

Challenges to the Fed from a Changing Economy and Financial System

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It's a pleasure once again to be the Banking and Finance Lecturer at Widener University. The last time I was here I spoke about some of the rapid changes that were occurring in the banking system. Today I want to broaden that theme to discuss how changes in the economy and the financial system are posing challenges to how the Federal Reserve serves the public as the nation's central bank. The three Fed responsibilities I want to touch on are monetary policy, the supervision and regulation of banks, and providing a safe, efficient, and reliable payments system – whether payment is made in cash, by check, or electronically. All three are being affected by technological progress.

Let me begin with some of the challenges the Fed is facing in the area of monetary policy. In recent years, the economy has been growing very rapidly and the unemployment rate has fallen to a 29-year low. Twenty, or 15, or even 10 years ago, such rapid economic growth combined with tight labor markets would by now have led to a substantial acceleration of inflation. But that has not been the case recently. In fact, last year the inflation rate fell. Even though inflation has risen a little this year, that reflects higher oil prices. In fact, if we exclude volatile energy and food prices to look at what is called core consumer price inflation, we find that core inflation is somewhat lower this year than last, not higher as most economists expected it would be based on historical relationships between inflation and unemployment.

The reason for this fortunate combination of strong economic growth, relatively low unemployment, and low inflation is that the economy has become more productive in its use of labor and capital. In recent years, labor productivity (i.e., output per worker) has been growing at more than twice its average growth rate in the previous 20 years. This is wonderful news for the average American, because higher productivity growth ultimately translates into higher wages and a higher standard of living. What's more, higher productivity growth means that faster growth of wages and salaries need not increase unit costs and put upward pressure on prices. So this development is indeed good news.

Though all of the reasons for the recent improvements in productivity growth are not entirely clear, certainly the rapid changes in computer, telecommunications, and medical technology are factors contributing to this development. How changes in technology show up in the economy, however, are usually difficult to anticipate. For instance, I would not have guessed that meat production was an area that recent improvements in technology would affect in any major way. So I was surprised to learn from one of our business contacts that the same type of computerized MRI technology that is used to take an image of a football player's injured knee is now being used by a meat-packing firm to take images of hogs to determine how best to carve them up for shipment to supermarkets. I also learned improvements in genetic engineering are being used to increase hog production – but that particular story isn't suitable for a lecture being delivered just before lunch. Suffice it to say that technological changes are becoming very widely incorporated into all sorts of businesses in America today, often in surprising ways.

Another way in which recent changes in technology have affected our economy involves the behavior of business inventories. Textbooks on macroeconomics often focus on swings in inventories as being one of the key sources of cyclical fluctuations in the overall economy (i.e., in real GDP). But in recent years, more widespread use of computerized systems to track and control inventories has changed inventory behavior during this business cycle. This has meant that inventory levels have shrunk for most firms, and many of them have now eliminated the large storage spaces in which they used to hold inventories for their current production. Improvements in transportation and communication systems have helped make better inventory management possible, lowering firms' costs of doing business, which in turn has helped to hold down prices to consumers. Many businesses now arrange to have raw materials or component parts arrive on the day

they are needed on the assembly line instead of sitting in storage waiting to be used, thereby avoiding the need to finance such inventories with short-term loans. [And you thought the term "just-in-time delivery" referred only to when you hand in your term papers!]

One implication of this change in inventory management by businesses is that economic forecasters and policymakers cannot rely on their old view of the "typical" behavior of inventories as a major cause of business cycles in the economy. Firms are adjusting their inventories much more quickly than they used to, and they are able to maintain much lower levels of inventories relative to sales – thus substantially mitigating a major source of instability that once plagued the economy.

Why does good news about such things as productivity growth and inventory behavior pose a challenge for monetary policy? Because monetary policy affects the economy with a lag. Policymakers therefore want to be as forward looking as possible when making decisions. Typically, being forward looking requires one to use forecasts of the future. But our forecasts of the future generally are based on historical relationships among economic variables such as the growth of real GDP, employment, inventories and other sectors, inflation, and the average growth rate of productivity. If technological improvements have raised the underlying (or trend) growth rate of productivity or changed the cyclical pattern of inventories, then historical relationships will not be as good a guide to what's in store for the future.

Indeed, most economic forecasts have been off the mark during the past several years. They have predicted a rise in inflation that has not occurred primarily because productivity growth has accelerated substantially. The outlook for productivity growth remains uncertain. Will it continue to accelerate? Will it level off? Or will it slow down?

This uncertainty challenges monetary policymakers to look for clues to the behavior of productivity growth and inflation in whatever data we can find. We can't rely solely on our traditional models of the economy – at least not with the sense of confidence we once had in them. My own sense is that the recent improvements in productivity growth will continue for some time, so that we should continue to enjoy relatively high economic growth, low unemployment, and relatively low inflation for the coming year at least, and probably longer. Nevertheless, since we don't fully understand the sources of this recent favorable economic mix, the Fed must remain on guard against any significant increase in inflationary pressures, while at the same time fostering maximum sustainable growth in this remarkable economy.

Keeping inflation near zero and fairly stable is critical because low and stable inflation promotes maximum sustainable growth of output, employment, and living standards. There is ample evidence that high and variable inflation makes economies perform poorly. Textbooks teach a simple rule for achieving low and steady inflation: make the money supply grow at a low and stable rate. Your textbooks undoubtedly discuss how the money supply is an indicator or a target for monetary policy. Changes in technology, however, have led to financial innovations that have affected households' and businesses' management of money and, consequently, our typical measures of the money stock and their relationship to inflation. In the late 1970s and early 1980s, our definitions of money changed to account for the deregulation of deposit interest rates and the widespread use of money market mutual funds. Now as we are about to begin the next century, the development of smart cards and debit cards, and the potential spread of electronic forms of money are likely to again raise the question of how money should be defined, how to track it, and whether the relationship of money growth and inflation will again be changing.

Of course, we also have a movement toward electronic commerce, whereby firms sell goods over the Internet rather than from a physical storefront location. Although e-commerce now represents a fairly small fraction of total commerce, it is growing quite rapidly and has the potential to make major changes in the way households interact with businesses, especially in how households pay for the purchase of on-line goods and services and what they consider to be "money."

Textbooks still explain that the Federal Reserve sets and monitors ranges of money growth in conducting monetary policy. That's true; the Fed does do that. But the Fed has had to place less emphasis on the monetary aggregates for some time now because changes in the financial system have been so rapid.

Instead we have had to place more emphasis on the federal funds rate and an eclectic mix of other indicators to help guide our monetary policymaking.

Beyond the meaning of money is the issue of what's a bank. Technology is affecting that, too. Some banks are now setting themselves up purely as Internet banks. They plan to take all their deposits and make all their loans on-line; they won't have any physical branch locations at which customers will meet with tellers or loan officers. Their customers will obtain cash from ATM machines and do their banking on-line or via e-mail or regular mail.

In addition, the lines between banks and other types of financial institutions are blurring further. Not too long ago people were pretty certain that if you wanted insurance, you went to an insurance company. Or if you wanted to buy mutual funds, you went to a mutual fund company or securities firm. Or if you wanted to buy a certificate of deposit, you went to a bank. But that's no longer the case. Now many banks offer deposits, mutual funds, and some types of insurance. And securities firms have found ways to offer certificates of deposit, credit cards, and various insurance products.

These innovations and the blurring of the lines between banks and other types of financial firms pose challenges not only for monetary policy, but also for the supervision and regulation of banking. As a result, bank regulators have had to broaden their view of the possible risks faced by banking organizations. Greater consideration has to be given to the effects that nontraditional activities have on the risk profile of banking organizations. Judging potential systemic risk to the banking system is more complicated now and is likely to become even more so. Policymakers and regulators also have to be concerned about the possible inadvertent extension of the federal safety net to financial or even nonfinancial activities that go far beyond the original intent of the federal deposit insurance system.

As a consequence, the Federal Reserve and other banking regulators have shifted the focus of their examinations of banks to place more weight on how well a banking organization assesses and manages the various risks it faces. Bank supervisors today focus a lot of attention on those business activities that pose the greatest risk to a banking organization. This entails reviewing a bank's risk management process as a major part of a bank examination. In doing so, examinations must be tailored to take into account the differences between large, complex banking organizations and those that are primarily regional or community oriented. The Fed has also been reviewing the types of risk management systems that banks are using, with the intention of identifying some common elements that can be shared as best practices in the industry.

Regulators would also like to find better ways to rely on market discipline to more accurately reflect the risks faced by banks. The financial market's assessment of the riskiness of a banking organization is reflected in the prices of its equity and subordinated debt, and in the yields on its marketable certificates of deposit. Higher risk tends to be reflected in lower prices of a bank's stock and debt, and higher yields on its debt and deposits. Regulators would like to find more systematic ways to use such market-based information to improve bank supervision.

Regulators would also like to improve the system of risk-based capital requirements imposed on banking organizations to better reflect the riskiness of their balance sheets. Under an international proposal released this past summer, the amount of capital required to back various types of assets held by banks would vary more than under the current system of capital requirements. The proposed approach is an attempt to better recognize the differences in risk among a bank's assets. Comments from the industry and others on this proposal are expected to be completed early next year.

All of the changes in the banking industry over the past decade cry out for passage of a financial modernization bill by Congress that establishes a legislative basis for the evolution of the financial system, as well as a framework for how it should be supervised and regulated. Without legislation, the financial industry is likely to continue to change anyway, by coming up with innovative ways to get around existing law and regulation. We have already seen a lot of that in recent years. But that approach is more likely to pose future difficulties in terms of excessive risk-taking and putting undue strains on the federal safety net.

What about challenges to the Fed in the area of the payments system? Technological changes have led to greater use of electronic forms of payment by consumers, businesses, and government, so the Fed has had to focus more of its own resources on facilitating electronic payments. That doesn't mean that the Fed's paper-based businesses will be disappearing any time soon. The Federal Reserve has generally processed about one-third of all the paper checks cleared in the United States. For the Philadelphia Reserve Bank, that amounted to about 4 million checks per day last year. But after the recent mergers of some of the large banks in the nation, we have found that some of these large institutions have decided to play less of a role or to get out of the check-clearing business entirely. As a result, the volume of checks being cleared by the Philadelphia Fed has risen significantly this year, by about 20 percent.

At the same time that our paper-based check volumes have been growing, we have been developing electronic means to clear checks by transmitting electronic data and even images of checks rather than shipping the checks themselves. We also have been supporting the U.S. Treasury's push for greater use of electronic payments to and from the federal government, and have supported the greater use of electronic payment of bills (such as utility bills) and the direct deposit of payroll checks into personal bank accounts. We are finding that technological changes are altering the way that banks and businesses and households are choosing to make payments – toward electronic forms and away from paper-based forms. But this transition from paper to electronics isn't going to happen all at once; it will occur over an extended period. Consequently, the Federal Reserve Banks face another challenge: we must be flexible in encouraging greater use of more efficient electronic transactions while at the same time continuing to be prepared to handle large volumes of paper-based transactions.

Of course, the check-clearing system isn't the only paper-based payments system that the Fed is involved with; it also provides currency to banks so that they can meet the public's demand for paper currency. The spread of Internet banking and the greater use of the Internet for retail purchases of goods and services are raising the probability that households will eventually begin to use more electronic forms of cash and credit in place of paper currency. Some people envision a "cashless society," as electronic forms of cash replace paper currency. If such a trend were to become very widespread in future years, the Fed would have to adjust its check processing and currency distribution functions to better fit a new world of electronic payments. How quickly this might develop remains quite uncertain, however.

Some of us remember predictions made more than 30 years ago – in the 1960s when electronic substitutes for sending checks were spreading – that the U.S. would become a "checkless society" by the beginning of the 1990s. But the "checkless society" has yet to arrive, let alone the "cashless society." The volume of paper checks written by households and businesses has continued to grow, although quite slowly. So far we have not seen any definite signs that the volume of checks written will shrink in the next several years, nor that people are prepared to stop carrying paper currency in their wallets. In fact, households' use of ATM machines to obtain currency has been expanding, not contracting, during the past decade.

The final technological topic that I want to discuss today involves not a current or future technological development, but a past technological shortcoming – the failure to adequately account for the year 2000 in computer software and hardware. The century date change, Y2K, is posing a challenge to the Federal Reserve in all three of its major functions: its payments system operations, supervision of banks, and monetary policy.

To ensure that Y2K doesn't disrupt our nation's payments system, the Fed has remediated and successfully tested all of its automation systems that handle payments transactions with financial institutions. All of the Fed's payments and accounting systems, and all of its personal computer networks, are ready for Y2K. We finished our work months ago and have since been testing the interoperability of our systems with those of our financial institution customers to make sure that they are ready to receive the electronic payments we send them in the new year.

The Fed's supervisory staff, along with the other federal and state bank regulators, have been examining banks to ensure that they are Y2K ready for their consumer and business customers. Banks have been examined at least two times now to assess their preparations for Y2K, and at this point, 99 percent of federally insured institutions have met the milestones established by the regulators. The handful who have

not are being pressed to do so. Other financial regulators, such as the Securities and Exchange Commission, are also reporting that most firms are ready for Y2K.

In the area of monetary policy, the Fed's main Y2K concern is that liquidity be available to handle any unusual year-end financing pressures that could arise because of Y2K. To address this possibility, the Fed has arranged for a Special Liquidity Facility through the discount window that will permit banks to borrow funds for an extended period between October 1 this year and April 2000 if they find they need additional funds to serve their customers. In addition, the New York Reserve Bank's Open Market Desk announced recently that it is making available to primary securities dealers a special Standby Financing Facility through which the Desk will be prepared to provide additional funds to primary dealers, and hence to their customers, in the event they need such liquidity in late December and early January. The discount window's Special Liquidity Facility and the Desk's Standby Financing Facility, along with some other changes announced by the New York Fed's Open Market Desk, should help alleviate any concerns about the availability of financing around year-end.

In addition to making funds available at the time of the century date change through discount window loans and the Open Market Desk, the Fed is also prepared to make additional currency available to the public through the banking system if households decide that they want to hold additional cash around year-end because of concerns about Y2K disruptions. The Fed has had an additional \$50 billion of new currency printed this year to help meet any unusual demands for more cash by the public. But in addition to that \$50 billion, the Fed can expand the available supply of currency even further by changing the management of its existing inventories of currency and the processing of old currency that it receives from banks for counting and re-issue. All together, we have the ability to increase the currency circulating within the U.S. by another \$200 to \$300 billion. We estimate that normally about \$200 billion of currency is in use in the U.S., so you can see that we could essentially double that amount. Of course, we see no reason for people to hold more cash than they would on any other long holiday weekend. We are confident that all forms of payment – including credit cards, direct deposit, and ATM machines – will function normally.

Beyond banking, most industries in the U.S. are reporting that they are quite well prepared to deal with the century date change. In fact, the main concern now seems not to be technological but behavioral. That is, the computer programs and hardware issues are all being addressed, and from a purely technical point of view, Y2K shouldn't be much of a problem. But how people will behave as Y2K draws near is another matter and has more to do with psychology and sociology than with computer science. Consumers who panic and withdraw a lot of cash from their banks are probably more at risk from fraud and theft than they would ever be from computer problems caused by Y2K.

Despite what one reads in the newspapers or sees on television, most economic forecasters are NOT predicting "doom and gloom" from the century date change. Most economic forecasters expect businesses to build up their inventories of goods in the second half of this year as a precaution against any disruptions caused by Y2K, with a subsequent decline in inventories early next year. This swing in inventories will affect our measures of economic activity during the next several quarters, but its magnitude is likely to be relatively small and short-lived, and therefore it's unlikely to have any significant negative effect on the economy. Only a handful of economic forecasters (who tend to get the most media coverage) are expecting Y2K to cause major problems in the U.S. or world economies. Most forecasters expect Y2K to have relatively little effect, with slightly faster growth in the fourth quarter of this year from an inventory buildup, followed by an offsetting slowdown in the early part of 2000 as those inventories are drawn down. After that, they see the economy rebounding and growing moderately during the rest of next year.

My own expectation is that Y2K is unlikely to cause any more disruption than what we experience on most other days of the year. We always have some computer systems or ATMs that have glitches in their operations on any given day. The preparations for Y2K have been extensive, and most Americans now seem to be more confident about the transition to the next century and are turning their attention to other issues. The bottom line: Widener University will be welcoming you back for the winter term on schedule! So don't plan a long January vacation in Florida.

In closing, let me emphasize that although recent changes in the economy and financial system pose numerous challenges to the Fed as it serves the public in the areas of monetary policy, banking supervision and regulation, and its operations in the payments system, these changes have generally been good for consumers and businesses. Technological changes have reduced costs to consumers, lowered costs to businesses, broadened the choice of goods and services and financial products available to businesses and consumers, and raised real wages of employees. Overall, these changes are raising our standard of living.

These changes in technology and our financial system also offer exciting opportunities for you when you take your place in the economy of the next century. Your greatest asset will be your ability to keep learning and developing new skills. Discovery – and discovering how to apply that new knowledge – has made the century we are about to leave the most remarkable in human history. The century we are about to enter promises to be even more remarkable.