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Southwest Economy

Monetary Policy in a Zero-Interest-Rate Economy

As short-term interest rates fall toward zero, it may be necessary for the Fed to rethink how it conducts monetary policy. In this article, we examine why conventional policy loses its effectiveness at very low interest rates and review some alternative tools for stimulating the economy. We hope that this discussion will prove to be academic—that our economy's natural resilience, together with the easing the Fed has already undertaken, will be sufficient to get employment and output growing again. But it's nice to know that if additional stimulus is required, there are still arrows left in our quiver.

U.S. Economic Growth Weak Despite Low Interest Rates

Short-term interest rates have fallen dramatically over the past two and a half years, and are now as close to zero as they've been since 1958 (*Chart 1*). Any significant further rate reduction will make life difficult for money market mutual funds, which will either have to start paying out less than a dollar for each dollar invested or begin charging explicit management fees.

(Continued on page 2)

Texas Economy Warming Up in 2003

Midway through 2003, it appears the Texas economy has bottomed out and is tilted toward expansion. Year-to-date data (through May) suggest the economy has finally emerged from the recession that began in 2001 and lasted through 2002.

Despite the good news, the improvement has been so moderate that it still feels like a recession to many Texans. A majority of economic indicators suggest growth will be slow, but that is an improvement over last year. A more robust pickup in the Texas economy depends on the strength of the U.S. recovery because many of the state's key sectors will benefit from stronger U.S. growth.

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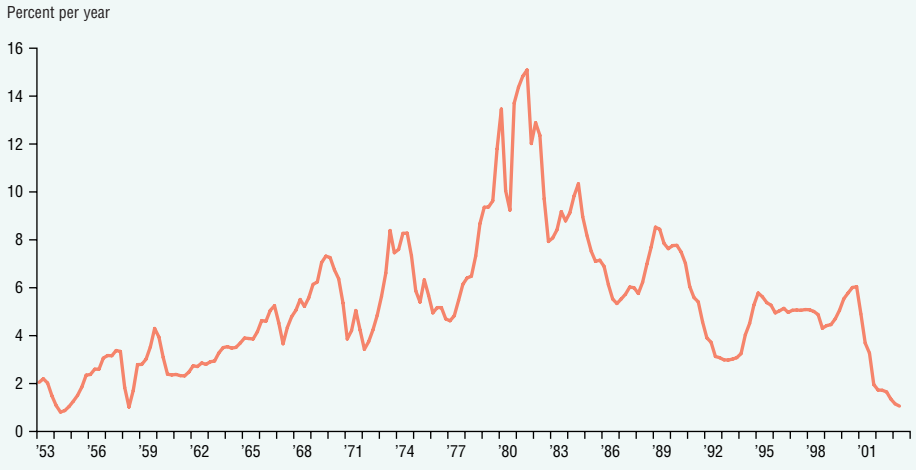
Japan's Economic Policy Conundrums

Chart 1

Short-Term Interest Rates Drop to Their Lowest Levels in 45 Years

(Three-month Treasury bills)



SOURCE: Federal Reserve Board.

A year ago, it looked as though interest-rate cuts would not be required. Important monthly indicators such as industrial production and payroll employment appeared to be on the upswing (*Chart 2*). Since last summer, however, new data and revisions to the old data have brought the economy's incipient recovery into question. The spring 2002 employment upturn, for example, has been entirely revised away. Indeed, the year-to-year change in nonfarm payrolls has now been negative for 24 straight months—the longest uninterrupted stretch of year-over-year job losses since 1944–46.

Analysts (and investors) are hopeful that growth will pick up during the second half of 2003 in response to stimulative monetary and fiscal policy. But analysts (and investors) have been known to be wrong. The economy remains vulnerable to adverse shocks.

Open-Market Operations: The Conventional Response to a Weak Economy

Usually, the Fed attacks weakness in the economy by conducting expansionary open-market operations. In a typical open-market operation, the Fed purchases Treasury bills from bond traders in the New York securities market. The effect is to increase liquidity in the economy—cash and bank reserves rise while the number of Treasury bills held by the public falls—and to lower short-term interest rates. Lower interest rates encourage consumption and investment, and greater liquidity provides the means to finance the new expenditures.

Unfortunately, conventional open-market operations lose their effectiveness as the yield on Treasury bills approaches zero. At a zero interest rate a Treasury bill is no different from vault cash or large-denomination currency. An open-market operation is like the Fed offering to exchange 20 $1 bills for one $20 bill: The increase in liquidity is negligible. Moreover, there is no way to achieve any further reduction in the interest rate. Why would anyone accept a negative return on Treasury bills when they have the option of holding cash at a zero return? With no increase in liquidity and no reduction in the interest rate, there is no reason to expect an open-market operation to produce any increase in household or business spending.

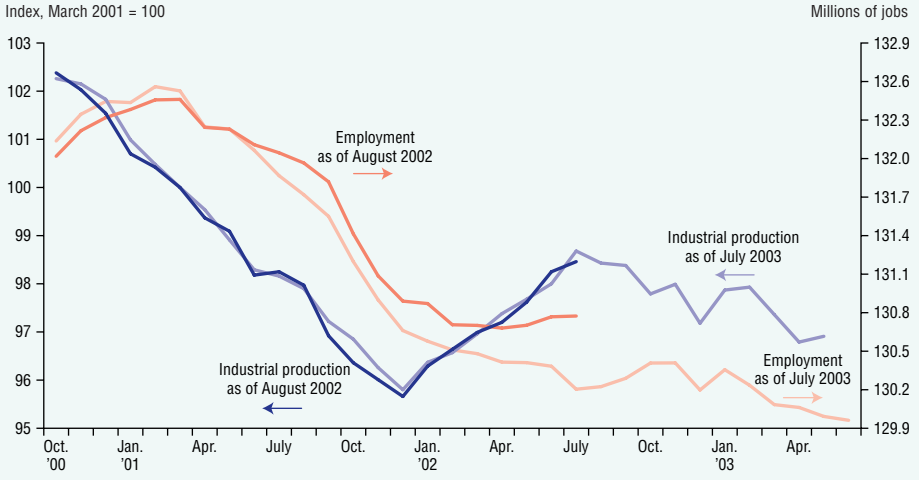
The Zero-Interest-Rate Bound and Deflation

Policymakers can find themselves in a bind if a low interest rate is accompanied by falling prices—that is, by deflation. That's because what ultimately matters to households and firms is the *real* cost of borrowing—what economists call the real interest rate. The real interest rate is the difference between the market, or nominal, interest rate and the rate of inflation. It is the prospect of a low real interest rate that makes current consumption and investment spending attractive. The trouble is, even a zero nominal interest rate can produce an expected real interest rate that is too high if people expect a negative inflation rate.

For example, if prices fall at a 3 percent annual rate, then a zero nominal interest rate puts the real cost of borrowing at a positive 3 percent. The prospect of a 3 percent real interest rate might be just fine in a healthy, growing economy. It will be excessive, however, in an

Chart 2

Looking Good...or Maybe Not



SOURCES: Federal Reserve Board; Bureau of Labor Statistics.

economy where the growth outlook is poor or where fragile finances have led households and firms to become cautious about spending and banks to become cautious about lending.

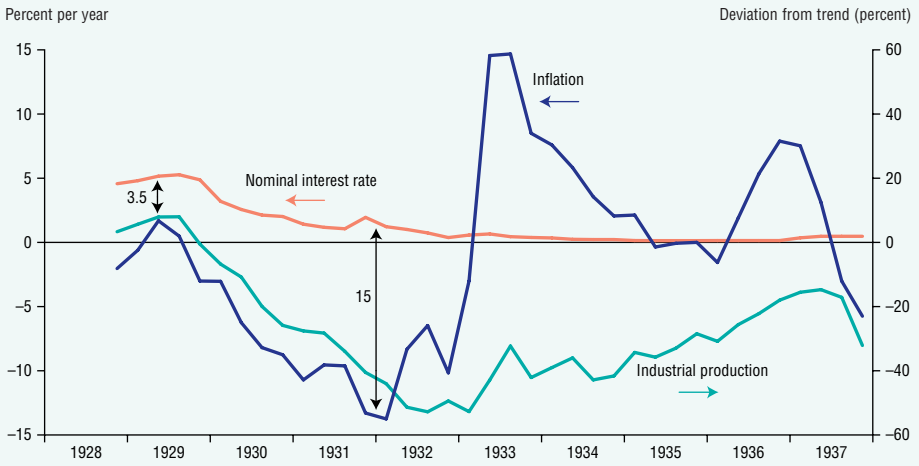
The United States' Great Depression is the textbook example of what can go wrong if policymakers are slow to respond to a deteriorating economy and falling inflation. As shown in Chart 3, the Federal Reserve cut the short-term nominal interest rate from 5 percent in 1929 to 0.5 percent in late 1932. However, inflation fell even faster. Consequently, the real interest rate—the difference between the nominal interest rate and the inflation rate—actually increased, rising from 3.5 percent in the spring of 1929 to a peak of 15 percent in late 1931 and early 1932. Monetary policy was, effectively, becoming tighter and tighter in the early 1930s, rather than easier and easier. As a result, industrial output fell by a whopping 50 percent relative to trend. Recovery didn't begin until 1933, when the Roosevelt administration suspended gold payments and allowed the dollar to depreciate. Inflation rose well above the nominal interest rate, turning the real interest rate sharply negative.

Japan in the 1990s provides a more recent example of the trouble that can be caused by the zero-interest-rate bound. Like the Depression-era Federal Reserve, the Bank of Japan cut short-term nominal interest rates in response to a weak economy (*Chart 4*). By the second half of 1995, the three-month government rate was essentially zero. Although the interest-rate decline was too slow to prevent inflation from turning into deflation, the real interest rate fell from 5 percent in late 1990 to 3 percent in 1993 and to 1 percent or less in 1995, 1996 and 1997. Industrial output, which had nosedived in the early '90s, began to recover in 1996. But then the Asian economic crisis hit. Conventional monetary policy was powerless to respond, and Japan remains mired in depression to this day. (For a more detailed account of Japan's decade-long struggle with economic downturn, see page 6.)

It took the Bank of Japan six years to get short-term interest rates (briefly) down below the rate of inflation. As shown in Chart 5, the Fed has closed the interest-rate–inflation gap in less than half that time. This relatively quick action has prevented inflation from becoming outright deflation and avoided any significant damage to our financial institutions. As we saw earlier, however, recent weakness in employment and industrial output has raised concerns that additional stimulus may be required, especially if adverse shocks hit the economy. With the nominal interest rate so close to zero that conventional open-market operations are of doubtful effectiveness, what policy options are available to the Fed, should further stimulus be required?

Chart 3

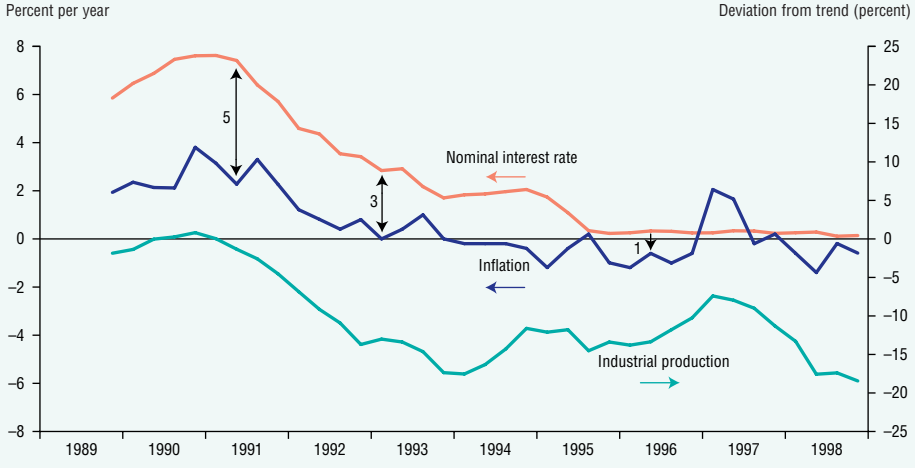
Worst-Case Scenario: Great Depression



SOURCES: Federal Reserve Board; Census Bureau; Nathan S. Balke and Robert J. Gordon (1986), "Appendix B: Historical Data," in Robert J. Gordon (ed.), *The American Business Cycle: Continuity and Change* (Chicago: University of Chicago Press).

Chart 4

Japan Encounters the Zero Bound



SOURCES: Association of Call and Discount Companies; Ministry of Economy, Trade and Industry; Economic and Social Research Institute.

Strategies for Overcoming the Zero Bound

A number of strategies have been proposed for pulling the economy out of a zero-interest-rate trap. These range from the radical to the mundane and from the practically difficult to the eminently practicable. We will examine several such strategies. We first consider the boldest, though also the most difficult to implement: eliminating the zero bound altogether. We then examine modifications to standard policy that avoid some of the problems we alluded to earlier.

These more workable approaches may require the coordination of Fed policy with that of other actors—either foreign central banks or domestic fiscal policymakers—or may allow the Fed to act unilaterally.

The most daring suggestion for escaping the zero-interest-rate trap is to eliminate the zero lower bound altogether. How can this be done? As we noted earlier, the zero bound on interest rates exists because money pays a sure nominal interest rate of zero. No one would be willing to hold any asset that pays a negative nominal rate, as long as zero-interest money is available as a store of value.

The strategy for eliminating the zero bound, therefore, is to make money pay a negative nominal interest rate by imposing some type of "carry tax" on currency and deposits. A tax on money holdings of 0.5 percent per month, for example, would mean that money, in effect, pays a negative nominal interest rate of roughly –6 percent. Market interest rates would then be free to fall into negative territory, and the Fed could continue to cut short-term rates, with –6 percent as the new lower bound.

It's easy to envision such a system with regard to deposits at the Federal Reserve or transactions deposits at banks; for the most part, the technology to implement such a system is already in place. The main difficulty—both technological and political—lies in imposing such a tax on currency. In the 1930s, Yale economist Irving Fisher proposed such a system, in which currency had to be periodically "stamped," for a fee, to retain its status as legal tender.[1] The stamp fee could be calibrated to generate any negative nominal interest rate the central bank desired.

While the technology available for implementing such a system is more sophisticated today than in Fisher's time, enforcement still seems a mammoth problem. It would require physical modifications to currency and some means of tracking the length of time each piece spends in circulation.

Given the technological hurdles of implementation, a carry tax on money is probably not a feasible response to circumstances that might arise in the near term, though it merits study as a possible long-run solution to the zero-bound problem. With the technology in place to (on occasion) impose a carry tax, a central bank would be free to target a very low average inflation rate, knowing that if severe downturns arise it could temporarily drive the nominal return on money below zero.

Without such a mechanism available, it's likely that central banks will try to avoid the zero-interest-rate bound by simply aiming for higher long-run rates of inflation—which also amounts to taxing individuals' money holdings, more consistently though less overtly, by eroding their real purchasing power. Thus, the average tax on money balances might actually be lower if the technology to impose a carry tax were developed. At the same time, we must acknowledge that—as is the case with all instruments of taxation—there is no guarantee that policymakers would not abuse the carry tax once the means to collect it were in place.

If the bound can't be easily sidestepped, what options does the Fed have? As we implied at the outset, to be effective, monetary policy must do more than simply give the private sector "change for a twenty." In other words, monetary policy must take actions that expand the sum of zero-interest money and its zero-yielding substitutes, not simply swap one for the other. This can be achieved if the Fed purchases assets that are not perfect substitutes for money. We will consider three possible candidates:

1. Foreign exchange
2. Real goods and services
3. Other domestic securities, such as longer-term Treasuries

Strategies that target the first two candidates can only succeed if the Fed coordinates its policy actions with those of other actors—namely, foreign central banks or domestic fiscal policymakers. A strategy targeting the third is something the Fed can do today, unilaterally, within the constraints imposed by the Federal Reserve Act.

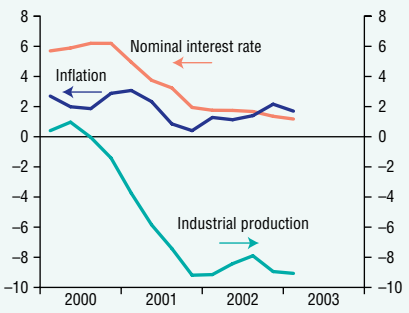
The Foreign Exchange Escape Route. Foreign exchange intervention has been suggested by more than one prominent economist as a surefire strategy for getting an economy out of a zero-interest-rate trap.[2] How would such a strategy work? In this approach, the Fed would pursue a targeted, substantial depreciation of the U.S. dollar by purchasing foreign currency using newly minted dollars. The dollar depreciation would increase current demand by stimulating net exports—that is, by increasing sales of U.S. goods abroad and reducing purchases of foreign goods in the United States. If the Fed committed to maintain the depreciated dollar for some length of time, inflationary expectations could also increase. Higher expected inflation, in turn, would result in a lower prospective real interest rate, even if nominal rates do not change.

The big problem with this strategy is that, in a roundabout way, it amounts to conducting a monetary contraction in our trading partners' economies. In buying up another country's currency—and assuming the Fed simply holds, rather than spends, that foreign currency—the Fed would, in effect, be reducing the foreign economy's supply of money and, likely, raising interest rates there as well. If the foreign central bank was attempting to pursue a neutral or expansionary policy, the Fed's action might generate some consternation or even a policy response. If the Fed purchased euros, for example, the European Central Bank might respond by simply printing more of them, thus neutralizing the Fed's action.[3]

To be successful, this strategy requires cooperation, or at least acquiescence, on the part of our trading partners. Given current growth prospects elsewhere around the globe, such acquiescence, while not impossible, seems unlikely.

Chart 5

Whither the U.S. Economy?



SOURCES: Federal Reserve Board; Bureau of Economic Analysis.

The Goods and Services Solution. Why not have the Fed just conduct an open-market purchase of real goods and services? Even more than exchange-rate intervention, this strategy would represent a direct stimulus to aggregate demand. As posed, though, the strategy has a major drawback: It violates the Federal Reserve Act. The Fed isn't authorized to purchase goods and services, apart from those needed for the operation of the Federal Reserve System.

The strategy can be implemented, however, by coordination with fiscal policymakers. The federal government, for example, could purchase goods and services and finance the purchases with new debt, which the Fed in turn would buy—in technical terminology, the Fed would "monetize" the resulting debt. By coordinating with fiscal policy, the Fed could even implement what is essentially the classic textbook policy of dropping freshly printed money from a helicopter. In this case, the Fed would monetize government debt that had been issued to finance a tax cut.

The scale of operations entailed by this approach would be large. To monetize government spending equal to 1 percent of gross domestic product, for example, could mean increasing the monetary base (the sum of currency and bank reserves) by as much as 15 to 20 percent. Though trite to say, it is nonetheless true that extreme circumstances could require policymakers to take extreme measures.

Buying Other Domestic Securities. We finally turn to the simplest strategy: buying other domestic securities. Even if the economy's short-term riskless interest rate is equal to zero, interest rates on other securities will generally be positive, and those securities could be targets for open-market operations. This is a course of action the Fed can follow today, without coordinating its action with other policymakers or running afoul of the Federal Reserve Act.

The Federal Reserve Act does impose restrictions on what type of domestic securities the Fed can buy through open-market operations (*Table 1*). Some of the allowed securities may be less than familiar. Debt guaranteed by the U.S. government refers to the debt of government-backed enterprises such as Ginnie Mae. A bill of exchange is essentially a draft order that specifies a future date on which the order is to be executed. Banker's acceptances are bills of exchange in which the bank on which the draft order is made guarantees payment.

Table 1

Federal Reserve Act Restrictions on Domestic Security Purchases

Allowed	Not allowed
U.S. federal, state and local government debt	Corporate bonds
Debt guaranteed by the U.S. government	Mortgages
Bills of exchange	Commercial paper
Banker's acceptances	Equities

For all practical purposes, though, the legal constraints limit open-market operations in domestic securities to U.S. government debt or debt guaranteed by the U.S. government. The markets for bills of exchange and banker's acceptances are currently too small to be of any use, though they would likely expand over time if those securities became instruments of Fed policy.

How, then, would the strategy of buying other domestic securities work? Following this avenue, the Fed could purchase any government debt with positive yields—for example, longer-term Treasuries. In broad terms, the purchases reduce the outstanding supply of these securities (and replace them with money or zero-interest Treasury bills), thus forcing the private sector to rebalance its portfolio. The yields on the securities whose supply has shrunk must fall, to make people content with holding less of them. The yields on other traded securities could fall as well, to the extent that those other securities are similar, in terms of maturity and risk, to the government securities the Fed has purchased. The prices of all these assets, which move in the opposite direction from their yields, must rise.

For consumers, the lower yields reduce saving and spur consumption. For businesses, the lower yields can mean a lower cost of funds, while the rise in the assets' prices can improve businesses' balance sheets or give them more valuable collateral with which to secure financing.

This strategy, while indeed the simplest to implement, is not without its problems. First, no one, we believe, has a good quantitative sense of the mechanics of this strategy—that is, what size operations are needed to secure a given stimulus. While the Fed has managed longer-term yields at various times in the 1940s, '50 and '60s, the last time such a strategy was implemented was nearly 40 years ago.

Second, if the economy's short-term riskless interest rate is zero but other rates are positive, those rates must be positive for reasons—to compensate the holders of those assets for some form of illiquidity or risk. Under this strategy, the Fed takes those risks onto its balance sheet.

This leads to a third point: The Fed is almost guaranteed to take a capital loss on its portfolio. If the strategy works, the economy picks up, interest rates go up, bond prices go down and the value of the Fed's holdings of longer-term Treasuries falls. To be sure, a negative net worth does not mean the same for the Fed as it would for a private bank; the Fed's liabilities, after all, consist almost entirely of noninterest-bearing money, which is not explicitly redeemable for anything. The potential problem—if it really is a problem—seems to be mainly one of perception. Nevertheless, some advocates of the long-bond-purchases strategy have suggested that explicit mechanisms be put in place by which the Treasury would indemnify the Fed against capital losses on its long-bond portfolio.[4]

Finally, narrowing the yield spread between assets of long and short maturity can stress institutions, such as banks, that profit from that spread. On the other hand, it must be noted, a wave of deflation-induced loan defaults would no doubt also be stressful for banks.

(Continued on back page)

Japan's Economic Policy Conundrums

Having languished for more than a decade since its bubble burst in 1990, Japan's economy is a major world concern. The prolonged decline of not only Japanese asset prices but overall consumer prices as well has spurred ongoing nonperforming loan problems in the financial sector. The government has sought to combat the economic slowdown with eight fiscal stimulus packages over the last 10 years, with little to show for it but the highest debt-to-gross domestic product (GDP) ratio (140 percent) in the industrialized world. Continued monetary easing has pushed the overnight interest rate to zero, but consumers still don't want to borrow and spend.

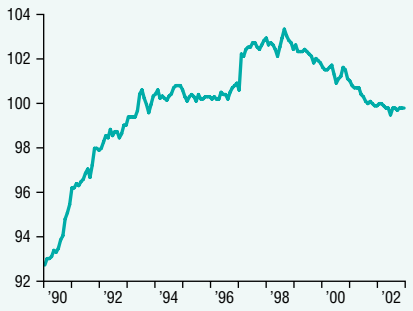
Japan's economy is the second largest in the world—about half the size of the United States' and twice Germany's, which is No. 3. Japan is the world's largest foreign investor; it has maintained a trade surplus for the last 50 years. In 2001, Japan owned 6 percent of the outstanding U.S. Treasury securities (valued at 3.5 percent of U.S. GDP). Most important, Japan's problems are big enough to slow the global economy.

Then Deputy U.S. Treasury Secretary Lawrence Summers said at several 1999 world forums that the world economy cannot fly on a single engine. Can Japan's economy take off and propel the world economy forward as it did until the end of the 1980s?

Chart 2

Japan's Consumer Price Index

Index, 1995 = 100



SOURCE: Statistics Bureau, Japan.

Current Economic Conditions Are Gloomy

Since 1991, Japan's real GDP has grown only 14 percent, compared with the United States' 44 percent (*Chart 1*). Although Japan's consumer price index (CPI) has risen 3.7 percent over the same period, it has dropped 2.2 percent since 1998 (*Chart 2*). Meanwhile, asset price deflation has become much more pronounced. Japan's major stock market index, the Nikkei, has dropped 79 percent from its peak in 1989. And in the past year, Japan's unemployment rate has reached its highest level in almost a half century (*Chart 3*). It should surprise no one to discover that low investment and consumption growth has characterized this entire period.

The Japanese economy has been injured not only by its prolonged slowdown but, paradoxically, also by some of the Japanese government's unsuccessful but costly attempts at fiscal stimulus. Financial intermediaries are not lending. Conventional macroeconomic policy measures have been exhausted. To the extent that they have been applied, textbook-type policies have been unable to rehabilitate the ailing economy. The obvious but difficult and costly solution of resolving the banking crisis remains to be accomplished.

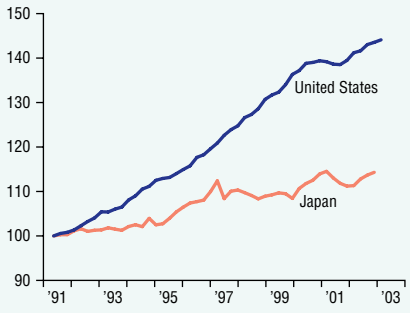
The Troubled Financial Industry. Japan's financial industry ills began with an asset market bust. In 2002, the land-price index dropped to 30 percent of its 1990 peak. The result has been the accumulation of bad loans on banks' balance sheets. The Japanese Financial Services Agency, the financial supervisory authority, recognizes the problem, but structural changes have been slow and capital injections insufficient. Merged banks have been reluctant to lay off redundant workers. Injected capital has not been enough to cover the ever-increasing nonperforming loans. The Japanese government's estimate of bad loans within the financial sector is $266 billion (6 percent of GDP). Other estimates are as high as $1.9 trillion (43 percent of GDP).

Political support for structural reform is almost nonexistent in Japan. Moreover, because Japan's capital market is less developed than that of the United States, alternative funding sources, such as corporate bonds, are not available to absorb shocks to the banking sector. Commercial bank loans currently total about 90 percent of Japan's GDP, but only about 40 percent of U.S. GDP. A Resolution Trust Corp.-type solution, such as was employed in the United States in the 1980s to deal with the savings and loan crisis, would be difficult to implement

Chart 1

Real GDP of Japan and the United States

Index, 1991:1 = 100

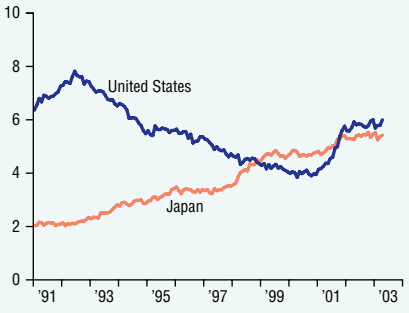


SOURCES: Cabinet Office, Japan; Bureau of Economic Analysis.

Chart 3

Unemployment Rate in Japan and the United States

Percent



SOURCES: Statistics Bureau, Japan; Bureau of Labor Statistics.

in Japan. The entire Japanese banking sector is in trouble, whereas the savings and loan crisis affected only 5 percent of American depository institutions.

Conventional Macroeconomic Measures Have Unexpected Limits. The Bank of Japan has dropped short-term nominal interest rates virtually to zero (*Chart 4*). With the lower bound of a zero nominal interest rate, lowering short-term interest rates is no longer a viable policy goal to boost the economy. Quantitative easing has not worked so far because increasing base money has not significantly increased broad measures of money such as M2+CD. The Japanese financial intermediaries are unable to facilitate the money multiplier effect because they are not increasing their lending.

Japan's gross government debt of 140 percent of GDP is the highest among the industrialized countries (*Chart 5*). The ever-increasing debt led credit rating companies to rank Japan's sovereign rating as low as those of Greece and Botswana. As a result, the government of Japan has become much more cautious in applying stimuli.

Nor does the government view manipulating the exchange rate as a real option. Despite what many Americans believe, Japan is not much of a trading country. Of the 171 countries for which the World Bank records data, only Myanmar trades less than Japan as a share of GDP. According to Haruhiko Kuroda, former vice minister of international affairs of the Ministry of Finance, with an export/GDP ratio below 10 percent, Japan would have a very difficult time boosting its economy much by depreciating its currency. Worse, it would be difficult to persuade Japan's neighbors, especially South Korea, to accept a depreciation of the yen against the dollar. Such a depreciation would be ineffective because Korea and China would more than likely respond with devaluations of their currencies. The Finance Ministry's intention, however, is to maintain a trade surplus through foreign exchange-rate policy as a way to stabilize markets for Japanese government bonds.

Table 1

Productivity Gap and Comparative Price Level, Japan–United States, 1990

Sector	GDP per hour worked Japan/United States (percent)	Comparative price level United States = 100
Agriculture	13.8	378.7
Mining	67.4	116.1
Manufacturing	91.2	108.3
Construction	65.0	172.1
Electricity, gas and water	41.3	314.2
Transportation and communication	32.1	229.9
Wholesale and retail trade	65.2	144.3
Finance, insurance and real estate	60.3	211.4
Service and government	90.5	114.0
Total economy	66.0	146.2

SOURCE: Dirk Pilat (1993), "The Sectoral Productivity Performance of Japan and the U.S., 1885–1990," *Review of Income and Wealth* 39 (December): 357–75.

Competing Views on Japan's Economic Woes

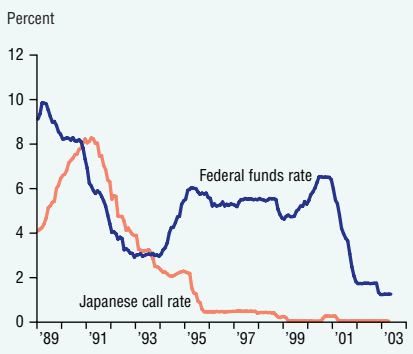
Many economists have volunteered solutions to Japan's economic problems. With their differing views on the source and cure of Japanese deflation, they fall into one of three camps. The first holds that—rather than a source of economic slowdown—deflation is the consequence of the structural problem of resource allocation, which intensified after the bubble burst. CPI deflation has been minimal compared with asset price deflation, which cannot be halted by macroeconomic policies. Some, such as Fumio Hayashi and Edward Prescott, believe that structural reform in the financial sector to restore productivity growth should be the first priority, and monetary easing may be secondary at best. In 1990, Japanese industrial productivity was 34 percent lower than that of the United States because of inefficient resource allocation. That percentage is probably even greater today. The more industries are regulated and subsidized, the less productive and more expensive they become (*Table 1*).

The second camp believes that deflation itself is the source of the problem. Because they expect future deflation, Japanese consumers do not consume. The process is self-fulfilling. Various creative macroeconomic policy measures to cure price declines have been recommended, including direct monetization of Japanese government bonds by the central bank (Ben Bernanke), inflation targeting (Lars Svensson) and relentless depreciation of the Japanese currency (Allan Meltzer).

The third camp comprises classical Keynesians who believe that only fiscal expansion could stop deflationary spirals (Richard Koo). This argument lost ground as the eight fiscal stimulus packages piled

Chart 4

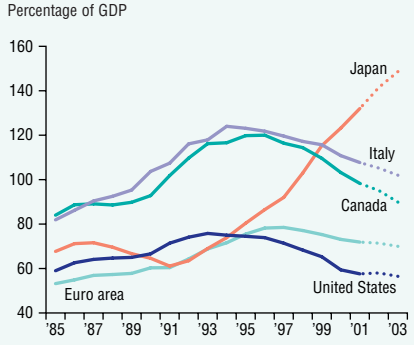
Short-Term Interest Rate in Japan and the United States



SOURCES: Bank of Japan; Federal Reserve Board.

Chart 5

General Government Gross Financial Liabilities



SOURCE: Organisation for Economic Cooperation and Development, *Economic Outlook* 70 (2000).

up government debt without producing the accelerated demand that was supposed to accompany them.

Of the three explanations for Japan's deflation, the Bank of Japan supports the first, or structural argument. It proposes that the Ministry of Finance and the Financial Services Agency reform the banking sector so that banks can lend to more active borrowers instead of simply rolling over dead loans. But the reforms would mean not only the admission of heretofore unconfessed dead loans, but the admission of heretofore unconfessed dead banks. The Bank of Japan accordingly urges the injection of public money. But the bank resolution might still entail massive job cuts and an economic slowdown in the short run, and these possibilities make government officials nervous.

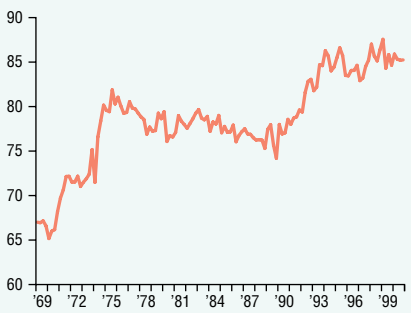
An opposing view, backed by the Ministry of Finance, is that the Bank of Japan's untimely monetary policy was a primary source of the problem. In this view, the solution is for the Bank of Japan to inject more money before beginning the painful restructuring of the previously unadmitted dead banks.

Understanding Japan's unprecedented economic circumstances is not an easy task. Without a consensus on the causes of current economic conditions, Japanese policymakers struggle to agree how to handle the economic problems. However, finding the solution to the ailing Japanese economy would not automatically guarantee recovery. Whether the first camp or the second is right, the solution will require the coordination of policies between the central bank and the Ministry of Finance. Whatever policy they implement will entail high risk and suffering for some people. Political support is the prerequisite. These practical conflicts have so far been difficult for Japan to resolve.

Because of system rigidity in Japan, there was no real policy coordination between the Ministry of Finance and the central bank until last year. Officials of both institutions were discouraged from commenting on the other's policy. There was almost no communication between them even on a personal level. Since the revision of the Bank of Japan Act in 1998, it has become difficult for outsiders (the Ministry of Finance and politicians) to influence central bank policies. For example, the Ministry of Finance determines intervention in the foreign-exchange market but is not attentive to the counterbalancing act of buying back intervened currency, or sterilization, that is under the central bank's control.

Chart 6

Labor's Share of Japan's GDP



SOURCE: Cabinet Office, Japan.

Why Economic Reform Gets Little Support. After a decade of sluggish economic growth, Japanese leaders have become less confident about their system. Leaders now appear to be more open to foreign opinions, although up to now they have had difficulty acting on them.

Even though Japan is in the midst of an economic slump, a visit can be very misleading for foreigners, who are hard-pressed to find evidence of the economic doldrums. Tokyo's bustling subcenters and packed restaurants and bars belie the sluggish economy. In actuality, the lost decade has not severely affected the average Japanese citizen. Real GDP continued to grow, albeit not nearly at the U.S. rate (*see Chart 1*). Japan's unemployment rate of 5.4 percent is lower than the United States'. Labor's share of GDP has increased almost 10 percent since 1991 (*Chart 6*), while the share due to physical capital has correspondingly fallen.

Under continuing deflation, the rigidity of nominal wages and obstacles to laying off workers have increased real labor income and squeezed firms' profits (*Chart 7*). Labor has little political incentive to back drastic reforms. Diet members might have difficulty in the next election if they support a reform agenda that would reduce the premium the nation is willing to pay for job security. It has been argued that politicians only pay lip service to reforms to appease foreigners—who do not vote—and domestic academicians—who vote but do not make campaign contributions.

The Political Structure Does Not Help. Rural areas in Japan are overrepresented in the government. Agriculture and small local businesses depend heavily on government expenditures. Government capital formation in Japan is about 8 percent of GDP—three times higher than in the United States. As with labor reforms, attempts by politicians to cut back on government spending for agriculture and local small business—with their disproportionately strong lobbies—is difficult politically despite the long-term benefits.

Under these circumstances, the Diet has been pushing the administration for an additional tax cut. A permanent tax cut may help the economy through increased investment and consumption. But with a financial market that is more than fretful about the current 140 percent debt-to-GDP ratio, a tax cut would only be transitory. So far, the principal charm of a tax cut is said to be that it would not harm anyone in the short run. Accordingly, tax cuts' ability to stimulate is impaired because their persistence is not credible.

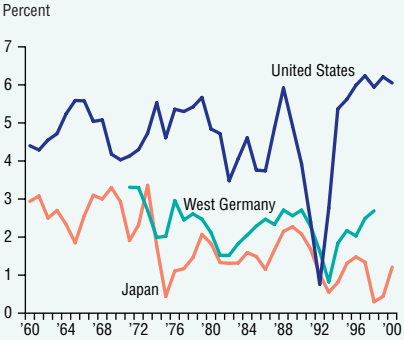
Nevertheless, out of the 80 trillion yen the government spends annually, 30 trillion is financed by new government bonds (*Chart 8*).

Will Japan Have an Acute Financial Crisis?

The evidence suggests that Japan cannot reverse the direction of its econ-

Chart 7

Profit/Sales Ratio in Manufacturing Sector

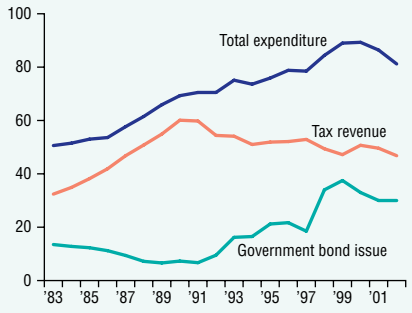


SOURCES: Ministry of Finance, Japan; Bundesbank, Germany; Census Bureau.

Chart 8

Japan's General Account Tax Revenues, Total Expenditures and Government Bond Issues

Yen (in trillions)

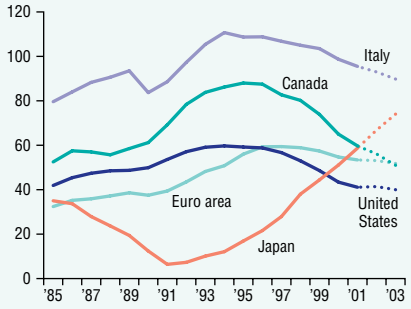


SOURCE: Ministry of Finance, Japan.

Chart 9

General Government Net Financial Liabilities

Percentage of GDP



SOURCE: Organisation for Economic Cooperation and Development, *Economic Outlook* 70 (2000).

omy immediately. Does this mean that a financial crisis is imminent?

Fearing it would lead to turmoil in the banking sector, Japan has delayed for two more years the elimination of blanket insurance on time deposits. Although this antireformist action may be suboptimal in the long run, it does eliminate the possibility of bank runs in the short run. Further stock price declines would not be deadly for the banks that own stocks as part of their portfolios because the Bank of Japan buys the stocks directly from the banks. The recent nationalization of Risona Bank signaled to depositors that their money is safe. A banking crisis triggered by bank runs is a remote possibility in Japan.

Some analysts worry that Japan's growing sovereign debt may cause currency-market instability. They argue that under the current political system, there is no clear vision to reduce the level of outstanding Japanese government bonds. If markets fear the government may default, capital flight may trigger a currency crisis. Aside from the possible retaliatory exchange-rate depreciations by other countries, it is hard to see why devaluation would be problematic in any case, but the sudden unavailability of credit is another matter.

Capital flight from Japan in the near future is unlikely for three reasons:

• Japanese government debts are domestic currency-denominated. It is always possible for the government to monetize the debt. Considering the long-term damage to the country's reputation as well as the immediate cost of financial market disruption, default is not a plausible policy option.

• The size of Japan's net government debt is just half its gross debt. While gross government debt is 140 percent of GDP, net government debt is about 70 percent of GDP—lower than that of some European countries. As long as Japan continues to maintain its trade surplus, the pressures that could result in a sovereign default are probably no higher than for countries like Belgium and Italy (*Chart 9*).

• As of March 2002, foreign ownership of Japanese government bonds is less than 5 percent of the total (*Chart 10*), not enough for foreigners alone to trigger capital flight. The government and the central bank own the majority, 56 percent of the total, while commercial banks own 32 percent. Under current corporate governance, the managers of Japanese commercial banks do not feel responsible to their shareholders. Japanese bankers would follow instructions from the Ministry of Finance. Unless economic conditions deteriorate drastically and the government is paralyzed, it is hard to imagine any major private agency selling its government bonds.

For these reasons, there appears to be no momentum for drastic reforms or any indication of a potential financial crisis in Japan. Japan's economy may be sluggish for quite some time, but it will not implode.

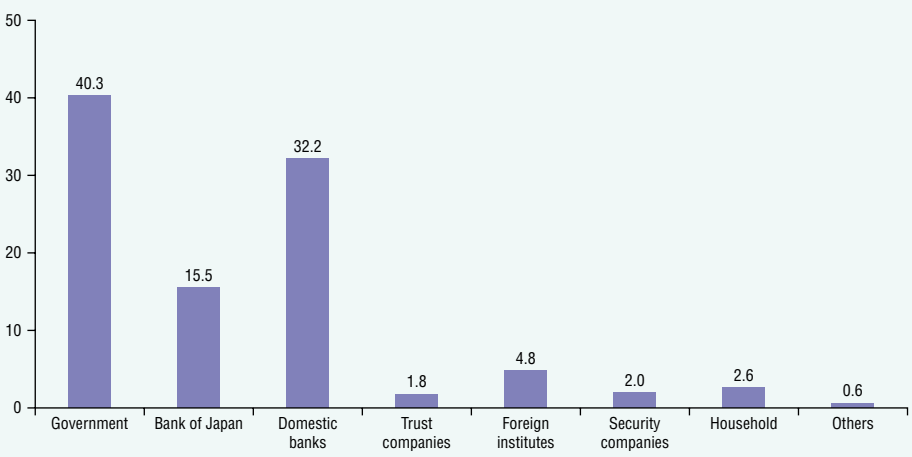
Is There Hope for Japan's Economy?

The speed of change in Japan is slow by U.S. standards, but there are some signs that Japan's economy is gaining strength. For one thing, frozen labor markets are beginning to thaw. Large Japanese companies have been very reluctant to lay off their "permanent" employees. For example, Fujitsu, a leading technology equipment company, has not laid off a single domestic employee in its entire history. Japanese companies have been slow to acknowledge the need for quicker labor adjustments and have relied on attrition and job relocation for the reductions efficiency and profitability

Chart 10

Ownership of Japanese Government Bonds

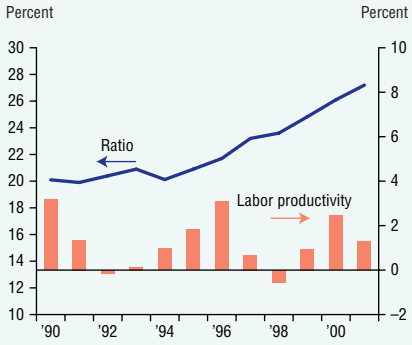
Percent



SOURCE: Bank of Japan.

Chart 11

Temporary Worker/Total Employment Ratio and Labor Productivity in Japan



SOURCES: Ministry of Health, Labor and Welfare, Japan; Japan Productivity Center.

require. Recently there has been one positive sign: Japanese companies are increasing their hiring of temporary employees. The number of temporary workers as a percentage of total employees jumped from 20 percent in 1994 to 27 percent in 2001 (*Chart 11*). Higher labor market flexibility increases labor productivity and enables companies to have higher profits.

In addition, attempts at policy coordination have surfaced. Last fall, when the Japanese stock market showed significant weakness, the Bank of Japan reversed its previous stance and decided to rescue the banks by directly purchasing their equity holdings. Previously, the Bank of Japan had insisted that financial-sector reform was needed before further monetary easing could take place. Now, the Bank of Japan acts like a guardian for Japanese commercial banks, which have a significant portion of their assets in corporate equities.

Further, Prime Minister Junichiro Koizumi fired the minister overseeing the Financial Services Agency, who had been reluctant to use public money to recapitalize the ailing banking system. Koizumi appointed reformist Heizo Takenaka to the position. And, as mentioned earlier, the government has postponed the elimination of blanket time-deposit guarantees for two years.

A flurry of policy actions like these is rare in Japanese politics. It appears that the Bank of Japan has been deeply concerned that the commercial banking sector would collapse if the deposit guarantee was lifted while equity prices were falling. These concerns appear to have resolved, at least for now, the longstanding conflict over which of the three causative arguments is believed correct. The top priority has become monetary easing, with efforts at financial-sector restructuring and reform to come later. With this basic conflict settled, it is possible that policy changes may come faster and with more coordination.

The appointment of new top management at the Bank of Japan raises hopes that policy coordination will be accelerated. The view of the new governor, Toshihiko Fukui, on deflation is not fundamentally different from that of his predecessor, Masaru Hayami, but he is considered better able to work with the Ministry of Finance. The deputy governor, Toshiro Muto, was Japan's vice minister of finance until last year. He will work to increase the Bank of Japan's direct purchase of Japanese government bonds.

Recent changes in labor market conditions, productivity growth and more coordination between the Bank of Japan and the Ministry of Finance are all positive signs that Japan will be able to deliver more decisive policy actions to boost the nation's economy and, one can hope, do it at a faster pace.

—Jahyeong Koo

Koo is an economist in the Research Department of the Federal Reserve Bank of Dallas.

Note

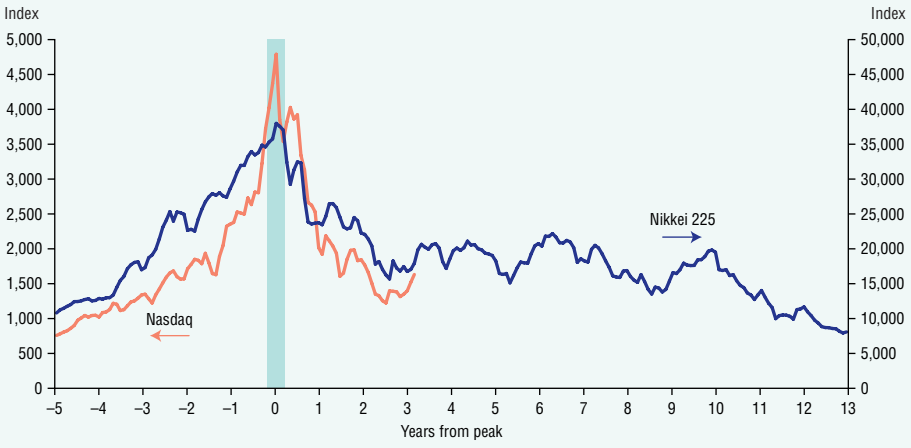
This research has greatly benefited from Koo's three-month stay in 2002 as a visiting scholar at the Policy Research Institute, Ministry of Finance of Japan. Koo appreciates the hospitality he received from the staff members of the ministry. The views in this article do not reflect the official view of the institute.

Does the U.S. Economy Follow the Japanese Path?

There are concerns that the current U.S economy may be following Japan's trail of the 1990s. The patterns of the Nikkei 225 and the Nasdaq indices before and after their booms and busts are strikingly similar (see chart below). Lingering possibilities of deflation and low interest rates intensify the worry. However, the U.S. economy is different from Japan's in several ways.

- The shock of the stock market bust is smaller in the United States. Only the technology-intensive Nasdaq has had a decline in Japan's league. Broader market measures, such as the Dow Jones Industrial Average and the Standard & Poor's 500, have not declined as much.
- A protracted slide in real estate prices has been a hallmark of the Japanese stagnation, but real estate deflation is not part of the U.S. picture and doesn't look as if it will be. Some economists credit the Federal Reserve for lowering interest rates more aggressively than the Bank of Japan.
- U.S. productivity picked up quickly after its asset price bust. In Japan, productivity growth had been sluggish for a decade. It may be because the U.S. labor market is more flexible. It took two years for the U.S. unemployment rate to increase 2 percentage points, whereas it took seven years for Japan to make the same adjustment after its bust.
- The United States has diversified sources of corporate funding, whereas Japanese companies rely mostly on banking. A shock to the banking sector does not influence the rest of the U.S. economy as much as it does in Japan.

Boom and Bust of the U.S. and Japanese Stock Markets



NOTE: Shaded area represents peaks of the U.S. and Japanese stock markets, March 2000 and December 1989, respectively.
SOURCES: Tokyo Stock Exchange; Nasdaq.

Texas Economy Warming Up in 2003

(Continued from front page)

Some History

After roaring through the 1990s, Texas' economy cooled in 2000 and then turned down in 2001, mirroring the U.S. economy (*Chart 1*). Texas was especially hard hit from the technology bust and the fallout from September 11. During 2001, Texas' high-tech and air transportation industries lost a combined 48,300 jobs, or 45 percent of total job losses. Overall, Texas employment dropped 1.4 percent in 2001, while national employment fell at a slightly slower rate of 1.1 percent. In 2002, conditions remained bleak and overall job numbers continued to fall. Texas employment declined another 0.1 percent, compared with a national dip of 0.4 percent.

So far in 2003, Texas job growth has been positive, registering a net gain of 29,000 jobs (0.8 percent) through May.[1] Moreover, the Texas Coincident Index began exhibiting positive growth at the end of 2002, marking an end to the downturn (*Chart 2*).[2] While recent growth has been tepid, it nevertheless indicates that Texas is on the road to recovery. But, despite the warming trend in some areas, several sectors of the Texas economy are still hurting. Following are short summaries of Texas economic indicators, ranked hottest to coldest, based on their contribution to current economic conditions. (See Texometer on page 13.)

Warm to Hot

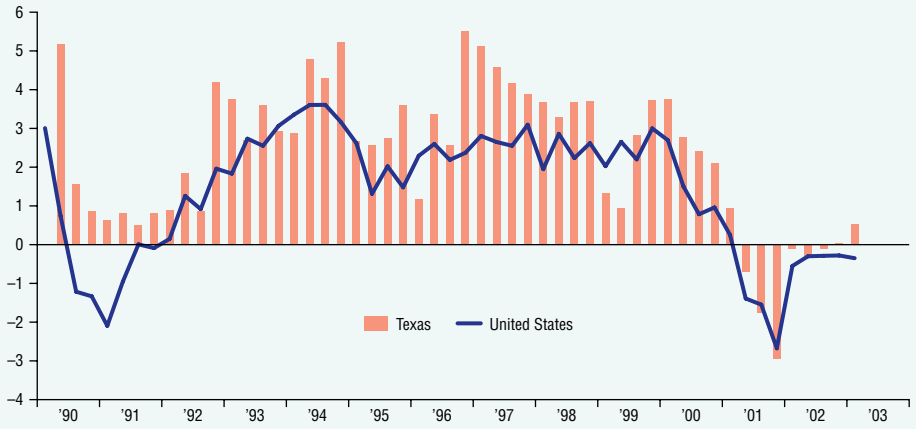
Health and Education Services. Health and education services employment has shown consistently strong growth over the past several years, even through the downturn of 2001 and 2002 (*Chart 3*).[3] The sector added 19,400 jobs in the first five months of 2003, helping offset job declines in weaker sectors. The health services component of this sector includes private health care providers and is one of the largest industries in Texas. It currently comprises one-tenth of total Texas employment (or about a million people). The other component of this sector, education services, includes private schools, colleges and training centers and currently employs about 150,000. Employment in health and education services should continue to rise at a healthy pace as a result of the state's faster-than-average population growth.

Energy. Texas' oil and gas sector is heating up, even though the energy sector has continued to play a declining role in the state's economy. After falling consistently since late 2001, oil and gas employment began to increase in spring 2003, adding 1,800 to the payrolls from March through May (an 11.9 percent pace). Moreover, the Texas rig count is at its highest level since summer 2001.

What has caused the recent resurgence in Texas' energy industry? After price fluctuations in 2001 and 2002 left the market unsure about price sustainability, oil prices now seem firmer, recently hovering in a narrow range around $30 per barrel. Additionally, upward pressures

Chart 1

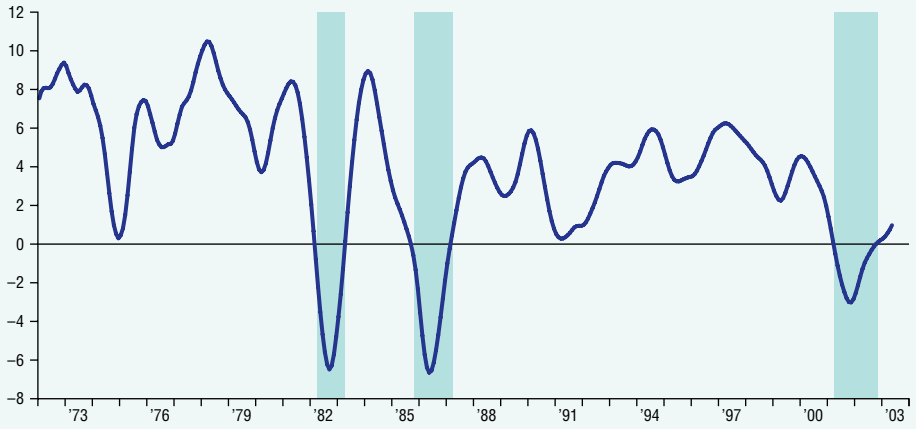
Texas Employment Pulling Out of Deep Freeze



* Seasonally adjusted, annualized rate.
SOURCE: Bureau of Labor Statistics.

Chart 2

Texas Coincident Index Shows Expansion

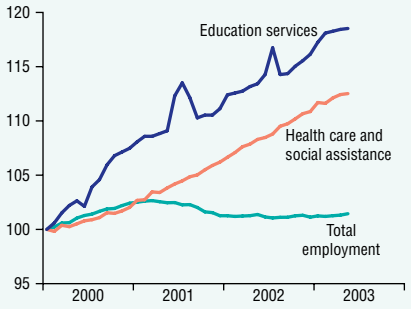


* Seasonally adjusted, annualized rate.
NOTE: Shaded areas indicate recession.
SOURCE: Federal Reserve Bank of Dallas.

Texas home sales have eased in recent months, and inventories are rising.

Chart 3

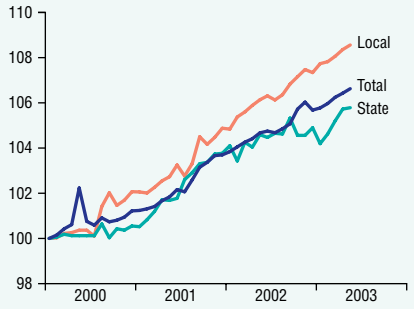
Health and Education Employment Forging Ahead



SOURCE: Bureau of Labor Statistics.

Chart 4

Government Employment Making a Contribution



SOURCE: Bureau of Labor Statistics.

on oil prices persist: (1) There is an absence of Iraqi oil on the market, (2) OPEC left quotas unchanged at the most recent meeting and (3) most economists expect the U.S. economy to improve in the second half of 2003. High natural gas prices are also contributing to increased employment and drilling.

Temporary Hiring. Employment at temporary agencies has picked up this year. The hiring of temporary workers usually quickens before an upturn in permanent employment. Since the end of 2002, temporary jobs have risen a robust 9.6 percent. Temporary employment accelerated 13.3 percent in May, pointing to increased job growth later in the year.

Warm

Government. Government jobs have been rising at a moderate pace since 2000. Along with health and education services, government employment was unfazed by the 2001–02 recession (*Chart 4*). Local government, which includes a large portion of the public education sector, has been the fastest growing segment of government, rising 2.8 percent year-to-date. While government will continue to make up a large share of total Texas employment, growth in government jobs

Chart 5

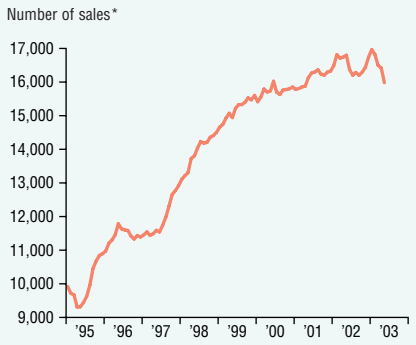
Texas Single-Family Housing Permits Still High

* Seasonally adjusted, five-month moving average.

SOURCES: Census Bureau; Federal Reserve Bank of Dallas.

Chart 6

Home Sales Cooling



* Seasonally adjusted, five-month moving average.
SOURCE: Real Estate Center at Texas A&M University.

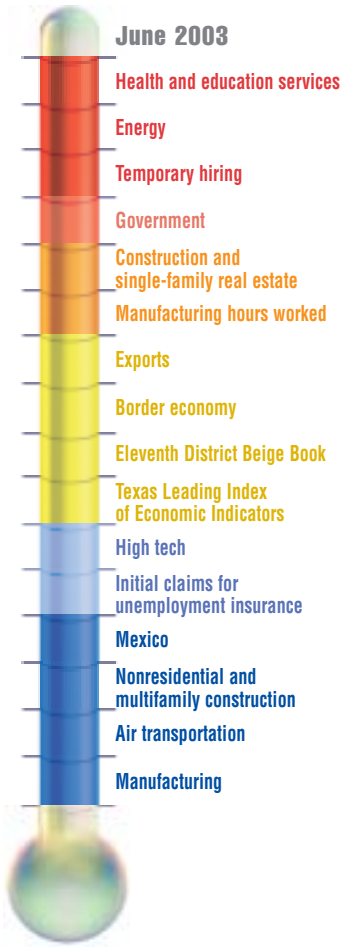
Chart 7

Housing Inventory on the Rise

* Seasonally adjusted.
SOURCE: Real Estate Center at Texas A&M University.

Texometer

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.



may cool off later this year, a result of spending cuts associated with state and local budget shortfalls.

Warm but Losing Steam

Construction and Single-Family Real Estate. In 2002, construction employment forged ahead despite weakness in the rest of the economy. Although most office construction was at a standstill, single-family construction surged to record highs, partly due to low interest rates, which increased home affordability (*Chart 5*).

While the single-family construction industry is still anticipating a good year overall, the industry is not expected to contribute as much to economic growth this year as it did in 2002. In fact, Texas home sales have eased in recent months, and inventories are rising (*Charts 6 and 7*). In addition, because new construction is running ahead of demand, the surge in home prices that began in late 1999 lost steam in 2003, and prices are now flat. While construction employment continued its upward trend in the first few months of 2003, that trend halted in May as 3,100 construction jobs were lost, leaving construction employment at about the same level as this time last year.

Manufacturing Hours Worked. Manufacturing hours worked edged down in April and May, but the measure climbed strongly in first quarter 2003 and remains above year-ago levels. Because employers generally increase hours prior to hiring, the higher level hints that manufacturing employment could improve in coming months.

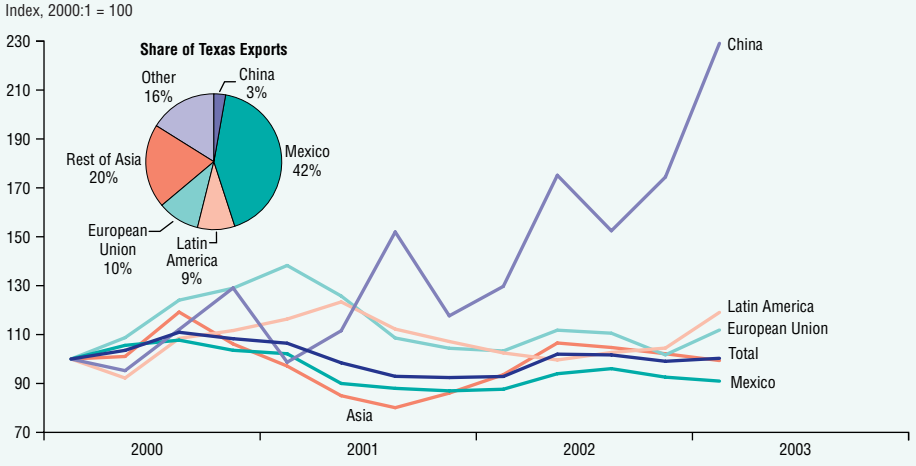
Lukewarm

Exports. Real Texas exports edged up slightly in first quarter 2003, after declines during the last two quarters of 2002. The increase was modest because Texas' exports to Mexico (which account for almost half of total state exports) fell as Mexico's economy weakened further (*Chart 8*).

Inflation-adjusted exports to the European Union, Latin America (excluding Mexico) and China were up in the first quarter. Exports to China were particularly strong, increasing 25 percent, as China posted the fastest economic growth in recent years. Texas' top exports to China are chemicals, computer and electronic products, and machinery.

Chart 8

Real Texas Exports to China Take Off



SOURCES: Massachusetts Institute for Social and Economic Research; Federal Reserve Bank of Dallas.

In more positive news, the maquiladora industry is showing signs of stabilizing.

The Border Economy. The weakness in Mexico's economy has cooled overall border job growth, with Brownsville and El Paso posting negative job growth in recent months. In more positive news, the maquiladora industry is showing signs of stabilizing. Border maquiladora plants gained 2,800 net jobs in first quarter 2003 (the most recent data available), while transportation-related maquilas gained 3,500 jobs. Moreover, anecdotal reports and sales tax rebates indicate that retail sales along the border are beginning to pick up.

The Eleventh District Beige Book. The most recent Eleventh District Beige Book, a survey of current conditions conducted by the Federal Reserve Bank of Dallas and its branches, hinted at improving economic activity in Texas. Nevertheless, Texas' economic rebound is reportedly slow and inconsistent across industries. The Eleventh District Beige Book was somewhat more optimistic than the national summary. This is consistent with current employment conditions in Texas and the United States.

Texas Leading Index of Economic Indicators. The Texas Leading Index edged up in April and May 2003 following declines in the previous two months.[4] After trending down in 2001 and 2002, the index's recent uptick indicates the Texas economy should improve in coming months.

Cold but Getting Warmer

High Tech. Texas' high-tech sector eliminated 74,900 jobs between the peak in November 2000 and the end of 2002. This year, the sector has continued to shed jobs (5,800), but the pace has slowed. High-tech employment has declined at an annualized rate of 6.7 percent year-to-date, after falling at a 14 percent pace in 2002.

Looking at individual subsectors, the telecommunications industry (both services and equipment) continues to lose jobs, but employment seems to have bottomed out in the semiconductor and computer manufacturing industries (*Chart 9*). Anecdotal reports confirm these figures, with some in the industry hinting at a "glimmer at the end of the tunnel."

Because the tech market is worldwide in scope, a high-tech turnaround in Texas will have to come from global forces. So far, on the positive side, computer shipments have risen above year-ago levels for 10 consecutive months, and factory orders for computers were up strongly in April. On the down side, venture capital investing in Texas and the United States is at a five-year low, and the semiconductor book-to-bill ratio has edged down in recent months, meaning chip orders are not as strong as current shipments.

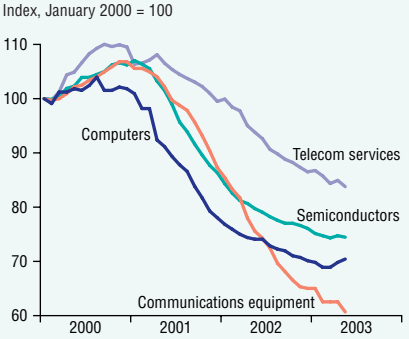
Initial Claims for Unemployment Insurance. Although still high, initial claims for unemployment insurance in the state fell in April and May 2003. Because initial claims are a leading indicator of the economy, the recent declines imply continued slow improvement in Texas labor market conditions.

Chilly

Mexico. After attempting a recovery last year, Mexico's economy took a turn for the worse in first quarter 2003, when real gross domestic product (GDP) fell 2.9 percent from the previous quarter (*Chart 10*). Mexico's manufacturing sector remains weak and is not likely to see much improvement until gains are made in its U.S. counterpart. The National Institute of Statistics, Geography and Information's (INEGI) leading index for the Mexican economy is generally flat, and most analysts tie any recovery in the Mexican economy to stronger U.S. growth. Fortunately for the Texas economy, employment and hours in Mexico's maquiladora industry seem to have stabilized after falling in 2001 and much of 2002.

Chart 9

Some High-Tech Bottoming Out



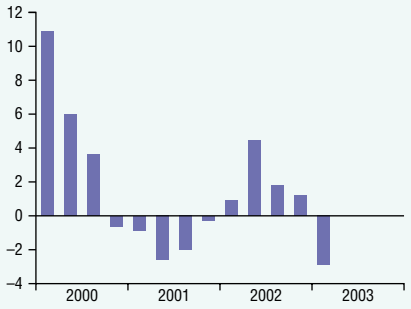
SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Chart 10

Mexican Economy Weakening

Real GDP Growth

Quarterly change (percent)*



* Seasonally adjusted, annualized rate.

SOURCES: National Institute of Statistics, Geography and Information (INEGI); Federal Reserve Bank of Dallas.

Nonresidential and Multifamily Construction and Real Estate. Texas office markets remain in the doldrums, with the metropolitan vacancy rate in Dallas one of the nation's highest. There has been little new office construction in Texas this year, and most nonresidential construction is for publicly funded buildings, banks, industrial warehouses, retail buildings and build-to-suits. Business contacts say the industry is probably at the bottom; however, it may be next year before office demand and rents begin to turn the corner.

Strength in the single-family housing sector has come at the expense of Texas' apartment industry. Apartment demand has been weak, yet building has continued, putting a damper on rental rates. It is likely that apartment vacancy rates will remain high and rents depressed until a marked turnaround in employment is evident.

Air Transportation. The U.S. airline industry, which was severely hurt by the events of September 11, has yet to recover. Because the industry plays a prominent role in Texas—home to Continental Airlines, American Airlines, Southwest Airlines and one of the world's busiest airports—the tailspin has been a large contributor to the state's economic weakness. Following an initial plunge in employment in 2001, air transportation jobs edged down only slightly in 2002. However, in 2003 roughly 3,800 (out of 71,500) jobs have been eliminated year-to-date as companies accelerate cost-cutting efforts.

With further cuts expected, the air transportation industry probably will not contribute to the state's economic growth in the near future. Nevertheless, the long-term prospects seem more promising. A recent $1.46 billion bond sale by Dallas/Fort Worth International Airport suggests expectations for the airport and the Texas economy remain high.

Manufacturing. Manufacturing remains the weakest major sector of the Texas economy by far. The sector continues to shrink in terms of employment, but the rate of job loss has lessened in 2003. Manufacturing employment declined at an annual rate of 2.1 percent (8,300 jobs) in the first five months of this year, compared with a drop of 5.4 percent (53,100 jobs) in 2002.

Manufacturing may be slow to recover, as many industries within the sector have undergone significant changes during the recent downturn. For instance, high-tech manufacturing will still be an important component of the state's economy, but it is doubtful that this subsector will return to the prominence it saw during the frenzied dotcom days of the 1990s. Nonetheless, the manufacturing sector should come around as economic conditions in the state and the nation improve. A growing Mexican economy would also benefit Texas' manufacturing industries, which rely on demand from their southern neighbor.

Summary

The Texas economy is expanding, albeit slowly. Overall job growth is lukewarm at best, with many Texans still seeking work. The sectors driving the state's expansion include health and education services, energy and government. Single-family housing, which plowed forward in 2002 despite the state's downturn, is exhibiting less vigor. While many sectors remain depressed, including high-tech manufacturing and services and air transportation, the number of economic indicators in the lukewarm-to-warm range has increased in the first part of 2003.

The Texas Leading Index of economic indicators picked up in April and May, suggesting we may see additional improvement in coming months. If the national economy picks up steam as expected, Texas should continue on the path to renewed growth.

—D'Ann Petersen

Petersen is an associate economist in the Research Department of the Federal Reserve Bank of Dallas.

Notes

The author wishes to express her thanks to Steve Brown, John Thompson and Mine Yücel for sharing ideas and information; John Thompson and Mine Yücel for use of their Texometer; and John Thompson and Jennifer Afflerbach for excellent editorial comments.

1 All data are seasonally adjusted and all growth rates are annualized unless otherwise noted.

2 The Texas Coincident Index was developed and is maintained by Keith R. Phillips of the San Antonio Branch of the Federal Reserve Bank of Dallas.

3 The health and education sector is one of 11 supersectors as defined by the North American Industry Classification System (NAICS). March 2003 marked the first time Texas employment data were released in the new NAICS format. The NAICS system replaces the Standard Industrial Classification (SIC) system that had been in use since the 1930s. For more information on NAICS, see Robert W. Gilmer and Jonathan Story, "Goodbye SIC, Hello NAICS: A Fresh Slate for Houston Jobs Data," Federal Reserve Bank of Dallas *Houston Business*, March 2003. Also, you may visit the Bureau of Labor Statistics web site at www.bls.gov/sae/saenaics.htm or the Census Bureau web site at www.census.gov.

4 The Texas Leading Index was developed and is maintained by Keith R. Phillips of the San Antonio Branch of the Federal Reserve Bank of Dallas. For more information on the Texas Leading Index and its components, see www.dallasfed.org/data/basics/index.html.

Monetary Policy in a Zero-Interest-Rate Economy

(Continued from page 5)

Conclusion

Open-market purchases of Treasury bills—the Fed's standard method for stimulating the economy over the past 40 years—become ineffective as short-term interest rates approach zero. With Treasury bill rates today so near zero, the Fed will need to be open to alternatives to standard policy and stand ready to vigorously pursue them if the economy remains weak.

In the event it must act alone, the Fed's best policy option is probably open-market purchases of longer-term government bonds. Efforts by the Fed to manipulate longer-term Treasury yields are not unprecedented: They were fairly common in the 1940s and early 1950s. But that's not to say that reorienting Fed policy would be problem-free. There are good reasons why the Fed usually aims its efforts on the short end of the yield curve.

If standard policy options are exhausted, the Fed's quiver is by no means empty. But the arrows that remain are less familiar and, perhaps, not quite as straight as the ones that have already been fired.

— Evan F. Koenig
Jim Dolmas

Koenig is a senior economist and vice president and Dolmas is a senior economist in the Research Department of the Federal Reserve Bank of Dallas.

Notes

[1] Irving Fisher (1933), *Stamp Scrip* (New York: Adelphi). Fisher credits the stamp money idea to the German–Argentine economist and businessman Silvio Gesell.

[2] See, for example, Bennett McCallum (2000), "Theoretical Analysis Regarding a Zero Lower Bound on Nominal Interest Rates," *Journal of Money, Credit, and Banking* 32 (pt. 2, November): 870–904 or Lars E. O. Svensson (2001), "The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap," *Monetary and Economic Studies* 19 (Special ed., February): 277–312.

[3] This conclusion is perhaps overly pessimistic. As long as the foreign central bank did not expand its money supply through open-market purchases of dollars, the Fed's purchases of foreign currency would still increase liquidity in the U.S. economy, even if the purchases had no effect on exchange rates. The expansion of liquidity—what some economists refer to as "quantitative easing"—might be beneficial in itself, since we know that *eventually* increases in an economy's money supply fuel inflation, and such inflation would be welcome in a deflationary, zero-interest-rate setting. One problem with quantitative easing, however, is predicting its near-term effects, since the short-run relationship between the money supply and inflation is tenuous and unpredictable in normal times, let alone in a deflationary, zero-interest-rate environment.

[4] See, for example, Marvin Goodfriend (2000), "Overcoming the Zero Bound on Interest Rate Policy," *Journal of Money, Credit, and Banking* 32 (pt. 2, November): 1007–35. A very clear discussion of the balance-sheet-risk issue, though with a focus on the Bank of Japan, is contained in Federal Reserve Board Governor Ben S. Bernanke's speech before the Japan Society of Monetary Economics on May 31, 2003 (available online at: www.federalreserve.gov/boarddocs/speeches/2003/20030531/default.htm).

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