s, the nation's defense buildup provided a boost to Missouri defense contractors, mitigating the sharp decline in auto production and other durables manufacturing sectors. Unfortunately, in 1990, contractions in both defense spending for Missouri-made products and a cyclical decline in spending for cars and other durables coincided. St. Louis, home of four car and van assembly plants and the state's largest defense contractor, McDonnell Douglas Corporation, was most severely affected by these developments.

The result has been a year of stagnation and rising unemployment in Missouri. Payroll employment fell slightly in the second half of the year; manufacturing declined by more than 10,000 as vehicle assembly plants ordered frequent intermittent layoffs and defense contractors cut production. The largest cuts came when McDonnell Douglas eliminated several thousand jobs. Producers of electrical equipment cut an additional 6,200 workers from their payroll in the second half of the year. Construction employment, stimulated by unusually mild weather, jumped in the first quarter, but then declined. As figure 3 shows, the state's unemployment rate rose sharply after the second quarter; by year's end, it reached its highest point since 1987.

For the year as a whole, payroll employment was essentially flat. Declines in manufacturing and wholesale/retail trades offset gains in the other sec-

tors. In addition to the layoffs in transportation equipment, other durables producers, such as those making electrical equipment and industrial machinery, cut their workforces. Employment declined in some nondurables sectors, such as food processing and apparel/textile mill products, while others, like printing/publishing and chemicals, registered modest job gains.

As real income received by Missourians contracted, they consumed less. Real retail sales fell 0.3 percent in 1990 (year-over-year comparison); consumers spent slightly more on nondurables goods during the year, but purchased fewer cars and other durables. Consequently, employment in wholesale/retail trades declined, with most types of retailers, other than eating and drinking establishments, paring their staffs. Employment in the services sector rose moderately, as hospitals, doctor offices, nursing homes and business services continued to expand. One positive note is that services employment growth showed no signs of slowing as the year progressed.

Construction activity in Missouri weakened in 1990. The number of housing permits has fallen steadily for four years. In 1990, they declined 18.1 percent to 16,424, a level half the 1986 figure. The value of building contracts for nonresidential projects in Missouri fell 5.9 percent in 1990, the second consecutive annual drop. Much of the state's decline in construction activity occurred in the St. Louis area. Building activity in St. Louis makes up approximately half of the state's activity in both the residential and nonresidential sectors. Housing permits in St. Louis fell 22.6 percent in 1990, while nonresidential contracts were down 6 percent.

Despite major job losses in construction, aerospace and auto employment, the St. Louis metropolitan area posted a slight gain in payroll employment, 0.5 percent, between the fourth quarters of 1989 and 1990. This increase was mainly due to gains in government and business and health services.

Tennessee: A Fading Star?

Before last year, Tennessee's economy had enjoyed several years of rapid growth, as virtually all sectors of its economy expanded. Between the final quarters of 1985 and 1989, state real personal income rose at a 3.7 percent rate, while payroll employment rose at a 3.6 percent rate. Both figures exceeded national and District averages. In 1990, this rapid growth ended. Real income declined slightly, as did real retail sales. Payroll employment declined in the year's final quarter, and finished the year just 0.4 percent higher than a year before.

The primary sources of the state's earlier job growth—its services, wholesale/retail trades and government sectors—slowed in 1990 to less than half their rate of growth of the previous four years. The state's smaller transportation/communication/utilities and finance/insurance/real estate sectors, which had also grown fairly rapidly in the second half of the 1980s, saw their workforces contract in 1990.

Manufacturing employment, which had risen at a healthy 1.8 percent rate in the four years through 1989, declined throughout 1990. Many industries, including producers of industrial machinery, electrical equipment and apparel/textile mills products, laid off thousands of workers during the year, reflecting weakening national demand. Employment levels were nearly flat in factories making fabricated metals or food products. On the other hand, printing and publishing establishments, which had experienced strong 4 percent annual job gains since the last quarter of 1985, expanded an additional 1.8 percent in 1990. In contrast to their national counterparts, producers of transportation equipment in Tennessee expanded their workforce in 1990; employment rose by 3,600, or 9.7 percent last year. Gains stemmed from GM's Saturn plant that began production in mid-1990, the Nissan plant, which is expanding its capacity, and numerous suppliers of the region's vehicle assembly plants.

Construction activity in Tennessee weakened in 1990, causing 6,500 construction workers to lose their jobs. While the number of residential building permits authorized in the state has declined each year since 1986, 1990's 16.4 percent drop was the steepest. The value of nonresidential contracts fell in 1989 and 1990, after several years of strong industrial and commercial building activity. Fairly high office vacancy rates in Memphis, Nashville and other cities suggest that comparatively little additional office space will be erected in the near future.

Looking Ahead

Given the ties between the Eighth District and the national economies, the performance of the U.S. economy is a critical determinant of the region's economic performance. Accordingly, state economic forecasts prepared by university and governmental economists, presented in table 2, are heavily influenced by projected changes in U.S. economic activity.[6] Note that all growth rates compare annual averages, in contrast to the fourth-quarter-to-fourth-quarter growth rates used for employment and income in table 1.

The U.S. forecast shown in table 2 is from the Data Resource Incorporated (DRI) March forecast used for the Kentucky forecast, but is similar to those used in developing the forecasts for the other states. DRI, the Wharton Econometric Fore-

Table 2
Economic Projections for District States

	Actual		Projected	
	1989	1990	1991	1992
Unemployment rate				
United States	5.3%	5.5%	6.8%	6.4%
Arkansas	7.2	6.9	7.2	6.6
Kentucky	6.2	5.8	N.A.	N.A.
Missouri	5.5	5.7	6.6	6.1
Tennessee	5.1	5.2	6.5	6.4
	Percent change[1]			
	1989	1990	1991	1992
Nonagricultural payroll employment				
United States	2.7%	1.8%	−0.6%	1.2%
Arkansas	3.3	3.6	1.0	1.3
Kentucky	3.7	2.9	0.0	1.4
Missouri	2.5	1.1	−0.8	1.2
Tennessee	3.6	1.3	0.4	2.1
Manufacturing employment				
United States	0.4	−1.9	−3.1	0.6
Arkansas	2.1	0.7	−2.0	−0.7
Kentucky	3.7	0.9	−1.2	2.1
Missouri	1.6	−0.8	N.A.	N.A.
Tennessee	2.1	−0.4	−1.1	2.1
Personal income (current dollars)				
United States	7.6	6.4	3.8	6.1
Arkansas	7.1	6.9	5.3	6.4
Kentucky	7.5	6.8	4.5	5.4
Missouri	6.8	5.5	5.9	6.5
Tennessee	6.7	5.9	4.9	7.0

[1]Percent changes compare entire year with previous year.

SOURCES: United States: DRI/McGraw-Hill, *Review of the U.S. Economy* (March 1991); Arkansas: University of Arkansas at Little Rock, *Arkansas Economic Outlook* (January 1991); Kentucky: Kentucky Finance and Administration Cabinet based on DRI/McGraw-Hill March 1991 Control Forecast (January 1989); Missouri: College of Business and Public Administration, University of Missouri-Columbia, *Missouri Economic Indicators* (December 1990); Tennessee: Center for Business and Economic Research, University of Tennessee, Knoxville, *An Economic Report to the Governor of the State of Tennessee on the State's Economic Outlook* (February 1991).

casting Associates (WEFA) Group and the University of Missouri all forecast a relatively mild national recession, with real GNP increasing slightly in the second quarter of 1991—after the two quarters of decline already reported—then growing moderately in subsequent quarters.

Unemployment rates for the United States, Arkansas, Missouri and Tennessee are expected to rise somewhat in 1991, then decline slightly in 1992. These projections are well below those following the last recession; in 1982 and 1983, unemployment rates in the nation and Missouri were nearly 10 percent, while those in the other District states were even higher.

For 1991 as a whole, DRI expects U.S. payroll employment to decline slightly and grow only slowly in 1992. Missouri is expected to follow the national pattern, while Arkansas, Kentucky and Tennessee are expected to show slightly stronger performances for 1991. Excluding Missouri, personal income will also slow in 1991 from 1990 rates, as receding inflation cuts nominal growth rates and the growth in earnings derived from new jobs slows.

Arkansas' job growth in 1991 is expected to be derived from the same sources as in 1990. The services sector is expected to continue to be the state's most rapidly expanding sector, though its

growth is expected to slow, as employment and income in other sectors slow. Most other service-producing sectors are also expected to continue expanding, albeit more slowly than in 1990. Nondurables manufacturing, led by food processing, will continue to add workers, but most durables manufacturing sectors will show declines. Exports of manufactured goods will continue to rise.

After its rapid growth in 1990, Kentucky's payroll employment is projected to be flat in 1991, then rise slowly in 1992. Manufacturing employment is expected to decline in 1991, but less than at the national level; this is largely a reflection of the comparative success of Kentucky's manufacturers. Orders have remained relatively strong for products made in many of the state's smaller factories, as well as in large establishments, like the assembly plants that make Toyotas and Ford Explorers. In fact, Toyota is in the process of doubling the capacity of its Kentucky plant.

Missouri's 0.8 percent projected decline in payroll employment represents the most pessimistic outlook among the states. Employment in private nonmanufacturing sectors is expected to increase slightly, while government and manufacturing employment is expected to decline. Manufacturing will be hardest hit, with much of the impact felt in the St. Louis area: the May closure of a Chrysler assembly plant will eliminate roughly 2,000 jobs, while the U.S. Defense Department's January cancellation of McDonnell Douglas' A-12 jet contract will eliminate roughly 5,000 aerospace jobs. In April 1991, McDonnell Douglas lost its bid to help build the Air Force's Advanced Tactical Fighter, which will result in a loss of an additional 500 jobs in 1991. On the positive side, the Navy hopes to significantly expand its order for McDonnell Douglas' F/A-18 jets, though the order is yet to be authorized by Congress.

Other positive developments in Missouri are anticipated in the construction sector. Housing permits, for both single and multifamily dwellings, are expected to begin rising in Missouri after the first quarter and continue to increase through 1992. Also, construction activity on several major public sector projects, including St. Louis' light rail system, convention center expansion and arena, will stimulate the state's economy in 1991 and 1992.

Tennessee's projected deceleration of job growth in 1991 to 0.4 percent reflects an expectation that employment in its three goods-producing sectors will continue to decline, while employment in service-producing sectors will rise, though much more slowly than in recent years. Manufacturing's job decline is expected to be concentrated in nondurables sectors; the apparel, textiles and chemical sectors, for example, are expected to eliminate almost 4,000 jobs in 1991. The decline in durables manufacturing will be mitigated by moderate job gains in transportation equipment production; this increase stems from employment commitments made by Nissan and Saturn.

Conclusion

Overall, the District economy was sluggish in 1990. This characterization, however, tends to obscure the varied performance of individual states. Like that of the nation, Missouri and Tennessee's economic growth faltered, with manufacturing activity declining and services growth slowing. In contrast, in Arkansas and Kentucky, employment continued to expand moderately through the end of the year, with services expanding rapidly and manufacturing stabilizing. Furthermore, real incomes in Arkansas and Kentucky remained higher in the fourth quarter of 1990 than a year before. If the historical relationship between national and regional economic growth continues, it is likely that, as the U.S. economy rebounds from its current downturn, the District states will also see their economies strengthen. The timing and strength of the national recovery, however, are major unknowns that make the performance of the District economy subject to much uncertainty.

FOOTNOTES

[1]The Eighth District is defined as Arkansas, Kentucky, Missouri and Tennessee for purposes of this article.

[2]The simple correlation between District and U.S. four-quarter growth rates of payroll employment is .94 for the I/1971-IV/1990 period; for personal income growth the correlation is .95.

[3]For an explanation of this growth, see Thomas B. Mandelbaum, "District Services: What They Are and Why They Have Grown," *Pieces of Eight—An Economic Perspective on the Eighth District,* Federal Reserve Bank of St. Louis (December 1990), pp. 10-13.

[4]Unemployment rates are based on a survey of households, indicating the number of people that are employed or unemployed, while payroll employment is based on a survey of establishments, indicating the number of jobs. Because payroll employment is based on a larger, more reliable sample, it is used in this article as the primary measure of employment growth.

[5] Most workers, however, do not consider the part-time nature of their services jobs as undesirable: among U.S. services workers with part-time schedules in 1989, only one-fifth worked part-time involuntarily. See Thomas B. Mandelbaum, "Are District Services Jobs Bad Jobs?" *Pieces of Eight—An Economic Perspective on the Eighth District,* Federal Reserve Bank of St. Louis (March 1991), p. 7.

[6] The U.S. forecasts used in developing the projections for Arkansas and Tennessee were prepared by the WEFA group; Kentucky's forecast were based on a U.S. forecast from DRI/McGraw-Hill, Inc. and Missouri's forecast is based on a U.S. forecast from the University of Missouri-Columbia.

District Banks in 1990: Bruised, But Not Broken

by Michelle A. Clark
Thomas A. Pollmann provided research assistance.

Few bankers in the Eighth Federal Reserve District would characterize 1990 as a good year. Nonetheless, District banks fared better than their ailing counterparts in other regions, especially those on the East Coast. An injured national economy affected banks in all regions in 1990, but the damage to Eighth District banks can be characterized as "bruises" rather than "breaks." Measures of profitability dipped only slightly in the District as did measures of asset quality, a barometer for future earnings prospects. Injuries to District banks were minor because of the absence of major problems in real estate loan portfolios, continued low overhead ratios and a District economy that, although weak, outperformed the national economy.

A detailed analysis of Eighth District commercial bank performance in 1990 is presented below, with comparisons drawn between District banks and their national peers.[1] Conventional performance measures, including bank earnings, asset quality and capital adequacy, are examined to assess the financial condition and soundness of the District's banking industry.[2] Precise definitions of the measures discussed are provided on page 12. In addition, selected performance ratios (by state) for banks in Eighth District states are presented in the tables following the conclusion.

Earnings

Eighth District banks earned $1.16 billion in 1990, an increase of 2.7 percent over 1989 earnings of $1.13 billion. Earnings growth in 1990 exceeded that of 1989, but still lagged inflation. In contrast to their performance in 1989, U.S. peer banks saw their earnings decline almost 20 percent in 1990, from $14.71 billion to $11.77 billion.

Despite the larger earnings increase, more District banks reported losses in 1990 than in 1989. Seventy-two banks (or 5.8 percent of all District banks) incurred losses in 1990, compared with 54 banks (4.3 percent of District banks) in 1989. While higher than the previous year, the proportion of District banks losing money was roughly half the U.S. peer bank figure of 12.4 percent.

Return on Assets and Equity

When examining bank earnings, two standard profitability measures are generally employed: the return on average assets (ROA) ratio and the return on average equity (ROE) ratio. ROA indicates how successfully bank management employed the bank's assets to earn income; ROE provides shareholders with a measure of the institution's return on their investment.

ROA and ROE declined slightly at District banks in 1990. As shown in table 1, District banks averaged an ROA of 0.89 percent in 1990, down 2 basis points from 1989, and an 11.21 percent ROE, down 35 basis points from 1989. The average decline would have been larger if not for the earnings improvement at the largest District banks. In contrast to the declines recorded by banks in every asset category of less than $1 billion, the 12 District banks with average assets of $1 billion to $10 billion experienced substantial increases in ROA and ROE in 1990. Despite this improvement, the largest District banks continue to lag the District average in these measures of profitability.

U.S. peer banks posted declines in ROA and ROE across every asset category and fell further behind District banks in these profit measures. U.S. banks of comparable size to District banks recorded an average ROA of 0.60 percent and an average ROE of 8.14 percent, both down significantly from their previous year levels. In contrast to the gains experienced by District banks with assets of $1 billion to $10 billion, the largest declines at the national level occurred at banks of this size. At those banks, ROA fell 38 percent and ROE fell 40 percent from 1989.

Components of Earnings

As with any business, a bank's financial success is determined by how much revenue its activities generate over and above the costs incurred in generating that revenue. In assessing the earnings performance of banks, analysts typically examine the three major components of income and expense: net interest income, net noninterest income and the loan loss provision. These components, like net income, are typically adjusted by average assets to facilitate comparison among banks.

Net Interest Margin—The net interest margin (NIM) is an indicator of how well interest-earning assets (basically loans and investments) are being employed relative to interest-bearing liabilities (deposits and other sources of funds). After rising modestly in 1988 and holding steady in 1989, the NIM at District banks declined 9 basis points in 1990 to 4.21 percent (see table 2). Every asset

Table 1
Return on Average Assets and Return on Average Equity

	Return on Average Assets (ROA)							
	1990		1989		1988		1987	
Asset category	District	U.S.	District	U.S.	District	U.S.	District	U.S.
All banks[1]	0.89%	0.60%	0.91%	0.76%	0.95%	0.74%	0.82%	0.55%
Less than $25 million	0.78	0.47	0.83	0.59	0.84	0.35	0.70	0.17
$25 million-$50 million	0.91	0.75	1.02	0.77	0.98	0.66	0.96	0.51
$50 million-$100 million	1.02	0.82	1.09	0.86	1.05	0.78	0.93	0.68
$100 million-$300 million	0.96	0.87	1.04	0.95	0.99	0.81	0.96	0.74
$300 million-$1 billion	0.97	0.74	1.05	0.82	1.02	0.70	1.10	0.53
$1 billion-$10 billion	0.72	0.42	0.63	0.68	0.85	0.77	0.53	0.50

	Return on Average Equity (ROE)							
	1990		1989		1988		1987	
Asset category	District	U.S.	District	U.S.	District	U.S.	District	U.S.
All banks[1]	11.21%	8.14%	11.56%	10.53%	12.07%	10.46%	10.45%	7.72%
Less than $25 million	7.95	4.63	8.43	5.76	8.67	3.55	7.37	1.75
$25 million-$50 million	9.96	8.15	11.10	8.46	10.94	7.45	10.75	5.86
$50 million-$100 million	11.34	9.33	12.20	9.85	11.88	9.16	10.80	8.21
$100 million-$300 million	11.76	10.84	12.78	11.86	12.20	10.41	12.09	9.70
$300 million-$1 billion	12.50	9.93	13.49	11.43	13.06	10.19	14.05	7.29
$1 billion-$10 billion	11.05	6.45	9.83	10.73	13.07	12.24	7.99	8.02

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

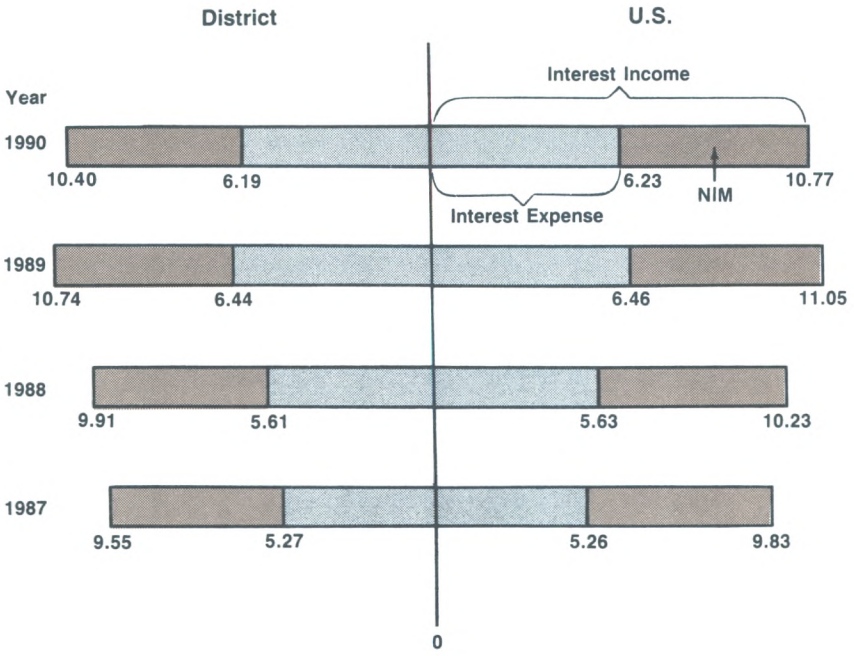
Table 2
Net Interest Margin (NIM)

	1990		1989		1988		1987	
Asset category	District	U.S.	District	U.S.	District	U.S.	District	U.S.
All banks[1]	4.21%	4.54%	4.30%	4.60%	4.30%	4.60%	4.28%	4.57%
Less than $25 million	4.44	4.68	4.52	4.80	4.51	4.74	4.53	4.76
$25 million-$50 million	4.37	4.63	4.37	4.74	4.34	4.69	4.40	4.71
$50 million-$100 million	4.27	4.62	4.31	4.76	4.33	4.71	4.36	4.68
$100 million-$300 million	4.28	4.69	4.41	4.86	4.43	4.76	4.35	4.68
$300 million-$1 billion	4.47	4.79	4.57	4.76	4.51	4.67	4.56	4.71
$1 billion-$10 billion	3.92	4.38	4.04	4.41	4.05	4.49	3.99	4.42

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

Figure 1
Interest Income and Interest Expense as a Percent of Average Earning Assets



Source: FFIEC Reports of Condition and Income for Commercial Banks, 1987-1990

category of banks but one registered drops in the NIM last year, with banks in the asset classes of more than $100 million experiencing the sharpest declines.

The NIM for U.S. peer banks, while also declining in 1990, once again exceeded the District average by a substantial margin. U.S. peer banks recorded an average NIM of 4.54 percent in 1990, down 6 basis points from 1989 but 33 basis points above the District average. Unlike the pattern at District banks, small and mid-size U.S. banks (those with assets of less than $300 million) posted larger declines in the NIM than their larger counterparts.

Interest Income and Expense—Differences in net interest margins among banks in different asset classes and geographic areas can be explained by looking at the income and expense components of the ratio. In 1990, NIMs fell at District and U.S. peer banks because interest income declined more than interest expense. Interest income as a percent of average earning assets at District banks declined 34 basis points to 10.4 percent in 1990 (see figure 1). This ratio declined across all asset categories of District banks but one, with the biggest declines recorded among banks in the largest asset categories (more than $100 million in average assets). After posting the highest ratio in 1989, the largest District banks (those with more than $1 billion in average assets) registered the largest decline and the lowest average ratio in 1990.

The decline in the interest income ratio can be traced to increased holdings by District banks of securities, which tend to be lower-yielding than the other major earning asset, loans. District banks increased their holdings of securities by more than 10 percent in 1990 after increases of about 4 percent in 1988 and 1989.

District banks continued to lag their U.S. peers in interest income generation in 1990. U.S. peer banks recorded higher interest income margins than District banks in every asset category, with the spread between the margins generally increasing with bank size. A greater concentration of securities holdings in District asset portfolios (26.8 percent) than in U.S. peer bank portfolios (21.5 percent) largely explains this gap. Nonetheless, interest income margins declined across all asset categories of U.S. peer banks in 1990, as they too increased their securities holdings relative to loans. The largest U.S. banks faced the steepest interest income margin declines as a combination of large increases in nonperforming loans (a great proportion of which are not generating interest income) and lower interest rates on adjustable-rate loans dampened income.

As illustrated in figure 1, interest expense as a percent of average earning assets declined 25 basis points to 6.19 percent in the District in 1990; U.S. peer banks recorded a 23 basis-point decline in the ratio. The largest District and U.S. peer banks

Ratio Definitions

Return on average assets ratio (ROA):
An indicator of how well management is employing the bank's assets to earn income, return on average assets (ROA) is calculated by dividing a bank's net income by its average annual assets.

Return on average equity ratio (ROE):
An indicator to shareholders of the bank's return on their investment, return on average equity (ROE) is calculated by dividing a bank's net income by its average annual equity capital. Equity capital consists of common and perpetual preferred stock, surplus, undivided profits and capital reserves and cumulative foreign currency translation adjustments.

Net interest margin (NIM):
An indicator of how well interest-earning assets are being employed relative to interest-bearing liabilities, the net interest margin is calculated by dividing the difference between interest income and interest expense by average earning assets. Interest income comprises the interest and fees realized from interest-earning assets, and includes such items as interest and points on loans, interest and dividends from securities holdings, and interest from assets held in trading accounts. Interest expense includes the interest paid on all categories of interest-bearing deposits, the expenses incurred in purchasing federal funds and selling securities under agreements to repurchase and interest paid on capital notes. Average earning assets rather than average assets are used in the net interest margin because they are the only assets from which a return in the form of interest is generated.

Net noninterest margin (NNIM):
An indicator of a bank's operating efficiency and its ability to generate income from noninterest-earning assets, the net noninterest margin is calculated by subtracting noninterest expense (overhead) from noninterest income and dividing by average assets. Noninterest expense is the sum of the costs incurred in the bank's day-to-day operations, which includes employee salaries and benefits, expenses of premises and fixed assets, as well as legal and directors' fees, insurance premiums and advertising and litigation costs. Noninterest income includes income from fiduciary (trust) activities, service charges on deposit accounts, trading gains (losses) from foreign exchange transactions, gains (losses) and fees from assets held in trading accounts, and charges and fees from miscellaneous activities like safe deposit rentals, bank draft and money order sales, and mortgage servicing.

Loan and lease loss provision ratio:
An indicator of expected loan and lease losses, the loan and lease loss provision ratio (usually shortened to loan loss provision ratio) is calculated by dividing the provision for loan and lease losses by average assets. The provision for loan and lease losses is an income statement account which reduces a bank's current earnings.

Nonperforming loan and lease loss ratio:
An indicator of current and future loan problems, the nonperforming loan ratio is calculated by dividing loan and lease financing receivables that are 90 days or more past due or in nonaccrual status by total loans. Restructured loans and leases that fall into the 90 days or more delinquent status or in nonaccrual status are included as well.

Net loan loss ratio:
An indicator of actual loan losses, the net loan loss ratio is calculated by dividing loan losses (adjusted for recoveries) by total loans. Also called the charge-off rate.

Risked-based capital and leverage ratios:
Two risk-based capital measures have been established to control for credit risk across banks. One ratio comprises Tier 1 capital divided by risk-adjusted assets and the other comprises total capital (Tier 1 + Tier 2) divided by risk-adjusted assets. Tier 1 capital consists of common stock and its related surplus, undivided profits and capital reserves (retained earnings), noncumulative perpetual preferred stock and its related surplus, minority interests in consolidated subsidiaries and mortgage servicing rights (the FDIC definition of eligible intangible assets) *less* net unrealized loss on marketable equity securities. Tier 2 capital consists of allowable subordinated debt and limited life preferred stock, cumulative preferred stock, mandatory convertible debt, the allowable portion of the loan and lease loss allowance and agricultural loss deferral. Risk-adjusted assets are computed by attaching weights of 0, 20, 50 and 100 percent to on- and off-balance sheet assets and subtracting disallowed intangible assets, reciprocal capital holdings, the excess portion of the allowance for loan and lease losses and the allocated transfer risk reserve. In addition to the risk-based ratios, banks are required to meet a leverage ratio of at least 3 percent. The leverage ratio is computed by dividing Tier 1 capital by average total consolidated assets (average assets less ineligible intangible assets and investments in unconsolidated subsidiaries).

consistently have the highest interest expense ratios because of a greater reliance on purchased funds, a more expensive source of funds than retail deposits. Despite the lower average, most District banks continued to record higher interest expense ratios than their U.S. peers because of higher ratios of interest-bearing deposits to total liabilities and higher average deposit rates. In addition, District banks rely more heavily than their U.S. peers on fed funds (overnight loans purchased from other financial institutions), a more costly source of funding.[3]

Net Noninterest Margin—The net noninterest margin (NNIM) is an indicator of a bank's operating efficiency and its ability to generate fee income. Because noninterest expense (overhead) usually exceeds noninterest income, the calculation of the NNIM yields a negative number; it is common practice, however, to report the noninterest margin as a positive number. Smaller NNIMs, therefore, indicate better bank performance, all else equal.

In 1990, as in previous years, all asset categories of District banks recorded lower NNIMs than their national peers because of substantially lower overhead ratios. As indicated in table 3, District banks averaged a NNIM of 1.96 percent in 1990, while their U.S. peers averaged a 2.15 percent ratio. Although both groups of banks experienced declines in the NNIM from 1989, the District decrease was larger.

Noninterest Income and Expense—District banks registered a noninterest income to average assets ratio of 1.02 percent in 1990 versus a 1.04 percent ratio in 1989, while U.S. peer banks' noninterest income ratio rose modestly in 1990 to 1.40 percent. This divergent performance led to a widening of the gap between the noninterest income ratio for District banks and U.S. peer banks to 38 basis points in 1990 from 30 basis points in 1989. Every asset category of District banks but one experienced a decline in the noninterest income ratio in 1990, although the declines were generally small. In contrast, the noninterest income gains among the largest asset categories of U.S. peer banks compensated for declines in the smallest asset categories, leading to a six-basis point rise in the average U.S. ratio in 1990.

Noninterest expense as a percent of average assets declined overall in the District in 1990 while rising slightly for U.S. peer banks. Declines in overhead ratios at the largest District banks more than compensated for increases at banks in asset categories of less than $100 million. The largest District banks (those with assets of more than $1 billion) experienced a 5.7 percent decline in the overhead ratio in 1990. U.S. peer banks in that category saw their overhead ratio rise an average 2.8 percent in 1990. The gap between overhead ratios at District and U.S. peer banks actually widened in 1990 to 57 basis points, a substantial margin. Lower average salaries in the District and a higher proportion of banks located in nonmetropolitan areas (where other operating costs are relatively low) largely explain the consistently lower overhead ratios recorded by District banks.

Loan and Lease Loss Provision—District banks set aside $659 million from 1990 earnings to replenish and bolster the fund used to absorb loan losses (called the loan and lease allowance). The District's 1990 loan loss provision was 9.1 percent higher than the $604 million provision taken in 1989. U.S. peer banks increased their provision more substantially, setting aside $18.95 billion in earnings in 1990 versus the $14.37 billion provision taken in 1989, a 32 percent increase. The large increase at U.S. banks was necessary to keep up with mounting troubled loans in many areas of the country.

Table 3
Net Noninterest Margin (NNIM)

	1990		1989		1988		1987	
Asset category	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**
All banks[1]	1.96%	2.15%	2.00%	2.16%	2.05%	2.25%	2.03%	2.29%
Less than $25 million	2.63	3.02	2.59	2.84	2.59	2.95	2.57	2.99
$25 million-$50 million	2.26	2.61	2.20	2.60	2.19	2.61	2.20	2.64
$50 million-$100 million	2.06	2.45	2.03	2.48	2.10	2.48	2.11	2.50
$100 million-$300 million	2.01	2.37	2.05	2.43	2.11	2.47	2.05	2.44
$300 million-$1 billion	2.08	2.29	2.11	2.28	2.15	2.36	2.03	2.41
$1 billion-$10 billion	1.63	1.87	1.75	1.88	1.79	2.01	1.79	2.05

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

Table 4
Provision for Loan Losses as a Percent of Average Assets

	1990		1989		1988		1987	
Asset category	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**
All banks[1]	0.50%	0.96%	0.49%	0.74%	0.39%	0.62%	0.62%	0.82%
Less than $25 million	0.27	0.40	0.32	0.49	0.31	0.62	0.50	0.82
$25 million-$50 million	0.36	0.41	0.28	0.47	0.33	0.55	0.42	0.72
$50 million-$100 million	0.32	0.45	0.29	0.46	0.31	0.52	0.44	0.61
$100 million-$300 million	0.43	0.52	0.41	0.48	0.40	0.50	0.46	0.61
$300 million-$1 billion	0.48	0.80	0.44	0.65	0.37	0.60	0.43	0.81
$1 billion-$10 billion	0.74	1.34	0.77	0.95	0.47	0.68	0.99	0.96

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

As revealed in table 4, the loan loss provision ratio for District banks increased just 1 basis point in 1990 to 0.50 percent, despite the 9 percent increase in the provision; a 5.6 percent increase in the District's average assets in 1990 mitigated the effect of the rise in the provision. U.S. banks of comparable size, however, experienced almost as large an increase in their loan loss provision ratio (29.7 percent) as in their provision (31.9 percent), as average assets increased just 2 percent in 1990. The large rise in 1990 follows a 19 percent increase in the ratio in 1989. Loan loss provision ratios at District banks in every asset category remained well below the ratios of their U.S. peers, as troubled loans continue to make up smaller portions of District asset portfolios than they do at U.S. banks overall.

Despite the modest average increase in the District, some asset categories of banks experienced large increases in their loan loss provision ratios: banks with assets of $25 million to $50 million averaged a 28.6 percent increase, while banks with assets of $50 million to $100 million had a 10.3 percent increase. Only the very smallest and very largest asset categories of District banks saw declines in their loan loss provision ratios in 1990. In contrast, the rise in the overall U.S. ratio was due to substantial increases in asset categories of more than $100 million. The three smaller asset categories posted declines in the ratio, while the three largest categories recorded increases ranging from 8.3 percent to 41 percent.

Asset Quality

Asset quality problems continue to hamper earnings performance at many banks throughout the country. Though some areas, notably New England, have suffered more than others, loan quality problems were widespread in 1990. Shaky real estate loans received a great deal of attention from bank regulators, analysts and the media in 1990; yet, increases in problem loans occurred in all parts of the loan portfolio. The economic downturn that began in the second half of 1990 made it more difficult for businesses and consumers to repay outstanding loans; a great part of the increase in delinquent loans (as well as slow loan growth), therefore, can be attributed to these conditions.

Concern over asset quality figured largely in decisions by regulators to adopt capital requirements for banks based on the riskiness of the asset portfolio. These new risk-based capital requirements, which went into effect for U.S. banks and many of their overseas counterparts at the end of 1990, are discussed in the next section. Regulatory concern about real estate loan quality, in particular, also prompted changes to the quarterly reports banks file with their chief regulators. Banks must now report delinquent real estate loans by type, rather than lumping all nonperforming real estate loans together, so that delinquent commercial real estate loans can be distinguished from delinquent residential loans and construction loans. Beginning with the March 1991 report, banks are also required to fill out a separate schedule on assets that are related to highly leveraged transactions. Both of these measures give regulators and bank analysts a clearer picture of a bank's loan problems.

Asset quality may be gauged by examining the nonperforming loan ratio and the ratio of net loan losses to total loans. The nonperforming loan ratio indicates the current level of problem loans as well as the potential for future loan losses. The ratio of net loan losses to total loans specifies the percen-

Table 5
Nonperforming Loans as a Percent of Total Loans

	1990		1989		1988		1987	
Asset category	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**
All banks[1]	1.81%	2.81%	1.60%	2.28%	1.62%	2.13%	2.10%	2.42%
Less than $25 million	1.57	1.97	1.62	2.12	1.71	2.55	2.14	2.95
$25 million-$50 million	1.61	1.97	1.67	2.31	1.68	2.50	2.02	2.66
$50 million-$100 million	1.56	2.02	1.50	1.99	1.67	2.15	2.03	2.48
$100 million-$300 million	1.82	2.02	1.64	1.92	1.70	2.38	1.96	2.21
$300 million-$1 billion	1.60	2.52	1.45	2.31	1.28	1.99	1.52	2.34
$1 billion-$10 billion	2.11	3.35	1.65	2.41	1.65	2.03	2.44	2.43

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

Table 6
Nonperforming Real Estate Loans as a Percent of Total Real Estate Loans

	1990		1989		1988		1987	
Asset category	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**
All banks[1]	1.99%	3.36%	1.71%	2.70%	1.58%	2.42%	1.82%	2.54%
Less than $25 million	1.39	1.91	1.63	2.03	1.74	2.52	2.17	2.72
$25 million-$50 million	1.50	1.83	1.72	2.27	1.69	2.53	1.95	2.47
$50 million-$100 million	1.49	1.77	1.45	1.79	1.69	2.01	1.97	2.29
$100 million-$300 million	1.63	1.83	1.45	1.71	1.54	2.22	1.63	2.07
$300 million-$1 billion	1.65	2.87	1.65	2.65	1.42	2.38	1.91	2.84
$1 billion-$10 billion	3.28	4.76	2.20	3.39	1.52	2.59	1.67	2.70

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

tage of loans actually written off the bank's books for a given period.

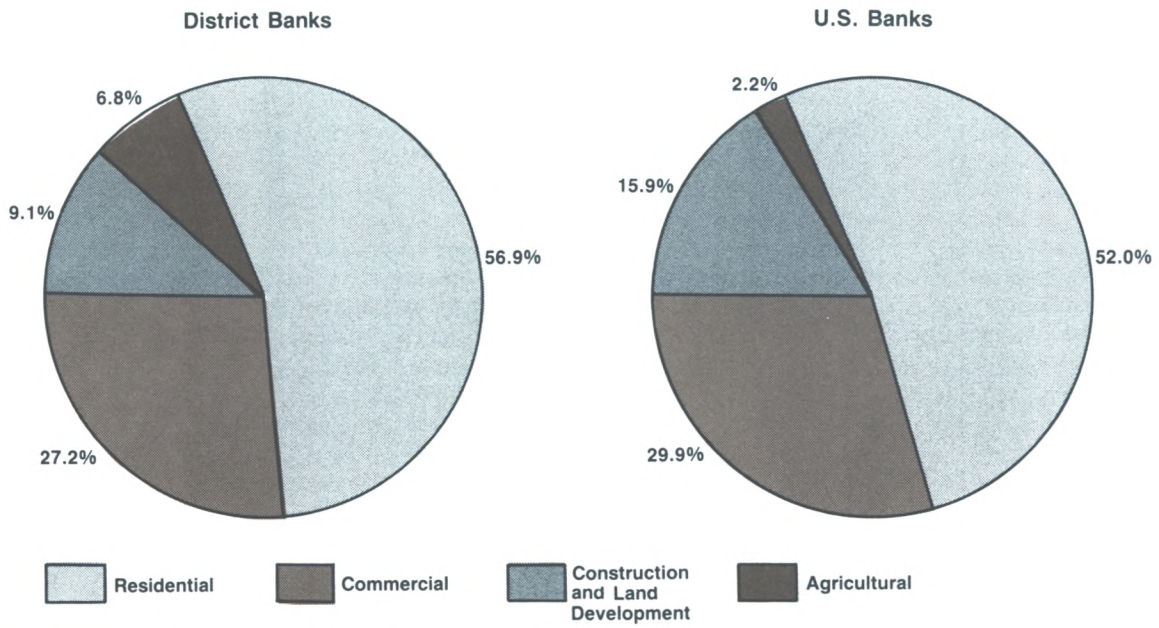
Nonperforming Loans and Leases

The average nonperforming loan ratio for District banks increased from 1.60 percent to 1.81 percent in 1990 (see table 5) as the level of nonperforming loans rose 18.7 percent while total loans grew 4.6 percent. The nonperforming loan ratio at U.S. peer banks increased substantially in 1990, rising from 2.28 percent to 2.81 percent. The sharp increase in the U.S. nonperforming loan ratio can be attributed to a significant increase in the level of nonperforming loans (22.6 percent) and a 0.5 percent decline in the level of U.S. bank loans in 1990.[4]

Despite the large gaps between the District and U.S. nonperforming loan ratios, the direction of change by asset category was similar across both groups of banks. The smallest categories of District and U.S. banks (those with assets of less than $50 million) actually experienced declines in the nonperforming ratio from 1989 to 1990. These declines reflect the continued recovery from the agricultural loan crisis of the mid-1980s. Large banks, on the other hand, experienced increases in the nonperforming loan ratio; District and U.S. banks with assets of $1 billion to $10 billion, for example, recorded increases of 27.9 percent and 39 percent, respectively, in the nonperforming loan ratio in 1990.

Problem real estate loans, especially those related to commercial projects, received the majority

Figure 2
Composition of Real Estate Loan Portfolio
Year-End 1990



of attention in discussions concerning asset quality in 1990, and with good reason. The proportion of real estate loans in nonperforming status rose more and remained at a higher level than the overall nonperforming loan ratio at both District and U.S. banks. The nonperforming real estate loan ratio rose 16.4 percent to 1.99 percent at District banks, and 24.4 percent to 3.36 percent at U.S. peer banks (see table 6). As was the case with total loans, the very smallest District and U.S. banks actually experienced declines in the nonperforming real estate loan ratio in 1990, while the larger banks experienced increases.[5] It is not surprising that the pattern of change in nonperforming real estate loans figures prominently in total nonperforming loan statistics, given that real estate loans comprise 47 percent of District bank loans and 44 percent of U.S. peer bank loans. In addition, nonperforming real estate loans make up 52 percent of all nonperforming District and U.S. loans.

The large gap between the District and U.S. nonperforming real estate loan ratio (137 basis points) can be explained by examining the composition of their respective real estate loan portfolios. As illustrated in figure 2, residential real estate loans make up a larger proportion of the portfolio at District banks (56.9 percent) than they do at U.S. peer banks (52 percent). Residential real estate loans traditionally have the lowest default rates among real estate loans. U.S. peer banks have higher concentrations of commercial real estate (29.9 percent) and construction loans (15.9 percent) than District banks—loans considerably more risky than residential real estate loans.

Net Loan and Lease Losses

A more direct measure of loan problems than the nonperforming loan ratio is the percentage of loans and leases actually written off a bank's books. The ratio of net loan and lease losses to total loans (also called the charge-off rate) is an indicator of problem lending in the current year as well as prior years, because of bank management's partial discretion in determining when a loan is deemed uncollectible and is thus written off.[6]

As indicated in table 7, District banks wrote off 71 cents for every $100 in loans on the books in 1990, the same portion as in 1989. In contrast, U.S. peer banks charged off an average of $1.11 for every $100 in loans on the books in 1990, a 22 percent increase from the 1989 ratio. Net loan and lease losses totaled $543 million at District banks in 1990, up 6.5 percent from 1989 charge-offs of $510 million. Net loan losses at U.S. peer banks rose more substantially to $13.61 billion, a 23.5 percent increase from 1989.

As in previous years, District charge-off rates remained well below the rates of U.S. peer banks across all asset categories. The very smallest and the very largest asset categories of District banks actually had declines in charge-off rates in 1990. Charge-off rates peaked for these District banks in the late 1980s when the bulk of bad agricultural loans and loans to lesser-developed countries were removed from their books. U.S. banks in asset categories of less than $100 million experienced declines in the charge-off rate ranging from 4.4 percent to 19.5 percent in 1990; the larger banks

Table 7
Net Loan and Lease Losses as a Percent of Total Loans

	1990		1989		1988		1987	
Asset category	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**	**District**	**U.S.**
All banks[1]	0.71%	1.11%	0.71%	0.91%	0.76%	0.92%	0.74%	0.95%
Less than $25 million	0.45	0.66	0.48	0.82	0.60	1.08	0.96	1.45
$25 million-$50 million	0.51	0.64	0.47	0.77	0.54	0.89	0.69	1.16
$50 million-$100 million	0.50	0.65	0.45	0.68	0.48	0.78	0.76	0.99
$100 million-$300 million	0.64	0.70	0.57	0.65	0.55	0.70	0.72	0.86
$300 million-$1 billion	0.64	0.95	0.55	0.83	0.45	0.77	0.76	1.00
$1 billion-$10 billion	0.97	1.40	1.08	1.06	1.21	1.04	0.71	0.89

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

[1]Includes only those banks with average assets of less than $10 billion.

had increases ranging from 7.7 to 32.1 percent over the period.

Capital Adequacy

Banks maintain capital to absorb losses, provide for asset expansion, protect uninsured depositors and promote public confidence in the financial soundness of the banking industry. Since 1985, banks have been required by regulators to maintain minimum capital standards.[7] In concert with regulators in 11 other industrial countries, U.S. bank regulators in 1988 adopted new capital guidelines that would not only standardize capital measures across countries, but would also account for differences in credit risk across banks. These new requirements will be fully phased in by December 31, 1992; transitional requirements went into effect at year-end 1990.

Banks are now required to meet a leverage ratio (core or Tier 1 capital to average total consolidated assets) and two risk-based capital ratios (Tier 1 capital to risk-adjusted assets and total capital to risk-adjusted assets); the transitional minimums for these ratios are 3 percent, 3.625 percent and 7.25 percent, respectively. U.S. bank supervisors have made it clear that they expect banks to exceed these minimums by a substantial margin, with troubled banks maintaining higher margins than well-performing banks.

Most U.S. banks recorded capital ratios well above the new requirements in 1990 (see table 8). A number of banks with high credit risk in their asset portfolios found it difficult to raise capital last year, however, and had to reduce their asset portfolios to meet the ratios. Despite these efforts, a larger proportion of U.S. and District banks failed to meet regulatory capital requirements in 1990 than had failed to do so in previous years (see table 9). Still, of 1,248 District banks at year-end 1990, just 20 failed to meet the total capital to risk-adjusted assets ratio. Of 12,147 U.S. peer banks, 428 were deficient in this ratio.

Conclusion

District banks, like their national counterparts, experienced declines in measures of profitability and asset quality in 1990. Yet, District banks once again outperformed their U.S. peers in these areas and experienced less trouble meeting new risk-based capital requirements.

Both ROA and ROE declined at District banks in 1990, but proportionately less than they did at the national level. The gaps in profitability measures between District and U.S. banks actually widened in 1990. While U.S. peer banks continue to generate more revenue than District banks from both interest-earning and non-interest-earning assets, District banks record higher profitability ratios than their U.S. peers because of consistently lower interest expense, noninterest expense and loan loss provision ratios.

Although the nonperforming loan ratio increased in both the District and the nation in 1990, troubled loans remain less of a problem in the District than in the United States overall. Economic conditions have not deteriorated as much in the District as they have elsewhere, leading to smaller increases in delinquent loans. In addition, a slightly greater preference for securities over loans and a preference for relatively low-risk residential real estate loans have protected District banks from much of the real estate-induced losses

Table 8
Year-End 1990 Regulatory Capital Ratios[1]

Asset category	Average Leverage Ratio		Average Risk-Based Capital Ratio	
	District	U.S.	District	U.S.
All banks[2]	9.32%	11.72%	13.38%	13.43%
Less than $25 million	10.86	19.51	16.20	16.52
$25 million-$50 million	9.08	9.16	12.90	12.96
$50 million-$100 million	8.95	8.82	12.67	12.46
$100 million-$300 million	8.17	8.07	11.30	11.24
$300 million-$1 billion	7.69	7.26	10.27	10.45
$1 billion-$10 billion	6.60	6.52	10.61	10.76

[1]All banks were required to meet a 3 percent total capital to total assets ratio (leverage ratio) and a 7.25 percent total capital to risk-adjusted assets ratio (risk-based capital ratio) by December 31, 1990.

[2]Includes only those banks with average assets of less than $10 billion.

Table 9
Proportion of Banks with Deficient Regulatory Capital Ratios*

Asset category	1990		1989		1988		1987	
	District	U.S.	District	U.S.	District	U.S.	District	U.S.
All banks[1]	1.60%	3.52%	0.88%	2.87%	0.47%	3.86%	1.14%	3.61%
Less than $25 million	0.60	3.37	1.17	3.99	1.05	4.89	1.93	4.54
$25 million-$50 million	3.17	3.18	1.46	3.30	0.27	3.84	0.77	3.57
$50 million-$100 million	0.31	2.94	0.30	1.91	0.00	2.86	0.63	3.06
$100 million-$300 million	2.62	3.73	0.00	1.95	0.58	3.29	1.32	2.63
$300 million-$1 billion	2.63	6.48	0.00	1.38	0.00	3.78	0.00	3.79
$1 billion-$10 billion	0.00	6.89	7.69	2.47	0.00	3.16	0.00	1.61

SOURCE: FFIEC Reports of Condition and Income for Commercial Banks, 1987-90.

*For 1990, the binding regulatory capital ratio is total capital to risk-adjusted assets; for 1987, the primary capital ratio is the binding capital constraint.

[1]Includes only those banks with average assets of less than $10 billion.

ailing banks in other areas of the country. Stronger economic conditions and less-troubled loan portfolios allowed District banks to expand loan growth in 1990. U.S. banks, on the other hand, actually experienced a decline in total loans in 1990.

New capital requirements did not appear to be a binding constraint for most District and U.S. banks in 1990. Although some banks found it necessary to shed assets to meet the new ratios, most recorded ratios well above the required minimums. Now that tougher capital requirements are in place, preventive measures to mitigate future losses to the FDIC insurance fund and proposals to expand bank powers top the agenda of pressing bank issues.

The health of the banking industry in 1991 will be determined largely by the strength of the U.S. economy's recovery and the length of the downturn in real estate markets. Declines in interest rates have already boosted net interest margins at many institutions and a revival of consumer spending and business investment will allow loan portfolios to begin expanding. Banks that survive this current round of loan trouble will have to adjust to slower economic growth than in the preceding decade and increased competition from nonbank financial institutions. In the meantime, decisions by policymakers in Washington will undoubtedly affect how long it takes banks' injuries to heal.

Table 10
Earnings Analysis
United States and Eighth District States, 1987-90

	United States[1]	AR	IL	IN	KY	MS	MO	TN
Return on Assets								
1990	0.60%	1.06%	0.69%	0.81%	0.80%	0.76%	0.86%	0.42%
1989	0.76	1.04	0.89	1.02	1.04	0.79	0.93	0.61
1988	0.74	0.97	1.01	1.06	1.01	0.85	0.91	0.84
1987	0.55	0.91	– 0.23	0.81	0.98	0.88	0.65	0.90
Return on Equity								
1990	8.14	12.22	10.70	10.39	9.98	9.76	11.26	5.77
1989	10.53	12.10	13.94	13.34	12.98	9.94	2.21	8.17
1988	10.46	11.47	16.64	13.98	12.57	10.82	11.96	11.43
1987	7.72	11.13	– 3.71	10.89	11.94	11.42	8.81	12.18
Net Interest Margin								
1990	4.54	4.46	3.61	4.33	4.18	4.28	4.08	4.51
1989	4.60	4.52	3.65	4.31	4.22	4.30	4.38	4.43
1988	4.60	4.57	3.66	4.32	4.24	4.44	.30	4.67
1987	4.57	4.64	3.64	4.25	4.24	4.77	4.23	4.69
Net Noninterest Margin								
1990	2.15	2.14	1.60	1.95	1.89	2.16	1.87	2.13
1989	2.16	2.20	1.51	1.99	1.82	2.19	1.95	2.16
1988	2.25	2.24	1.57	2.00	1.92	2.23	2.02	2.17
1987	2.29	2.15	1.71	2.09	1.97	2.32	2.01	2.15
Loan Loss Provision Ratio								
1990	0.96	0.28	0.43	0.63	0.71	0.54	0.49	1.16
1989	0.74	0.35	0.36	0.38	0.48	0.46	0.55	0.85
1988	0.62	0.41	0.27	0.36	0.45	0.41	0.49	0.66
1987	0.82	0.66	1.48	0.57	0.53	0.55	0.77	0.57

[1]Because all banks in the Eighth District had average assets of less than $10 billion from 1987 to 1990, this category includes only those banks in the United States with assets of less than $10 billion to allow for a meaningful comparison.

NOTE: State data are for whole state, not just the portion located within the Eighth District.

SOURCE: FFIEC Reports of Condition and Income for Insured Commercial Banks, 1987-90.

FOOTNOTES

[1]Unless otherwise noted, performance ratios for all U.S. banks exclude those banks with average annual assets of more than $10 billion, as there were no District banks of that size in 1990. The one District bank whose total assets exceeded $10 billion at year-end 1990 had average assets of less than $10 billion for all of 1990, and is therefore included with banks in the $1 billion to $10 billion asset category.

[2]Because of recent changes in the method of calculating some financial ratios, data presented in this article are not comparable to data presented in previous year-in-review articles by this author and others.

[3]See Michelle A. Clark, "Eighth District Banks in 1989: In the Eye of a Storm?," Federal Reserve Bank of St. Louis *Review,* May/June 1990, pp. 7-8 for an analysis of these differences.

[4]The decline in loans on the books of U.S. peer banks reflects the decline in loan demand during economic downturns as well as the desire of many large U.S. banks to shrink to meet the new capital requirements.

[5]The declines at the smallest banks can be attributed to the rebound in agricultural land prices and other loans secured by farmland.

[6]Bank management will adjust the loan loss provision in the current year to reflect nonperforming loans; those loans may be carried on a bank's books for years before a decision is made to write them off. Net loan and lease losses do not affect current earnings as does the loan loss provision; rather, they just alter the allowance for loan losses (or loan loss reserve), a contra account on the asset side of a bank's balance sheet.

[7]See Clark (1990), p. 15, for a description of the capital requirements that were in effect from 1985 through 1990.

Table 11
Asset Quality Analysis
United States and Eighth District States, 1987-90

	United States[1]	AR	IL	IN	KY	MS	MO	TN
Nonperforming Loans[2]								
1990	2.81%	1.81%	2.45%	1.81%	2.07%	1.72%	1.75%	2.30%
1989	2.28	1.90	2.17	1.41	1.72	1.43	1.57	1.82
1988	2.13	2.10	2.40	1.19	1.53	1.47	1.67	1.41
1987	2.42	2.94	2.63	1.37	1.68	1.56	2.30	1.44
Net Loan Losses[2]								
1990	1.11	0.49	1.08	0.71	1.03	0.74	0.65	1.41
1989	0.91	0.59	1.39	0.63	0.68	0.74	0.75	1.06
1988	0.92	0.77	0.85	0.58	0.64	0.68	0.95	0.98
1987	0.95	1.27	0.76	0.69	0.67	0.89	0.76	0.63

[1]Includes only U.S. banks with average assets of less than $10 billion.

[2]As a percent of total loans.

NOTE: State data are for whole state, not just the portion located within the Eighth District.

SOURCE: FFIEC Reports of Condition and Income for Insured Commercial Banks, 1987-90.

U.S. and District Agricultural Economies: The Expansion Continues

by Jeffrey D. Karrenbrock

David H. Kelly provided research assistance.

The agricultural economy continued its expansion in 1990, with U.S. real net farm income reaching a 15-year high. As the following review of the agricultural economy in 1990 for the United States and the Eighth Federal Reserve District indicates, strength in the livestock sector led the expansion at the national level and probably boosted District real net farm income. Prospects for 1991, on the other hand, are not as rosy, as real net farm income is expected to fall.

Despite declines in real farmland values over the past decade, the agricultural sector's balance sheet continued to strengthen in 1990 as well. Key financial ratios, both at the farm level and at U.S. and District commercial agricultural banks, improved over last year's figures. In addition to examining these issues, this article will delineate other important features of the 1990 agricultural sector at the national and District levels.

U.S. Agricultural Economy

Farm Income

U.S. real net farm income, as shown for the last decade in table 1, reached $37 billion in 1990. This is the highest level recorded since $43.1 billion in 1975. Significant growth in livestock receipts increased farm inventories and lower expenses offset lower crop receipts and government payments to nudge 1990 real net farm income above last year's level.[1] The 0.3 percent growth in real net farm income from a year ago, however, was down sharply from the 7.3 percent growth in 1989.

The increase in 1990 was the seventh year of a general upward trend in farm income from its most recent trough in 1983. Although farmers have enjoyed this period of recent income growth, the United States Department of Agriculture (USDA) expects real net farm income to fall 8 percent to 16 percent in 1991. The drop in income will be dominated by large supplies and weak demand in the wheat and milk markets.[2]

Highly variable factors, such as weather, world production of crops and livestock and changing farm programs make farm income fluctuate significantly from year to year. To provide a clearer picture of the direction of the farm economy, five-year moving averages of U.S. real net farm income and real net farm income per farm are shown in figure 1.[3] The U.S. farm economy has enjoyed a relatively long period of real economic growth since 1984. Despite this recent growth, the long-term trend does not appear to be upward. Depending on the years included, the long-term trend is downward or flat. On the other hand, the trend for real net farm income per farm, which rose sharply in the early 1970s and fell even more sharply in the late 1970s and early 1980s, is upward. These figures indicate that the number of U.S. farms has been shrinking faster than has real net farm income.

In recent years, the livestock sector has fueled expansion of the farm economy. A brief look at livestock and crop receipts for the 1990s provides information as to whether the different sectors were adding strength or putting downward pressure on the most recent five-year moving average. Livestock receipts during 1990 were almost 20 percent above the 1985 to 1989 average. Livestock receipts were high because of record beef and pork prices, continued gains in broiler production and increased milk output and prices. Beef cattle prices for 1990 were 22 percent above average, which allowed beef receipts to rise even though beef production was 12.1 percent below average. Pork prices showed similar strength, rising to 16 percent above average. Pork production was also above average by 2.7 percent in 1990. With milk prices 7.5 percent above average and milk production 3.4 percent above average, dairy farmers also realized expanded cash receipts. Broiler prices were even with the five-year average, but broiler production was up 20.6 percent. For 1991, livestock receipts are expected to be about even with a year ago. Cattle and broiler receipts will likely increase, while hog and milk receipts may fall.

U.S. crop receipts in 1990 also showed relative strength, as they were nearly 10 percent above their five-year moving average. Production of corn, cotton, rice, soybeans, tobacco and wheat in 1990 was above the five-year average for all commodities. This was due to both higher than average harvested acreage and yields. Only soybean acreage and rice yields were below the five-year average for the United States. Crop prices also showed general strength; only soybeans and wheat fell below average in 1990. Corn, cotton and tobacco prices were over 10 percent above average

Table 1
U.S. Farm Sector Income Statement (billions of 1982 dollars)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990[1]
Farm receipts	$153.2	$147.2	$135.8	$137.0	$134.5	$123.5	$125.7	$128.3	$131.6	$131.4
Government payments	2.0	3.5	8.9	7.8	6.9	10.4	14.2	11.9	8.6	6.8
Gross farm income	176.8	163.5	147.2	158.6	146.6	137.8	144.0	143.0	149.5	146.5
Total expenses	148.2	140.0	132.5	134.0	118.7	110.5	108.8	108.7	112.7	109.5
Net farm income[2]	28.6	23.5	14.7	24.5	27.9	27.3	35.2	34.4	36.9	37.0

[1]Values for 1990 are forecasts.

[2]Net farm income includes the value of inventory changes. Data are rounded.

SOURCE: Derived from data provided in USDA's Agricultural Outlook, March 1991, table 32.

in 1990. Soybean prices were slightly below average and wheat prices were nearly 4 percent below average. For 1991, crop receipts are expected to be near 1990 levels. Feed grain receipts will likely expand, soybean receipts will remain flat, and wheat receipts will drop nearly 20 percent.

Government Support

Direct government payments to farmers fell 17 percent in 1990 to about $9 billion, compared with a year ago. This marked the third straight year of decline in government payments to farmers. Lower disaster payments (payments accrued from the 1988 drought were still being made in 1989) and lower overall deficiency payments account for much of the decline in government support between 1989 and 1990. Even though the level of government support has declined, direct government payments as a percent of net farm income were still 18.4 percent in 1990. During the 1970s, this figure averaged 11 percent, while during the 1980s this figure jumped to 28.4 percent.[4] Government payments to farmers will probably fall during the first half of the 1990s if the Food, Agriculture, Conservation and Trade Act of 1990 (the Farm Bill) works as planned. Through a variety of means, the Farm Bill lowers deficiency payments to farmers, but increases the flexibility farmers have in making planting decisions.[5]

Farm Balance Sheet

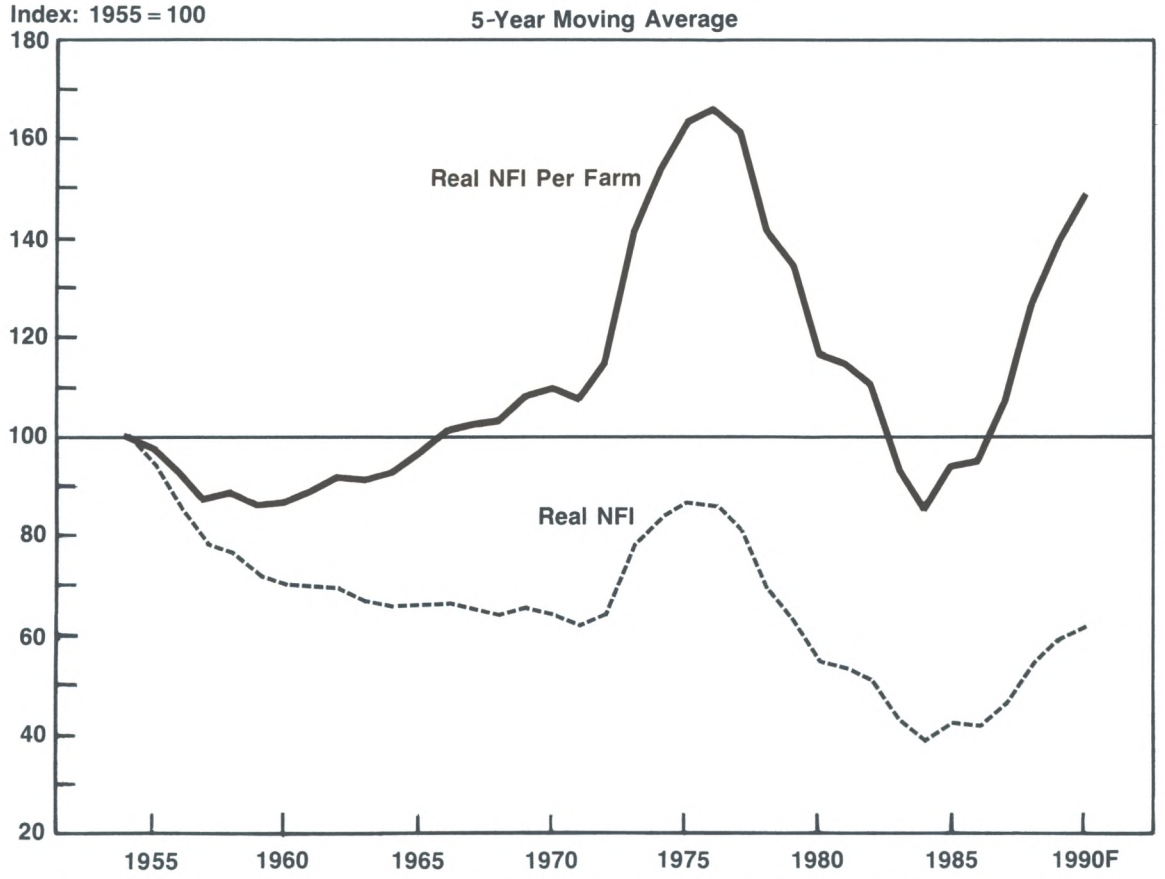
Although income indicators for 1990 were generally positive, the economic indicators from the agricultural sector's balance sheet were more mixed. On the positive side, the sector's debt-to-asset and debt-to-equity ratios declined in 1990, marking the fifth consecutive year of decline. Both real estate debt and total debt declined in 1990, with real estate debt declining $1.8 billion in 1990. Since their peak in 1983, total farm debt and farm real estate debt have shrunk about 30 percent. This lower debt position decreases farmers' fixed debt-service payments and mitigates their risk of financial difficulties should their cash flows diminish.

The asset side of the balance sheet raises a point of concern. Between 1980 and 1986, farm real estate values, adjusted for inflation, plunged 51 percent. After two years of slow real growth, farm real estate values have again declined for the last two years, falling almost 2 percent in 1990. Real total farm assets have also fallen during the last two years (real estate accounts for about 73 percent of the total asset value). This raises concerns because the value of an acre of land is determined by the discounted real net income it can generate. To the extent that current real estate values reflect expectations about future farm income, these declining real estate prices, in a period of real income growth, may suggest that the market anticipates a decrease in real farm income. Real farm real estate values are expected to slip again in 1991.

Agricultural Lenders

U.S. commercial agricultural banks improved their performance during 1990 due, in part, to the improved performance of the agricultural economy.[6] Selected financial indicators for agricultural banks are shown in table 2. These banks, on average, slightly increased their return on assets and return on equity. Agricultural loan losses (as a percent of total agricultural loans) declined, as did the percent of agricultural nonperforming loans (as a percent of total agricultural loans). Earnings at these agricultural banks were up 5.1 percent from 1989, although the growth was much smaller than the 13.8 percent observed in 1989. Loan growth was above the 1989 rate for both agricultural pro-

Figure 1
U.S. Real Net Farm Income Indexes



SOURCES: USDA, *Economic Indicators of the Farm Sector, National Financial Summary, 1989, and Agricultural Outlook.*

Table 2
U.S. and District Agricultural Banking Data

	United States		Eighth District[1]	
	1990	1989	1990	1989
Return on assets	1.02	1.01	1.10	1.08
Return on equity	11.00	10.91	11.73	11.44
Agricultural loan losses[2]	.23	.37	.23	.37
Agricultural nonperforming loans[2,3]	1.74	2.15	2.01	2.63
Percent change in total earnings	5.1	13.8	8.3	6.9
Loan growth rates:				
Agricultural	6.6	4.3	8.7	8.1
Secured by real estate	7.4	3.6	7.7	2.2

[1]Includes only the banks located within the boundaries of the Eighth District.

[2]Given as a percentage of total agricultural loans.

[3]Nonperforming loans that are 90 days or more delinquent.

SOURCE: Derived from data in the fourth-quarter FDIC Reports of Condition and Income for Insured Commercial Banks.

Table 3
Percentage of Farm Cash Receipts From Commodity Sales

	United States	Eighth District	Arkansas	Kentucky	Missouri	Mississippi	Tennessee
LIVESTOCK PRODUCTS	52.9	57.7	62.4	58.8	55.3	54.2	55.8
Cattle & Calves	23.1	17.6	10.4	19.6	23.0	10.5	25.3
Hogs	6.6	7.0	2.7	6.5	14.2	1.7	7.8
Dairy Products	12.4	8.2	2.9	11.1	9.8	5.2	14.4
Broilers	5.0	12.6	34.4	0.0	0.0	23.8	0.0
Other	5.9	12.4	12.0	21.5	8.3	12.9	8.3
CROPS	47.1	42.0	36.3	41.3	44.7	45.8	44.2
Rice	0.6	3.1	9.3	0.0	0.6	3.6	0.0
Wheat	4.0	3.1	3.7	1.9	4.2	2.0	2.3
Corn	7.2	4.1	0.3	6.3	8.4	0.6	3.5
Cotton	2.7	6.9	6.8	0.0	2.3	22.5	8.1
Tobacco	1.4	4.8	0.0	20.4	0.2	0.0	7.4
Soybeans	7.2	13.9	12.5	7.1	22.4	13.1	10.1
Vegetables	6.8	0.9	0.6	0.9	0.3	1.2	2.3
Fruits	5.7	0.4	0.2	0.4	0.4	0.5	0.5
Other	11.5	4.8	2.9	4.3	6.0	2.2	10.0

NOTE: Figures may not add due to rounding error.

SOURCE: Derived from data obtained from the *Economic Indicators of the Farm Sector: State Financial Summary, 1989*. USDA, Economic Research Service.

duction loans and loans secured by real estate.[7]

Financial indicators of the Farm Credit System, a nationwide system of federally chartered agricultural lending institutions cooperatively owned by their borrowers, were mixed in 1990.[8] Net interest income was up nearly 23 percent from 1989, largely as a result of interest expense falling more than interest income. Overall net income for the system was down 13 percent from a year ago. Nonaccrual loans increased 3 percent primarily due to the adoption by some banks of a more conservative approach to the classification of high-risk assets. Negative loan loss provisions played a smaller role in determining the system's net income. Also a plus for the system was the fact that gross loans at year-end 1990 were higher than the 1989 level, the first increase in year-end gross loan volume in the past several years.

Eighth District Agricultural Economy

Reflecting the wide geographic diversity of the Eighth District, the relative importance of different agricultural activities varies throughout the District (see table 3). Overall, livestock and livestock products account for about 58 percent of District farmers' cash receipts from commodity sales with crops accounting for the remaining 42 percent. Livestock receipts are larger than crop receipts in all Eighth District states. Cattle and calves are the most important livestock enterprise in Kentucky, Missouri and Tennessee, while broilers take the lead in Arkansas and Mississippi. In terms of crops, soybeans account for the largest share of cash receipts in Arkansas, Missouri and Tennessee. Tobacco dominates in Kentucky, while cotton is king in Mississippi.

District Weather

Similar to last year, Eighth District farmers encountered various adverse weather conditions in 1990. A freeze in March damaged the fruit crop in the District's southern states. Rains in May caused flooding in Arkansas and Missouri and damaged the nearly mature winter wheat crop. The excessively moist spring delayed most row-crop plantings well beyond their normal seeding dates throughout the District. The surplus ground moisture, in conjunction with cool temperatures, encouraged fungus growth in the wheat crop and forced some farmers to replant other crops.

Delayed plantings pushed the peak crop-growing period into the summer, which turned out to be unusually dry over parts of the District. Nearly 100-degree temperatures for over two weeks also stressed growing crops at a crucial time of development. The lack of mid-summer moisture and extreme heat lowered potential crop yields.

Warm temperatures late into the fall, however, enabled late-planted crops to make up for some lost growing time and helped crops mature prior

to severe freezes. Wet weather returned in late October and November to slow the harvest of some crops. The late fall rains and warm weather kept pastures growing well into the fall, helping livestock farmers take their cattle into the winter in good condition.

District Crop Indicators

Crop yields, production and prices for the District states are shown in figure 2 as a percent of their averages during the 1985-89 period. Corn production in 1990 was generally flat to down, compared with the five-year average. Cotton production, however, was up in all producing states except Tennessee. This increased production was due to higher-than-normal planted acreage which offset below-normal yields. Similarly, rice production was also above-normal due largely to increased harvested acreage. Production of soybeans, the District's most important cash crop, was above normal in Arkansas and Kentucky, but below normal in other District states. Because of increased yields, tobacco production was above normal in Kentucky and Tennessee. Wheat was the only District crop that had unanimous movement, across states, in the crop production indicators. Significant increases in harvested acreage offset sharp drops in yields to boost wheat production in all District states.

Corn prices were generally above the five-year average in 1990. Cotton, rice and tobacco prices were also up from previous years. Although these commodities prices showed increases from prior years, the amount of the increase was not enough in some cases to offset the impact of inflation. That is, real 1990 prices for some of the commodities were down from the last half of the 1980s. Soybean and wheat prices were mixed across District states when compared with the previous five-year-period average price.

District Livestock Indicators

Livestock production and prices for District states are shown in figure 2 as a percent of their averages during the 1985-89 period. Cattle production demonstrated only slow growth in Kentucky and Mississippi and declined in all other District states. Hog production was down substantially in most District states, but Arkansas experienced a 39 percent increase in hog production when compared with its 1985-89 average. Broiler production was more than 10 percent above average in all states, reflecting the national average. Milk production was mixed across District states. Specifically, Arkansas, Missouri and Tennessee experienced moderate growth, but Kentucky and Mississippi posted moderate declines.

Hog prices exhibited substantial increases in 1990. Compared with the previous five-year average, hog prices in District states ranged from 8 percent to 16 percent above average. Milk prices were also above average, but not to the same extent as hog prices. Cattle prices were above average in all District states except Missouri, while broiler prices were decidedly mixed.

District Farm Income

Net farm income figures for District states are available with a one-year lag; therefore, 1990 figures are not yet available. Changes in District net farm income have generally paralleled movements in U.S. net farm income, as shown in figure 3. Most notable from the figure is the increased volatility of both U.S. and District farm income since the early 1970s. Prior to 1970, net farm income did not change more than 30 percent yearly. Since 1970, however, yearly farm income changes of 50 percent to 80 percent have been common. Increased international competition, more market-oriented U.S. farm programs and special farm programs (such as the Payment-in-Kind program) have contributed to this fluctuation.

The latest net farm income data available indicate that District real net farm income in 1989 was flat when compared to 1988, but 27 percent above the five-year average ending in 1988. The five-year moving average of District real net farm income rose for the third consecutive year in 1989. Only once since 1954 has this figure increased for three consecutive years; it has *never* increased for more than three consecutive years. The five-year average that includes 1990 District farm income may break this record. Even if District real net farm income is flat, compared with 1989, then the new five-year moving average that ends in 1990 will be above the 1989 five-year average.

Several factors point to the conclusion that District real net farm income was probably flat or perhaps up slightly in 1990, when compared with 1989. Although nominal cash crop receipts for the first 11 months of the year were 3 percent below previous year levels, livestock receipts were 12 percent above year-ago levels. Total District cash receipts were up 5.3 percent in nominal terms, indicating no growth in real terms. All District states saw increased livestock receipts, while crop receipts were generally flat to lower, except in Kentucky, where an excellent tobacco crop helped push crop receipts 5 percent above year-ago levels. High receipts in the livestock sector, combined with relatively low grain prices, should have boosted the real income of livestock farmers. Grain farmers saw lower real farm income, as receipts and government payments fell and input costs rose.

District Agricultural Lenders

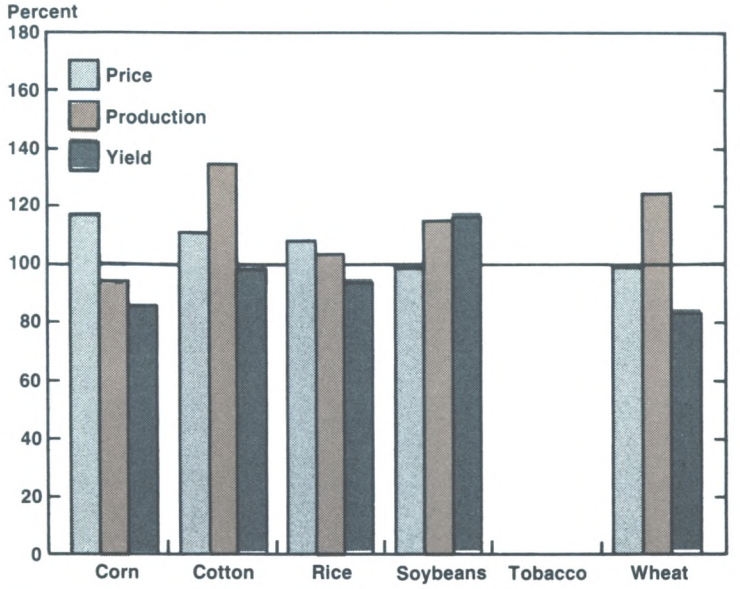
Agricultural banks in the Eighth District showed continued strength in 1990. As displayed

Figure 2

State Agricultural Indicators

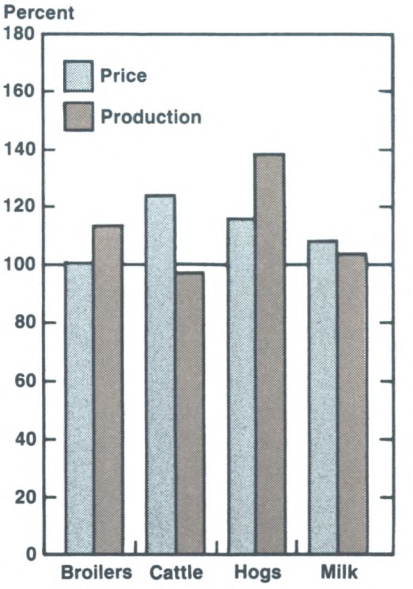
Arkansas Crop Indicators

1990 as a percent of 1985-89 average



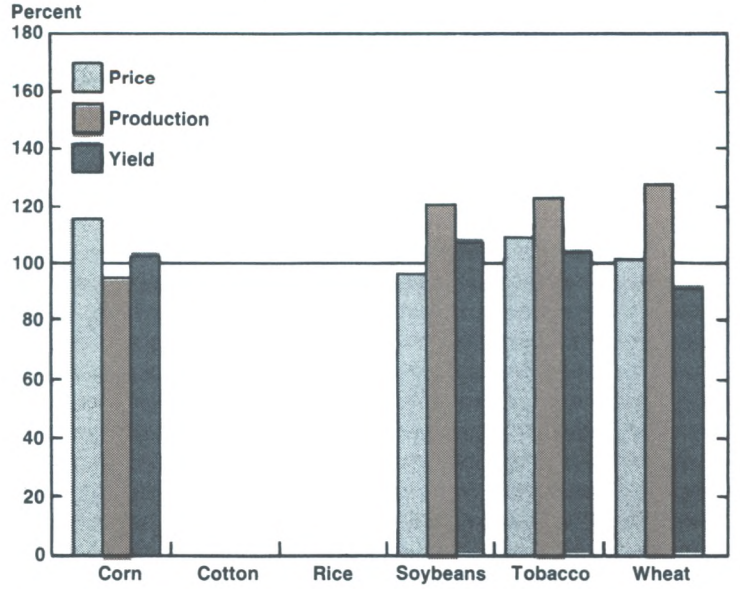
Arkansas Livestock Indicators

1990 as a percent of 1985-89 average



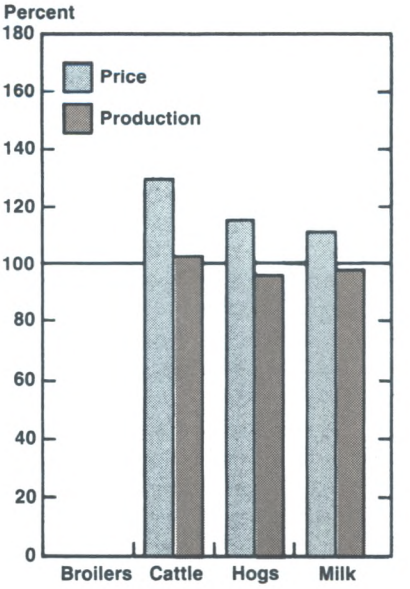
Kentucky Crop Indicators

1990 as a percent of 1985-89 average



Kentucky Livestock Indicators

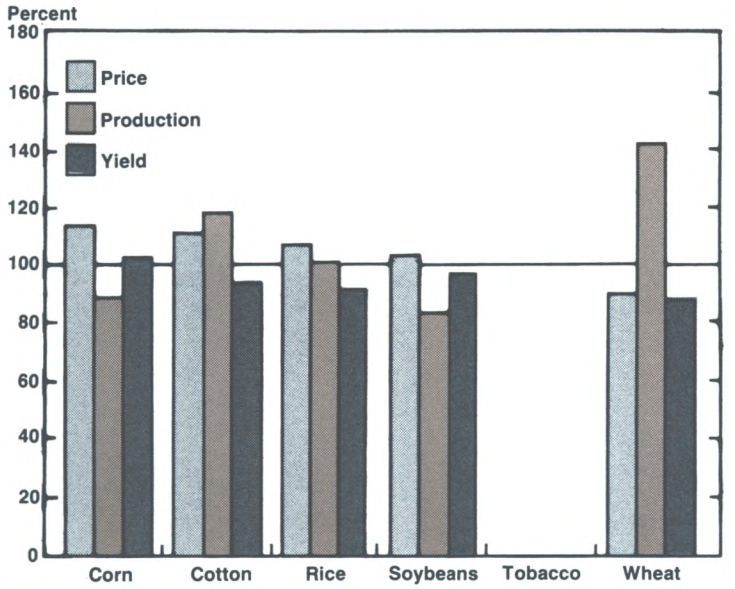
1990 as a percent of 1985-89 average



SOURCE: Derived from data provided by the Agricultural Statistical Service of the four states and USDA, *Agricultural Prices*.

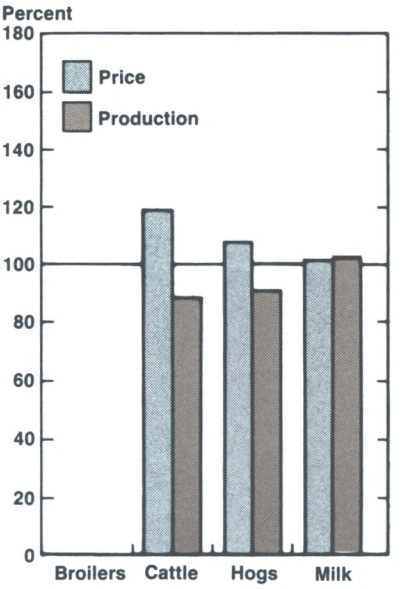
Missouri Crop Indicators

1990 as a percent of 1985-89 average



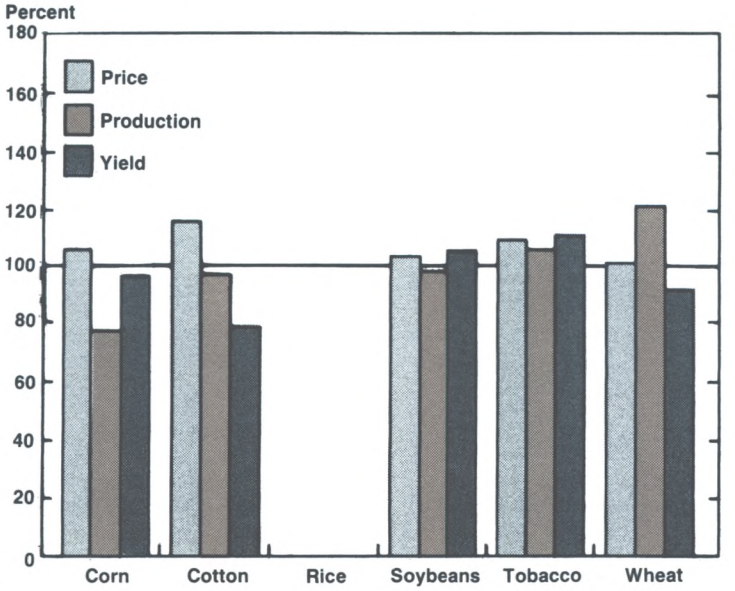
Missouri Livestock Indicators

1990 as a percent of 1985-89 average



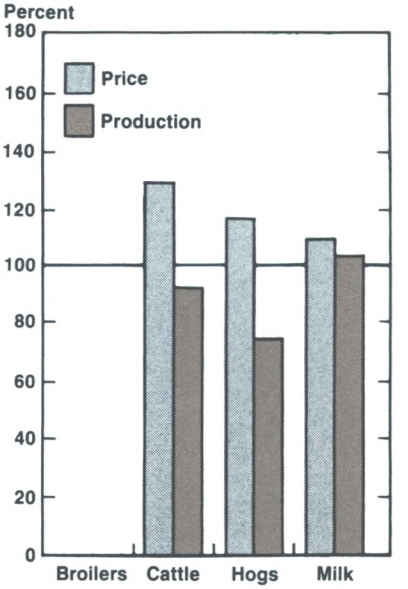
Tennessee Crop Indicators

1990 as a percent of 1985-89 average



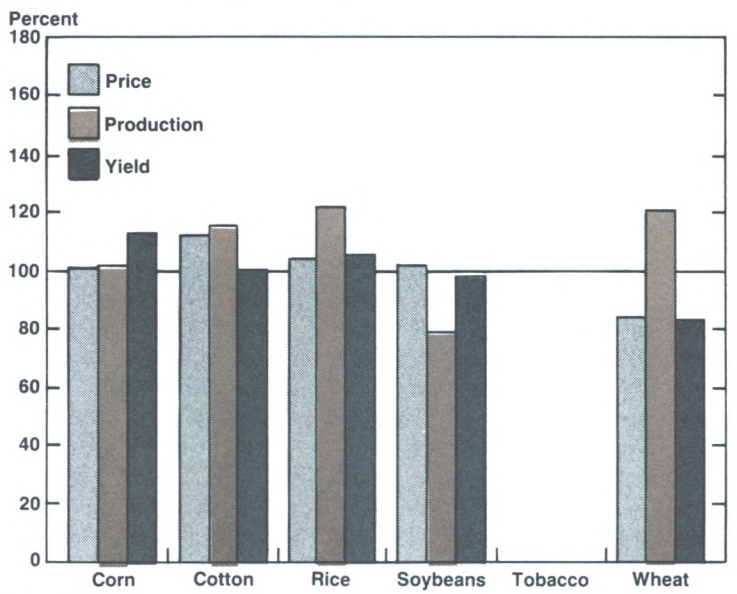
Tennessee Livestock Indicators

1990 as a percent of 1985-89 average



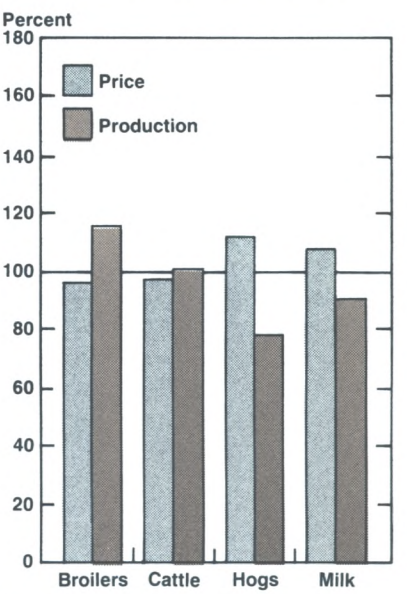
Mississippi Crop Indicators

1990 as a percent of 1985-89 average



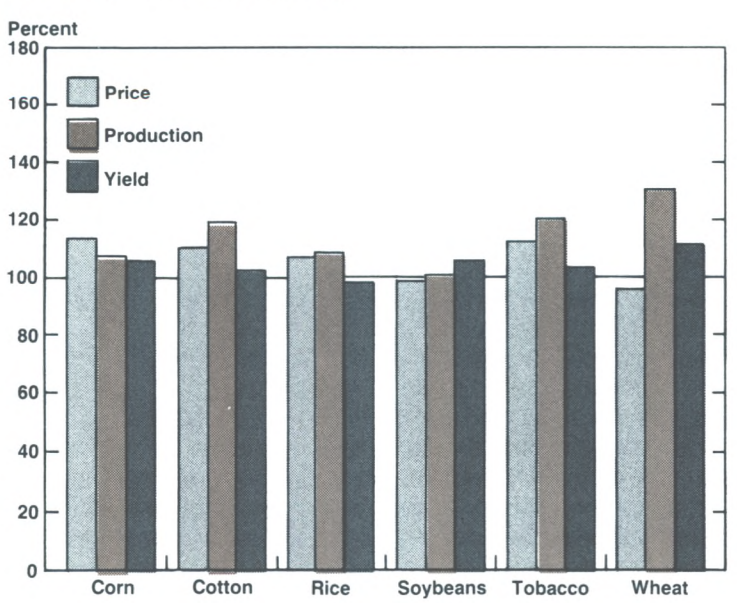
Mississippi Livestock Indicators

1990 as a percent of 1985-89 average



United States Crop Indicators

1990 as a percent of 1985-89 average



United States Livestock Indicators

1990 as a percent of 1985-89 average

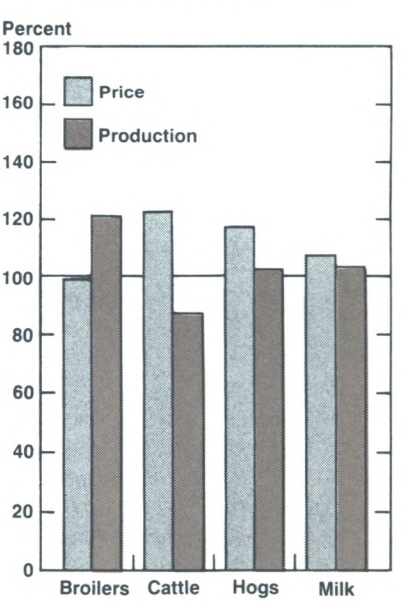
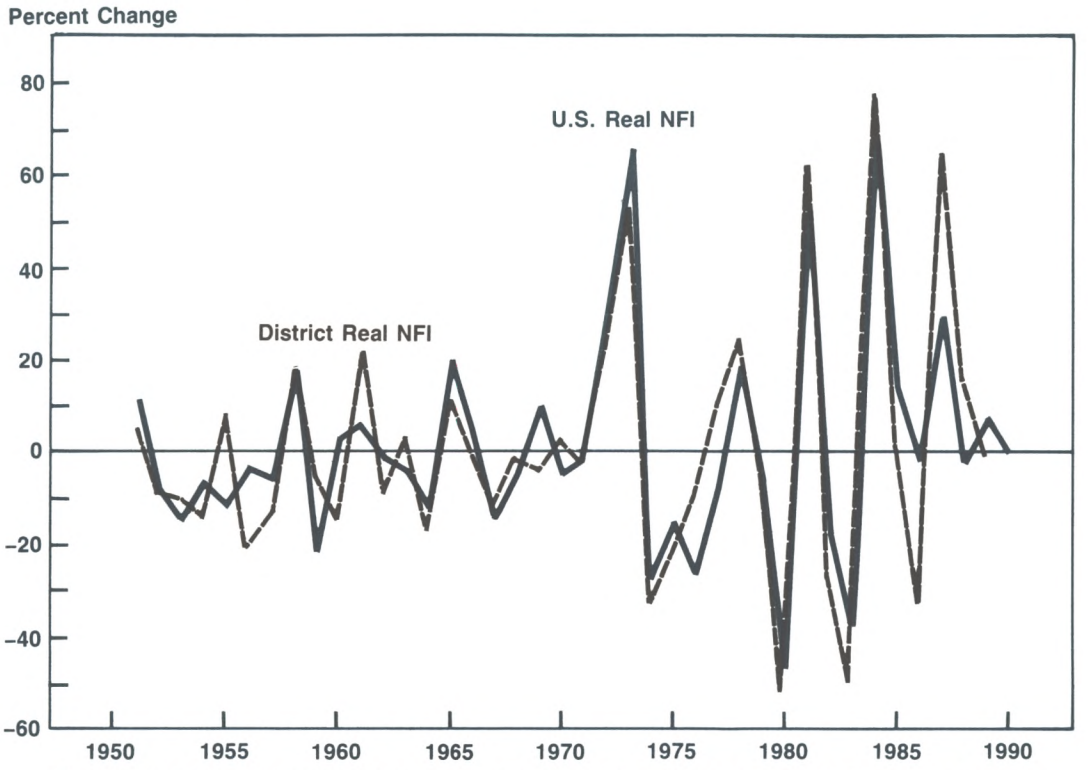


Figure 3
U.S. and District Real Net Farm Income



SOURCES: USDA, *Economic Indicators of the Farm Sector, National Financial Summary and State Financial Summary.*

in table 2, returns on assets and equity rose above 1989 levels as well as the levels achieved by all U.S. agricultural banks, on average. Agricultural loan losses and agricultural nonperforming loans, both as a percent of total agricultural loans, also declined. Total earnings rose 8.3 percent, compared with only 5.1 percent for all agricultural banks nationwide. Compared with 1989 levels, agricultural production loans grew by 8.7 percent; loans secured by real estate increased by 7.7 percent. These growth rates were higher than those experienced by the average of all U.S. agricultural banks.

The two Farm Credit Banks located in the Eighth District also benefited from the continued expansion of the agricultural economy. The Farm Credit Bank of Louisville reported an increase in net income of 13.1 percent. Net interest income was up sharply in response to a decline in interest expense. Reversals of the provision for loan losses was down from 1989, indicating that more income was earned from normal lending operations and less from reversals of loan loss provisions. Non-accrual loans also continued to decline.[9]

The Farm Credit Bank of St. Louis saw its profits drop 47 percent last year. While the drop was significant, the quality of earnings increased. Similar to the Louisville Farm Credit Bank, loan loss reversals contributed to a much smaller portion of St. Louis' income this year. In addition, interest income grew 22 percent from last year. Non-accrual loans declined and 1990 was the first year since 1981 that new real estate loans exceeded repayments.[10]

Summary

The trend for net farm income continued upward in 1990, largely because of continued strong livestock returns. The agricultural sector's balance sheet improved, in general, although asset values fell in real terms. In conjunction with the improved income of the sector, agricultural lenders also experienced higher profitability. District livestock producers experienced real returns that were above average in 1990, while crop producers' real returns were probably flat. The outlook for 1991 is for real U.S. net farm income to decline slightly. To the extent that the District's agricultural economy continues to track the nation's, District farmers can also expect to receive lower returns in 1991.

References

Drabenstott, Mark, and Alan D. Barkema. "A Turning Point in the Farm Recovery?" Federal Reserve Bank of Kansas City *Economic Review* (January/February 1991), pp. 17-32.

"Farm Credit Bank's Profit Falls," *St. Louis Post Dispatch,* March 2, 1991.

United States Department of Agriculture, Economic Research Service. *Economic Indicators of the Farm Sector: National Financial Summary, 1989* (January 1991).

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FOOTNOTES

[1]Net farm income approximates the net value of agricultural production in a calendar year plus government payments, less total expenses. Net farm income is equal to gross farm income after payment of total expenses. Gross farm income includes farm receipts from commodity sales, government payments and the value of inventory changes. Farm receipts represent the value of commodities that are produced and sold, while changes in the value of inventories captures the value of commodities that are produced, but not sold. Therefore, a build-up in inventories leads to higher net farm income.

[2]USDA *Agricultural Outlook,* April 1991, p. 1.

[3]The five-year moving average of U.S. real net farm income in 1990, for example, is defined as the simple average of this figure for 1986, 1987, 1988, 1989 and 1990.

[4]Part of the reason the figure for the 1980s is so high is because the Payment-In-Kind (PIK) program in 1983 boosted this figure to 60.8 percent. Excluding 1983, the number stands at 24.8 percent for the 1980s.

[5]See Drabenstott and Barkema (1991) and the University of Wisconsin (1991) for a more detailed discussion of the new Farm Bill.

[6]A bank is defined as an agricultural bank if the ratio of its agricultural loans to total loans exceeds the average of such ratios at all U.S. banks at year-end.

[7]Note that loans secured by real estate need not be for agricultural land.

[8]Information in this section was excerpted from the Federal Farm Credit Banks Funding Corporation's February 27, 1991 News Release.

[9]Information in this paragraph was excerpted from the Farm Credit Bank of Louisville's February 27, 1991 News Release.

[10]Information in this section was excerpted from the *St. Louis Post Dispatch* (March 2, 1991).

Eighth District Business

	Level	Compounded Annual Rates of Change			
	I/1991	IV/1990-I/1991	I/1989-I/1990	1990[1]	1989[1]
Payroll Employment (thousands)					
United States	109,542.0	−2.4%	−0.3%	1.8%	2.7%
District	6,973.0	1.3	0.8	1.9	3.2
Arkansas	944.4	4.6	3.0	3.6	3.3
Little Rock	257.4	4.5	2.3	3.2	3.2
Kentucky	1,495.3	3.3	2.1	2.9	3.7
Louisville	491.6	4.6	3.5	2.7	3.7
Missouri	2,337.9	−0.4	−0.4	1.1	2.5
St. Louis	1,181.5	−1.1	−0.3	0.9	2.3
Tennessee	2,195.3	0.3	0.1	1.3	3.6
Memphis	482.1	2.5	1.3	1.0	4.2
Manufacturing Employment (thousands)					
United States	18,482.0	−6.5%	−3.8%	−1.9%	0.4%
District	1,452.3	−4.3	−2.2	−0.1	2.2
Arkansas	234.2	3.0	0.8	0.7	2.1
Kentucky	282.0	−5.3	−1.4	0.9	3.7
Missouri	420.9	−8.6	−4.5	−0.8	1.6
Tennessee	515.1	−3.4	−2.1	−0.3	2.1
District Nonmanufacturing Employment (thousands)					
Mining	50.6	−1.6%	−1.4%	2.0%	−3.8%
Construction	299.0	5.2	−2.5	1.6	1.1
FIRE[2]	342.4	1.8	0.4	0.6	0.7
Transportation[3]	411.1	2.3	1.7	1.8	4.2
Services	1,622.6	4.4	3.6	4.5	5.8
Trades	1,647.0	2.2	0.7	1.0	2.5
Government	1,149.0	1.3	1.4	2.6	3.3
	IV/1990	III/1990-IV/1990	IV/1989-IV/1990	1990	1989
Real Personal Income[4] (billions)					
United States	$3,528.7	−3.3%	−0.3%	1.0%	2.7%
District	193.2	−3.4	−0.6	0.7	1.9
Arkansas	25.2	−4.6	0.4	1.6	2.0
Kentucky	41.7	−3.7	0.2	1.4	2.5
Missouri	68.0	−1.7	−1.2	0.1	1.8
Tennessee	58.3	−4.7	−0.9	0.5	1.7
		Levels			
	I/1991	IV/1990	1990	1989	1988
Unemployment Rate					
United States	6.5%	5.9%	5.5%	5.3%	5.5%
District	6.5	6.2	5.8	5.8	6.5
Arkansas	7.1	7.2	6.9	7.2	7.7
Little Rock	5.9	6.0	5.9	6.3	6.4
Kentucky	6.5	6.1	5.8	6.2	7.9
Louisville	5.4	5.0	5.1	5.6	6.3
Missouri	6.3	6.1	5.7	5.5	5.7
St. Louis	6.5	6.2	5.9	5.5	5.9
Tennessee	6.6	5.9	5.2	5.1	5.8
Memphis	5.2	5.0	4.5	4.7	5.1

Note: All data are seasonally adjusted. On this page only, the sum of data from Arkansas, Kentucky, Missouri and Tennessee is used to represent the District.

[1]Figures are simple rates of change comparing year-to-year data.
[2]Finance, Insurance and Real Estate
[3]Transportation, Communications and Public Utilities
[4]Annual rate. Data deflated by CPI-U, 1982-84 = 100.

Statistics

U. S. Prices

	Level	Compounded Annual Rates of Change			
	I/1991	IV/1990-I/1991	I/1990-I/1991	1990[1]	1989[1]
Consumer Price Index (1982-84=100)					
Nonfood	134.7	3.6%	5.6%	5.3%	4.7%
Food	135.6	3.0	3.6	5.7	5.9
Prices Received by Farmers (1977=100)					
All Products	146.3	4.5%	−3.6%	1.6%	6.6%
Livestock	167.0	0.0	−2.2	6.8	6.8
Crops	124.3	8.8	−6.0	−4.8	6.6
Prices Paid by Farmers (1977=100)					
Production items	173.0	−2.3%	1.8%	2.4%	6.4%
Other items[2]	188.0	2.2	3.9	3.4	4.9

Note: Data not seasonally adjusted except for Consumer Price Index.

[1]Figures are simple rates of change comparing year-to-year data.

[2]Other items include farmers' costs for commodities, services, interest, wages and taxes.

Eighth District Banking

Changes in Financial Position for the year ending March 31, 1991 *(by Asset Size)*

	Less than $100 million	$100 million - $300 million	$300 million - $1 billion	More than $1 billion
SELECTED ASSETS				
Securities	2.6%	9.0%	27.3%	2.7%
U.S. Treasury & agency securities	3.9	10.7	33.9	5.9
Other securities[1]	−1.6	4.2	9.8	−6.0
Loans & Leases	4.4	4.0	14.0	0.8
Real estate	7.0	9.0	18.2	4.5
Commercial	1.4	−2.9	6.9	2.3
Consumer	−2.7	−1.6	10.8	−0.6
Agriculture	7.5	3.5	21.9	23.3
Loan loss reserve	7.0	5.7	22.0	11.9
Total Assets	3.0	5.3	15.7	4.6
SELECTED LIABILITIES				
Deposits	3.0%	5.5%	16.9%	9.0%
Nontransaction accounts	4.2	6.7	19.4	11.7
MMDAs	2.0	3.2	14.7	13.6
Large time deposits	2.5	−4.3	−1.8	−18.2
Demand deposits	−4.8	−3.4	4.0	−1.2
Other transaction accounts[2]	3.6	7.0	18.8	12.0
Total Liabilities	3.1	5.2	15.9	4.6
Total Equity Capital	2.9	6.9	13.2	5.5

Note: All figures are simple rates of change comparing year-to-year data. Data are not seasonally adjusted.

[1]Includes state, foreign and other domestic, and equity securities.

[2]Includes NOW, ATS and telephone and preauthorized transfer accounts.

Performance Ratios *(by Asset Size)*

	Eighth District			United States		
	I/91	I/90	I/89	I/91	I/90	I/89
EARNINGS AND RETURNS						
Annualized Return on Average Assets						
Less than $100 million	.95%	1.08%	1.13%	.83%	.82%	.92%
$100 million - $300 million	1.05	1.05	1.08	.89	.94	1.04
$300 million - $1 billion	.98	1.05	1.13	.83	.84	.90
$1 billion - $5 billion	.94	.89	.88	.87	.71	.91
$5 billion - $15 billion	.77	.66	.96	.46	.69	1.03
Agricultural banks	1.13	1.17	1.21	1.07	1.05	1.13
Annualized Return on Average Equity						
Less than $100 million	10.50%	11.81%	12.55%	9.11%	9.08%	10.43%
$100 million - $300 million	12.92	12.97	13.37	11.11	11.87	13.19
$300 million - $1 billion	12.77	13.33	14.77	10.98	11.57	12.75
$1 billion - $5 billion	14.19	13.69	13.07	13.06	10.59	13.76
$5 billion - $15 billion	12.60	10.13	15.15	7.73	11.84	17.36
Agricultural banks	12.05	12.51	13.02	11.59	11.31	12.26
Net Interest Margin[1]						
Less than $100 million	4.23%	4.28%	4.32%	4.49%	4.57%	4.77%
$100 million - $300 million	4.20	4.26	4.38	4.56	4.62	4.88
$300 million - $1 billion	4.36	4.49	4.56	4.60	4.61	4.79
$1 billion - $5 billion	4.29	4.09	4.14	4.48	4.40	4.51
$5 billion - $15 billion	3.67	3.67	4.00	4.31	4.22	4.49
Agricultural banks	4.17	4.19	4.23	4.27	4.29	4.42
ASSET QUALITY[2]						
Nonperforming Loans[3]						
Less than $100 million	1.71%	1.70%	1.72%	2.20%	2.16%	2.32%
$100 million - $300 million	1.84	1.68	1.76	2.19	2.04	1.90
$300 million - $1 billion	1.59	1.45	1.55	2.62	2.45	2.60
$1 billion - $5 billion	1.72	1.82	1.83	3.38	2.31	1.82
$5 billion - $15 billion	2.70	1.95	2.05	4.66	2.66	2.21
Agricultural banks	1.77	1.83	2.03	1.93	2.20	2.36
Loan Loss Reserves						
Less than $100 million	1.52%	1.48%	1.49%	1.73%	1.68%	1.68%
$100 million - $300 million	1.56	1.53	1.46	1.60	1.50	1.48
$300 million - $1 billion	1.50	1.40	1.41	1.87	1.72	1.65
$1 billion - $5 billion	1.81	1.76	1.75	2.34	1.75	1.57
$5 billion - $15 billion	1.91	1.56	1.31	2.74	2.21	1.91
Agricultural banks	1.63	1.65	1.76	1.85	1.96	1.99
Net Loan Losses[4]						
Less than $100 million	.10%	.07%	.07%	.12%	.11%	.13%
$100 million - $300 million	.11	.08	.10	.14	.11	.12
$300 million - $1 billion	.17	.10	.08	.21	.16	.16
$1 billion - $5 billion	.18	.24	.08	.34	.25	.18
$5 billion - $15 billion	.25	.17	.16	.40	.46	.22
Agricultural banks	.06	.06	.08	.07	.08	.09

Note: Agricultural banks are defined as those banks with a greater than average share of agriculture loans to total loans.

[1]Interest income less interest expense as a percent of average earning assets
[2]Asset quality ratios are calculated as a percent of total loans.
[3]Nonperforming loans include loans past due more than 89 days and nonaccrual loans.
[4]Loan losses are adjusted for recoveries.