The Great Recession—and the persistent slump that followed—have proven to be the most important challenge to stabilization policy since the Great Depression. My discussion will focus on data from the United States, but the experiences of other advanced economies over the past five years have been similar, so the conclusions are more general, I believe.

Figure 1 shows two key indicators that illustrate the basic events during and following the recession. The solid line and left scale show the sharp decline in total investment spending as a fraction of GDP. Investment includes consumer investment in cars and other durable goods. The sum of all categories of investment—plant and equipment spending, inventory accumulation, residential construction, and consumer durables purchases—declined relative to total GDP in 2007, plunged at the time of the crisis in late 2008, and has recovered only partly as of this writing 5 years past the crisis. The double line and right scale show the unemployment rate, the best measure of unutilized resources and the shortfall in production of goods and services. Unemployment began to rise in 2007, skyrocketed after the crisis, reached a maximum of 10 percent at the end of 2009, and has gradually descended but remains well above normal at the fifth anniversary of the crisis.

The other components of domestic spending—consumption of nondurables and services, and government purchases of goods and services—fell by smaller amounts or failed to grow at trend rates, but the collapse of spending and production was concentrated in investment, broadly defined. Given the importance of the financial system for purchasers of investment
goods, especially homes and cars, the conclusion that the financial crisis had its main effect through investment seems obvious.

Financial data show many signs of stress around the crisis in September 2008. For example, Figure 2 shows that investors put much lower values on riskier corporate bonds rated single-B compared to safe bonds rated AAA. They required a larger positive spread between the yields of the lower-rated and higher rated bonds, as shown in the figure. But the spread narrowed fairly soon after the crisis. The spread does not measure a financial force that accounts for the persistence of low investment and high unemployment.

The stock market also showed a strong but transient response to the crisis, as Figure 3 shows, using the Wilshire 5000 comprehensive index of the entire U.S. market. Note that the decline in the stock market was not much greater in 2008 than in the previous recession in 2001. This finding suggests that the reasons that the Great Recession was so much worse than the tech recession of 2001 is related to bank-dependent parts of the economy. Publicly traded corporations in the United States are generally suppliers of cash to investors, rather than users of cash from banks or securities markets. On the other hand, smaller privately held businesses and households are heavily dependent on financing from banks.

One can construct a comprehensive measure of what is called the financial wedge, which captures all elements of the gap between the return that businesses earn from the use of
Figure 2: Corporate Bond Spreads

Figure 3: The Wilshire 5000 Stock-Market Index
capital and what savers earn from safe short-term securities or accounts. The wedge is

\[ f_t = \frac{1}{q_t} \left[ \alpha \frac{y_t}{k_t} + (1 - \delta) q_{t+1} \right] - 1 - r_t. \] (1)

Here \( q_t \) is Tobin’s \( q \), the market price of installed capital, \( \alpha \) is the elasticity of the Cobb-Douglas production function with respect to capital, \( y_t \) is output, \( k_t \) is capital (so \( \alpha \frac{y_t}{k_t} \) is the marginal product of capital), \( \delta \) is the rate of depreciation of capital, and \( r_t \) is the safe real interest rate. Figure 4 shows the wedge, calculated from data from the U.S. National Income and Product Accounts and from the real return on short-term federal debt. For future years, I use forecasts from the Congressional Budget Office. The wedge actually grew in the first year after the crisis. Early in the crisis, the market value of capital was expected to fall, which reduced the return to capital temporarily. Unlike the other financial variables, the wedge is highly persistent. The return to capital is fairly high even now, five years after the crisis, but the nominal interest rate is stuck at zero and the real rate is around minus one percent per year.

The wedge includes all the forces that stand between the saver and the user of capital. Taxes contribute to the level of the wedge, but did not change much over this period. The risk premium for business activities is surely an important changing component, but there is an interesting question why the premium that applies to business activities is different from
the premium in the stock market. With the stock market rebounding to normal levels, one might reasonably infer that the risk premium underlying its valuation is also back to normal.

The third component of the wedge is the financial friction that separates savers and capital users if a bank or other financial institution intermediates the flow of capital from one to the other. Much of the commentary about the adverse effects of the crisis has focused on financial frictions.

Credit spreads confirm that the crisis created persistent increases in the difference between the rates borrowers pay intermediaries and the rates that intermediaries pay to their suppliers of capital. The increased spreads appear in both business and consumer lending. Figure 5 shows the widening of the spread in the consumer credit-card market and Figure 6 shows the widening in the business loan market. Of course, these spreads have widened because of increased defaults as well as because of rising frictions.

Rationing of credit has adverse effects on economic activity comparable to the effects of elevated lending rates. Figure 7 shows indexes of landing standards calculated from the Federal Reserve Board’s survey of Banks’ Senior Loan Officers. Standard for all types of lending tightened substantially and persistently after the crisis.
Figure 6: Spread, in Percentage Points, between Business Loan Rates and Banks’ Borrowing Rate

Figure 7: Indexes of Lending Standards Inferred from the FRB Senior Loan Officer Survey
Figure 8: Burden of deleveraging as a percent of consumption

Much has been written about deleveraging in households, as banks cut off previously generous lending against home equity and cut credit-card limits. Figure 8 shows that net cash was flowing from banks to households—they were borrowing more than enough to cover interest charges through 2006. With the real-estate crash and then the crisis, the flow reversed sign. Funds began to flow from households back to banks. These calculations attempt to adjust for the fact that not all debt reductions were the result of repayments—defaults on mortgages and other household debt reached high levels.

Data from Google in Figure 9 confirm that households faced financial stress. Searches for the term “withdrawal penalty” almost doubled during the crisis and have remained high.

Based on these findings, the story of the Great Recession and weak recovery seems clear: A collapse of credit-sensitive spending occurred because of the substantial adverse effects of the crisis. Increases in risk premiums were important, at least in the early years after the crisis. Persistent increases in financial frictions, manifested in rising credit spreads, also discouraged spending. Household deleveraging because of declining collateral value of houses cut consumer spending, especially for durables.

The zero lower bound on the nominal interest rate severely impeded the countercyclical response that would normally have come from the Fed. The central bank responded quickly by pushing short rates down almost immediately after the crisis, but it would have taken a
Figure 9: Google searches for “withdrawal penalty”

quite negative Fed funds rate to offset the reduction in credit-sensitive spending. The Fed’s purchases of mortgage-backed assets appears to have prevented a widening of spreads in the mortgage market but did not have nearly enough effect on spending to prevent the large decline in output and increase in unemployment. On the fiscal side, automatic stabilizers and discretionary increases in transfers to households probably prevented even larger declines in consumer spending, but also were nowhere near large enough to prevent the big rise in unemployment. And attempts to stimulate government purchases were insufficient to keep those purchases growing at their normal trend—the net effect of purchases was somewhat negative.

The possibility has been widely discussed that special features of today’s labor market may be keeping unemployment high despite favorable movements in the rest of the economy. The rate at which employers are filling vacancies—which rose to high levels when unemployment was at its peak—is back down to its historical normal level. In previous experiences, normal filling rates coincide with normal levels of unemployment. One conclusion is that, at least for the next few years, the normal level of unemployment is in the 7-percent range. But in earlier periods of pessimism about normal unemployment, increases in demand have been able to lower unemployment quickly.