



REGIONAL ECONOMIST | JULY 1998

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# President's Message: The Importance of Economic Education

**William Poole**

This year marks two significant anniversaries in the Eighth District's economic education arena: the 20th anniversary of the Center for Entrepreneurship and Economic Education at the University of Missouri-St. Louis and the 30th anniversary of the Missouri Council on Economic Education. I congratulate the members of each of these organizations for their tireless efforts in the field of economic education during the last half century.

As a former educator of over 25 years, I have firsthand experience with teaching people—especially young people—about economics. The importance of economic education goes far beyond the goal of improving understanding of the basic principles of supply and demand and the workings of our nation's economy. Economics is the study of how people make sound choices. By studying how markets work, our young people also learn how to make efficient choices in managing their own scarce resources, such as time and money. Along the way, we teach them a decision- and choice-making process that they can apply to all aspects of their lives. These same skills are necessary to make informed choices as citizens—to decide which public policies to support and which to oppose.

As participants in a global economy, the young people of today and tomorrow will face a plethora of possibilities that our generation could only dream about. It is our duty to give them the tools they need to make the best choices among these seemingly infinite possibilities. And, although I am perhaps a bit biased (probably more than a bit!) given my background, I believe that economics can provide such tools unlike any other discipline.

I also believe that the Federal Reserve is in a unique position to help in this educational process, by lending some of these scarce resources I've been talking about. Although the Federal Reserve Act doesn't specifically mention anything about the Fed's obligation in educating the nation's populace in economics, it has been an implicit mission from the start. At the St. Louis Fed, for example, we sponsor roughly 25 economic education workshops a year for elementary, middle and high school teachers. We also have a speakers' bureau through which economists annually address nearly 50 different business, university and community groups on current economic topics. And we publish a host of educational publications—like the one you're reading now—that are distributed free-of-charge to tens of thousands of subscribers each year. All this, and we're still always eager to hear suggestions—from people like you—on how we can further support these educational efforts.

As a new Reserve Bank president, and longtime economic educator, I cannot stress enough how important economic education is both to the Federal Reserve's success and the nation's success. In my view, it's one of the soundest choices we can make.

(For a list of economic education centers in your area, see the related story.)



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## District Bank Loans: There's No Place Like Home

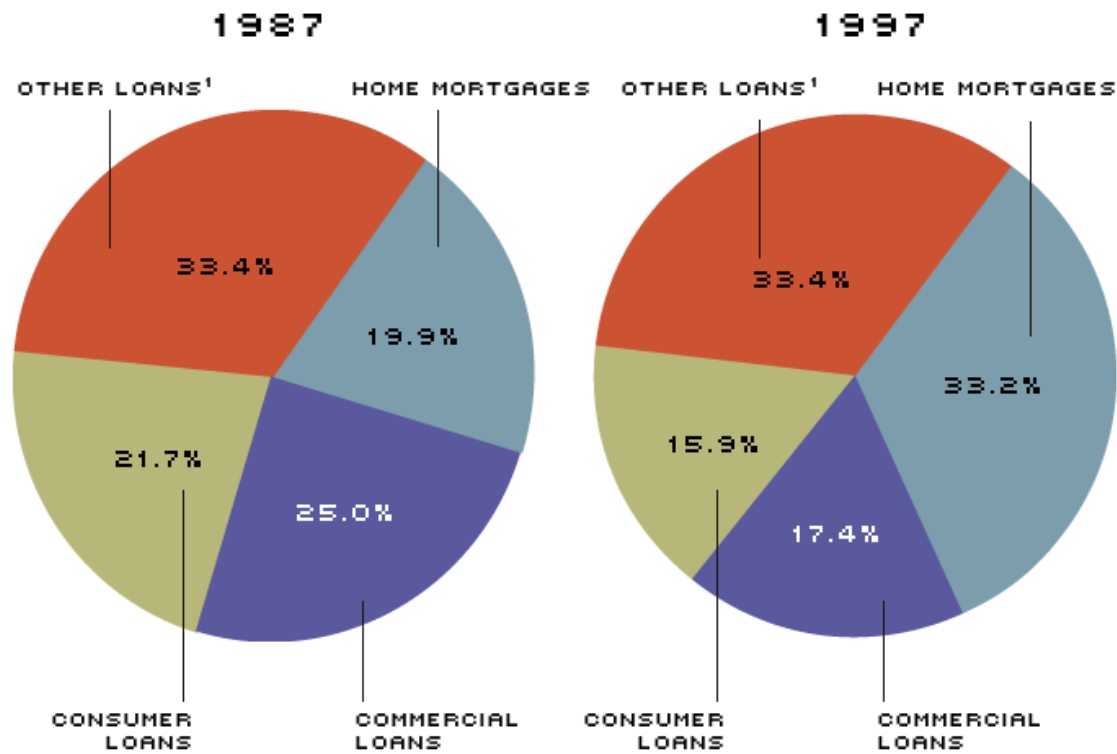
Dusan Stojanovic , Mark D. Vaughan

Eighth District banking has undergone several sweeping changes in the past decade. And one of the more interesting trends is District bankers' increasing reliance on mortgage lending to pay the bills.

The composition of the Eighth District loan portfolio has changed radically over the past 10 years (see chart). At year-end 1987, roughly 41 percent of loans at District institutions were backed by real estate, 25 percent were made to commercial customers, and 22 percent went to consumers. By the end of 1997, real estate lending made up 60 percent of the District portfolio, while commercial loans accounted for 17 percent and consumer loans 16 percent. Moreover, almost all of the increase in real estate lending was in home mortgage loans. This portfolio shift could have profound implications for District bank risk, particularly at the community bank level.

Chart 1

## Changes in the District Loan Portfolio



<sup>1</sup>Other Loans includes agricultural loans, nonfarm, nonresidential loans, home equity lines of credit, etc.

SOURCE: FFIEC Reports of Condition for All Insured U.S. Commercial Banks

## Houses Falling from the Sky

Between 1987 and 1997, outstanding home mortgages in the United States more than doubled, jumping to \$4.02 trillion.<sup>1</sup> Although this increase clearly reflects the combination of a lengthy economic expansion, a long slide in the unemployment rate, and a precipitous drop in mortgage interest rates, financial innovation has also played an important role. The development of credit-scoring models, for example, has lowered the cost of issuing mortgage loans by enabling quicker and more accurate evaluation of prospective borrowers.<sup>2</sup> At the same time, securitization programs, which make possible the packaging and selling of loans, have greatly improved the liquidity of mortgage loans. Because these loans can now be quickly moved off of bankers' balance sheets, mortgage lending is much less risky.

Meanwhile, commercial banks have carved out a larger slice of the growing mortgage market, both inside and outside the Eighth District. Outstanding home mortgages at U.S. commercial banks grew an average of 10.6 percent a year between 1987 and 1997, raising the bank portion of the market from 13.4 percent to 17.8 percent. At Eighth District banks, the trend was even more pronounced, with outstanding one- to four-family

mortgages rising at 11.9 percent a year. These numbers actually understate commercial bank involvement in the home mortgage market since many bank-originated mortgages are promptly sold in secondary markets.

## **Winds of Change**

Bank mortgage lending has been carried away by a number of factors, including the decline of the savings and loan industry. In the 1970s and early 1980s, record interest rates, coupled with heavy dependence on mortgage lending, caused many savings and loans (S&Ls) to lose money and ultimately fail. In addition, in the late 1980s and early 1990s, many banking organizations acquired S&Ls to expand their retail operations. The combination of outright failures and absorption by banks cut the number of S&Ls almost in half between 1987 and 1996—from 3,622 to 1,924.

As thrifts failed or were acquired, mortgages moved to commercial bank loan portfolios. In 1997, for example, Mercantile Bank of Hartford, Ill., (formerly of St. Louis) acquired Roosevelt Bank of St. Louis (a federal savings bank), thereby moving \$3.6 billion in mortgages—on paper—from the S&L industry to the banking industry. In addition, banks are now originating and holding mortgages that S&Ls would have previously made. The impact of these factors can be seen in the drop-off of mortgages on the books of S&Ls. Between 1987 and 1997, when home mortgages held by U.S. commercial banks were rapidly increasing, those on the books of S&Ls dropped by almost a third, to \$519 billion.

The Federal Home Loan Bank (FHLB) system has also provided a spark for bank mortgage lending. Although originally designed to promote home ownership by providing liquidity to S&Ls, the FHLB system has been open to commercial banks since 1989, reflecting the increasing importance of banks in the mortgage market. Banks that join receive access to a wide range of low-cost services, including various types of loans. These loans have proven especially popular in recent years, due to the slow growth of core deposits.<sup>3</sup>

To join the FHLB system and obtain access to loans, a bank must devote at least 10 percent of its asset portfolio to home mortgages or mortgage-backed securities. Moreover, these mortgages or mortgage-backed securities must usually be pledged against FHLB loans. In short, as S&Ls became less and less important players in mortgage lending, the FHLB shifted its focus to banks. In turn, banks both inside and outside the District responded by boosting mortgage lending to secure a replacement for core deposits.

The popularity of commercial paper is another reason banks have turned to mortgage lending. Over the last decade, financial innovation has reduced the costs of borrowing with commercial paper, enabling more firms to obtain working capital without going to the bank.<sup>4</sup> In 1987, banks lent to nonfinancial firms \$7 for every \$1 these firms borrowed in the commercial paper market; by 1997, that ratio had dropped to \$4 to \$1. At the same time, finance companies have used commercial paper to fund consumer loans, enabling households to finance cars, appliances and other durable goods, also without going to the bank. As a result, over the past 10 years, the percentage of consumer credit provided by banks fell from 49 percent to 41 percent. The shift to mortgage lending, then, can be viewed as an attempt by commercial banks nationwide to make the best of a bad situation. Simply put, mortgage lending is a replacement for lost business.

## **Wicked Witches?**

What does the portfolio shift imply about banking risk in the Eighth District? On the one hand, greater reliance on mortgage lending may lower a bank's exposure to credit risk, which is the risk a borrower will fail to make interest and principal payments. Since 1991, the District net charge-off rate for commercial loans has averaged 0.72 percent, and the net charge-off rate for consumer loans has averaged 0.91 percent.<sup>5</sup> Net losses on one-to-four-family mortgages, in contrast, have averaged just 0.09 percent. The relatively lower historical loss rates on mortgage lending suggest that the portfolio shift may reduce the overall District charge-off rate in the future.

On the other hand, the shift toward mortgages and mortgage-related products may increase a bank's exposure to interest rate risk, which is the risk that a change in interest rates will lower a bank's earnings and net worth. Because mortgage loans typically have a longer duration than commercial and consumer loans, banks holding a large inventory of home loans may be vulnerable to unexpected interest rate spikes—just as S&Ls were in the 1970s and 1980s.<sup>6</sup> Mortgage-backed securities may add to this risk since their value can fluctuate wildly in response to interest rate movements.

The new emphasis on mortgage lending may also carry with it an increase in liquidity risk. Liquidity risk has two facets: asset-side and liability-side. Asset-side liquidity risk is the risk that a bank will not be able to dispose of its assets without suffering large losses. Because mortgages can be more easily sold in the secondary market than other types of loans, the portfolio shift may actually reduce banks' asset-side liquidity risk. The emphasis on mortgage lending may, however, increase liability-side liquidity risk, which is the risk that a bank will not be able to continue funding its assets at a reasonable cost. As noted, the shift to mortgage lending—both in the District and nationwide—is part and parcel of an increased reliance for funding on FHLB advances. Because a Federal Home Loan Bank can call in its loans when the financial condition of a borrowing bank deteriorates, advances may ultimately prove to be a less stable funding source than core deposits.

Although the net impact of the shift to mortgage lending on overall District banking risk is unclear, there is reason to be particularly concerned about the implications for community banking. This is so because community banks are busy substituting liquidity and interest rate risk—which they have relatively little experience managing—for credit risk—which they have historically managed fairly well. Moreover, community banks could face a serious liquidity crunch if either an adverse shock to real estate markets or a major recession were to compromise the ability of Federal Home Loan Banks to continue providing low-cost advances. In short, the shift in the loan portfolio implies that District bankers—particularly community bankers—are facing new types of risk. Getting to the Emerald City demands that these risks be successfully managed.

Thomas A. Pollmann provided research assistance.

## Endnotes

1. Unless otherwise indicated, all dollar figures in this article have been adjusted for inflation. [back to text]
2. Credit-scoring models enable lenders to estimate the probability that a loan will be repaid based on the borrower's historical data. These models, which have been used extensively to make decisions about issuing credit cards, are now being used to make decisions about issuing mortgage loans, too. For more discussion, see Mester (1997). [back to text]
3. See Neely (1998) for a review of recent District funding problems. [back to text]
4. See Stojanovic and Vaughan (1998) for a discussion of the commercial paper market. [back to text]
5. When a loan proves uncollectible, a bank removes it from the books, or "charges it off." A bank, however, may later collect on these loans. The net charge-off rate refers to the total amount of charge-offs, net of any funds recovered, divided by total loans outstanding. [back to text]
6. Duration refers to the weighted-average time to maturity of a financial instrument. For more on duration, see Neely (1996). [back to text]

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# Does Big Business Need Taming? The Role of Economics in Antitrust Law

Michelle Clark Neely

Antitrust authorities in Washington and the states have been busy in the past several years scrutinizing mega-mergers in the banking, communications and defense industries, among others. As the number of competitors in certain markets dwindles, the potential combination of former rivals raises concerns about market concentration and the consequent implications for consumers and other firms.

But mergers aren't the only business activities that have drawn regulators' attention of late. Antitrust authorities are also examining allegations of exclusionary actions—like predatory pricing, exclusive dealing and tying arrangements—in a host of industries and firms. This stepped-up action by regulators has put them on the hot seat because they're taking on some of the nation's best known and widely respected companies. Indeed, the recent antitrust suits filed against Microsoft by the Department of Justice and 20 state attorneys general promise to generate renewed debate about the role government has in ensuring a competitive marketplace. Because the application of antitrust law relies heavily on economic principles and analyses of potential outcomes, it's worthwhile to take a look at what economists have to say about the structure and operation of American business.

## Antitrust Basics

Antitrust economics is part of a branch of economics known as *industrial organization*, which attempts to explain the structure and competitive behavior of firms and industries. When economists talk about the structure of any industry, they are generally referring to the number of firms that provide products or services to a given market; the barriers to entry for new firms; and the degree of product differentiation.

The structure of an industry selling a homogeneous, or similar, product or service can be described in one of three ways: 1) perfectly competitive (no barriers to entry, many sellers with no pricing power); 2) oligopolistic (barriers to entry, a few sellers with some pricing power); or 3) a pure monopoly (barriers to entry, one seller with complete pricing power).<sup>1</sup> More recently, economists have also defined a structure called the *dominant firm with a competitive fringe*, which consists of a single firm with a large market share and some price-setting power that competes with smaller, price-taking firms.<sup>2</sup> Examples of dominant firms are IBM in the market for mainframe computers and Kodak in the photographic film market.

Since it is the *exercise* of monopoly or market power that is problematic, economists and policymakers are more concerned about the way firms in an industry behave than the structure of the industry per se. Indeed, in some circumstances, a monopoly structure yields the most efficient, socially desirable outcome. Natural monopolies are one example. They occur in markets in which additional output can be produced at a lower per-unit cost, such as the public utility industries. Monopolies are even encouraged in other types of markets.<sup>3</sup>

According to the nation's antitrust laws, a monopoly is not—strictly speaking—illegal. Rather, the laws are used primarily by federal authorities—the Department of Justice and the Federal Trade Commission (FTC)—both to rein in firms that exercise excessive market power and to limit the way in which firms compete with one another.

Antitrust officials are guided by three major federal statutes: the Sherman Act of 1890, the Clayton Act of 1914 and the Federal Trade Commission Act of 1914. Section 1 of the Sherman Act prohibits restraint of trade. On its surface, the more widely invoked Section 2 of the act appears to outlaw monopoly outright ("every person who shall monopolize or attempt to monopolize.... shall be deemed guilty of a felony"). The courts, however, have interpreted the act less literally, saying that it merely forbids monopolistic *behavior*.

The Clayton Act is more specific than the Sherman Act; it describes the type of conduct and practices that will get a firm (or group of firms) into trouble. Sections 2, 3 and 7 of the act forbid any price discrimination, tie-ins, exclusive dealing or mergers that would lessen competition (see chart) for descriptions of these and other exclusionary practices). The act also entitles plaintiffs that successfully bring antitrust suits to treble damages and attorneys fees.<sup>4</sup> The Federal Trade Commission Act created the FTC, whose Bureau of Competition enforces the act and other antitrust laws. Section 5 of the act prohibits "unfair" methods of competition; these activities are not defined in the act, however, so it has been up to the courts to make those determinations.

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Chart 1

## Potentially Punishable Practices: A Glossary of Antitrust Terms

<b>Exclusive Dealing</b>	A firm prohibits its distributors from selling competitors' products.
<b>Exclusive Territories</b>	A firm assigns a geographic area to a distributor and prohibits other distributors from operating in that territory.
<b>Predatory Pricing</b>	A firm prices a product below the marginal cost of producing it to drive rivals out of business.
<b>Price Discrimination</b>	A firm charges different customers different prices for the same product.
<b>Refusals to Deal</b>	A firm prohibits a rival from purchasing/using scarce resources (called essential facilities) that are needed to stay in business.
<b>Resale Price Maintenance</b>	A manufacturer sets a minimum retail price for its product.
<b>Tie-In Sales</b>	A firm conditions the purchase of one product upon the purchase of another.

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There are very few business practices that are blatantly illegal. The few that are, like price fixing, are called *per se* violations. When a *per se* violation is alleged, it is not necessary for a plaintiff to show that actual harm was done. Rather, in most antitrust cases, the courts have applied a *rule of reason* analysis, which means that the conduct is examined for two things: 1) to see if it restricts competition in a significant way; and 2) to determine if it has any overriding business justification. Many arrangements among competitors, like organized exchanges (e.g., the Chicago Board of Trade) and trade associations, meet a rule of reason test and, thus, are not illegal.

## Leave Them Alone?



Most antitrust officials—and the economists who advise them—believe that the antitrust laws have two main purposes: to ensure that markets operate efficiently and that consumers are not harmed by a firm's actions toward them or the firm's competitors. It has not always been this way, however. At the turn of the century, when Standard Oil, U.S. Steel and other huge monopoly trusts prevailed, bigness was equated with badness. During this era, policymakers were more concerned about protecting small company competitors than they were about encouraging economic efficiency.

Such thinking dominated antitrust policy until the mid-1970s and 1980s, when antitrust officials in Washington adopted a laissez-faire approach to antitrust policy. They argued that a firm's size did *not* matter and that the benchmark for bringing an antitrust case should be the exertion of market power that demonstrably hurts consumers. Moreover, they held that justifiable antitrust cases would be rare since market forces would deter firms from engaging in inefficient behavior.

This market-based approach to solving antitrust problems is predicated in part on *contestable markets* theory. A contestable market is one in which firms can costlessly enter or exit it in response to high profits and challenge the dominant firm or firms for market share. If a market is determined to be contestable, then most economists believe that the threat of competition is enough to deter a dominant firm from engaging in anticompetitive practices.

## It's Still A Fine Line

Antitrust policy and analysis have evolved yet again in the 1990s. Economists have increasingly agreed, for example, that easy and costless market entry and exit—a necessary condition for a contestable market—rarely exists in the real world because of the presence of sunk costs. Sunk costs are the fixed costs—like the funds that are expended on real estate and legal services—that cannot be recovered if a business fails. The greater the sunk costs, the less incentive there is for new firms to enter a market and compete against a dominant incumbent. Without competition, the incumbent may then be tempted to exercise its market power by restricting output and raising prices.

In addition to putting more emphasis on real world obstacles to competition like sunk costs and asymmetric information—when the seller has information that the buyer does not—economists have also designed increasingly sophisticated, dynamic models of strategic competition. With these models, economists are better able to predict interaction over time between and among competitors. Technological improvements have also aided antitrust officials in determining whether a particular business practice or merger is likely to be anticompetitive. For example, by using scanner data from the retail outlets of several competitors in a given geographic market, economists can calculate how prices are likely to be affected by the addition or subtraction of one of those competitors in a different geographic market.<sup>5</sup>

Despite all the advances made in antitrust economics since the turn of the century, it's still as much of an art as it is a science. There remains a very fine line between good, hard-nosed competition and illegal, anticompetitive practices. Economists have much to contribute to the analysis, and the better they are able to incorporate new tools and real world imperfections into theoretical models, the easier that line will be to see.

Thomas A. Pollmann provided research assistance.

## Endnotes

1. Monopoly, price or market power all refer to the ability of a firm to profitably set the price of its good or service above the marginal cost of producing it. See Posner (1976), Chapter 2, for an excellent elementary description of monopoly. See Carlton and Perloff (1994) or any basic undergraduate microeconomics textbook for a fuller treatment of industry structure. [back to text]

2. Firms with monopoly power are referred to as price setters, while firms operating in a competitive industry are referred to as price takers—they take the market price as given. [back to text]
3. For example, a pharmaceutical company that is issued a patent for a new drug is essentially given a limited-life monopoly over the product. This is so because, without patent protection, pharmaceutical firms would possibly not be able to recoup their very significant research and development costs, thus discouraging socially desirable innovation. [back to text]
4. Treble damages are three times actual damages. [back to text]
5. See "The Economics of Antitrust" (1998) for more detail on the new tools economists are using in antitrust cases. [back to text]

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## Yes, This EMU Will Fly, But Will It Stay Aloft?

Adam M. Zaretsky

Dateline: Jan. 1, 1999. Today, 11 of the 15 European Union (EU) nations relinquished control of their domestic monetary policies, abandoned their currencies and entered Stage 3 of the European Monetary Union (EMU). This event marks the start of the final phase of Europe's 40-year effort to combine its economies. A new European currency, the euro, has officially become the standard unit of account in these nations, with euro notes and coins to be issued by Jan. 1, 2002. Six months later, the current domestic currencies will no longer be legal tender. By joining forces, the 11 nations—Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain—have created an economic area comparable in population and output to that of the United States. The U.S. economy no longer overwhelmingly dominates the international scene with its strength and depth.

### Rewind to the Present

No doubt, a news brief similar to the one above will appear in newspapers worldwide on Jan. 1, 1999, when monetary union takes hold in Europe. On this day, European nations will begin operating under a single monetary authority, the European Central Bank (ECB), which will control monetary policy for the EMU's member nations without political influence from any of them, much like the U.S. Federal Reserve System.<sup>1</sup> On the first of January, member nations will irrevocably fix the exchange rates among their national currencies, starting the transition from 11 national currencies to a single European currency called the euro. According to the provisions agreed to in the 1993 Treaty on European Union (see Table 1), more commonly known as the Maastricht Treaty, the ECB will issue only euros and make determinations about their supply and European interest rates. In addition, national central banks, like the Bundesbank and the Banque de France, will no longer control their domestic money supplies or monetary policies. Member nations will freely relinquish this control in return for the opportunity to speak with one voice in international markets and, perhaps, become more competitive against the American economy. Participants also believe that monetary union could be the first step toward political union. The transition will be costly to consumers, businesses and governments, but the benefits will be striking.

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Table 1

## The European Union

<b>European Monetary Union Members</b>	<b>Not European Monetary Union Members (by choice)</b>	<b>Not European Monetary Union Members (not by choice)</b>
Austria	Denmark	Greece
Belgium	Sweden	
Finland	United	
France	Kingdom	
Germany		
Ireland		
Italy		
Luxembourg		
The		
Netherlands		
Portugal		
Spain		

Established in 1993 by the Maastricht Treaty, the European Union (EU) is the legacy of the original European Economic Community (Belgium, France, Germany, Italy, Luxembourg and The Netherlands), which was formed in 1957 by the Treaty of Rome. The EU is a common market, which allows free movement of resources and eliminates trade barriers—tariffs or quotas—among member nations. The European Monetary Union (EMU) is comprised of EU nations that, having met the Maastricht Treaty's conditions, have agreed to operate under a single currency and monetary policy.

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## An American Europe?

For Americans, the benefits of a common currency are easy to understand. Americans know they can walk into a fast food restaurant or gas station anywhere in the United States and purchase anything with the dollar bills in their purses and wallets. The convenience is apparent, though sometimes overlooked or forgotten.

The same is not true in European countries. Because each is a distinct nation with its own currency, a French person cannot buy something at a German store without first exchanging his French francs for deutsche marks. This would be like someone from St. Louis having to exchange her Missouri currency for Illinois currency each time she visits Chicago. To make matters worse, because deutsche marks and francs currently float against each other within a range, the number of deutsche marks the French traveler receives today will probably differ from the number he would have received yesterday or the number he will receive tomorrow.<sup>2</sup> On top of this exchange rate uncertainty, the traveler also must pay a fee to exchange the currency, making a trip across the border a costly proposition indeed.

Although the costs to individuals can be limited because of the small quantities of money involved, firms can incur much larger costs. For example, if the franc were to depreciate against the deutsche mark, a French firm would have to ante up more francs than it had originally anticipated for the same amount of marks. To hedge against this uncertainty, firms can purchase foreign exchange futures contracts, which act like insurance policies. These financial market devices enable a firm to fix today the price at which it will exchange its

currency in the future. When the euro is introduced next year, however, exchange rate fluctuations among the currencies of the 11 member nations will no longer occur because the rates will be irrevocably fixed to each other since they will be fixed to the euro. Thus, exchange rate uncertainty will disappear, taking with it the need for futures contracts among these currencies.

## The Coin of the Realm

How exactly, then, will the euro become the coin of the realm? And what will happen to the deutsche marks, francs, pesetas, lire, escudos, and other currencies before Jan. 1, 2002, when the first euro notes and coins are released? These domestic currencies will continue to circulate after Jan. 1, 1999, but they will all effectively become different expressions of what is economically the same currency. This is tantamount to operating with a single currency. For example, one could argue that 12 currencies circulate in the United States since each Federal Reserve District has bills assigned to it, as designated by the first letter of each note's serial number, which corresponds to a particular Federal Reserve District. The exchange rates between these "currencies" are irrevocably fixed at a one-to-one ratio: One Federal Reserve dollar from the St. Louis District can be exchanged for exactly one Federal Reserve dollar from any other District. Exchange rates between EMU currencies, however, will certainly not be one-for-one, since some European currencies are stronger than others.

It could, for example, be determined that five deutsche marks equals one euro and that 10 French francs equals one euro. The permanent exchange rate between deutsche marks and francs would then be one deutsche mark for two francs.

Also on Jan. 1, the prices of all goods, services and debts in EMU countries will be recorded in euros rather than in domestic currencies, making the euro the unit of account. This means that no matter which country one is in, prices will be quoted in euros, making for easy comparisons. On top of easy price comparisons, customers will be able to pay for any good with deutsche marks, francs or lire, for instance. Building on the above hypothetical exchange rates, a Big Mac that costs five euros could be paid for with 25 deutsche marks or 50 francs since either would be five euros. In theory, one could also pay with some combination of currencies that summed to five euros—for example, 40 francs and five deutsche marks. In practice, however, this will probably cause too much confusion and therefore not occur. All the while, remember, not a single note or coin bearing the euro name or insignia will be circulating; that won't occur until Jan. 1, 2002. Six months after that, euros will be the only legal tender in the EMU.

## Every Rose Has Its Thorns

Euros won't come without some pain, though. Besides giving up its domestic currency, each country will also relinquish domestic control of its monetary policy. No longer will the Bundesbank, Banque de France or Banca d'Italia be able to control the quantity of deutsche marks, francs or lire in circulation. Neither will they—or any other member nation's central bank for that matter—be able to nudge domestic short-term interest rates one way or the other. On Jan. 1, 1999, the European Central Bank takes over these functions. It alone will issue and control the quantity of euros in circulation. And it alone will influence short-term EMU interest rates through market operations, like the way the Federal Reserve affects the federal funds rate in the United States.

The ECB will be a supranational entity insulated from political influence by any of the member nations.<sup>3</sup> Like the Federal Reserve System, the ECB will consist of an executive board, made up of a president, vice president and four other members, appointed to eight-year, nonrenewable terms (similar to the Fed's Board of Governors); and a governing council, comprised of the executive board and each member nation's central bank governor (similar to the Federal Open Market Committee). Every member country will have one vote on the governing council through its central bank governor (similar to the presidents of the Federal Reserve Banks). However, unlike the Federal Reserve's Federal Open Market Committee, which allows only five of the

12 Reserve Bank presidents to vote, the ECB's governing council will allow all members to vote, creating a more decentralized central bank.

The ECB's goal will be to maintain price stability within the monetary union. As such, it cannot be influenced by economic shocks from any one region. And as the central bank, it can prescribe only one monetary policy for the entire EMU, which, ironically, could end up causing the system's undoing.

National governments usually have three policy tools with which to combat economic shocks: fiscal policy, monetary policy and exchange rate policy. By entering the monetary union, EMU national governments will maintain control over fiscal policy only—and have limited flexibility with it at that. Knowing this, the Maastricht Treaty required that these economies converge so that the union could start with relatively homogeneous conditions, thereby attempting to make the effects of monetary policy more uniform across the union. Nonetheless, the countries still differ in some of their economic fundamentals.<sup>4</sup>

Most European Union nations have been able to bring their consumer price inflation rates to within half a percentage point or so of each other. In 1997, the annual rates in all of these countries—except for Greece—were less than 2 percent. In addition, long-term interest rates in most of these countries have converged to less than 1.5 percentage points of each other. EU nations have not performed as well with their national debts, however. Three members (Belgium, Greece and Italy) had public debts greater than 100 percent of GDP in 1997, and eight other members (Austria, Denmark, Germany, Ireland, the Netherlands, Portugal, Spain and Sweden) had public debts greater than the 60 percent of GDP standard required for EMU admission. That said, nine of these 11 nations have been working to reduce their debt as a percent of GDP over the past few years.

Another prominent economic indicator—the unemployment rate—was not used as one of the requirements for admission by the Maastricht Treaty. In all likelihood, this is because European nations have such poor track records controlling their unemployment rates due to severe labor market restrictions. Double-digit unemployment has been a mainstay in many European nations, particularly France, Italy and Spain, for about 20 years now. And Germany's unemployment rate, after being in the single digits for years, has risen to more than 10 percent since reunification. No EU nation has an unemployment rate near that of the United States. No EU nation has as open a labor market as the United States. Consequently, any shock—particularly a regional one—that causes further disruption to these labor markets could precipitate the union's unraveling.

## **Will Unemployment Undo the Union?**

Different regions of a monetary union having different unemployment rates is not necessarily a problem—consider the United States, where unemployment rates differ greatly across states and regions. Throughout the 1990s, for example, it has not been unusual for unemployment rates in California to be upwards of 10 percent, while in Missouri they have stood at 5 percent or less. Rates have even differed within a state. In Arkansas, for instance, unemployment rates range from less than 2 percent in northwestern counties to 12 percent or more in southeastern counties. All the while, America's monetary union has not collapsed, despite the fact that states cannot and do not have individual monetary or exchange rate policies. In this sense, the states are similar to EMU member nations. However, the U.S. economy has three important features to offset states' lack of monetary and exchange rate policies: 1) a federal government that can implement fiscal policy across states; 2) essentially uniform labor policies; and 3) an open and mobile labor market with freely adjusting wages.<sup>5</sup> The EMU does not have any of these. Although EMU members believe the monetary union will eventually evolve into a fiscal federal union too, members' governments will have to take a more active role in removing labor market restrictions. Currently, many European nations have divergent labor market policies that impose not only tight, but differing, restraints, which hamstringing markets' ability to clear.

Why is a mobile labor force important? Because, in a nutshell, it's the economy's natural distributor of labor resources. By moving, individuals redistribute their underemployed skills to areas where they can be put to better use. For instance, in the early 1990s when California was still in recession and most of the country had already begun recovering, California workers moved to other areas where more jobs were available. If Americans were restricted to their native states, or chose not to move to regions with better opportunities, the economy would not weather shocks as well and total output and income would suffer.

In some ways, the last scenario is exactly what the EMU might face. Economic shocks will not hit all EMU nations equally or simultaneously, and it is not certain that a citizen of Ireland or France would pick up and move to Germany, Belgium or Finland, even if better opportunities existed there.<sup>6</sup> And if no one relocates, countries can respond only with fiscal policy.

But EMU participation calls for each country to maintain its national deficit and debt ratios within a specified range.<sup>7</sup> So what's a nation to do? Pre-EMU, it could have stimulated the economy either by devaluing its currency, thereby making domestic products relatively cheaper than foreign products, or by easing monetary policy. Post-EMU, it has neither of these choices. And, for its part, the ECB will not be able to tailor its monetary policy to a particular region and likely will not respond to an isolated occurrence of higher unemployment anyway.<sup>8</sup> In fact, since the ECB's mission is price stability, it might actually tighten monetary policy in response to a nation's fiscal easing. In any case, interest rates will probably be higher than they otherwise would have been if the nation's own central bank had still been controlling monetary policy. And without labor mobility, the only other option available is the creation of a European federal government that could redistribute income from relatively strong to relatively weak regions, just as the U.S. federal government does. Without such a redistribution of income, lowering of interest rates, currency devaluation, deficit spending, or free and mobile labor force, a country might just decide to opt out of the union to regain its monetary and exchange rate control.<sup>9</sup> Hence, the EMU might already contain the seeds of its own destruction.

## **No Longer the Biggest Kid on the Block**

The United States will also have to adjust to the EMU. If for no other reason, the dollar will, for the first time, have a true competitor for its position as the chief international currency. The dollar has essentially been untouchable heretofore thanks to the breadth and scope of the American economy, which produces about a fifth of the world's output. The 15 EU members produce about the same share of world output; the 11 EMU members produce a slightly smaller share. Looking at world trade (in billions of 1996 U.S. dollars), the United States controls about 18 percent, while the 15 EU members control roughly 19 percent.<sup>10</sup> About 19 percent of both EU and U.S. trade is with each other. In all, the euro will be exchanged and traded in an economy comparable to that of the U.S. In addition, because all EMU members' financial markets will be denominated in euros, they will effectively act as one market. For instance, the new euro bond market will be valued around \$2 trillion, which is slightly less than the American bond market. As such, the euro will become almost as widely used as the U.S. dollar, overnight. And if the euro proves to be a stable store of value, the dollar will face a serious challenge to its position as the predominant currency of international transactions and holdings.

## **The World Is Watching**

Other regions of the globe have been diligently watching the progress of the transition to a single EMU currency. If the euro is successful, nations will see that voluntarily forfeiting their domestic currencies for a single currency is not only feasible, but likely beneficial. In fact, Mercosur, a customs union of Brazil, Argentina, Paraguay and Uruguay, is said to be considering the adoption of a single currency—perhaps called the "merco"—to bring further economic stability to the region. The EMU's success could therefore be the catalyst for other currency consolidations worldwide.

But the EMU's success is by no means guaranteed. Before other countries rush out and replace their domestic currencies and monetary policies to enter currency unions, they will want to see how the EMU weathers its first economic storm. The euro is certainly no panacea for all that ails member countries, but it may, in the end, prove enough of an incentive for members to keep the EMU aloft. The world is watching.

---

Table 2

## District Exports to European Union Countries

State	Total Exports	Share to EMU	Share to Non-EMU	Share to EU
	Billions	Percent	Percent	Percent
Arkansas	\$2.6	9.9	3.3	13.3
Illinois	\$29.2	14.5	6.4	20.9
Indiana	\$13.1	15.1	7.2	22.3
Kentucky	\$8.7	20.1	5.0	25.1
Mississippi	\$2.7	14.0	6.2	20.2
Missouri	\$7.3	13.7	4.7	18.5
Tennessee	\$10.2	16.4	5.8	22.2
<b>District Total</b>	<b>\$73.9</b>	<b>15.3</b>	<b>6.0</b>	<b>21.3</b>

SOURCE: Massachusetts Institute for Social and Economic Research (MISER), University of Massachusetts

Eighth District firms' presence in EMU countries is not trivial. In 1997, \$11.3 billion of District exports—more than 15 percent of all exports from District states—went to EMU countries. The 15 EU nations received slightly more than 21 percent of all District exports. Data on imports to District states by country of origin are not available.

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Gilberto Espinoza provided research assistance.

### Endnotes

1. In practice, though, a country may try to exert political pressure through its ECB representative. [back to text]
2. Under this scheme, governments allow exchange rates to float within prescribed limits before they intervene. Under a fixed exchange rate regime, in contrast, governments define the exchange rate and intervene in the market when necessary to maintain it. [back to text]
3. See Endnote 1. [back to text]
4. Of course, the countries differ more dramatically in politics than economics, but that is not the focus of this article. For a more complete list of the treaty's convergence criteria and country performance, see Deutsche Bundesbank (1998). [back to text]
5. Although minimum wages are in force in the United States, they affect only a small percentage of the work force. [back to text]
6. This does not even take into account the cultural, ethnic and language differences. [back to text]
7. The Maastricht Treaty allows the range to broaden somewhat during a recession, but not substantially. [back to text]



8. The U.S. Federal Reserve also cannot target monetary policy to a particular region, although monetary policy can affect different regions of the country differently. [back to text]
9. Opting out would be a costly proposition for any country, however, since all euro-denominated debts and accounting systems would have to be converted back to the reintroduced currency. [back to text]
10. These trade figures exclude intra-EU trade among member nations. [back to text]

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## Pieces of Eight: News Bulletins from the Eighth Federal Reserve District

### New and Improved Web Site

If you're looking for a way to pass the time in the air conditioning this summer, check out the St. Louis Fed's newly retooled web site at [www.stls.frb.org](http://www.stls.frb.org).



The site has been completely reworked to make it more appealing to visitors in terms of both the organization and presentation of information. Several new features have also been added, including pull-down menus (for those who have the latest browsers), an internal search engine and a site guide.

For more information on the St. Louis Fed's web site, contact Lora Holman by phone at (314) 444-8553 or by e-mail at [webmaster@stls.frb.org](mailto:webmaster@stls.frb.org).

### More Coming Than Going in the District: Domestic Migration of Population

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<b>District State</b>	<b>Rank among 50 States</b>	<b>Net Migration 1996-97</b>
Tennessee	9	34,393
Missouri	12	12,956
Kentucky	15	8,041
Arkansas	18	5,128
Mississippi	21	3,501
Indiana	24	2,397
Illinois	48	-68,612
<b>National Net Migration</b>		<b>0</b>

SOURCE: U.S. Bureau of the Census

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## **Economic Education Never Takes A Vacation**

School may be out for the summer, but educators District-wide are as busy as ever looking for ways to educate students about economics. The St. Louis Fed plays an active role in many of these efforts and, in fact, has listed education as one of seven critical success factors in its strategic plan.

For information on Fed economic education programs in the Eighth District, contact Dawn Griffiths at (314) 444-8421, or 1-800-333-0810. For other information on economic ed in the Eighth District, contact one of the state councils listed below.

### **National Office**

National Council on Economic Education  
 1140 Avenue of the Americas  
 New York, N.Y., 10036  
 Phone: 1-800-338-1192

### **Arkansas**

Arkansas Council on Economic Education  
 P.O. Box 3447  
 Little Rock, Ark., 72201  
 Phone: (501) 682-4230

### **Illinois**

Illinois Council on Economic Education  
 Northern Illinois University  
 DeKalb, Ill., 60115  
 Phone: (815) 753-0356

### **Indiana**

Indiana Council for Economic Education  
 Purdue University  
 1310 Krannert Center  
 Room 221  
 West Lafayette, Ind., 47907-1310  
 Phone: (765) 494-8545

**Kentucky**

Kentucky Council on Economic Education  
203 E. Jefferson St.  
Louisville, Ky., 40202  
Phone: (502) 584-2100

**Mississippi**

State council is currently restructuring. For information, contact the National Office.

**Missouri**

Missouri Council on Economic Education  
4747 Troost  
Kansas City, Mo., 64110  
Phone: (816) 235-2655

**Tennessee**

State council is currently restructuring. For information, contact the National Office.

# District Data

Selected economic indicators of banking,  
agricultural and business conditions in  
the Eighth Federal Reserve District

## Commercial Bank Performance Ratios

U.S., District and State

	All U.S.	U.S. <\$15B <sup>1</sup>	District	AR	IL	IN	KY	MS	MO	TN
<b>Return on Average Assets (Annualized)</b>										
1st quarter 1998	1.26%	1.53%	1.39%	1.32%	1.50%	1.35%	1.40%	1.27%	1.18%	1.56%
4th quarter 1997	1.30	1.40	1.34	1.30	1.27	1.33	1.25	1.41	1.30	1.59
1st quarter 1997	1.27	1.35	1.23	1.28	1.15	1.28	1.22	1.38	1.07	1.46
<b>Return on Average Equity (Annualized)</b>										
1st quarter 1998	15.10%	15.92%	15.98%	13.77%	16.54%	14.81%	17.19%	12.98%	13.38%	20.42%
4th quarter 1997	15.66	14.93	15.17	13.65	14.72	14.75	14.61	14.70	14.88	18.53
1st quarter 1997	15.27	14.63	13.15	12.49	11.15	14.24	14.33	14.50	11.26	17.01
<b>Net Interest Margin (Annualized)</b>										
1st quarter 1998	3.97%	4.67%	4.29%	4.31%	3.65%	4.19%	4.23%	4.65%	4.07%	5.07%
4th quarter 1997	4.34	4.94	4.53	4.46	4.56	4.34	4.45	4.97	4.59	4.46
1st quarter 1997	4.14	4.73	4.22	4.37	4.17	4.31	4.30	4.79	3.87	4.44
<b>Nonperforming Loans<sup>2</sup> ÷ Total Loans</b>										
1st quarter 1998	0.97%	0.97%	0.98%	1.01%	1.10%	0.52%	0.74%	0.62%	0.87%	1.38%
4th quarter 1997	0.96	1.00	0.97	0.95	1.09	0.55	0.65	0.65	0.85	1.71
1st quarter 1997	1.04	1.08	1.06	0.91	1.19	0.57	0.68	0.60	0.86	2.31
<b>Net Loan Losses ÷ Average Total Loans (Annualized)</b>										
1st quarter 1998	0.63%	0.71%	0.25%	0.22%	0.16%	0.14%	0.26%	0.23%	0.12%	0.52%
4th quarter 1997	0.66	0.84	0.39	0.25	0.50	0.19	0.37	0.31	0.32	0.62
1st quarter 1997	0.57	0.75	0.37	0.22	0.38	0.21	0.34	0.22	0.42	0.57
<b>Loan Loss Reserve ÷ Total Loans</b>										
1st quarter 1998	1.82%	1.83%	1.41%	1.37%	1.31%	1.25%	1.43%	1.48%	1.43%	1.48%
4th quarter 1997	1.84	1.83	1.40	1.36	1.30	1.25	1.41	1.46	1.43	1.51
1st quarter 1997	1.92	1.86	1.49	1.39	1.59	1.31	1.52	1.51	1.56	1.44

<sup>1</sup> U.S. banks with average assets of less than \$15 billion are shown separately to make comparisons with District banks more meaningful, as there are no District banks with average assets greater than \$15 billion.

<sup>2</sup> Includes loans 90 days or more past due and nonaccrual loans

NOTE: Data include only that portion of the state within Eighth District boundaries.

SOURCE: FFIEC Reports of Condition and Income for All Insured U.S. Commercial Banks

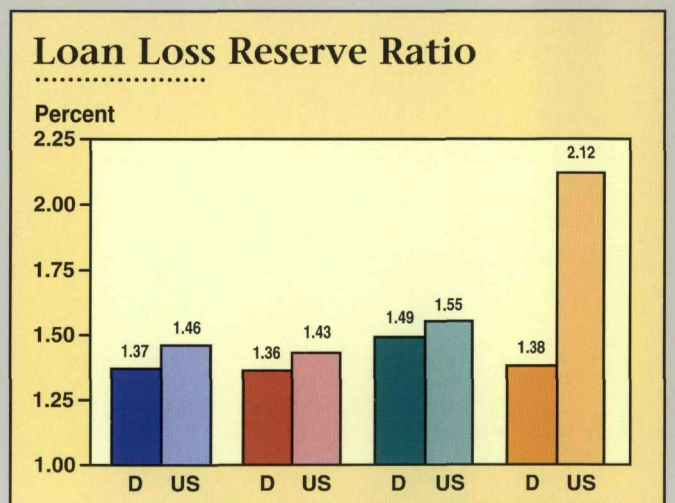
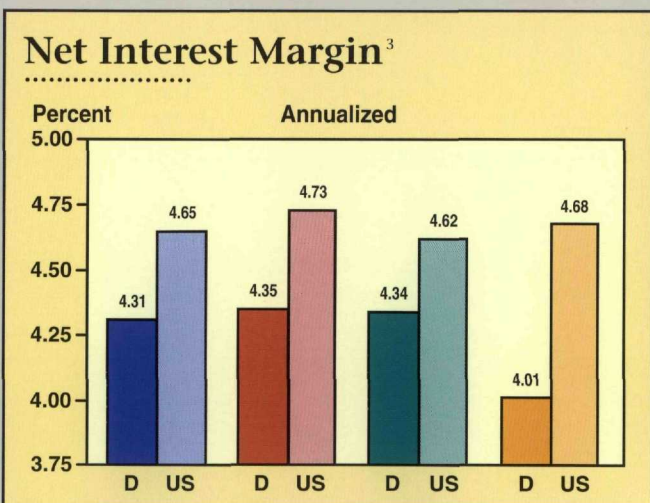
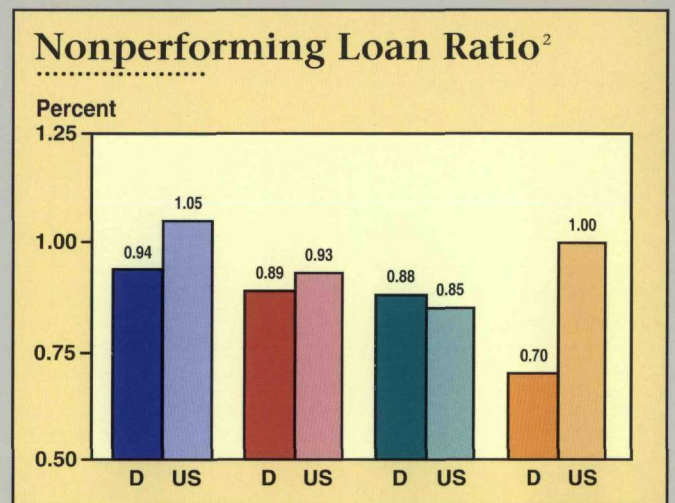
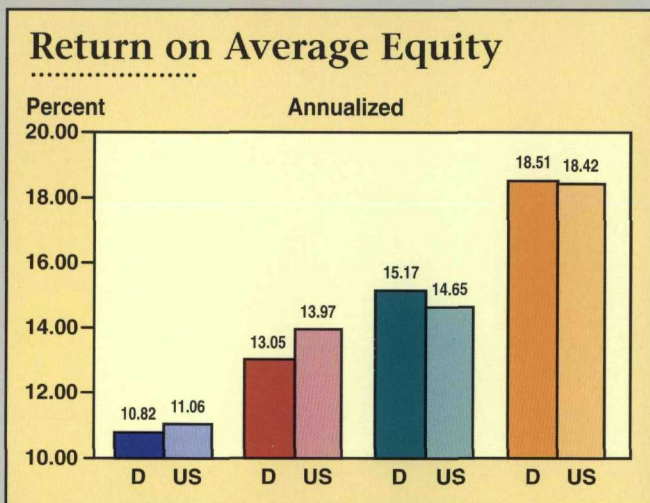
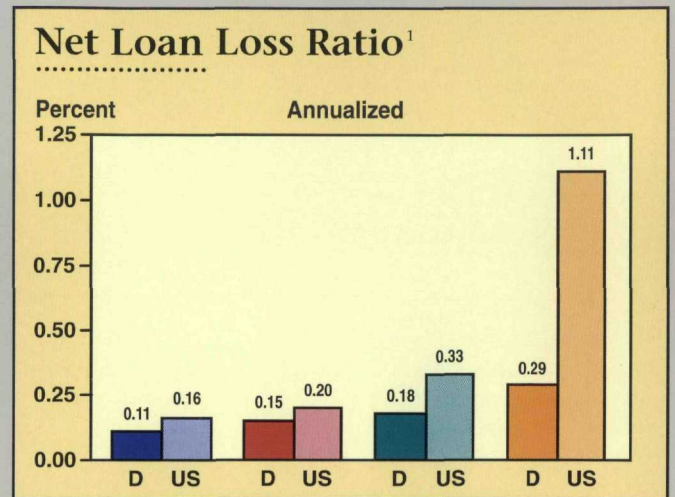
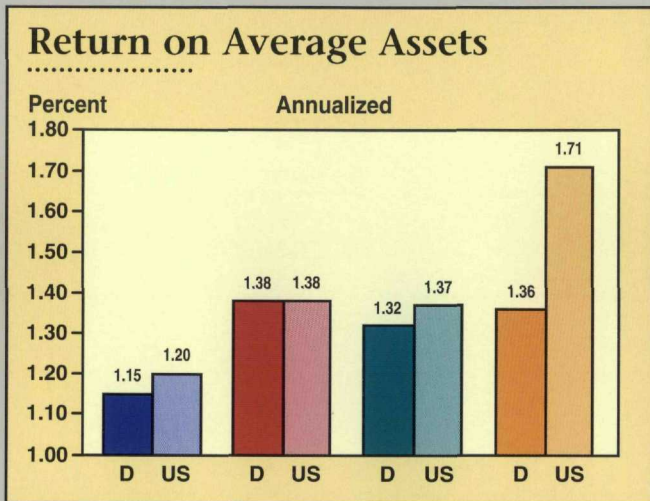
# Commercial Bank Performance Ratios

by Asset Size

1st Quarter 1998

## Earnings

## Asset Quality



D = District

US = United States

< \$100 Million

\$100 Million - \$300 Million

\$300 Million - \$1 Billion

\$1 Billion - \$15 Billion

<sup>1</sup> Loan losses are adjusted for recoveries.

<sup>2</sup> Includes loans 90 days or more past due and nonaccrual loans

<sup>3</sup> Interest income less interest expense as a percent of average earning assets

NOTE: Asset quality ratios are calculated as a percent of total loans.

SOURCE: FFIEC Reports of Condition and Income for All Insured U.S. Commercial Banks

## Agricultural Bank Performance Ratios

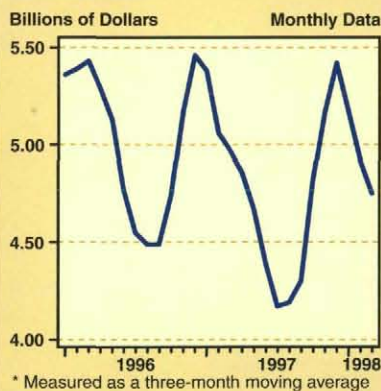
	U.S.	AR	IL	IN	KY	MS	MO	TN
<b>Return on average assets (annualized)</b>								
1st quarter 1998	1.28%	1.16%	1.30%	1.24%	1.39%	1.20%	1.15%	1.28%
4th quarter 1997	1.27	1.31	1.25	1.22	1.36	1.39	1.23	1.14
1st quarter 1997	1.28	1.36	1.30	1.22	1.45	1.41	1.25	1.27
<b>Return on average equity (annualized)</b>								
1st quarter 1998	12.25%	10.89%	11.63%	12.10%	13.20%	12.48%	11.17%	11.70%
4th quarter 1997	12.02	12.21	11.35	12.12	12.62	13.95	11.67	11.23
1st quarter 1997	12.29	12.53	12.17	12.88	13.82	14.43	11.93	11.80
<b>Net interest margin (annualized)</b>								
1st quarter 1998	4.42%	4.21%	4.09%	4.69%	4.41%	4.97%	4.22%	4.27%
4th quarter 1997	4.63	4.46	4.15	4.60	4.57	5.11	4.47	4.32
1st quarter 1997	4.47	4.29	4.15	4.94	4.51	4.94	4.44	4.55
<b>Ag loan losses ÷ average ag loans (annualized)</b>								
1st quarter 1998	0.04%	0.20%	-0.43%	-0.10%	-0.07%	0.12%	0.28%	0.02%
4th quarter 1997	0.20	0.16	0.00	-0.50	0.24	0.18	0.33	-0.08
1st quarter 1997	0.13	0.06	-0.07	0.01	-0.02	0.52	0.23	-0.02
<b>Ag nonperforming loans<sup>1</sup> ÷ total ag loans</b>								
1st quarter 1998	1.51%	0.81%	0.73%	2.59%	1.89%	1.64%	1.50%	1.88%
4th quarter 1997	1.19	0.67	0.65	2.63	1.27	1.26	1.29	0.01
1st quarter 1997	1.83	0.77	1.02	1.88	1.76	2.74	1.90	0.34

<sup>1</sup> Includes loans 90 days or more past due and nonaccrual loans

NOTE: Agricultural banks are defined as those banks with a greater than average share of agricultural loans to total loans. Data include only that portion of the state within Eighth District boundaries.

SOURCE: FFIEC Reports of Condition and Income for All Insured U.S. Commercial Banks

### U.S. Agricultural Exports\*



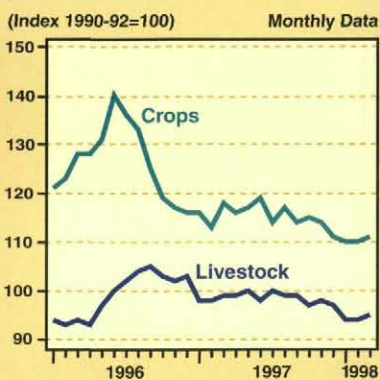
### U.S. Agricultural Exports by Commodity

Dollar amounts in billions

Commodity	Jan	Feb	Mar	Year-to-date	Change from year ago
Livestock & products	.82	.85	.87	5.54	4.1%
Corn	.36	.37	.39	2.28	-39.0
Cotton	.27	.28	.31	1.52	-2.0
Rice	.10	.14	.12	.64	11.0
Soybeans	.66	.68	.40	4.97	0.0
Tobacco	.11	.11	.15	.76	-15.0
Wheat	.41	.28	.27	2.02	7.0
TOTAL <sup>1</sup>	4.80	4.73	4.73	30.53	-2.0

<sup>1</sup> Includes commodities not listed here

### U.S. Crop and Livestock Prices



### Indexes of Food and Agricultural Prices

	Level			Growth <sup>1</sup>	
	I/98	IV/97	I/97	IV/97-I/98	I/97-I/98
Prices received by U.S. farmers <sup>2</sup>	102	106	107	-15.3%	-4.7%
Prices received by District farmers <sup>3</sup>					
Arkansas	130	131	140	-3.0	-7.1
Illinois	100	110	116	-31.7	-14.0
Indiana	103	108	116	-18.3	-11.7
Missouri	99	104	108	-20.0	-8.4
Tennessee	N.A.	N.A.	143	N.A.	N.A.
Prices paid by U.S. farmers					
Production items	115	116	116	-4.5	-0.6
Other items	117	117	116	-1.1	0.3
Consumer food prices	159	159	156	1.4	2.0
Consumer nonfood prices	162	162	160	0.3	1.4

<sup>1</sup> Compounded annual rates of change are computed from unrounded data.

<sup>2</sup> Index of prices received for all farm products and prices paid (1990-92=100)

<sup>3</sup> Indexes for Kentucky and Mississippi are unavailable.

N.A. = Not Available

NOTE: Data not seasonally adjusted, except for consumer food prices and nonfood prices

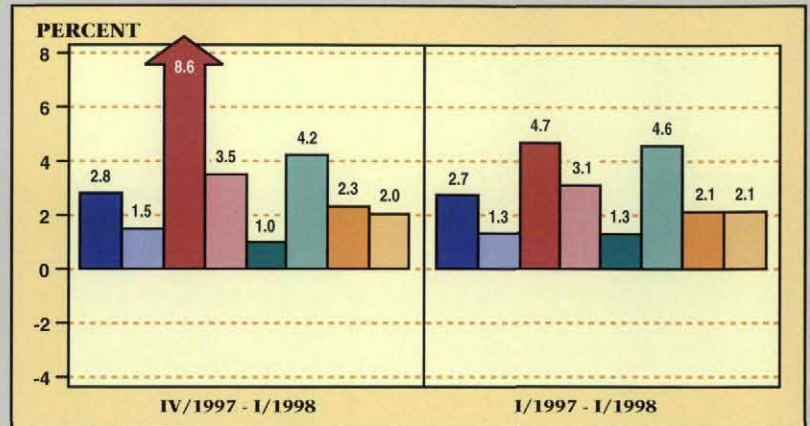
# Selected U.S. and State Business Indicators

## Compounded Annual Rates of Change in Nonagricultural Employment

### United States

	I/1998	IV/1997	I/1997
Labor force (in thousands)	137,524	136,813	135,844
Total nonagricultural employment (in thousands)	124,795	123,934	121,461
Unemployment rate	4.7%	4.7%	5.3%

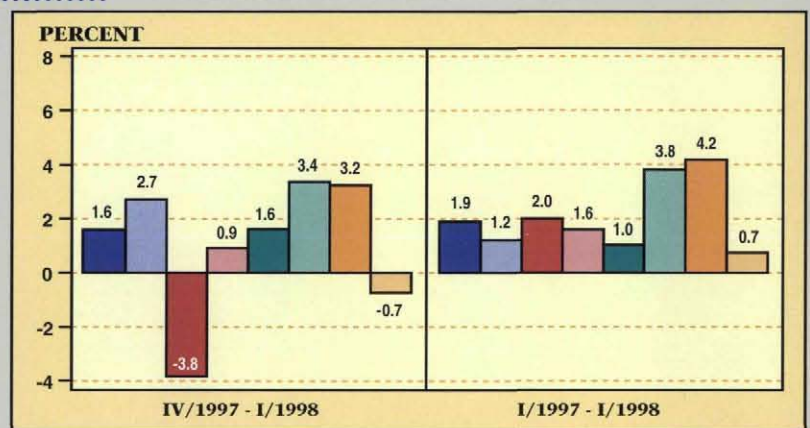
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$4,335.6	\$4,291.8	\$4,168.6



### Arkansas

	I/1998	IV/1997	I/1997
Labor force (in thousands)	1,246.2	1,230.0	1,205.1
Total nonagricultural employment (in thousands)	1,114.2	1,109.8	1,093.5
Unemployment rate	5.4%	5.0%	5.5%

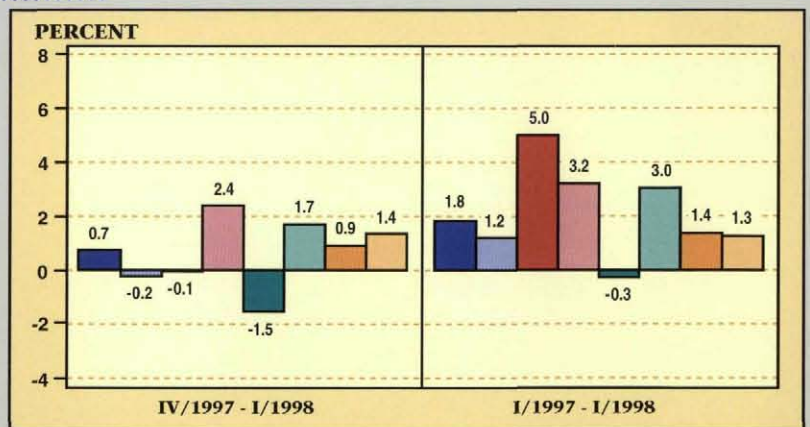
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$31.0	\$30.8	\$30.5



### Illinois

	I/1998	IV/1997	I/1997
Labor force (in thousands)	6,188.6	6,156.1	6,115.8
Total nonagricultural employment (in thousands)	5,835.2	5,824.4	5,730.3
Unemployment rate	4.7%	4.8%	4.9%

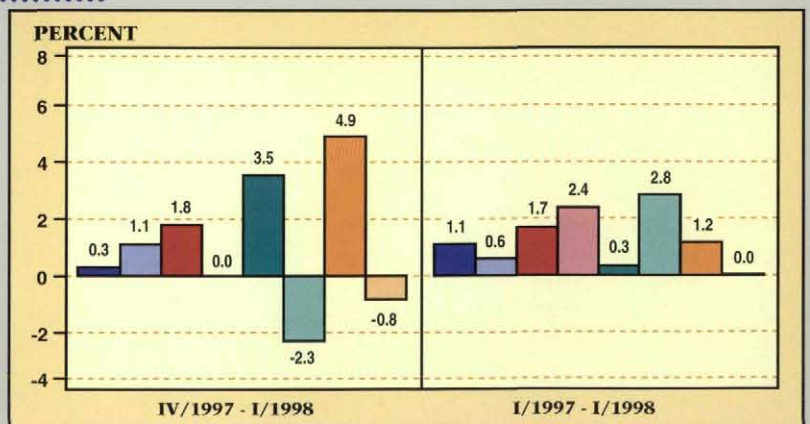
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$211.6	\$209.3	\$204.1



### Indiana

	I/1998	IV/1997	I/1997
Labor force (in thousands)	3,120.1	3,112.7	3,069.7
Total nonagricultural employment (in thousands)	2,877.8	2,875.6	2,846.2
Unemployment rate	3.3%	3.5%	3.4%

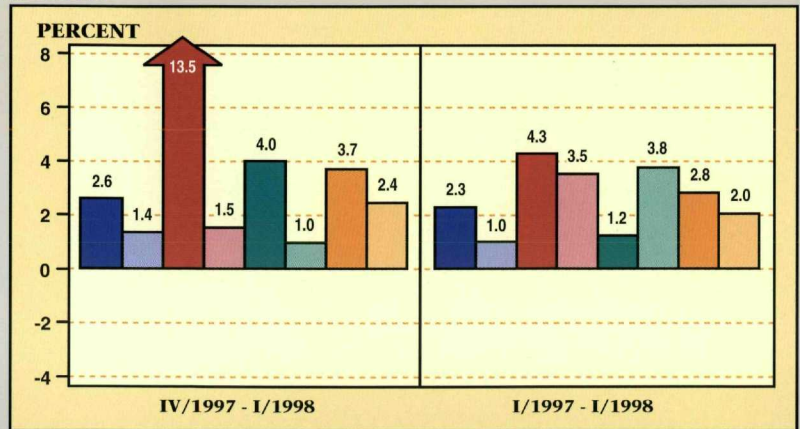
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$87.3	\$86.1	\$84.8





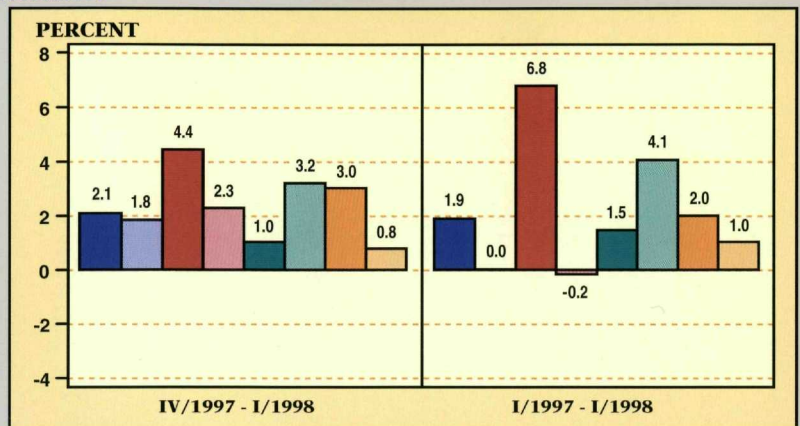
## Kentucky

	I/1998	IV/1997	I/1997
Labor force (in thousands)	1,937.8	1,937.6	1,911.1
Total nonagricultural employment (in thousands)	1,737.3	1,726.2	1,698.6
Unemployment rate	4.4%	4.9%	5.8%
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$50.8	\$50.3	\$49.2



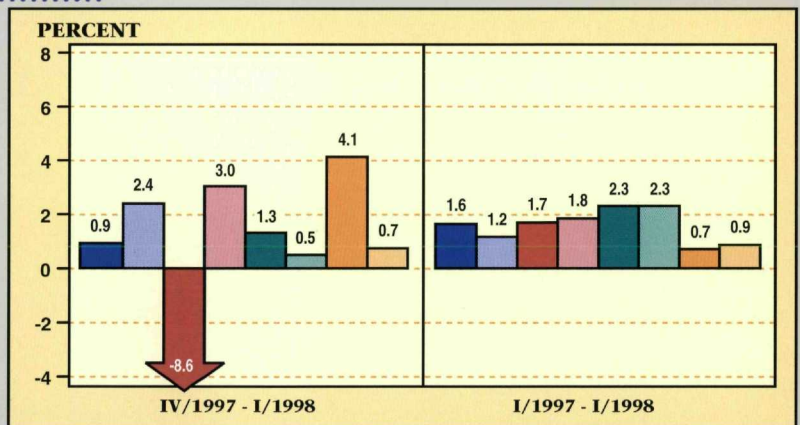
## Mississippi

	I/1998	IV/1997	I/1997
Labor force (in thousands)	1,285.4	1,278.4	1,256.8
Total nonagricultural employment (in thousands)	1,118.6	1,112.8	1,097.7
Unemployment rate	5.5%	5.4%	6.0%
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$31.3	\$31.2	\$30.4



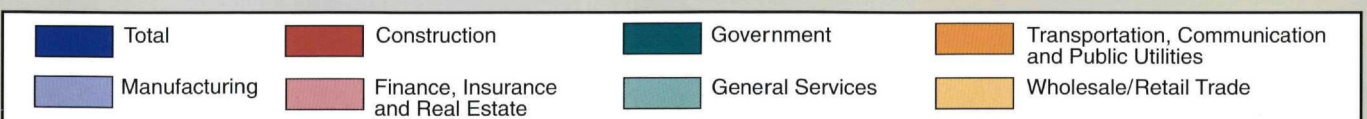
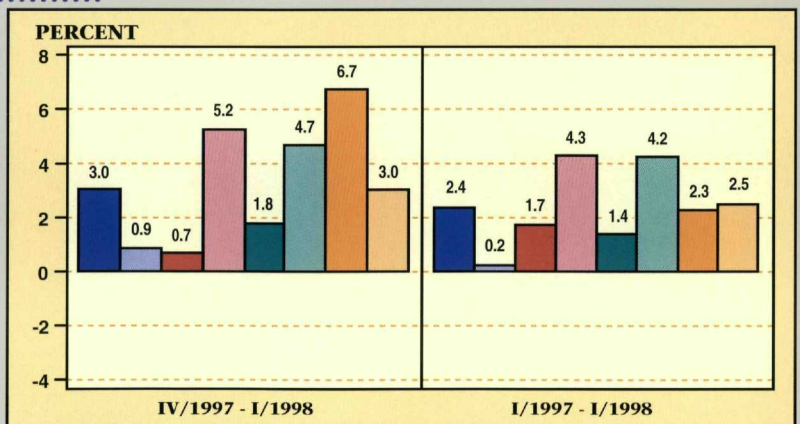
## Missouri

	I/1998	IV/1997	I/1997
Labor force (in thousands)	2,905.9	2,893.3	2,895.3
Total nonagricultural employment (in thousands)	2,659.6	2,653.5	2,616.7
Unemployment rate	4.1%	4.0%	4.6%
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$81.7	\$80.8	\$79.1



## Tennessee

	I/1998	IV/1997	I/1997
Labor force (in thousands)	2,780.2	2,753.4	2,691.7
Total nonagricultural employment (in thousands)	2,621.0	2,601.4	2,560.6
Unemployment rate	4.5%	5.2%	5.4%
	IV/1997	III/1997	IV/1996
Real personal income* (in billions)	\$77.9	\$77.1	\$75.0



NOTE: All data are seasonally adjusted. The nonagricultural employment data reflect the most current benchmark revision.

Data deflated by CPI, 1982-84=100.  
\* Annual rate