
At the end of August I will be retiring after 13 years as President of the Chicago Fed and as a member of the Federal Open Market Committee. As much as my retirement is a time to look back on the past 13 years, it is also a time to look forward. During my tenure at the Fed, the FOMC has had to react to a number of important and difficult challenges: the Asian financial crisis, the Russian debt default, major movements in asset prices, Y2K, 9/11, and the risk of deflation.

We certainly could not have anticipated many of these challenges. Nor can we predict today many of the challenges the Federal Reserve and the FOMC will have to react to in the years ahead. These events are, as we economists like to call them, “unforeseeable shocks.” Nonetheless, we still can anticipate some of the issues that the Fed will likely face. Indeed, some of these are issues that we have been dealing with for many years. Some, such as fiscal deficits, the current account deficit, and the increasing complexity of financial markets, affect the underlying economic environment in which we operate. Others, such as how we communicate with the public and how we assess the economy's long-run potential, have more direct implications for the operation of monetary policy.

I want to focus on two of these issues today. The first is the increased complexity of financial markets. This has a direct impact on the Fed's regulatory responsibilities, and could also affect monetary policy through its influence on interest risk premia and other factors affecting the cost of capital. The second is how we judge the economy's long-run maximum sustainable growth rate. This judgment is key to benchmarking the achievement of our dual mandate of maximum sustainable growth and price stability—it thus also has important implications for the near-term policy outlook.
Increased complexity of financial markets

Let's begin with the increased complexity of financial markets.

One way this complexity is manifested is in the array of new and different types of financial instruments that are now available. When I arrived at the Chicago Fed in 1994, derivative contracts were still seen as rather mysterious, and even dangerous. (I remember the cover of an issue of Fortune magazine that illustrated the dangers of derivatives with a picture of a snake about to strike!) There were several episodes that were often cited as evidence of the damage that derivatives could cause. For example, in December 1993 Germany’s 14th largest industrial firm, Metallgesellschaft, was brought to the brink of bankruptcy by an unsuccessful hedging strategy involving petroleum derivatives. And barely a year later, Barings Bank, one of England’s oldest and most distinguished banking firms, failed when a rogue trader lost over $1 billion on unauthorized equity derivatives trades.

Of course, derivatives can be misused. But they have proven their ability to play an important role in hedging risks. Derivatives contracts now cover economic risks well beyond the traditional risk classes of interest rates, exchange rates, equity prices, and commodity prices. Investors now use derivatives to hedge credit risk, risks in real estate markets, risks associated with macroeconomic data releases, and the weather. Until a week and a half ago, you could even have bought a contract on whether one of the big futures markets based in my hometown, the Chicago Board of Trade, would be acquired by the Chicago Mercantile Exchange or the Intercontinental Exchange!

A second way that the financial services sector has become more complex is the proliferation of nontraditional intermediation; these include the activities of hedge funds, private equity funds, venture capital firms, prime brokers, central clearing institutions, as well as innovative ways of securitizing cash flows. These new forms of intermediation give many more borrowers and investors access to new sources of financing and access to the benefits of new financial instruments and markets.

Together, the innovations in derivative instruments and financial intermediation allow risks to be sliced, diced, and sold off to those investors most willing and able to bear these risks. In theory, this better allocation of risk should result in a more resilient economy. When negative shocks happen, the adverse consequences should fall principally on the investors who are most capable of withstanding the shocks. They act, literally, as shock absorbers for the economy as a whole. Of course, in good times these investors are amply compensated for serving this role.

There's some evidence that these shock absorbers are working. For example, a number of large hedge fund have collapsed recently, most notably the $6.5 billion demise of Amaranth, which focused on the natural gas market. Yet the financial markets absorbed these failures with negligible consequences for the broader economy.

The third way we see greater complexity in financial markets is the accelerating integration of markets throughout the world. For the U.S., this can be seen, most notably, in the huge increase in net capital flows from our trading partners. This is the flip side of the increasing current account deficit that we've seen over the last several years. Last year, these capital flows amounted to more than $800 billion, about 6% of our GDP.

What's driving this demand for U.S. assets by our trading partners? In part, it seems to be the high savings rates of China and other emerging economies, as well as the desire of some of these countries to build a cushion of hard currency in order to avoid a repeat of the 1997 Asian crisis. (Reserves in China and other emerg-
ing Asian countries now amount to some $2.5 trillion, more than double their size four years ago.) It also reflects the relative attractiveness of real risk adjusted rates of returns in the U.S. resulting from solid trends in real economic activity in the U.S., low and stable inflation expectations, and the fact that our financial markets operate in an environment with a high degree of legal certainty and informational transparency.

The vast changes in financial markets and capital flows may have had an influence on some important benchmarks, particularly those related to the pricing of risk. Even after the developments of the past few weeks, we see low default spreads, low term spreads, and low implied volatilities relative to historical norms; and many recent leveraged buy-out deals have received funding without the usual set of restrictive covenants, a practice commonly referred to as “convenant lite.” All of these factors suggest less concern for the possibility that future adverse shocks could cause defaults.

How should policymakers interpret this reduced concern about risk? Is it due to better economy-wide risk management and innovations that allow for better allocation of risk? Are these lower risk indicators also a reflection of a fundamentally more benign economic environment? If so, then perhaps policymakers should not be concerned about the reduced risk premia.

However, it is also possible that the market may be underpricing risk. The long period of financial stability may be leading investors to expect a similarly benign environment in the future, and therefore to underestimate the probability of the next major disruption. Indeed, conventional applications of risk management tools such as “value-at-risk” typically incorporate only the previous few years of data into their statistical models. A period of sustained stability will cause such models to reduce their estimates of probable losses going forward.

I for one do not think that we have entered a new era of permanent financial moderation. Though our shock absorbers are better, financial volatility has not been abolished. If markets are underpricing risk, then market participants may be too sanguine about their leveraged positions and more vulnerable than they think to the next financial shock. Needless to say, continued vigilance on the part of policymakers and supervisors is needed.

Most central bankers agree that we are not wise enough to detect when risk is underpriced, and so we shouldn’t use monetary policy to “prick the bubble.” However, when monetary policy is well executed and fosters low and stable inflation and an environment conducive to achieving maximum sustainable growth, it reduces the odds that financial imbalances with the potential to cause systemic macroeconomic disruptions will develop and it adds to asset price transparency.

With regard to regulatory policy, whenever possible, market discipline should be utilized to achieve regulatory ends. For example, in February this year the President’s Working Group on Financial Markets (which is lead by the Treasury Secretary and includes the chairs of the Fed, the SEC, and the CFTC) issued guidelines covering “private pools of capital,” including hedge funds, private equity and venture capital. The group strongly recommended the reliance on market discipline to encourage sound risk management practices. For the funds, this requires sufficient transparency to ensure that their stakeholders have the information they need. For counterparties and creditors, sound risk management requires effective due diligence, frequent measurement of credit exposures, stress testing, and prudent credit terms. The major challenge for financial regulators going forward is to design regulatory structures that encourage market discipline and thus utilize the inherent efficiency of decentralized markets. Having said this, our goal remains the same: To foster a stable financial system that efficiently allocates capital and thus supports maximum sustainable economic growth.
maximum sustainable growth

This brings me to the discussion of maximum sustainable growth, which is also referred to as potential output growth. This is the maximum rate of real growth the economy can maintain in the long run without leading to an increase in inflationary pressures. When thinking about the maximum sustainable growth rate of an economy, it's useful to divide it into two components: first, the number of available workers and second, the productivity of those workers. Unfortunately, it can be difficult to estimate the underlying trends in both of these components because they can change over time in ways that are difficult to discern. Accordingly, it is difficult to estimate potential output.

Let's start with the trends in the number of available workers. The working-age population grew rapidly in the 1960s and '70s, averaging two percent per year, as the baby boomers finished school and entered the labor force. But starting in the early 1980s, working-age population growth slowed to a little more than one percent per year. And it's projected to fall a bit further over the next decade, given the size of the younger generation entering the workforce relative to the size of the retiring baby-boom group.

The labor force participation rate, which is the percentage of the working-age population in the workforce, is also changing. From the early 1960s until around 2000, the labor force participation rate increased steadily, as a rise in the fraction of women who work outside the home offset a slow decline in the fraction of men in the labor force.

But it now appears that we have entered a period of declining labor force participation. This is mainly due to long-run changes in demographic and cultural trends, some of which likely will continue to lower the participation rate over the coming years.

One of the demographic trends relates to the aging baby boomers. There’s a lot of focus on them approaching the traditional retirement age of 65, but people tend to scale back their participation well before that. Indeed, more and more boomers are past the age at which people are most likely to participate in the workforce.

Furthermore, the increase in female labor force participation seems to have run its course. After decades when each new generation of women were joining the workforce in greater numbers than their predecessors, the current generation of women approaching the working age is no more likely to participate in the workforce than the previous generation.

Given the population growth and labor force participation rates that prevailed during the 1990s and early 2000s, the monthly job growth that was sufficient to provide jobs for the net number of entrants into the labor force was about 150,000. So this figure was an important benchmark to evaluate whether the economy was growing at a pace sustainable in the long run. The recent changes in population growth and labor force participation imply that we need to change our benchmark for employment growth to something more like 100,000 per month.

I should say, however, that while 100,000 per month appears to be the right benchmark for the next year or two, there is a lot of uncertainty about this benchmark, particularly in the longer run. Some of this uncertainty revolves around the participation of the baby boomers. People are living longer, healthier lives, which may allow baby boomers to work until they are older. Moreover, wages for all workers may change in response to these trends, convincing some to work more, and others to work less, than they would otherwise.
The growth rate of potential output also depends on labor productivity. From 1973 to 1995, productivity growth averaged 1\% percent per year, but since then it has averaged 2\% percent per year.

The step up in productivity growth owed a good deal to an increase in investment in computers and other information technology. But there is still a large unexplained component. My personal opinion is that much of this has to do with innovations in management practices. Some of this improvement in management quality takes the form of better human resource practices; some in better logistics; some in more flexible production processes.

Productivity also depends on the quality of the workforce. The high education levels and greater experience of our aging population has contributed to higher productivity rates. But that trend has already started to slow. It is estimated that in the late 1980s and early 1990s, improvements in worker skills were adding four-tenths of a percentage point per year to the growth of output. But it has declined since and could soon be below one-tenth of a percentage point, as the highly experienced workers of the baby boom generation retire in increasing numbers.

It is important to recognize that gains in education and other workforce skills by new entrants, and skill improvements by remaining workers, could allow us to avoid much of this decline. But if we consider recent education trends, I’d say we have our work cut out for us. Even though college graduation rates are growing, high school completion rates have stalled, and there is a great deal of dissatisfaction with the results of our public elementary and secondary schools, especially given our already enormous investment in education. Clearly, more systemic changes are needed to achieve better educational outcomes and boost the growth in worker skills.

The strong pace of productivity growth that we have seen since the second half of the 1990s has greatly boosted our living standards. Over the past year or so, however, productivity growth has slowed. If this were the start of a longer-term trend, it would have important implications for potential output. We think most of the recent slowing appears to be a relatively transitory cyclical development. Firms may be finding that some of the very rapid productivity increases they experienced in the earlier years of this decade were simply unsustainable. Output may have been increased at the expense of activities such as maintenance that can be put off for only so long. In addition, given the current difficulty in recruiting qualified workers, firms may be reluctant to significantly slow their pace of hiring, even in the face of somewhat softer demand. Such labor hoarding is often a feature of mature expansions.

Putting together our best estimates of the trends of labor force growth and productivity growth, we at the Chicago Fed think potential GDP growth is lower than it was five years ago, and currently is somewhat below 3 percent.

Of course, there is a good deal of uncertainty around estimates of potential output and so we need to continually monitor developments and update our estimates. This is because our assessment of potential output has implications for the proper stance of monetary policy.

The late 1990s are an interesting example of these implications. At that time, we were trying to judge if the increase in productivity growth we were observing then was permanent or not. In determining the appropriate stance for monetary policy, the FOMC was well aware of the risks of making a mistake. If we set policy based on the assumption that the productivity surge was permanent, and it turned out to be transitory, we risked providing too much liquidity and generating inflationary pressures. If we instead set policy thinking the increase was temporary, and it turned out to be permanent, we would not have provided adequate liquidity to fund productive investments and hence would have temporarily restrained non-inflationary growth. So
it was important to make the best assessment possible. In the end, led by the insights of Chairman Greenspan, we correctly concluded that much of the increase was permanent, and did not pursue an overaggressive tightening of policy.

Recent economic developments

Our latest estimates of potential output provide a benchmark for the recent economic performance and outlook for growth. Against current estimates, the economy has been operating below its maximum sustainable growth rate—in the past four quarters, real GDP growth has averaged 1.9 percent. Much of the shortfall has been related to the slowdown in housing. Residential investment has subtracted an average of about 1 percentage point from GDP growth during this time; arithmetically, without that drag, the economy would be operating at about potential.

Clearly, the housing market remains a risk to the economy. Inventories of unsold new homes remain high. Unless sales rebound dramatically and unexpectedly, construction will be depressed for some time in order to reduce inventories to more desirable levels.

The recent developments concerning variable-rate subprime mortgages may tend to prolong the declines in housing markets. Foreclosures from failed loans could add to stocks of unsold homes, and potential buyers with spotty credit histories now face higher financing rates, which may price some out of the market. So far, however, the difficulties appear to be confined to a relatively small segment of the market.

After considering the various developments, I expect that residential construction will begin to stabilize as we move through the coming quarters. However, it could be a while before we see any noticeable increases in home building.

So going forward, the direct drag from housing should diminish. Moreover, recent indicators suggest that other factors that had restrained activity around the turn of the year—some inventory adjustment and softness in business spending—are abating. Though there has been concern that the slowdown in housing could spill over to other sectors of the economy, on the whole the rest of the economy appears to be on solid footing. Though we have recently seen a couple of below-trend consumption numbers, going forward consumer spending should be supported by healthy gains in employment and income. Business spending should be bolstered by firms' ample cash balances and generally favorable financing terms. And demand for our exports should be driven by strong economic growth in the rest of the world.

Yesterday, the Federal Reserve published our biannual Monetary Policy Report to the Congress. In it, the participants on the Federal Open Market Committee gave our forecasts for GDP, unemployment, and inflation. On balance the outlook is for economic activity to expand at a moderate rate in 2007 and for growth to be near-potential in 2008. The central tendency of the growth forecast is for real GDP to increase between 2¼ and 2½ percent in 2007 and increase between 2¾ and 3¼ percent in 2008. We forecast the unemployment rate to be between 4½ and 4¾ percent this year and about 4¼ percent next year.

Turning to inflation, we expect inflation pressures to continue to moderate over time. The central tendency forecast expects core PCE inflation, that is inflation excluding food and energy, of 2 to 2¼ percent for 2007 and 1¾ to 2 percent for 2008. If inflation were to come in at the bottom of such ranges, I would see that as good progress toward price stability.
Indeed, recently, we have had some more positive readings on core inflation. However, some of that improvement could reflect transitory influences. And as our last policy statement indicated, “a sustained moderation in inflationary pressures has yet to be convincingly demonstrated.”

First, the economy appears to be operating in the neighborhood of its potential level of output. The unemployment rate is low, and growth in compensation per hour has moved up some over the past year. Furthermore, as I just discussed, productivity growth has slowed. The higher compensation and lower productivity numbers translate into an acceleration in unit labor costs. These costs increased nearly 3% percent in 2006, up from a 1 1/2 percent rise in 2005. Looking ahead, tight labor markets could result in larger increases in compensation. If these exceed productivity gains, then they will generate additional cost pressures. That said, profit margins are relatively high, so some further increases in labor costs could be absorbed by businesses in the form of lower margins. But the situation requires careful monitoring. In addition, as I discussed earlier, estimates of the economy’s potential are always subject to substantial uncertainty. Given the recent slowing in productivity growth, there is a risk that the economy has less slack than we think.

Second, total inflation has been running high for some time, heightening the risk that inflation expectations could become stuck in a range that would not be conducive to price stability.

Over the past five years, the overall PCE price index has increased at an average annual rate of 2.6 percent—that’s the highest five-year average since the mid-90s. Of course total inflation has been boosted by large increases in energy prices, which have risen at a 12 percent annual rate over this period. And though total inflation was trending down late last year, it is now back on the upswing, due to renewed increases in energy prices and faster increases in food prices.

In contrast to the pick-up in total inflation, the latest readings on core inflation—which excluded food and energy prices—have been more favorable; as of May, the year-over-year increase in the core PCE index was down to 1.9 percent. Economists like to look at so-called “core” measures of inflation because they have proven useful in forecasting the longer-run trend in total inflation. Food and energy prices are volatile, and ultimately, monetary policy—not changes in energy prices—is responsible for the long-run trend in inflation. For example, businesses may pass through higher energy costs to the prices of their products. If energy prices stabilized, such pass-through could simply result in a one-time increase in prices and a temporary spike in core inflation. However, if firms and workers doubt the Fed’s credibility in fighting inflation, then they would expect inflation to be permanently higher. As a result, they will continually increase their own wages and prices, boosting the trend in core inflation.

But while core inflation has proven to be a useful tool for gauging underlying inflation trends, it is only a tool. The ultimate responsibility of the Federal Reserve is to achieve low and stable total inflation—not core inflation. Total inflation fully reflects how all price changes erode standards of living. So people’s judgment of the Fed’s commitment to price stability will be reflected in their long-run expectations of total inflation. In turn, these expectations will be based on the persistent movements in all of the components of consumer prices, including food and energy.

If energy prices level off as currently anticipated by futures markets, overall inflation should slow to a pace close to that of core inflation in coming quarters. This assessment is supported by the fact that to date, long-run inflation expectations appear to be contained; surveys and financial market data suggest that households and businesses view the high total inflation rates of the past few years as temporary. But that is not something
we can take for granted. If inflation fails to moderate further, then there is a danger that expectations of future inflation will settle in at levels higher than what I would view as being consistent with price stability.

Taking all of these factors into account, my assessment is that the risk of inflation remaining too high is greater than the risk of growth falling too low. Of course, as the FOMC said last month, whether policy will need to be adjusted and the degree of any adjustment will depend on the data we see in the months to come and how that data influences our forecast of the economy.

Conclusion

In closing, the increasing complexity of financial markets, changes in the economy’s potential output, and other long-term policy issues are sure to be with us for years to come. Undoubtedly, new issues will emerge—both long-run issues and short-term policy challenges. The US economy is a dynamic system, where new innovations can cause financial markets and the real economy to evolve in unpredictable ways. At times these changes may pose challenges to policymakers with regard to how we fulfill our regulatory responsibilities and how we benchmark the economy’s performance. But only by making our best assessment on how these changes influence the policymaking environment are we able to effectively foster maximum sustainable growth and price stability.