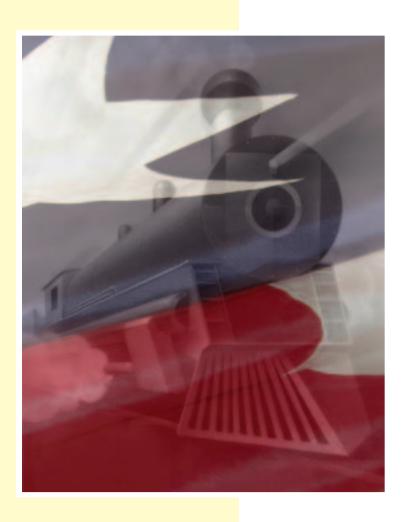
Southwest Economy



Economic Recovery Gains Steam in Texas

During 2003, the Texas economy bottomed out and began to grow again. Most sectors ended the year stronger than they began it, and there is reason to believe 2004 will bring substantial growth to Texas.

Judging only by the current job market, one might think Texas has entered a period of extremely slow growth. But the U.S. economy grew at a torrid pace in the second half of 2003 despite sluggish employment growth, and the same appears true for Texas. As the state economy's composition becomes more like the nation's, Texas and U.S. business cycles should be more closely tied, absent dramatic upheaval in the few sectors where the two economies continue to differ.

We will not have official 2003 output data for Texas until 2005, but strong U.S. growth, coupled with a relatively stable picture in Texas-centric industries such as energy and telecom, suggests the Texas economy is also growing faster than the sluggish employment situation implies. This is consistent with the Dallas Fed's coincident index for Texas, which has now clearly entered expansionary territory (*Chart 1*).

(Continued on page 2)

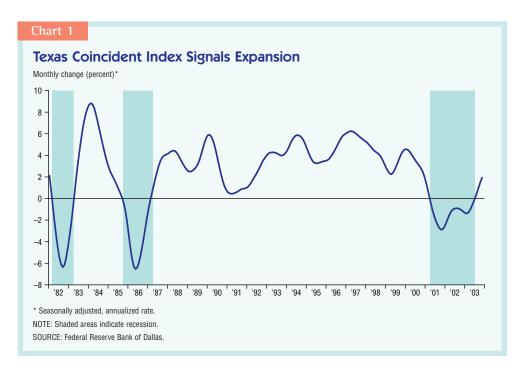
INSIDE:
Have Mexico's
Maquiladoras
Bottomed Out?

Small Banks' Competitors Loom Large

Small banks have long played a key role in the U.S. financial system. Sprinkled heavily across the country, they serve virtually all but the most isolated geographic areas. Built on personal contact, community ties and close lender–borrower relationships, these institutions traditionally have met the banking needs of individuals, farms and small businesses.

But small-scale banking has encountered rough going in recent years. Competitive forces, unleashed by technological advancement and financial deregulation, have led many small banks to combine or otherwise grow to achieve a larger scale, suggesting a reduced role for the traditional small bank. In addition, other types of financial institutions, such as credit unions, have made significant inroads into small banks' market segments.

(Continued on page 9)



Medical services continue to expand rapidly in Texas, with employment growing at a 3.5 percent rate in 2003.

This article presents a sector-by-sector look at the Texas economy, from hottest to coldest (see *Texometer* on page 4).¹ It concludes with discussions of consumption, labor-market conditions and the general outlook for Texas in 2004.

1 Health

Medical services continue to expand rapidly in Texas, with employment growing at a 3.5 percent rate in all of 2003 and a 4.4 percent rate in the fourth quarter. This is at least in part due to Texas' fast-growing population, including an increasing number of retirees from other states. According to the Milken Institute, Houston, Austin and Dallas are among the nation's 10 most popular large-city destinations for retirees. Anecdotal evidence suggests many are following their children, who have moved to Texas in search of economic opportunity.

Perhaps the biggest question for this fast-growing sector concerned Texas HMOs: Could they repeat their profitable 2002 performance or would they lose money as they did every year from 1996 to 2001? In the aggregate, it appears they ended the year in the black, and dire talk of the demise of the HMO in Texas has been replaced by at least cautious optimism that a leaner set of HMOs will remain in Texas' health-care marketplace. Although HMO participation declined 15

percent over the past year, HMOs continue to serve roughly 2.8 million Texans.

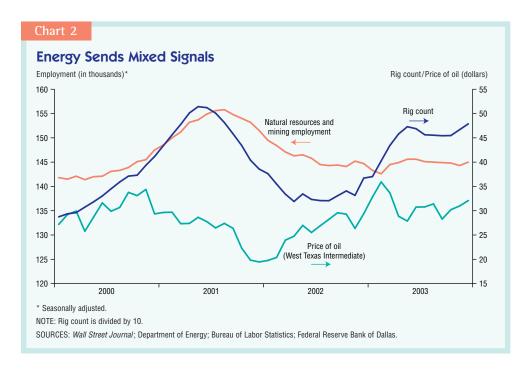
Energy

Energy employment rose 0.2 percent in 2003 as oil prices remained above \$30 a barrel—the highest sustained oil price since the early 1980s (Chart 2). Energy employment actually fell slightly in the second half, in part because of uncertainties about whether \$30-a-barrel oil was sustainable. Those fears turned out to be misplaced, although the Energy Information Administration is projecting a \$2 per barrel decline in the price of oil during the first half of 2004. On the natural gas side, prices surged 40 percent in the fourth quarter to a level that, if sustained over the medium term, will likely prompt additional drilling in Texas during 2004.

One interesting development from the energy sector is that San Antonio-based Tidelands Oil & Gas Corp. has begun exporting natural gas to the Mexican state of Coahuila through a new 12-inch pipeline. It is hoped that once Mexico more fully develops its natural gas reserves, the flow of the pipeline will be reversed.

♠ Real Estate and Construction

Construction employment declined 0.8 percent overall during 2003 but rose at a 3 percent annual rate during the last half of the year. Housing starts are strong



Texas exports
posted their
biggest gain in
more than a year
during third
quarter 2003.

as well, suggesting construction is in good shape going into 2004 (*Chart 3*).

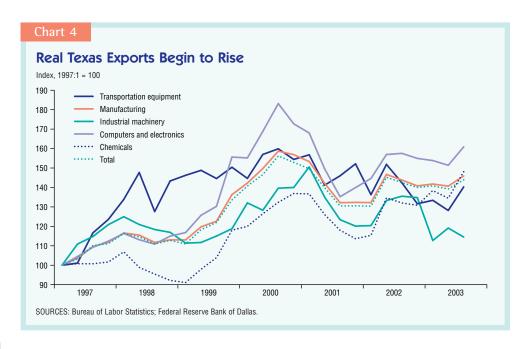
Home resales were especially strong, rising 14 percent in Houston, 9 percent in Dallas/Fort Worth and 4 percent in Austin over the past year. New-home sales were also strong, and even commercial real estate began to show signs of life. Consistent with this analysis, occupancy rates for the hard-hit Austin office market rose slightly in the third quarter. Moody's now rates Austin's

office market at 30 out of 100, which seems low but is nevertheless an improvement over the zero rating it received for 2002.

Exports

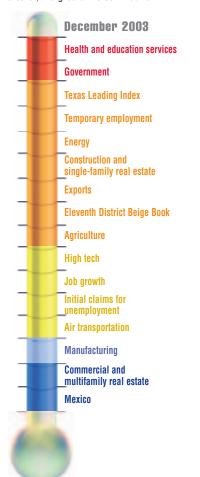
Texas exports posted their biggest gain in more than a year during third quarter 2003, rising at an annual rate of 14.1 percent (*Chart 4*). Most categories were up, including computers and electronics, transportation equipment and







The Texometer is an unscientific depiction of how different indicators and sectors of the Texas economy are contributing to overall economic growth. The redder, or hotter, the indicator, the greater its contribution.



chemicals. Of the major categories, only industrial machinery declined.

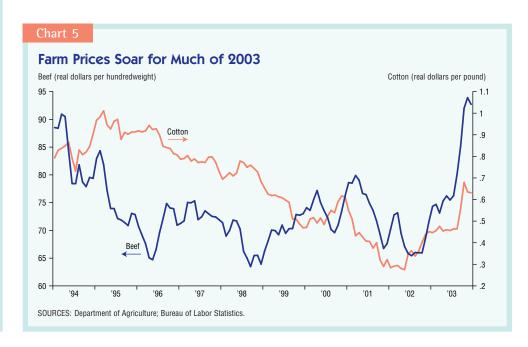
On a country-by-country basis, exports to Japan rose a whopping 53 percent annual rate, followed by Taiwan at 21.6 percent. Exports to Mexico rose at an annual rate of 13.3 percent, roughly matching Texas' overall export growth in the third quarter. And exports to China declined 10.9 percent, contributing to an increase in the U.S. trade deficit in the third quarter.

Agriculture

Agriculture has become increasingly globalized, and in 2003 Texas farmers felt

the effects of this trend. Heavy rains in China and Pakistan, plus unusually dry weather in parts of Australia, significantly reduced world production of cotton this season. At the same time, China's burgeoning economy is substantially boosting worldwide demand for cotton. As a result, Texas farmers enjoyed better-than-expected cotton prices.

The beef industry was also poised for a strong 2004 as a sharp midyear increase in cattle prices put Texas cattlemen back in the saddle again (*Chart 5*). Droughts that reduced the cattle supply here and elsewhere, the growing popularity of beef-friendly diets and contin-



ued restrictions on Canadian imports all played a role in this rise. With one in every six U.S. steaks originating in Texas, ranchers were riding high—until a cow from the state of Washington was found to be infected with bovine spongiform encephalopathy (BSE, more commonly known as mad cow disease). Within a week the entire midyear price increase had evaporated. Although the infected cow appears to have no connection to Texas, our leading trading partners imposed bans on all U.S. beef, temporarily closing off a substantial market for Texas cattle.

High Tech

A comprehensive new study from the AeA (formerly American Electronics Association) finds that high-tech employment fell 11 percent in Texas during 2002 and venture capital fell 60 percent over the same period. The study projects a further employment decline of 4 percent in 2003.

But employment is not output, and economic activity was significantly stronger than the employment numbers indicate. Texas' high-tech exports actually rose 4.2 percent in 2002 and are expected to have risen at least as much in 2003, suggesting rapid productivity growth in this sector during the shakeout. This productivity growth did not help Texas' employment situation in the near term (the same could be said at the national level), but it certainly bodes well for future

employment and income growth.

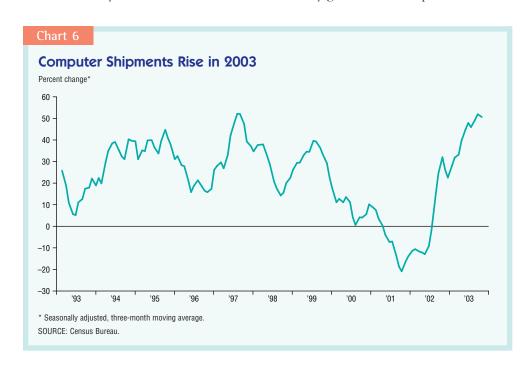
The high-tech sector is much stronger today than a year ago. In third quarter 2003, worldwide chip sales were up 13.7 percent quarter-to-quarter and 17.5 percent year-over-year (*Chart 6*). Corporate IT expenditures also rose in the third quarter (by 4.3 percent), and a survey of corporate purchasers shows that more than 60 percent of firms plan to invest in their IT infrastructure in 2004. Only 12 percent had similar plans in 2003.

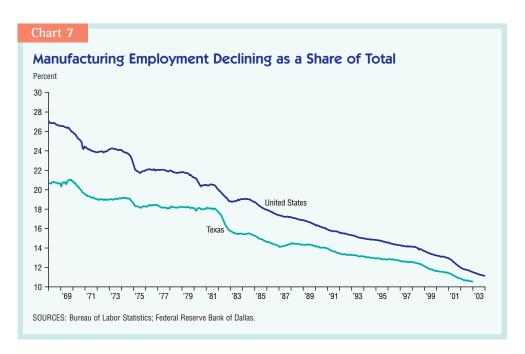
Forecasts are also optimistic about worldwide high-tech demand in 2004. International Data Corp. is forecasting a 5 percent growth rate in worldwide IT spending in 2004 and a 4 percent increase in worldwide telecom services. World Semiconductor Trade Statistics and the Semiconductor Industry Association predict double-digit gains in 2004 worldwide semiconductor sales. And with Texas' high-tech firms very much in the world marketplace, it's world demand that matters, not simply U.S. demand (though the pickup in the U.S. economy won't hurt either).

1 Air Transportation

Employment in the air transportation sector held steady in late 2003 despite a 9.4 percent decline for the year as a whole. Bookings, load factors and yields are all higher than they were at the end of 2002, and consensus forecasts call for airline industry growth of 2 to 4 percent in 2004.

Forecasts are optimistic about worldwide high-tech demand in 2004.





Manufacturing output in Texas is rising even as employment falls.

At a time when low-fare airlines seem to be the wave of the future, analysts point to Dallas/Fort Worth-based American Airlines as a bellwether of traditional airline performance. Having shed 35,000 jobs over the past two and a half years and having endured several billion dollars of budget cuts, the airline cut its losses by two-thirds in 2003 and is expected to break even in 2004. Although no single company determines the fate of this sector, the fact that a bellwether is doing better than expected offers hope for the future.

General Manufacturing

The manufacturing sector as a whole continued to shed jobs in 2003, declining 4.1 percent. This does not come as a surprise; as a share of overall employment, manufacturing has been declining for a long time (*Chart 7*). And as the manufacturing sector continues to evolve, there is little reason to believe there will be a net increase in manufacturing jobs in 2004.

As is the case for the nation, though, manufacturing output in Texas is rising even as employment falls. Local purchasing managers indexes (which measure the health of the manufacturing sector) for Houston and Austin remain in expansionary territory. And the rate of employment decline in manufacturing slowed to 1.3 percent in the fourth quarter, which is consistent with substantial output growth.

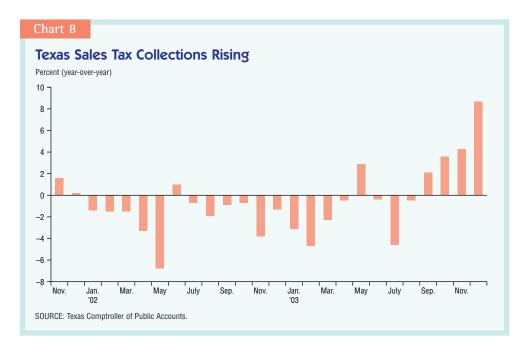
Mexico

At midyear most analysts projected a relatively rapid turnaround for Mexico, but those expectations were repeatedly disappointed. GDP projections for Mexico were downgraded from 3 percent growth in early 2003 to 1.8 percent or even lower by year's end. The United Nations is now forecasting 2.8 percent growth for 2004, and most experts believe the U.S. recovery will help push Mexico into expansion. A smattering of favorable fourth-quarter figures suggests such an expansion may be on the way, though it is unclear whether this performance will be sustained in the coming months.

What is certain is that Texas will benefit once Mexico's economy recovers. The reason is simple: Mexico is the state's largest trading partner, accounting for 43 percent of Texas exports.

() Consumption and Confidence

A key measure of consumer confidence is the extent to which consumers choose to spend, and there is generally positive news on the spending front. After declining at an annual rate of 1.3 percent in the first half of 2003, Texas sales tax revenues rose 2.2 percent in the second half to finish out the year in positive territory (*Chart 8*). Moreover, December 2003 marked the fourth consecutive monthly increase in sales tax receipts (compared with the same months in the previous year)—the first



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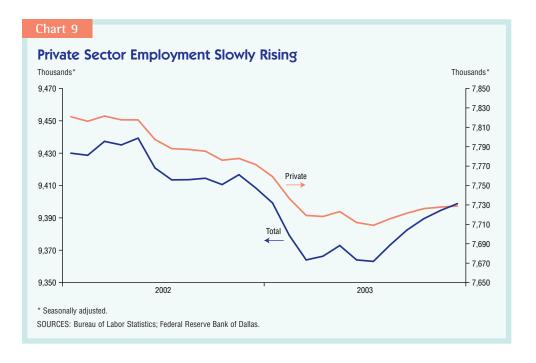
time this has happened since 9/11. This suggests consumers are gaining confidence in the strength and longevity of Texas' current expansion.

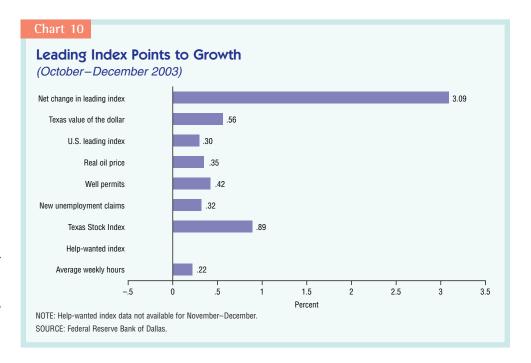
Confidence also seems to be rising among Texas businesses. The Texas Business Leaders Confidence Index, a statewide survey of business leaders conducted by Texas A&M University's Mays School of Business, rose to 62 in fourth quarter 2003, its highest level since the quarterly index was started in 2001. Like the better-known purchasing managers indexes, this index signals growth when above 50.

Labor Market

Private-sector payroll employment was essentially flat in 2003, falling 0.5 percent during the year (*Chart 9*). While it rose at an annual rate of 0.4 percent during the last three months of the year, employment growth remains far below the 2 percent annual rate we typically expect for Texas. This indicates the recovery has not yet fully reached the labor market—and the people who are currently seeking work.

But survey evidence suggests this may soon change. A recent Manpower





The Texas economy should return to form in 2004 and outperform the national economy.

survey finds that 19 percent of Texas firms plan to hire in first quarter 2004 versus only 11 percent who plan to reduce their workforces, which almost exactly matches business sentiment in the United States as a whole. While this doesn't suggest that sharp gains in employment are imminent, it is consistent with the view that hiring will gradually pick up in Texas during 2004. Beige Book reports also indicate optimism in this regard.

This optimism is echoed by recent population-growth figures released by the Census Bureau. Texas was the fourth fastest-growing state between mid-2002 and mid-2003. The state now has almost 3 million more people than New York. Even if a labor-market pickup in Texas is not yet readily apparent, people's willingness to relocate demonstrates their confidence in Texas' future.

Outlook

The Texas economy is stronger now than it was six months ago and considerably stronger than it was one year ago. Texas labor markets seem to have firmed somewhat as well, though we await the kind of payroll employment growth that would signal a robust expansion of economic activity. Texas has not yet reclaimed its position as a national growth leader, but it seems to have caught up to the nation after spending a considerable

period behind it. Barring unanticipated negative developments in high tech or energy or Mexico, the Texas economy should return to form in 2004 and outperform the national economy.

The big question is whether we will see substantial employment growth in 2004. The Texas Leading Index indicates the employment picture should improve in the near future (Chart 10). Increased hours worked by current employees and a decline in unemployment claims traditionally signal the beginning of better days for employment. And increased corporate profits, as measured by the Texas Stock Index, also suggest businesses may start hiring again. While the lackluster employment growth of 2003 has been disappointing, the long-hopedfor recovery in the labor market should occur in 2004.

—Jason Saving

Saving is a senior economist in the Research Department of the Federal Reserve Bank of Dallas.

Notes

- The author thanks Anna Berman and Priscilla Caputo for helpful research assistance.
- Compare with D'Ann Petersen, "Texas Economy Warming Up in 2003," Federal Reserve Bank of Dallas Southwest Economy, July/August 2003.

Small Banks' Competitors Loom Large

(Continued from front page)

These developments call into question the competitive position and future viability of small banks. A close look at financial trends shows small banks meeting with some success as they adjust to the changing environment. Nevertheless, small banks continue to lose ground to competing types and forms of financial institutions. An important goal for public policy is to ensure that the outcome of this competitive struggle reflects the fundamental strengths and weaknesses of the various players involved as opposed to the regulatory environment, which, if misaligned, could favor one set of institutions over another.

Fall from Prominence

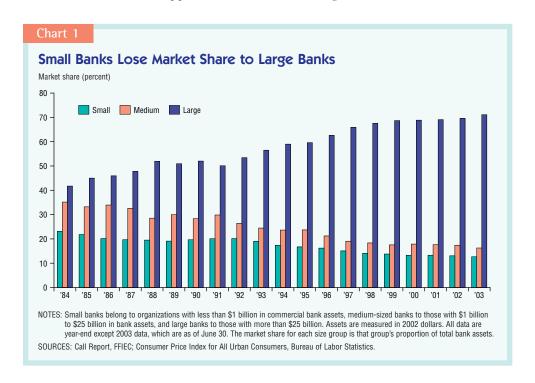
The decline of small banks—defined here as banking organizations with assets of less than \$1 billion, measured in 2002 dollars—has been dramatic. While there were about 6,000 small banks as of June 2003, that represents a substantial decline from more than 11,000 in 1984. Further, since 1984, small banks' share of commercial banking system assets has fallen by almost half, from 23 percent to 13 percent (*Chart 1*). Midsize banks likewise dropped from 35

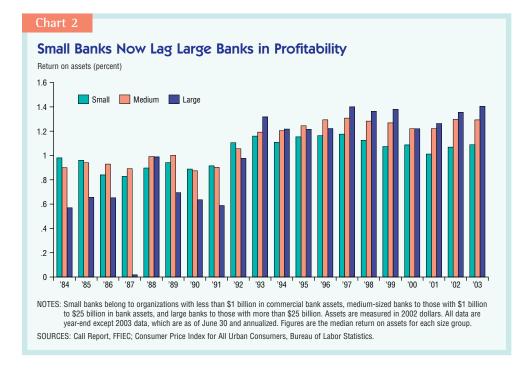
percent to 16 percent of the market. Only large banks have gained market share, rising from 42 percent to 71 percent. Moreover, these shares based on asset size actually overstate the relative position of small banks because off-balance-sheet activities, such as securitization and derivatives trading, tend to be concentrated at the largest institutions.

In one sense, small banks' declining market share understates their performance because many of the more successful small banks have grown rapidly, both organically and through mergers and acquisitions, so that they have crossed the \$1 billion threshold to become part of the midsize group. If these previously small banks are counted as still belonging to the small size group, then small banks' market share actually has increased slightly since 1984, from 23 percent to 24 percent.

But while small bank growth can account for the shrinkage in small bank market share, small banks nevertheless are becoming a less prominent feature of the financial landscape. Many small banks have merged or otherwise grown out of their previous smallness, fueling a continuing structural shift toward the

Since 1984, small banks' share of commercial banking system assets has fallen by almost half, from 23 percent to 13 percent.





largest size class of banks. While substantial numbers of new small banks have been chartered in recent years, the additions to small bank assets have been insufficient to offset the reductions associated with growth into the midsize category. Industry growth has tended to occur through the movement to larger sized banks, as opposed to greater numbers of small institutions. As a result, there has been a dramatic shift in the mix of banking firms toward large-scale banking and a resulting fall from prominence for small banks.

Not only do small banks represent a shrinking component of the banking industry, but their profitability lags as well (*Chart 2*). While the banking industry as a whole has generated record profits in recent years and small bank profits have been substantial, the profitability of small banks nevertheless has fallen behind that of larger institutions.

Several interrelated forces set the stage for small banks' declining position. Until the 1970s, regulation had reduced competition, both among banks and between banks and other types of financial institutions. Technology and innovation, however, eventually enabled the various types of financial services providers to circumvent regulatory restrictions and compete more directly. An increasing number of banks then found that not only did the old regulatory structure no

longer protect them from competition, it actually restricted their ability to respond. Regulations that had prevented banks from competing by paying market interest rates on deposits were gradually removed. Laws that had prohibited banks from competing through the establishment of branch networks met a similar fate.

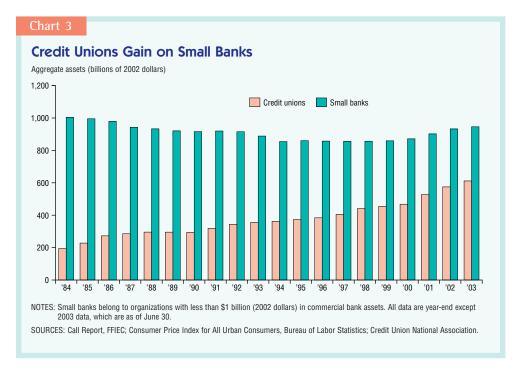
The new, more open and interconnected financial environment has posed some challenges for small banks. Geographic expansion through branching has enabled previously distant banks to reach into local markets, achieve closer contact with potential depositors and borrowers, and thereby compete more directly with small, community-based institutions. Distant banks have also increasingly contacted potential customers through brokers and the Internet, thereby reducing the advantage of a local presence. Similarly, armed with large data warehouses and automated data-mining tools, lenders are relying more and more on computer-aided statistical analyses of historical data to identify creditworthy borrowers, as opposed to the personal contact and informal lender-borrower relationships typically associated with a small bank. And securitization, whereby individual loans are grouped together and sold as a traded security, has added liquidity to the lending market and helped other institutions, such as mortgage companies, compete more effectively with banks, both large and small.

Credit unions, aided by favorable legislation and regulation, have emerged as another particularly severe threat to small banks. Beginning in the early 1980s, rule changes gradually relaxed the "common bond" requirement for credit union membership, leading to legislation in 1998 allowing a federal credit union to serve multiple membership groups. The loosening of membership restrictions enhanced growth opportunities, especially when coupled with policies favoring credit unions over banks, such as credit unions' exemption from both federal taxation and the regulatory requirements of the Community Reinvestment Act.

Here, too, small banks have lost significant market share. As shown in Chart 3, credit union assets, adjusted for inflation, have more than tripled since 1984, from \$194 billion to \$611 billion, whereas small bank assets have actually decreased in value. If small banks that grew into the midsize group are still counted as small, then small bank assets have risen to \$1.8 trillion from \$1 trillion in 1984. But even this growth of 80 percent pales in comparison with credit unions' 200 percent growth.

Looking to Rebound

Despite their declining prominence, small banks have shown signs of resilience. They have met with some success in their efforts to shore up business with traditional customers. One positive sign is found in regional trends in the presence of small banks. While nationally small banks have lost market share to large banks, the losses have been uneven across states. Since 1991, small banks have tended to lose the most market share in states where their share had been unusually high, perhaps correcting an overabundance of small banks associated with prior regulatory protections. At the same time, small banks have actually gained market share in many states for which the initial small bank share was unusually low (Chart 4). The positive adjustment of small bank market share in these states suggests an important role for small banks in a region's banking structure. The trend line fit to the points in Chart 4 crosses the horizontal axis at 12 percent, providing some



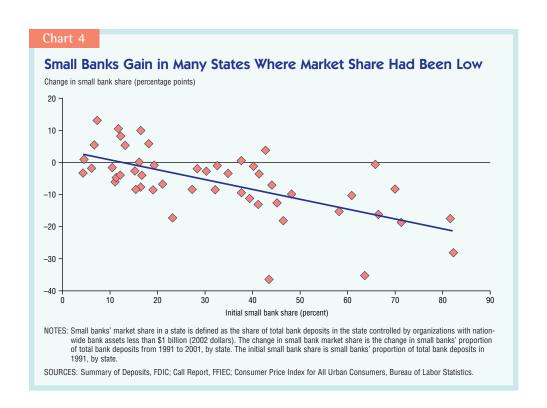
A substantial part of small banks' activity involves providing financial services to small businesses.

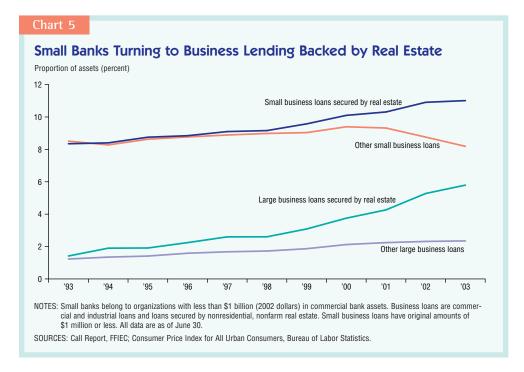
evidence of an equilibrium small bank market share well above zero.

Small Businesses. A substantial part of small banks' activity involves providing financial services to small businesses. While lending decisions have increasingly relied on data-rich statistical analyses, in many cases the most relevant indicators regarding the creditworthiness of individual small businesses still take

the form of first-hand information gained through close lender—borrower relationships. And it is here that small, community-based banks may have retained a degree of competitive advantage.

Despite the continuing shift in banking system assets to larger institutions, small banks' share of total bank lending to small businesses (business loans with original amounts of \$1 million or less)





has slipped only slightly. Small banks currently account for 37 percent of total bank lending to small businesses, compared with 40 percent in 1993, when data first became available. Small banks' 37 percent share of small business lending is particularly remarkable given that they control only 13 percent of banking system assets. Small banks' greater focus on small business lending explains their disproportionate share of system-wide small business loans. Small banks currently devote more than 19 percent of their assets to small business loans, up from 17 percent in 1993. In contrast, small business loans represent only 3.5 percent of aggregate large bank assets.

The high and increasing share of small bank assets in small business loans reflects an effort to shore up business with this customer group. While business loan demand generally has fallen off in recent years, small banks have achieved growth in a particular subset of this area—business lending backed by nonresidential real estate. As a proportion of total small bank assets, small business loans secured by nonresidential real estate have increased substantially (*Chart 5*). And the trend toward real estate-secured lending is also evident in large business loans.

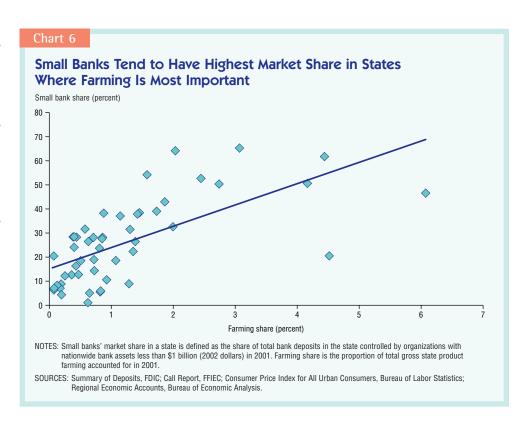
Farms. While small business lending represents an important niche for small banks, it is not the only one. Just as first-

hand borrower information can often still give small banks an advantage in lending to small businesses, communitybased banking appears to have the upper hand in farm lending. The advantage associated with close lender-borrower relationships may be especially important in agriculture; farms are typically located a substantial distance from regional banking centers, which would make it difficult for a large bank's central office to evaluate farm borrowers or monitor lending decisions made at rural branches.

A positive association between small banks and farming is clearly visible in the market share data for 2001, the most recent year for which data on farming's share of state output are available. Small banks tend to account for a large share of total deposits in states where farming accounts for a large share of total gross state product (*Chart 6*). Further reflecting their agricultural niche, almost 59 percent of all small banks are headquartered in rural areas.

The positive association between small banks and farming involves strong financial ties. Small banks currently account for 64 percent of total bank lending to farms, down only slightly from 68 percent in 1993. As a group, small banks devote 5.6 percent of their assets to farm loans, and for many small banks this ratio is much higher. Small banks in rural areas hold 10.3 percent of their assets in farm loans. In contrast, the farm loan ratio for large banks is 0.3 percent.

Individuals. Small banks have also been working to reinforce their position



in even some of the most hotly contested areas of the consumer market. These efforts are perhaps best illustrated by developments in home mortgage lending.

Today's home mortgage market is highly securitized and competitive, bolstered by government-sponsored enterprises like Fannie Mae and Freddie Mac. Large mortgage lenders have adopted high-volume, low-cost strategies based on highly automated systems, resulting in strong price competition. Such a market may appear to leave little role for small banks.

But despite the seemingly long odds, small banks remain active players in the home mortgage market, and recent data indicate small bank mortgage operations have been profitable. Fourteen percent of small banks' total assets currently are in first-lien home mortgage loans, reflecting substantial involvement in this area. In addition, many of the home mortgage loans small banks originate are sold in the secondary market, either directly or more often indirectly through a mortgage broker, and are no longer reflected on the banks' books. Taking the share of assets in home mortgages as a rough indicator for involvement in the home mortgage market, the available data indicate small banks are successful in this line of business. A large portfolio of home mortgage loans has tended to boost small banks' return on assets, while reducing the variability of that return.

The positive relationship between home mortgage lending and profitability at small banks suggests they retain significant capacity in this area. Some small banks have pursued aggressive approaches, including direct connections to the secondary market and web sites that allow geographically distant individuals to apply for home mortgage products. In this sense, technology increasingly is allowing small banks to acquire some large bank attributes. Other small banks have followed a more scaled-back approach, opting to outsource much of the mortgage function. Even here, though, many have found a way to satisfy their customers' mortgage needs.

Churned or Cheated?

An important question for public policy has to do with the reasons behind

the dramatic shift in the mix of banking firms toward large-scale banking. Has small banks' decline stemmed only from the technology-induced dismantling of regulations that previously had protected them from competition? If so, the reduced prominence of small banks may simply represent another manifestation of technology's beneficial effect in churning the economy, whereby new, superior modes of business are enabled, which then supplant more traditional, but less effective, business forms.

Another possibility, however, is that the regulatory environment has evolved into one that not only no longer protects small banks but actually works against them. The decline in small banks might then be overdone, to the detriment of their primary customers. Disparities in regulatory treatment involving competitors outside the banking industry, such as credit unions' exemption from both federal taxation and Community Reinvestment Act requirements, represent a potentially important disadvantage for small banks. With regard to competition between banks of different sizes, the burden of regulation often weighs most heavily on small institutions. Because compliance costs contain a substantial fixed component, they can easily eat up a greater share of revenue for small banking operations than for larger ones.

Such considerations, coupled with the pronounced decline in small bank market share over recent years, suggest policymakers may need to assess whether a once protective regulatory environment has evolved into one that now places small banks at an artificial disadvantage.

> — Jeffery W. Gunther Robert R. Moore

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Note

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An important question for public policy has to do with the reasons behind the dramatic shift in the mix of banking firms toward large-scale banking.

Have Mexico's Maquiladoras Bottomed Out?

ne of Mexico's most talkedabout economic events this decade has been the downturn in maquiladora, or in-bond export, plants. These plants account for close to half of all Mexican exports to the United States, so it's no wonder they receive so much attention.

Between October 2000 and March 2002, maquiladora employment fell by nearly 277,000, or about 21 percent. Employment recovered through spring of 2003, then fizzled again. The usual causes of maquiladora fluctuations (U.S. demand and Mexican cost factors) have begun to move in directions that induce growth. Are these changes enough to spur a recovery? Maquiladora employment has begun to edge up, but pressures in both directions complicate the answer.

To understand more than simple generalities about maquiladoras today, two factors deserve attention. First, maquiladoras and their counterparts in other countries are chronically volatile. Maquiladora employment and output fluctuations—both down and up—are greater than in same-industry plants in high-income industrialized countries. Second, while the latest downturn has been spread broadly across maquiladora industries, some have fallen harder than others. Some industries have recovered a little and appear ready to move back up. Others look poised for further decline.

Employment Volatility

Between September 1998 and October 2003, overall maquiladora employment in Mexico rose more than it fell. As seen in Chart 1, employment peaks in October 2000 and then falls hard and fast. Newspapers make much of this drop, but they scarcely ever discuss the upward move over the preceding two years. Maquiladora employment rose more between September 1998 and September 2000 than it fell in the following three years. Despite the sharp

decline since October 2000, maquiladora employment has never fallen back to September 1998 levels.

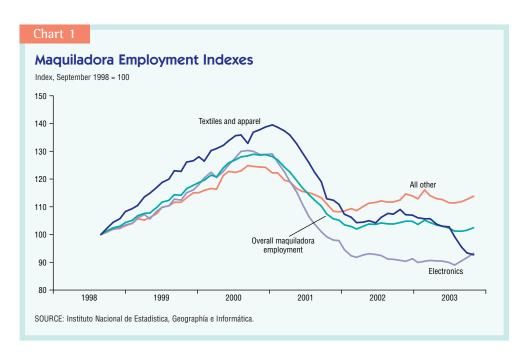
Maquiladoras act as shock absorbers for manufacturing operations in industrial countries. In any country, certain industries have long-term upward or downward trends. But in the short run, firms in high-income countries use foreign export-processing zone plants such as maquiladoras to take the brunt of shocks to home demand. A given increase or decline in U.S. industrial production triggers much larger increases or declines in maquiladora employment in the corresponding industries in Mexico. After suffering a decline starting in 2000, U.S. industrial production began to recover late in 2001, offering reasons for hope.

Shock absorbing is not the only factor in maquiladora employment fluctuations. Recent changes in the dollar cost of doing business in Mexico may explain not only some recent problems of the maquiladoras, but also their recent upturn. Between October 1998 and March 2002, the inflation-adjusted value

of the dollar weakened against the Mexican peso by 28 percent. At the same time, the dollar strengthened against the currencies of Malaysia, Singapore, Sri Lanka, Thailand and the Philippines. These changes in the real exchange rate lowered the dollar cost of buying products in the five Asian countries, while raising it in Mexico. In Mexico, average manufacturing wages in dollar terms rose 45 percent between 1998 and 2002 but fell in Singapore and Sri Lanka. Since March 2002, however, the real value of the dollar has strengthened 17 percent against the peso, lowering the cost of doing business in Mexico. Meanwhile, the dollar has appreciated only slightly against the currencies of China, Malaysia and the Philippines and declined against those of Sri Lanka, Singapore and Thailand.

Sectoral Differences

More than 80 percent of the Mexican maquiladora employment declines in 2001 and 2002 can be explained by changes in U.S. aggregate demand and increases



in the cost of doing business in Mexico. Eighty percent, however, is not 100 percent. Clearly, more is required to explain maquiladora fluctuations than U.S. industrial production, the real exchange rate and wage rate fluctuations.

Chart 1 also presents indices of maquiladora employment for textiles and apparel, for electronics and for everything else (all other). Employment in both electronics and textiles and apparel maquiladoras grew faster than the all other group, but it also fell harder after reaching its peaks. By October 2003, employment in both industries was markedly below September 1998 levels. Although October 2003 employment in all other industries was also well below its peak, it was well above September 1998-farther above it, in fact, than employment in textiles and apparel and electronics was below it. Moreover, total maquiladora employment seems to have bottomed out. The relevant question here is whether the recovery of all other and perhaps electronics will offset the continued falloff in textiles and apparel.

Much of what made the two industries sink farther than all other reflects government policy. For textiles and apparel, the big policy change came in January 1994, when the North American Free Trade Agreement gave this industry a new set of rules for trade with the United States and Canada. Before NAFTA, China was the United States' principal source of textiles and apparel products. The special tariff breaks textiles and apparel received under NAFTA pushed Mexico past China to become the United States' No. 1 supplier. But in 2000, the United States gave some of the same trade openings to Caribbean Basin Initiative countries (which include the nations of Central America). In 2001, the United States extended other openings to China when it joined the World Trade Organization. Both China and the Caribbean Basin Initiative countries overtook Mexico in textile and apparel exports to the United States. Mexico seems unlikely to be able to compete again in the lowest wage, low-skill labor markets that much of this industry occupies.

The story of the electronics maquiladora employment fluctuations is more convoluted. The U.S. recession of 2000–01 began with a downturn in U.S. electronics-

related industries associated with a worldwide slump in these industries. The relation between the downturn in U.S. industries and their Mexican counterparts is clear. Compounding the industry downturn, changes in real exchange rates and dollar-denominated manufacturing wages in Mexico during October 2000 through March 2002 were affecting the cost of doing business.

In 2001, a new NAFTA rule went into effect that made maquiladora operations more difficult, costly and uncertain in Mexico. NAFTA Article 303 outlawed tariff rebates for imports from non-NAFTA countries. For firms that imported from Asia for assembly in Mexico and subsequent export to the United States—a long-time practice of special importance to the electronics maquiladoras—Article 303 made Mexican operations more expensive overnight. Firms began to take their operations elsewhere.

The Mexican government attempted to counteract these tariff cost increases with subsidies administered through a program known as Prosec. Some maquiladora managers, complaining that Prosec's policies were mercurial and ad hoc, relocated their operations in spite of the program. Also, because electronics maquiladoras are especially sensitive to exchange rate fluctuations, the real exchange rate appreciation of 1998–2002 may have affected these plants more than others. Finally, the development of input supply chains in electronics made China a stronger competitor.

Outlook for Maguiladoras

While most of Mexico's maquiladora downturn in 2001 and 2002 can be explained by reductions in U.S. demand and cost-of-doing-business changes expressed through wage and exchange rate fluctuations, a significant share of the downturn is due to changes in trade policy and increased competition abroad in terms of supply networks and input costs. As the U.S. recovery continues apace in the wake of its 2000-01 recession, so should the resuscitation of Mexico's maquilas. The recent softening of the Mexican peso has not done much so far to make maquiladoras come back, but it helped to stanch their decline, and its more positive effects may still be ahead.

Policy changes raise questions as to

when or whether the maquiladoras will soon regain their peak levels of employment or output, but it is hard not to think that Mexico's maquiladoras have already bottomed out, even with further declines in Mexico's garment industry.

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