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Price Deflation and Zero Interest Rates: Could It Happen in the United States?

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Marc Labonte
Analyst in Macroeconomics

Gail Makinen
Economic Policy Consultant
Government and Finance Division

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Summary

Some analysts have raised the specter of the U.S. economy sinking into price deflation (a general decline in prices over time) and persistently stagnant growth. Although the United States has not experienced deflation since the Great Depression, the Japanese economy has now suffered from deflation for several years. These analysts argue that Japan cannot escape deflation because its monetary policy has lost its effectiveness, with short-term market interest rates that have fallen to zero. Since short-term interest rates in the United States are at their lowest level in decades and some prices have fallen, some commentators foresee the United States soon facing a similar problem.

Although interest rates are an important mechanism by which changes in the money supply affect the pace of economic activity, monetary policy would not become impotent when short-term interest rates were near zero. Long-term interest rates would likely still be positive, as is the case in Japan, and these could be lowered to expand aggregate spending. Even if long-term interest rates reached zero, newly created money could be injected into the economy in two other ways. First, it could be used to directly finance government budget deficits. Second, it could be used to purchase foreign exchange, which would boost output by making exports and import-competing industries more price competitive, independent of the state of domestic demand. In sum, even if external forces set a country's deflationary spiral into motion, its persistence is primarily the outcome of central bank policy.

The main drawbacks to using unconventional methods of monetary policy are of a political, not economic, nature. There is a fear that unconventional methods could undermine a central bank's reputation and independence. It is also feared that the manipulation of the foreign exchange rate to undertake monetary expansions could lead to diplomatic tensions, since import-competing industries in the nations that received the increase in exports would be harmed. It could also harm third countries who are linked to one of the appreciating currencies.

In any case, similarities between economic conditions in the U.S. and Japan are questionable. At present, the U.S. economy is operating below its potential, but growth is positive. Inflation is low and has fallen, but is still well above zero. In 2002, prices rose 1.6% and, through September, they rose at an annual rate of 2.7% in 2003. To put this rate in perspective, the European Central Bank is mandated to prevent the inflation rate in the Euro Area from exceeding 2.0%. If the Federal Reserve had a similar mandate, it would presumably be tightening monetary policy at present because inflation was too high. The federal funds rate is currently low, but still has a way to go to zero. Adjusted for inflation, it is lower than overnight rates in Japan, despite the fact that the Japanese rate is near zero in nominal terms. The U.S. banking system is healthy. Unless the United States experiences some unexpected economic calamity beyond its control, it is difficult to see how deflation could emerge in the United States under current conditions. This report will be updated as events warrant.

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Price Deflation and Zero Interest Rates: Could It Happen in the United States?

Shortly after the U.S. economy entered a recession in March 2001, several commentators raised the specter of Japanese-style deflation (a general decline in prices over time) wreaking havoc on the United States. They pointed to rising unemployment, a falling stock market, the collapse of the high-tech sector, and the negative influence of 9/11 and corporate scandals on consumer and business confidence as forces present in the U.S. economy that could push down prices at a time when inflation was already low. Although the U.S. economy has not experienced persistent price deflation since the Great Depression, these commentators pointed to Japan as an example of the threat they claimed the United States faces. Even after the recession ended in November 2001, fears of deflation in the United States have continued.¹

Since 1992, the Japanese economy has stagnated (although growth is projected to rebound to 2.6% in 2003). A particularly troubling aspect of this slump has been the persistence of price deflation. As measured by the consumer price index (CPI), Japan has experienced deflation since 1999, and is forecasted to continue experiencing deflation in 2003. As measured by the GDP deflator, it has experienced price deflation every year but one since 1995. This experience with persistent price deflation is unprecedented among the major world economies in the past three decades. Indeed, the problem most major economies had experienced during that period was the opposite: harmful bouts of high inflation. One would have to look back to the Great Depression to find a similar period of prolonged deflation.

The current Japanese experience is not comparable to the Great Depression. Growth in Japan has been sluggish, but still positive in most years. Unemployment has risen to unprecedented levels, but is still lower than in the Euro Area. The annual deflation rate has never exceeded 1% as measured by the consumer price index. The banking system is troubled, but has not collapsed. Nonetheless, all of these problems suggest that although deflation need not be lethal, it is hardly desirable. It has been associated with an economy that operates below its full potential, creating unnecessary waste of its human and physical assets and misery for some segments of its population, until price expectations adjust. When unanticipated, it threatens the solvency of the banking system by increasing the real value of debt, making default

¹ See Matthew Lubanko, "Is Deflation in the Wind? Economy Bears Ominous Resemblance to Japan's in Mid-'90s," *Hartford Courant*, Oct. 26, 2002, p. E1; Barbara Hagenbaugh, "Dallas Fed Chief Has Deflation On His Mind," *USA Today*, Oct. 1, 2002, p. B1; Noam Neusner, "Fear of a Free Fall; The Federal Reserve Fights an Unknown: The Specter of Deflation," *U.S. News and World Report*, Aug. 26, 2002, p. 22; Greg Ip, "Specter of Deflation Looms: Evoking a Parallel With Japan," *Wall Street Journal*, July 22, 2002, p. A2.

more likely. As the case of Japan illustrates, the adjustment period can last for several years. The U.S. Congress, dedicated to promoting public welfare, has a strong desire to avoid such outcomes.

Yet persistent inflation or deflation is, and must be, a monetary phenomenon that results from inappropriate central bank policy. Commentators who predict deflation in the U.S. need a credible explanation for why the Federal Reserve (Fed) would not act to offset the fall in demand caused by the various forces noted above. Monetary policy is frequently portrayed as the setting of interest rates by the central bank. Those who fear that deflation could take hold in the U.S. point out that nominal interest rates in Japan are very close to zero. Short term interest rates targeted by the Bank of Japan have been below 1% since 1995 and 0.1% since September 2001. They conclude that monetary policy in Japan has become an ineffective tool against deflation because market interest rates cannot be lowered any further. They argue that the same scenario could prevail in the United States, where the federal funds rate was lowered to 1% in July 2003.

This report will begin with a fairly detailed explanation of how monetary policy works. Once this process is understood, it will become clear that deflation can be avoided even when market interest rates have fallen to zero. Monetary policy, it will be argued, may become less effective in a depressed economy, but it does not become powerless. Thus, even if external forces set Japan's deflationary spiral into motion, its persistence is primarily a policy decision of the central bank. Avoiding deflation when interest rates fall to zero entails some risks, but these risks seem trivial compared to the economic risks caused by deflation.

What Is Deflation? Why Is It an Issue?

Deflation is defined as a sustained or continuous fall in the general price level. It is an absolute decline in the price level, not a decrease in the rate at which the price level is rising, which is called disinflation. As seen in Table 1, during 2002 the United States experienced disinflation according to all three price indices. This trend was reversed, with rising inflation in two of the measures during the first three quarters of 2003. None of the 50 forecasters surveyed by Blue Chip is forecasting deflation in 2004.² Much of the fluctuation in inflation rates in recent years has been due to changes in energy prices. When food and energy prices are removed, the resulting core rate of inflation has been remarkably stable in recent years. Nonetheless, prices in some components of the GDP deflator (the consumption goods, nonresidential investment, foreign, and government sectors) experienced deflation for some quarters in the past three years. Deflation is a generalized phenomenon, however, and the components that have experienced price declines have been more than offset by price increases in other components (the services and residential sectors). In 2003, prices in the durable consumption goods and nonresidential investment sectors continued to decline.

² Blue Chip, *Economic Indicators*, October 2003.

Table 1: Inflation Rates in the U.S. and Japan, 1998-2003

	1999	2000	2001	2002	2003
U.S.					(Q1-Q3)
CPI (overall)	2.2%	3.4%	2.8%	1.6%	2.7%
CPI (core)	2.1%	2.4%	2.6%	2.4%	1.0%
GDP deflator	1.4%	2.1%	2.4%	1.1%	1.6%
Japan					(forecast)
CPI (overall)	-0.3%	-0.9%	-0.7%	-0.9%	-0.3%
GDP deflator	-1.5%	-1.9%	-1.6%	-1.7%	-2.5%

Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Blue Chip Economic Indicators (October 2003), International Monetary Fund.

The last period of generalized deflation in the United States ran from 1929 to 1933. During that 4-year period, the consumer price index (CPI) fell in excess of 24% while the implicit deflator for gross domestic product (GDP) fell in excess of 25%. Every major component of the CPI and price deflator fell. The fact that this episode occurred during the Great Depression is not coincidental. Yet deflation has not always coincided with economic contractions. In only one year between 1864 and 1902 did the price level rise (1880) and prices fell by nearly 50% over the period as a whole. This long period of deflation was not, however, one of continuous depression. On the contrary, it was one of substantial cyclical activity, including long periods of economic growth. At least history tells us that deflation is not always associated with depressed economic activity.

Economic theory, in discussing the implications of a changing price level, makes a distinction between those changes that are anticipated and those that are not. Those that are not anticipated are likely to be problematic because of the presence of sticky prices and wages in the economy. There are menu costs,³ information costs, expectations, and contracts in our economy that make prices and wages sticky. Such rigidities in the face of deflation lead to a fall in real output and a rise in unemployment. Since prices do not fall quickly on their own in our economy, unemployment and falling output must temporarily occur before expectations adjust sufficiently to the new price environment. In addition, unanticipated deflation (or inflation, for that matter) can negatively affect the efficient functioning of an economy, and it can alter the distribution of a country's wealth and income in ways that undermine its social cohesiveness. For example, unanticipated deflation can

³ Products with high "menu costs" are those which are costly to re-price, and therefore have sticky prices. Restaurant menus, periodicals, and catalog items are examples of products with high menu costs.

redistribute wealth from debtors to creditors by raising the real cost of servicing debts, thereby causing more debtors to default.

But what causes deflation? Persistent inflation or deflation is, and must be, a monetary phenomenon that results from central bank policy. Prices are nothing more than a measurement system that defines the value of a good or service in terms of a monetary unit. While many factors influence the money supply, the central bank alone can systematically manipulate its size. Persistent inflation can only occur when the central bank makes more money available; persistent deflation can occur only when the central bank reduces the amount of money available. Thus, in gauging the potential threat of deflation, it is useful to look more closely at how monetary policy operates.

How Does Monetary Policy Work?

The following discussion explains how monetary policy works in the United States.⁴ Although some of the terms involved have different names in other countries, the process is essentially the same. In the United States, an expansionary monetary policy requires the Federal Reserve to buy additional U.S. Treasury securities.⁵ These purchases either directly or indirectly expand the reserves or lending power of the banking system. Lending out these reserves both increases the supply of money (by a multiple of the increase in reserves) and lowers market interest rates. The lower market interest rates expand spending in two different ways. First, domestic spending that is sensitive to interest rates is encouraged (this is spending for capital goods, structures, and inventories by businesses and for durable goods and homes by households). Second, lower interest rates in the United States relative to those of other countries, encourages Americans to purchase foreign assets. Before they can do this, they must acquire foreign currencies and this means supplying more dollars to the foreign exchange market. As a result, the dollar will fall in price or depreciate. Dollar depreciation will lower the cost of American goods and services in foreign countries, encouraging foreigners to spend more money in America; and it will raise the price of foreign goods and services in the United States, encouraging Americans to switch their foreign purchases to American produced substitutes. Both of these actions will increase spending in the United States. Clearly, changes in market interest rates play a crucial role in this conventional explanation of the so-called transmission mechanism of monetary policy (or the explanation of how monetary policy works).

So important are interest rates in this view of the transmission mechanism, that the Federal Reserve calibrates monetary policy in terms of a special interest rate, the *federal funds rate*. This is the interest rate in a private market that exists among financial institutions in which they buy and sell reserves on an overnight basis. Since this interest rate is determined in a private market by supply and demand, the Fed

⁴ For more information, see CRS Report RL30354, *Monetary Policy: Current Policy and Conditions*, by Gail Makinen and Anne Vorce.

⁵ The law permits the Federal Reserve to buy a variety of financial assets in addition to Treasury securities. Treasury securities are purchased for a variety of reasons including the size of the market and the riskless nature of securities.

cannot change the rate by decree. Rather, it alters the rate by intervening in this market by buying (selling) Treasury securities to expand (contract) the reserves available to banks. When it wishes to ease monetary policy, it reduces the target rate for federal funds and, then, supplies as many dollars of additional reserves as are required to maintain the new target rate. However, it is not changes in the federal funds rate that directly lead to changes in investment spending and aggregate demand. Longer term interest rates are a more important determinant of investment spending since companies borrow at longer term rates to make investments. Typically, a reduction in the federal funds rate will stimulate investment spending because of the positive correlation between the federal funds rate and longer term rates. Thus, the federal funds rate is best thought of as a *gauge* of monetary policy. It does not change aggregate spending directly, but it is the best measure of money and credit market conditions for the Fed under normal circumstances. However, there is nothing unique about the federal funds rate, and if it lost its usefulness, a number of alternatives exist against which monetary policy could be gauged.

Monetary Options When the Conventional Method Fails

There are a number of places in the conventional transmission mechanism outlined above when monetary expansion can fail to stimulate aggregate spending. First, the additional reserves given to banks through the purchase of Treasury securities by the Federal Reserve may be held by the banks rather than being lent out. This could happen if interest rates were very low (perhaps verging on zero) at the time the additional reserves were supplied to the banks, making it unprofitable for banks to lend them out. If the banks have little incentive to lend out the additional reserves, the money supply will not increase, interest rates will not fall, and aggregate demand will not be stimulated. Such a situation characterized the U.S. banking system during the mid- to late-1930s. With the yield on short term U.S. Treasury securities near zero, banks held reserves nearly twice as large as those legally required. Second, if interest rates are already at or near zero, additional increases in the money supply might not be able to lower them further, in which case demand will not be stimulated. Third, an increase in the money supply might be willingly held by the public and not used for additional spending. In conventional economic theory, this is known as the “liquidity trap” and it prevents the additions to the money supply from pushing down interest rates. It is thought to characterize situations where interest rates are very low and, thus, so is the cost of holding money.⁶ Some observers thought that such a situation characterized the U.S. economy during the 1930s. Considerations such as these caused some economists to become pessimistic about the efficacy of monetary policy as a stabilization tool. For them, monetary policy did not work when interest rates were low.

⁶ More precisely, when a country is experiencing price deflation, holding money earns a positive rate of return since the same dollar bill buys more goods and services next year than it buys today. As long as the rate of deflation, which is the rate of return on money, is higher than the rate of return on investments, there is no incentive to invest one’s money in financial securities or physical capital.

The bleak picture painted by conventional monetary theory on the effectiveness of monetary policy when interest rates are very low has been amended by subsequent thinking and empirical work.⁷ These modifications restore some of the effectiveness to monetary policy even in a low interest rate environment. First, even in the U.S. during the 1930s and in Japan today, while short term interest rates were and are close to zero, this was and is not true for longer term rates. In the third quarter of 2003, 10-year government bond yields in Japan averaged 1.42%, 10-year local government bond yields were 1.49%, and 12-year corporate bond yields were 2.03%, all higher than the previous year.⁸ There are no impediments to central bank purchases of longer dated securities in an effort to reduce those rates and stimulate demand. It is less likely that long-term interest rates could be pushed down to zero without stimulating aggregate spending since at a low enough cost of borrowing more and more investment projects become profitable. Thus, overnight interest rates that have fallen to zero pose no impediment to expansionary monetary policy reducing longer-term interest rates. The only drawback to this approach is that long-term interest rates offer less information about the stance of monetary policy since they are affected by other forces in addition to monetary policy.

Second, central banks can expand aggregate demand by buying foreign currency or assets denominated in foreign currencies. To do this, they must supply local currency to the foreign exchange market to buy the foreign currency. This leads to a fall in the price of local currency (it depreciates) and, as explained above, it stimulates the demand for exports and causes local individuals to switch their purchases from imports to domestically produced substitutes. The appeal of this method of stimulus is that, unlike investment spending, it occurs regardless of the state of the domestic economy; instead, it relies on foreign demand.

Third, if the banks will not lend out the reserves they get from the central bank, this does not foreclose increases in the money supply. For example, the central bank can use money to finance government budget deficits. Those who receive this money will spend it because they will feel wealthier as a result. This “wealth effect” from monetary policy is an overlooked alternative to the interest rate route stressed in the conventional view of the monetary transmission mechanism highlighted above. While some observers point out that money-financed budget deficits are frequently the route taken in countries that suffer severe inflation, it should be noted that it has a respectable academic heritage in the United States. During the 1930s, a prominent group of economists at the University of Chicago advocated that the federal government run budget deficits as a means of getting new money into the hands of the public and, thus, stimulating additional spending.⁹

⁷ Economist Ben Bernanke recommends the following three options to end Japan’s deflation in Ben Bernanke, “Japanese Monetary Policy: A Case of Self-Induced Paralysis?”, in Ryoichi Mikitani and Adam Posen, ed., *Japan’s Financial Crisis and Its Parallels to U.S. Experience*, Institute for International Economics, (Washington: 2000), Ch. 7.

⁸ Bank of Japan, *Financial Statistics*, [URL: www.boj.or.jp/en/siryosiryoy_f.htm].

⁹ These economists included Frank Knight, Jacob Viner, Lloyd Mints, and Henry Simons. See Don Patinkin, “The Chicago Tradition, the Quantity Theory, and Friedman,” *Journal of Money, Credit, and Banking*, v. 1, n. 1, Feb. 1969.

Although policy options exist when interest rates reach zero, the task facing a central bank in a deflation is still a difficult one. It is likely that when economic activity becomes depressed, choosing the correct monetary stance would become more difficult for policymakers. When choosing the proper interest rate level to target, the central bank needs reliable estimates of how sensitive investment and consumer durable spending will be to a change in the interest rate. These estimates will be determined in part by historical data. Yet the responsiveness of spending to changes in interest rates during normal periods of physical activity is unlikely to be a reliable guide to how spending will react to changes in interest rates during times of severe economic contraction. Similarly, money demand and inflationary expectations are likely to change unpredictably as economic conditions change. Thus, policymakers would find themselves more “in the dark” than usual. While there still remains a proper monetary stance for increasing aggregate demand and eradicating price deflation in nearly any economic environment, it may be more difficult and take longer to determine that stance than under normal circumstances. This does not mean that monetary policy has become ineffective; it means that human error in an atmosphere of uncertainty could make finding the proper monetary stance a longer process than usual.¹⁰

Drawbacks to Using Unorthodox Methods

The drawbacks to using more unorthodox methods to expand the money supply are not economic in nature. As explained above, it is increases in the money supply that affect output and prices. While the conventional gauge of monetary policy (overnight interest rates) may become uninformative, other gauges can be used instead.

The drawbacks to using unorthodox methods are political. First, reputation is crucial to effective central banking. The high inflation experiences of the 1970s and before are associated in the minds of policymakers and the public with reckless behavior. Hence, in building solid reputations in recent years, the world’s central bankers have stressed their prudence and caution. Major departures from standard practice, even if only symbolic in nature, clash with the prevailing persona of an effective central banker. If their reputation was tarnished, central bankers fear that

¹⁰ Economist Paul Krugman argues that Japan faces a special problem with deflation that requires a very specific solution. He argues that deflation is the manifestation of the large mismatch between Japanese saving and investment demand (prices must fall because people value future consumption over present consumption). For this reason, he argues, Japan cannot escape its current troubles by temporarily boosting inflation through monetary policy. Since that would not resolve people’s preference for future consumption, deflation would re-emerge when the monetary expansion ended. He argues that deflation can only be vanquished if the central bank makes a commitment to permanently expand the money supply. He argues that the best way to do this would be through the adoption of an inflation target, preferably a fairly high target. This would make holding cash costly (since inflation erodes its purchasing power), forcing people to spend or invest their wealth instead. Given the low personal saving rate in the U.S., this problem seems unlikely to emerge here. See Paul Krugman, “It’s Baaack: Japan’s Slump and the Return of the Liquidity Trap,” *Brookings Papers on Economic Activity* 2, 1998.

monetary policy would become less effective. On the other hand, one can question the effect persistent deflation is having on the Japanese central bank's reputation.

Second, some of these methods could threaten the central bank's political independence. In particular, if the central bank began to use direct financing of the government's budget deficit as the vehicle for monetary policy, it could lead to political pressures to re-orient monetary policy away from maintaining macroeconomic stability and towards maximizing government revenues. This is the path that has led countries all over the world and throughout history to hyperinflation.

Finally, using foreign currency as the primary vehicle for implementing monetary policy could lead to diplomatic tensions. If an economy were revived by boosting the export sector through a lower exchange rate, it would come at the expense of import-competing sectors in the nations that received the expansion in exports.¹¹ Although the benefits to foreign countries of a revival in the economy are likely to exceed the costs to these countries' import-competing industries, the costs may nevertheless make the approach politically untenable.¹²

Differences Between the U.S. and Japanese Economies Today

So far, this report has accepted at face value the claim that the United States could experience Japanese-style deflation and explained how monetary policy could be used to prevent it. It is useful at this point to evaluate the credibility of this claim. There are some similarities between the two countries experiences, and the one that has attracted the most attention is that both experienced a bursting of a stock market bubble prior to their recessions.

Still, there seem to be far more differences than similarities between the two countries. First and foremost, the rhetoric about U.S. deflation is at odds with the data. As the United States has moved into the expansion phase of the business cycle, the inflation rate has risen, not fallen (although some of the rise is due to food and energy prices). Through the first nine months of 2003, the CPI increased at an annualized rate of 2.7%. To put this rate in perspective, the European Central Bank is mandated to prevent the inflation rate in the Euro Area from exceeding 2.0%. If

¹¹ In the case of the Asian crisis, yen depreciation in the mid-1990s was also problematic for competitors in East Asia because many East Asian countries had fixed their exchange rate to the dollar. When the yen depreciated, countries with their currencies fixed to the dollar were increasingly priced out of the Japanese market and could no longer compete with Japanese exports because their own exchange rate could not be adjusted. This created deflationary pressures in East Asia that ultimately contributed to the currency collapses and economic crises. Most countries in the region operate floating exchange rates today, so yen depreciation would now be less problematic for them. See CRS report RL31204, *Fixed Exchange Rates, Floating Exchange Rates, and Currency Boards: What Have We Learned?*, by Marc Labonte.

¹² It should be noted that the purchase and sale of foreign currency is already a well-established method of executing monetary policy. The only thing unconventional about this proposal would be the scale on which it would undertaken.

the Federal Reserve had a similar mandate, it would presumably be tightening monetary policy at present because inflation was too high. (Another measure of inflation, the GDP deflator, tells a more pessimistic story, with inflation rising by an annualized 1.7% in the first three quarters of 2003. There have been price declines in some components of the deflator, but they have been offset by price increases in other components.) The U.S. economy is not yet operating at full potential, but it has now grown for eight straight quarters.

Second, the claim that expansionary monetary policy can become ineffective based on the Japanese experience is questionable. While the interest rates cited above seem very low and indicative of a highly expansionary monetary policy in Japan, these interest rates are nominal interest rates, unadjusted for inflation. When deciding to make an investment, businesses are concerned with the real interest rate, which is the nominal rate adjusted by the expected inflation rate. Since the deflation rate in Japan has been about 1% in recent years, one percentage point should be added to each interest rate to measure the relevant rate faced by businesses and investors. Adjusting for inflation, one can see that the real basic bank discount rate in Japan is actually higher ($0.1\% - (-1\%) = 1.1\%$) than the U.S. equivalent, the real federal funds rate ($1\% - 2\% = -1\%$) assuming a 2% rate of inflation in the U.S. Thus, to the extent that this interest rate is a relevant gauge of the stance of monetary policy, monetary policy is currently tighter in Japan than in the U.S.

Third, while stock markets fell in both countries through 2002, the U.S. has not experienced a decline in real estate prices similar to Japan, where prices have fallen by more than 50% since their peak in the early 1990s. To date, real estate prices have continued to rise in the U.S. Finally, problems in the Japanese banking system play an important role in explaining monetary policy's ineffectiveness. In March 2002, Japanese banks held a total of \$417.7 billion in non-performing loans, 8.7% of total loans according to official estimates. The official estimates are thought by some to be too low, however.¹³ As explained above, the ultimate increase in the money supply is a multiple of the central bank's increase in bank reserves. The size of the multiple depends in part on banks lending out the increase in their reserves. When bank lending is weak, a given addition to bank reserves by the central bank will lead to a smaller increase in the money supply. If Japanese banks are unwilling to take on new lending, a large change in reserves may lead to a relatively small change in the money supply. To date, the U.S. banking system has remained healthy, so it is unlikely that U.S. banks would be unwilling to lend out increases in their reserves.

¹³ See CRS Report RL31609, *Japan's Economic and Security Challenges*, by Dick Nanto.

Does Increased Competition and Globalization Create Price Deflation?

Some commentators have observed the growing competitiveness and globalization of U.S. product markets. They point to a few well-known examples to make this case, including the rapidly falling price of information-technology, cost-cutting management techniques, the rise of “big box” retailers, and outsourcing of production to foreign labor. In each of these cases, prices of affected products have fallen; if these cases were aggregated across the entire economy, they reason, general price deflation would be the result.

These changes are examples of changes in relative prices rather than overall prices, which is a monetary phenomenon. Economists refer to the reasoning in the above paragraph as partial equilibrium analysis, for it does not take into account how these changes affect the broader economy. Holding the money supply constant, when prices of specific products fall, individuals have more income left over to spend on all other products. If the production of these other products does not undergo similar efficiency gains, then the increased demand will push up their price. Indeed, prices of certain products, such as housing, health care, and education have risen much more rapidly than overall inflation in recent years. And even if one assumed that *all* products were affected by these cost-cutting factors, as long as money spending is adjusted, the additional production generated by these changes will be translated into additional income to match it, so that the overall price level would not fall. Indeed, productivity increases every year without causing price deflation.

Furthermore, heightened competition or cost-cutting leads to a one-time decrease in prices, whereas deflation is an ongoing phenomenon where prices fall continuously.

Conclusion: Could Deflation Occur in the U.S.?

At present, economic growth in the U.S. is below potential, but positive. Inflation is low and has fallen, but is still well above zero. The federal funds rate is low, but still has a way to go to zero. The banking system is healthy. Unless the U.S. experiences some unexpected economic or political calamity beyond its control, it is difficult to see how deflation could emerge in the United States under current conditions.

Nevertheless, the experience of Japan in the last decade illustrates that deflation can emerge in an economy, even when nominal overnight interest rates are lowered to zero. Does this mean deflation is unavoidable? It does not.

Deflation is unavoidable only if a central bank refuses to use unconventional methods for monetary policy when conventional ones lose their effectiveness. In Japan, the conventional gauge for monetary policy, overnight interest rates, has lost its usefulness. Using unconventional methods may have political ramifications, but they are economically indistinguishable from conventional methods. Indeed, the only reason conventional methods became well-established is because they are highly effective under normal conditions. Choosing the proper monetary stance that promotes price stability in a recessionary environment may be difficult and take time, but such a stance exists. Thus, deflation would only take root in the United States if the Fed were unwilling to adopt unconventional methods of monetary policy when faced with an economy that has been shocked by extraordinarily negative events. How the Fed would react to such events is a political question that is beyond the scope of this report.