

# Southwest Economy



## What Wages and Property Values Say About Texas

Two principal factors determine which cities experience the most rapid economic growth: business investment and labor growth. Business investment is high in cities where productivity is high relative to the cost of production. Workers are most attracted to cities where the amenities and wages are high relative to the cost of living.

Together, wages and property values convey considerable information about a city's productivity and amenities, and therefore about its growth potential. Taken independently, however, neither provides a complete measure of amenities and productivity. Wages could be low in a city because productivity is low, but they could also be low because people are willing to accept lower wages to live in a place with so many amenities. High wages could indicate either high productivity or the need to compensate workers for a lack of amenities. Similarly, high property values indicate either that high productivity has attracted enough business to bid up property values, that high amenities have attracted enough residents, or both.

A simple economics framework—one that takes into account the role labor and capital

*(Continued on page 2)*

## Debunking Derivatives Delirium

Banks have gotten a lot of bad press lately. Some commentators have gone so far as to declare a banking breakdown, brought on by the free market policies of the 1990s. At the heart of much of the controversy is the explosive growth in banks' use of the sometimes complex financial instruments known as derivatives.

Close examination, however, suggests the potential costs of derivatives are often exaggerated and their benefits downplayed. Moreover, recent data provide evidence that despite talk of a breakdown, the banking system has been remarkably resilient. Contrary to popular claims, the free market policies instituted in the 1990s have contributed to, rather than detracted from, the industry's stability.

*(Continued on page 5)*

*INSIDE:  
The Giant in Mexico's  
Rearview Mirror*

# Debunking Derivatives Delirium

(Continued from front page)

## Then and Now

It's becoming increasingly difficult to recall the boom years of the 1990s, but one hallmark of the period was a policy emphasis on free markets. A good example of those policies involves banks' increasing use of derivatives.

Financial derivatives—such as interest rate swaps, options and futures—may seem arcane, but they influence everyday life more than might be thought. For example, derivatives help improve the terms of home mortgage loans.

Large banks dominate the market in over-the-counter derivatives, which are traded directly between companies without going through an exchange. In the 1990s, policymakers debated whether to regulate these activities. But free market proponents prevailed, and banks' derivatives activities were allowed to develop and grow. Driving these policies was the belief that free financial markets would result in stronger banks. Competition and innovation, it was predicted, would spawn new technologies and practices that would help banks manage risk more effectively.

More recently, the policies adopted in the 1990s have been subjected to much second-guessing. Banks are under

fire for dealing in what some consider an alarmingly high volume of complex and risky derivatives. The thinking is that free markets have encouraged financial innovation all right, but it has taken unexpected and unwanted forms, like hard-to-detect accounting fraud, and has increased, rather than reduced, risk in the banking system. As a result, some advocate greater government control over financial markets, including banks' derivatives activities.

## Fact Versus Fiction

Derivatives usage has grown a lot, propelled by advances in information technology and financial theory. But the magnitude of derivatives activities is often exaggerated, contributing to a false sense of alarm.

Based on notional value, the measure the media typically use, U.S. commercial banks now hold about \$55 trillion in derivatives, compared with \$7 trillion in 1990 (Chart 1). Interest rate contracts account for the vast majority.<sup>1</sup>

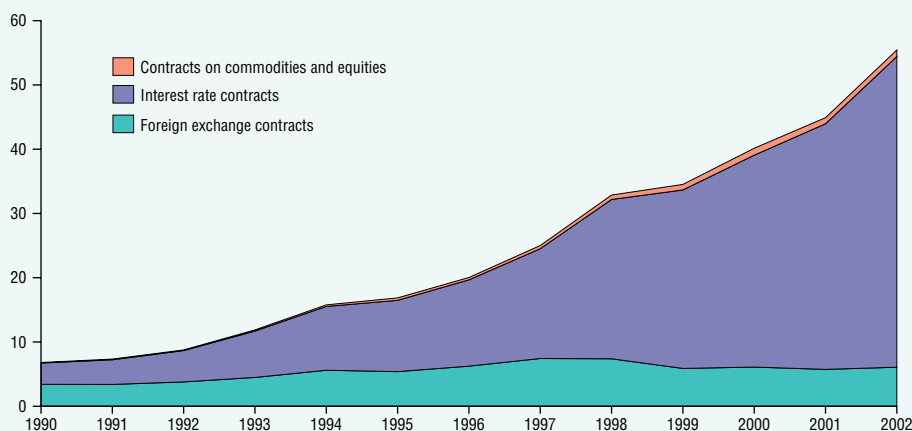
But while derivatives activities have grown tremendously by any measure, notional value overstates their magnitude. The notional \$55 trillion is roughly five times the U.S. economy's annual output. Such an amazing figure should

*Competition and innovation, it was predicted, would spawn new technologies and practices that would help banks manage risk more effectively.*

Chart 1

## Derivatives at Banks

Notional value (trillions of dollars)



SOURCE: Report of Condition and Income, Federal Financial Institutions Examination Council.

*The notional value of a derivative greatly exaggerates the dealer bank's credit exposure.*

be interpreted with care. For derivatives, notional value is the amount on which interest and other payments are based. Notional value typically does not change hands; it is simply a quantity used to calculate payments. Understanding this distinction requires some detail on how typical derivative contracts work.

**An Interest Rate Swap.** Consider the most prominent type of derivative, an interest rate swap. A variety of businesses employ swaps, in many different contexts. The following is a highly simplified example.

Suppose a small bank has a portfolio of fixed-rate loans, so that the interest payments remain the same each period. The bank wants to convert these fixed-interest payments to floating, or variable, rate payments, so that they fluctuate with market interest rates. That way, if rates rise and the bank has to pay higher rates on its liabilities, the interest it receives on the loan portfolio will also rise, thereby preserving the bank's profit margin.

The small bank can go to a dealer, typically a large bank, to swap the fixed rate on its portfolio for a variable rate. The small bank promises to pay the dealer the fixed rate, while the dealer promises to pay the small bank the variable rate (*Chart 2*).

When the variable and fixed rates are equal, no payments are traded because they would be the same; they

cancel each other out. However, if the variable rate rises above the fixed rate, the dealer must pay the small bank the difference, so that the small bank can earn the variable rate. Conversely, if the variable rate falls below the fixed rate, the small bank must pay the dealer the difference, so that the small bank still earns only the variable rate. In this way, the small bank always earns the variable rate, holding its profit margin constant.

**Credit Exposure.** How does the dealer bank record this derivative? As already noted, one measure is the derivative's notional value, which is the principal value of the underlying asset. If the small bank extends \$100 million in fixed-rate loans, the notional value of the derivative is recorded as \$100 million on the dealer bank's books. But this value greatly exaggerates the dealer bank's credit exposure.

Suppose that when the swap contract was written, the variable and fixed rates were both 5 percent, so the annual interest payment is \$5 million. Even this exaggerates the dealer bank's credit exposure since the payments cancel each other out. On net, the small bank owes the dealer nothing, and the dealer owes the small bank nothing.

Of course, the variable rate often deviates from the fixed rate. Suppose the variable rate drops from 5 percent to 4

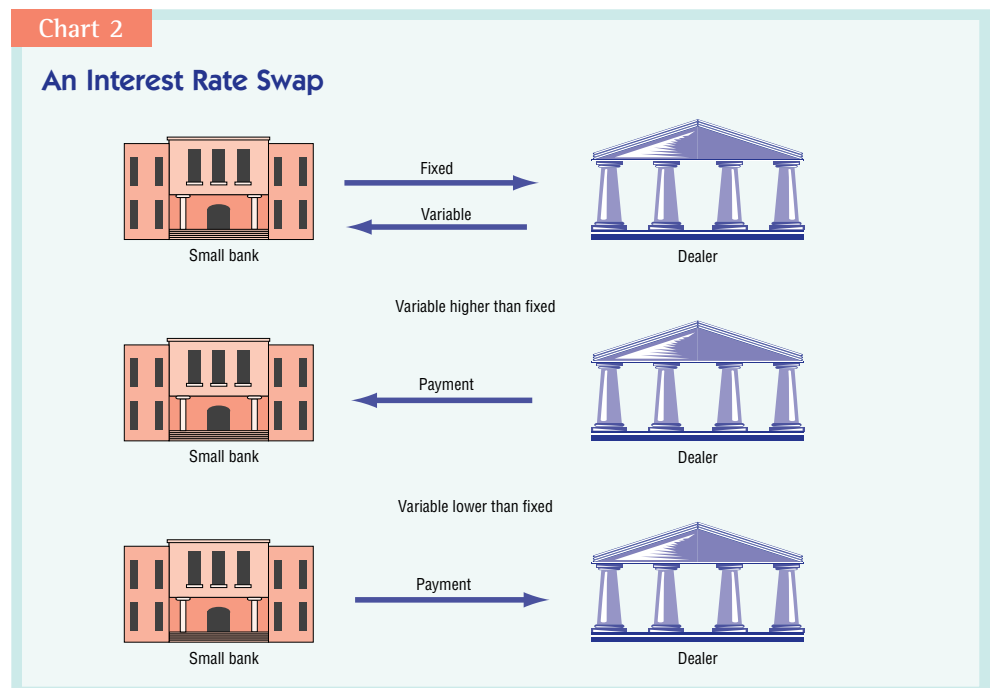
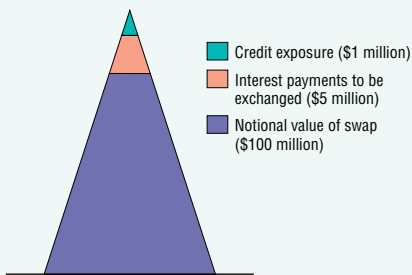


Chart 3

### Notional Value Versus Credit Exposure



percent. In this case, the small bank owes the dealer 1 percent. If we assume there is only one period left in the contract, that amounts to \$1 million. Because the small bank owes the dealer \$1 million, that is the amount of the dealer bank's credit exposure.

As you can see from this simplified example, the credit exposure associated with a derivative is much smaller than its notional value (*Chart 3*).

Reflecting the concentration of dealer activities, the vast majority of derivatives in the U.S. banking system are held by 10 large banks. For the 10 as a group, the notional value of derivatives is very high, greatly exceeding total assets. But their current credit exposure, or the risk associated with the possibility that the other party to a derivative contract may not make a required payment, is much

smaller. By this measure, the derivatives exposure of the top 10 is only about 7 percent of total assets (*Chart 4*). This compares with an 8 percent capital ratio and a loan-to-asset ratio of 51 percent.<sup>2</sup>

#### Capital Requirements.

Not only does notional value exaggerate the true credit exposure of derivatives, but safeguards within both the banks themselves and their supervisory framework help manage that exposure. Supervisors require banks to hold capital against their derivative positions in two ways. A capital requirement is attached to the credit risk discussed above, and a separate capital requirement is attached to the market risk associated with derivatives.<sup>3</sup>

In our example, suppose that instead of falling from 5 percent to 4 percent, the variable rate rises from 5 percent to 6 percent. The dealer bank would then owe the end user, rather than the other way around. Dealers use so-called value-at-risk models to gauge this type of risk, which arises from potential changes in market rates, and supervisors require that banks hold additional capital to guard against it.

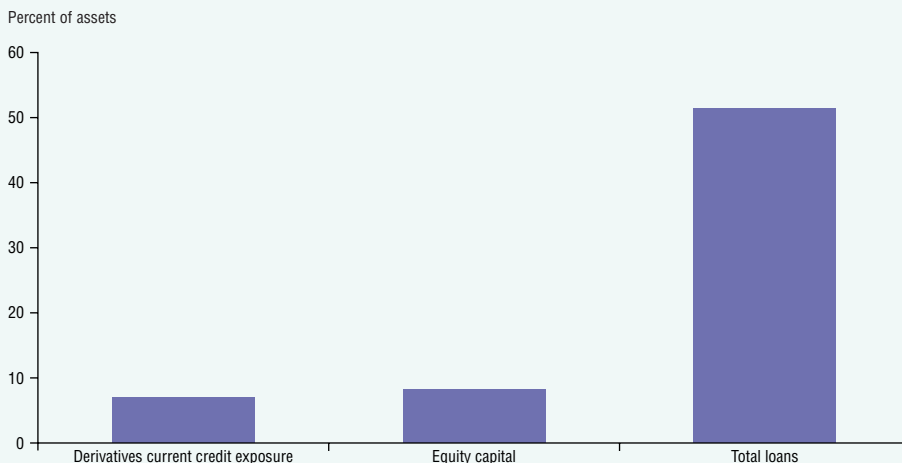
#### Less or More Stable?

What's the bottom line? Are banks less or more stable? Have free market policies promoted innovation and more effective risk management? Or have banks used their freedom, especially in the area of derivatives, to become riskier than before?

*Safeguards within both the banks and their supervisory framework help manage the risk exposure of derivatives.*

Chart 4

### Derivatives Exposure of Top 10

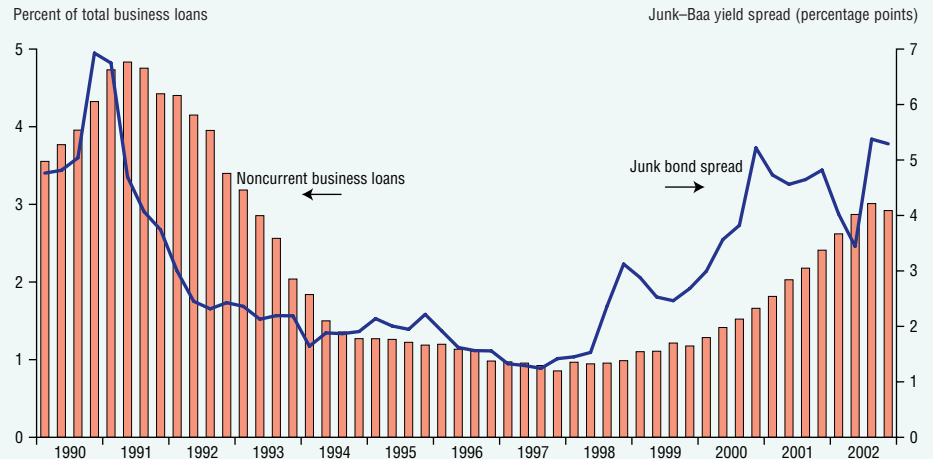


SOURCE: Report of Condition and Income, Federal Financial Institutions Examination Council.

*Despite the tough operating environment and associated credit problems, banks have remained healthy, with high profits and capital levels.*

Chart 5

### Noncurrent Business Loans



NOTE: Noncurrent business loans are past due 90 days or more or not accruing.  
 SOURCES: Report of Condition and Income, Federal Financial Institutions Examination Council; Merrill Lynch; Moody's Investors Service; Bloomberg LP.

#### Resilience in a Tough Environment.

The credit markets have been troubled for some time. Corporate bond defaults have risen, and investors in high-yield corporate bonds, or junk bonds, have demanded higher premiums over investment-grade instruments. Reflecting these trends, problem business credits have been rising at banks (*Chart 5*). Similar difficulties have occurred in consumer lending, as rising bankruptcies have kept problem loans fairly high (*Chart 6*).

Despite the tough operating environment and associated credit problems,

banks have remained healthy, with high profits and capital levels. While some loan problems have surfaced, the banking system's return on assets has not only held its own, it has increased. In the 1990–91 recession, credit market difficulties were associated with low bank profits. Bank profits have been more resilient during the current round of credit problems (*Chart 7*).

The banking system's resilience is also evident in bank stock prices. Since the market began falling, small-cap, mid-cap and large banks have all out-

Chart 6

### Noncurrent Consumer Loans

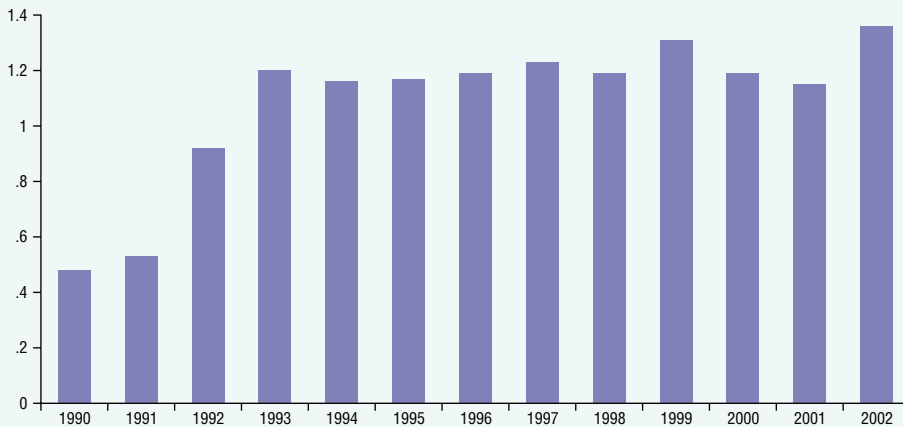


NOTE: Noncurrent consumer loans are past due 30 days or more or not accruing.  
 SOURCES: Report of Condition and Income, Federal Financial Institutions Examination Council; Administrative Office of the U.S. Courts.

Chart 7

### Bank Profitability

Return on assets (percent)



SOURCE: Report of Condition and Income, Federal Financial Institutions Examination Council.

performed the Standard & Poor's 500 (Chart 8). The especially strong performance of small- and mid-cap banks partly reflects the absence of widespread asset-quality problems, as the worst credit difficulties have been concentrated at certain types of large corporate borrowers, the traditional customers of larger banks. Even the large banks have managed to hold their valuations, despite deterioration in their business loan portfolios. These overall performance measures suggest the banking system has become more, not less, stable.

**Innovation and Resilience.** Many factors may have contributed to banking system resilience, but the growing use of risk management tools, including derivatives, has played a major role. Financial innovation opens new doors for segmenting and dispersing risk. As shown in our interest rate swap example, the end-user bank was able to convert fixed-rate payments into variable-rate payments. The dealer bank, in turn, may find a party that wants to convert a variable payment to a fixed one. Asset securitization and derivatives in the form of credit

default swaps are other examples of innovations used to segment and disperse risk.

As a result, banks can better manage risk by dispersing it to those most able to bear it. Organizations with little dependence on short-term liabilities, such as insurance companies and pension funds, often benefit from holding some of the risk segmented and dispersed through derivatives. When risk can be divided up and reshaped, so that it comes to the purchaser custom-made, financial market participants enjoy greater flexibility and efficiency.

### A Remarkable Performance

The banking system's recent performance suggests free market policies have lived up to their promise of promoting innovation and more effective risk management. Banks have proven remarkably resilient in the face of several threats. Of course, given a sufficiently adverse operating environment, almost any banking system would find itself in serious straits. But with the recession, the war on terrorism, corporate governance and accounting scandals, and a declining stock market, banks have so far withstood a pretty severe test.

Along with innovation come greater financial complexity and perhaps a greater supervisory challenge. Supervisors are responding with better disclosure requirements and enhanced capital standards. Beyond that, instituting greater government control over derivatives is a bad idea.

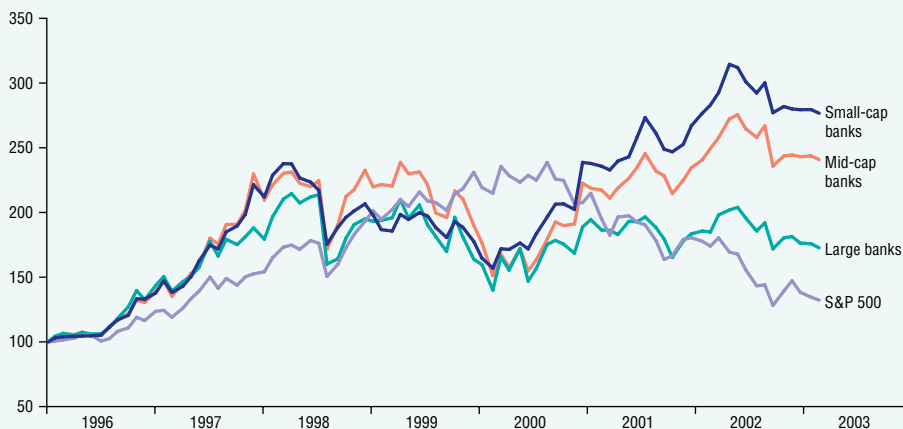
—Jeffery W. Gunther  
Thomas F. Siems

*Gunther is research officer in the Financial Industry Studies Department of the Federal Reserve Bank of Dallas. Siems is a senior economist and policy advisor in the Research Department.*

Chart 8

### Bank Stock Prices

Index, January 1996 = 100



SOURCES: Standard & Poor's; Bloomberg LP.

### Notes

- <sup>1</sup> Credit derivatives, not shown in Chart 1, are relatively new and growing rapidly, with a notional value of \$642 billion.
- <sup>2</sup> Current credit exposure covers only derivatives for which risk-based capital requirements specify a capital charge.
- <sup>3</sup> In addition to current credit exposure, capital requirements also take into account the potential future credit exposure over the life of a derivative.