I'm delighted to be here today to speak at this hometown Missouri Valley Economics Association conference. It's always fun for me to put on my academic hat again. Today my chosen topic is investment, which is one of the most volatile forms of spending. Business investment has certainly lived up to its reputation over this business cycle. As we try to understand the likely course of the economy in coming quarters, the probable behavior of investment, and the risks of alternative outcomes, is “topic one.”

In fact, business investment has been topic one continuously over the last couple of years. During and after every recession, analysts focus on the type of spending, whether consumption, investment, or government, that is expected to drive the economic recovery. In most cases, investment is front and center because that is the most volatile component of GDP. Typically, economists watch both housing investment and business investment, because typically both have declined substantially during the recession. This time, housing investment remained on a remarkably high plateau, which makes business investment central to forecasting the pace of expansion.

I do not want to leave the impression that business investment is the only GDP component subject to uncertainty going forward. But I will concentrate on business investment because that is where I see the greatest uncertainties at this time. I’ll start by looking back at the way investment boomed in the late 1990s before it declined in 2000 and 2001.

Before proceeding, I want to emphasize that the views I express here are mine and do not necessarily reflect official positions of the Federal Reserve System. I thank my colleagues at the Federal Reserve Bank of St. Louis — especially Mike Duerer — for their assistance and comments, but I retain full responsibility for errors.

Investment spending grew considerably faster than GDP in the late 1990s. The computer equipment and software category of business investment, in particular, grew at an astounding rate of 19 percent per year from 1995 to 2000, as compared with an 11 percent growth rate from 1989 — the last full year before the 1990-91 recession — to 1995. After the investment boom of the late 1990s, business fixed investment declined for eight straight quarters until the fourth quarter of 2002.

To get a handle on why business investment boomed and waned, it is useful to refer to a framework that places importance on deciding when to invest as well as whether to invest. As a long-term proposition, firms will have to make critical investments in technology in order to remain competitive. From a business-cycle perspective, an especially interesting question concerns the timing of that investment.

When analyzing timing, it is important to recognize that most projects are not fully reversible once they are undertaken. Nevertheless, because most investment projects can be delayed, currently available investment opportunities must be weighed against future opportunities. Purchasers of personal computers, for instance, are well aware of the need to consider what additional capabilities they could obtain in a PC a year from now if the purchase were postponed.

The rate-of-return hurdle that a risky, but postponable, project must clear in order to justify
investment without delay rises with the following three factors:

1. the risk-free real rate of return;
2. a risk premium to compensate for uncertainty regarding the returns on the investment; and
3. an indicator of whether the cost of financing is high now relative to what it might be in the future. If financing appears relatively expensive today, then projects may be postponed.

What data give approximate figures for these three factors? And, what do these data tell us about market incentives and signals regarding investment during the boom and bust? The risk-free real rate of return is well proxied by the yield on inflation-indexed Treasury bonds. The yield on the 10-year indexed bond peaked at 4.37 percent in January 2000. Today the comparable yield is less than 2 percent. If we measure market risk premiums as the spreads between yields on corporate bonds of different investment grades, risk premiums were unusually low between 1996 and the financial market upset in the fall of 1998 that followed the Russian default and Long Term Capital Management’s near insolvency. Chairman Greenspan testified in February 1997 that “risk premiums for advancing funds to businesses in nearly all financial markets have declined to near-record low” (Federal Reserve Board Summary Report, Monetary Policy Objectives: 1997 (February 26, 1997), p. 8). Between late 1998 and late 2000, corporate bond spreads held steady at relatively low levels. Then, in the fourth quarter of 2000, corporate bond spreads (AAA to BBB) increased by about a half a percentage point and have remained there.

As an indicator of the attractiveness of current financing terms, we can use the yield on mortgage-backed securities relative to the yield on Treasury bonds, with both yields adjusted for expected inflation. The key difference between Treasury bonds and mortgage-backed securities is that the underlying mortgages, and therefore the mortgage-backed securities, can be repaid at par at any time at the discretion of the mortgage borrower, whereas Treasury bonds cannot. If the market foresees a lower mortgage rate in the future, then the current Treasury bond yield will be correspondingly low relative to the current yield on mortgage-backed securities. With this signal of likely cheaper financing in the future, the incentive is for businesses to delay investment.

What do these numbers look like today? The incentive to delay has actually increased since January 2000. The ratio of the expected real return on GNMA mortgage-backed securities to the expected real return on 10-year Treasury bonds has risen. This ratio went from 1.31 in January 2000 to 1.57 in January 2003, as the GNMA and Treasury yields went from 7.97 percent and 6.66 percent, respectively, in January 2000 to 5.24 and 4.05 percent, respectively, in January 2003. The drop in expected real returns on benchmark corporate bonds since January 2000, however, has more than offset this increase in the incentive to delay investment, so the required rate of return on new investment has declined on net since January 2000.

Given positive conditions between 1997 and 2000—in the form of both low risk premiums and favorable financing terms—it makes sense that business investment spending was in high gear during most of that period. It also makes sense that as business investment peaked in 2000, the demand for funds and the real risk-free rate also peaked.

Because the boom in computer and software investment was particularly strong in the late 1990s, it is worth considering special factors behind this type of investment—above and beyond the market conditions that fueled investment in general. I will not resort exclusively to the claim that the boom in computers and software was due to excessively optimistic revenue projections. Computer investment was also strong because the usual incentives to wait to invest were temporarily muted by unique circumstances in the late 1990s. First, the initial public offering of Netscape stock in 1995 heralded the widespread adoption of the Internet. Suddenly, computer users had to worry about whether their hardware
and software were compatible with emerging Internet standards and authentication protocols—not just whether their computers would continue to run stand-alone software fast enough. These new uses and standards clearly helped destroy part of the value of waiting to replace computers and software.

The looming issue of Y2K compliance also spurred a surge in computer replacement and software upgrades. The usual calculus of spending for additional features versus sticking with current equipment became one where the current set-up might not run at all after January 1, 2000. The fact that the consequences of any Y2K noncompliance were hard to quantify probably only hastened preventive investment. Of course, once we entered the year 2000, the usual incentives to wait to invest in new computers quickly returned to normal. Moore’s Law—that processor speeds double every 18 months—resumed its usual role in tempering the incentive to buy now. The aftermath of Y2K caused an especially large retrenchment in computer investment, however, given that the average age of the installed computer base was unusually low.

In addition, the so-called “first-mover advantage” was probably overstated during the dot-com era. The idea was that online sales in many lines of business would turn out to be natural near-monopolies. Based on belief in first-mover advantage, dot-com and telecommunications companies raced at breakneck pace to grow very quickly, in anticipation of establishing a large market share. It turned out, however, that too many entrants grew faster than their potential market. This phenomenon was most evident in the telecommunications sector, where fiber optic traffic even today is far below the installed capacity. To make matters worse, telecommunications firms underestimated technical progress in sending large amounts of data over each physical fiber. They also overestimated the willingness of customers to pay to connect their desktops to the fiber—the last-mile problem. It is striking to note that industrial capacity in high-tech goods more than quintupled between 1995 and 2000. For manufacturing outside of high-tech, industrial capacity increased by only 12 percent.

In this unusual environment, it is not surprising that the market had trouble distinguishing how much of the preceding flurry of investment and sales growth was permanent and how much was temporary. The result was some misallocation of capital, given what we know today, that yielded little return and hurt profit growth for the economy as a whole. Moreover, because of the importance of retained earnings in financing investment spending, the profit slump has prolonged the investment slump. In some sectors, the profit slump has been more like a prolonged drought. The communications sector has seen 11 straight quarters of losses to the present. The automotive sector has had 10 consecutive quarters of losses. The electronics and electrical equipment sector, in contrast, turned the corner by ending five straight quarters of losses in mid-2002.

After this bleak rundown, waiting for the upturn in investment might seem like waiting for Godot. Indeed, the outlook for corporate profit growth now looks a bit less promising than it did three months ago, although double-digit profit growth is still projected for 2003. Forecasters have correspondingly reduced their projections of growth in investment spending slightly, although an uptick in spending on computer equipment and software is expected in the second half of 2003. One reason for computer investment to rebound in 2003 is that computers depreciate faster than other forms of capital. Any overhang in computer investment from Y2K and the dot-com era ought to be working its way out of the system at this time.

Much of the renewed demand for computer and software investment is expected to come from finance and service firms. This expectation is consistent with the view that the U.S. manufacturing sector is experiencing not only the effects of a recession but also a continuation of the shift toward a service economy. To the extent that some of the decline in manufacturing is secular, investment by manufacturers will not necessarily bounce back to previous levels. Further evidence of the weakness in manufacturing is the high
vacancy rate for industrial plants, which is at record double-digit levels. Housing investment is not expected to have a sharp rebound either, largely because it did not weaken appreciably during the 2001 recession. Housing was buoyed by attractive mortgage rates and the fact that, since 2000, it offered one of the few sources of capital gains.

Right now everyone hears numerous references to geopolitical risk and its effect on the economy. One positive element, however, is that investment spending will receive a boost from accelerated first-year depreciation allowances for new plants and equipment. The Job Creation and Worker Assistance Act of 2002 allows firms to claim a first-year depreciation allowance of 44 percent instead of the usual 20 percent. This depreciation bonus is available for new investment between September 2001 and September 2004. Firms have known about it since March 2002, but its full effect might not be felt until this year—or even early next year—when the bonus can interact with a more vibrant economy.

Another positive in the picture is that over coming quarters firms likely will begin to act on declines in the cost of capital. Combining the risk-free rate, a risk premium and the incentive to wait to invest, the cost of capital is now back down to the levels last seen in early 1998 and early 1999—at least when using an investment-grade corporate bond yield to measure the benchmark return. If instead we use the expected return on equities as a benchmark return, the cost of capital today is considerably lower today than in the late 1990s.

The bottom line seems to be that fundamentals supporting increasing investment are in place. However, geopolitical uncertainties leave us with evidence, from the relationship of Treasury yields to mortgage-backed securities yields, that firms currently do have some incentive to delay investment relative to conditions several years ago. These incentives could change quickly; lessening of geopolitical concerns would change expectations and change the incentive to delay investment.

A natural question is whether monetary policy can encourage investment spending in the current environment. In terms of risk premiums and incentives to postpone investment in the framework I laid out earlier, monetary policy can contribute positively by avoiding inflation surprises—both inflationary and deflationary—which will help ensure that market risk premiums are not elevated by an unnecessary inflation risk premium. If the Fed does its part, firms and individuals will receive clearer signals of the expected rate of return required of each type of prospective investment project, which will help the market weed out the bad from the good. The Fed, obviously, has no direct role in resolving the geopolitical uncertainties but does have a role, which I think it is fulfilling, in maintaining a sound long-run financial environment. I am very bullish on the long-term capacity of the American economy to generate plenty of good investment opportunities through innovation and productivity growth.