Economic Outlook, February 2017
Jeffrey M. Lacker
President, Federal Reserve Bank of Richmond

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Thank you for inviting me to join you. We are certainly living in interesting times, which makes it more challenging than usual to predict what might be in store for the U.S. economy. But I'm happy to prognosticate this morning — especially since I'll be retired by the time any of my predictions can be proven wrong.

Before looking ahead, however, I'd like to start by reviewing the recent performance of the economy. As always, the views I express are my own and are not necessarily shared by my colleagues on the Federal Open Market Committee.[1]

The first fact worth noting is that we are in the eighth year of an economic expansion. For comparison, since World War II the average expansion has lasted 4 ¾ years, measured from the bottom of the recession to the beginning of the next recessionary contraction. Most forecasters foresee continued growth in 2017. One might think this expansion is getting long in the tooth, and that as a result we are "due," so to speak, for a correction. The statistical evidence is pretty clear, however, that business cycle expansions do not die of "old age." What I mean by that is that the probability of a recession in any given time period does not vary with the age of the expansion.[2]

This expansion, however, has been weaker than past expansions. Real GDP — our broadest measure of production and incomes — grew at a 2.2 percent average annual rate from the end of the recession through the fourth quarter of 2015. Before the Great Recession, real GDP during the postwar era had increased at about a 3 ½ percent average annual rate, and there were periods in which growth was even higher. During the 1960s, for example, real GDP grew at a 4 ½ percent average annual rate.[3]

There are good reasons why matching those golden age growth rates on a sustained basis might be a stretch. For one thing, the labor force is expanding much more slowly. During the '60s, the labor force grew at a 1.7 percent annual rate, driven by a growing population and rising participation of women in the workforce. But the labor force participation rate of women peaked in 1999 and has been declining since then. Moreover, the aging of the baby-boom generation is tilting the mix of the working-age population toward age cohorts with lower participation rates. At present, some economists estimate it could take annual employment growth of just around six-tenths of 1 percent (or 60,000 jobs per month) to keep up with the growth in the working-age population.[4]

Another reason GDP growth has been lower of late is that productivity has been rising less rapidly. Over the last five years, GDP per worker has grown at an annual rate of only ½ of 1 percent. Before the Great Recession, that measure of productivity increased at a 1 ¾ percent rate; during the macroeconomic golden age of the 1960s, that measure gained about 2 ½ percent per year. Because real (inflation-adjusted) incomes per worker closely track productivity growth over time, the current productivity slowdown is likely to be having a significant effect on American households' attitudes toward the economy and related public policy issues.[5]

In short, both real GDP and employment appear to be converging to paths governed by productivity and demographic trends. Looking back at 2016, real GDP came in a touch below 2 percent. Employment growth slowed as well, from 226,000 jobs per month in 2015 to 187,000 jobs per month. But that rate of growth is still unsustainably high — we need less than half that rate to keep pace with population trends. The unemployment rate was 4.7 percent in December, a relatively low rate by historical standards. Although the unemployment rate ticked up slightly last month, to 4.8 percent, in general it has continued to decline the past few years. But because the unemployment rate cannot continue to fall forever, employment growth is likely to continue to slow in line with population growth.

Strong (albeit slowing) employment growth has been supporting solid consumer spending. Inflation-adjusted household expenditures grew by 2.8 percent last year, and real disposable income grew by 2.1 percent. I expect continued strength in consumer spending this year, despite slowing job growth, because wage rates have been rising at an increasing pace. Average hourly earnings rose by 2.8 percent last year, well above the overall rate of inflation. And tightening labor markets are likely to add to wage pressures this coming year. So even if consumer spending growth slows, it's likely to remain above 2 percent.

While consumer spending boosted overall growth in 2016, surprisingly weak investment was a drag on growth. After a strong start, residential investment hit an unanticipated soft spot in midyear, actually falling in the second and third quarters before rebounding in the fourth quarter. The largest portion of this investment category is single-family home construction, and here the outlook is positive. New single-family housing starts rose by about 4 percent last year, household formation is rising and household finances are strong. I expect residential investment to make a solid contribution to real GDP growth in 2017.

Business investment also has been unexpectedly sluggish, falling in the last quarter of 2015 and then increasing by only 0.3 percent in 2016. A portion of the weakness was due to sharply lower oil and natural gas drilling, a natural response to low oil and gas prices. But other business equipment spending has disappointed as well, in part due to the strengthening of the dollar on foreign exchange markets last year, which intensified competition for many domestic producers and resulted in lower output and lower investment plans. The fundamentals for business investment have remained reasonably sound, however, so I am forecasting solid investment growth this year.

Taking on board all the data we've seen on spending and labor markets, my forecast is for real GDP growth of 2.0 percent for 2017, falling to a long-run trend of around 1 ¾ percent in 2018 and beyond.

A year ago, inflation was expected to rise gradually toward 2 percent, and it has done so, perhaps even a bit more rapidly than some had anticipated. Recent data have given us no reason to expect that this trend will reverse. If anything, the pickup of inflation could quicken temporarily, given recent increases in oil prices. So I expect inflation to be close to 2 percent this year.

The outlook I've just described is conditioned on only the flow of hard economic data we've seen for 2016, together with a small amount of data on economic activity this year. Of course, we have also had an election here in the United States. The results of that election took many observers by surprise and appear to have left a sizable imprint on financial asset prices. While there is considerable uncertainty about how a new administration's policies might affect the near- and longer-term economic outlook, the nature of financial markets' response suggests that investors may be anticipating some combination of tax reductions and increased military and infrastructure spending. Commentators have also suggested that regulatory changes could contribute to an increase in productivity. Concerns have been expressed, however, about the potential effects of policies that are less friendly to international trade and migration, and thereby impede growth.

On one hand, equity market movements since the election could be the result of a more optimistic outlook on the part of business enterprises. On the other hand, equity market movements could be causing more optimism. To the extent that either is true, a more positive outlook for business investment would be warranted. If so, the unanticipated softness in capital spending last year may have been attributable to a desire to delay irreversible investment commitments until after the election, and a release of pent-up spending plans may be in the offing. Still, the investment outlook, and thus financial asset prices, could well fluctuate as incoming information alters expectations regarding the medium-term policy environment.

The rise in longer-term U.S. interest rates in the month following the election was roughly evenly split between real rates and compensation for inflation. Even more striking is the movement in the implied probabilities of very high and very low inflation derived from options markets. These have flipped from a tilt toward lower inflation being much more likely than high inflation to the opposite; inflation above 3 percent is now seen as about twice as likely as inflation below 1 percent. In addition, the estimated term premium on 10-year Treasury securities has moved from negative territory to closer to zero, suggesting that investors see less value in Treasuries as a hedge against deflation and are becoming more concerned about the exposure of the nominal Treasuries to the risk of inflation. These developments could reflect the dissipation of downside inflation risks and a return to a more symmetric inflation outlook.

While there is currently tremendous uncertainty around the shape and size of any federal policy initiatives, the direction of the effect on monetary policy seems pretty clear. Pursuing our congressionally mandated objectives for price stability and employment means that, all other things equal, greater fiscal stimulus implies higher interest rates than would otherwise be

warranted. Otherwise, inflation pressures are likely to become elevated, as we saw in response to expanded fiscal deficits in the second half of the 1960s.

Some would argue that changes in regulatory policy might improve economic efficiency and expand the potential supply of goods and services over time, thereby easing resource pressures and reducing the need for higher policy rates. It's worth pointing out, however, that such effects are likely to unfold only gradually over time. Moreover, to the extent they raise our economy's underlying real growth rate, they will also increase the trend real interest rate to which rates must converge over time (in the absence of shocks).[6] More rapid productivity growth generally implies higher real interest rates, all else held constant.

The economic projections that FOMC participants submitted prior to the December meeting show a slight uptick in the median projected path for the target range for the federal funds rate, relative to submissions prior to the September meeting. (Participants are called upon to submit projections for every other meeting, under the assumption of "appropriate monetary policy.") While a more stimulative fiscal policy outlook may have contributed to the uptick, the first since target rate projections began being released in 2012, several other factors could well have been relevant. For one, improvement in measures of inflation compensation were underway well before the election, and realized inflation has come in a bit firmer than many analysts had projected earlier in the year. In addition, while real GDP growth was depressed early in 2016 by temporary factors that were expected to fade, solid confirmation did not emerge until the arrival of third-quarter data. And finally, employment growth has not decelerated in 2016 as much as some forecasters had projected.

More broadly, I have been arguing for some time that the Fed's interest rate target is exceptionally low and that upward adjustment is needed.[7] I have based that in part on the behavior of benchmarks that capture the historical behavior of interest rates — that is, how policy rates respond to inflation and employment — during times when monetary policy has been relatively effective. These benchmarks, often referred to as "policy rules," come in slightly different formulations and are useful for assessing the stance of monetary policy. Currently, almost all of these benchmarks recommend higher interest rates, in most cases substantially higher rates. Some have made the case for versions whose current recommendations lie at the lower end of the range of plausible alternatives and thus align with the current low level of our policy rates.[8] That case is not without merit, but there are risks associated with placing too much weight on any one estimate. Taking the range of plausible alternatives into account, my view is that, with unemployment at or below levels corresponding to maximum sustainable employment and with inflation very close to our announced target of 2 percent, significantly higher rates are warranted.

Historical experience strongly suggests that significant deviation from these benchmarks can increase the risk of adverse outcomes. In particular, delaying interest rate increases when unemployment falls below levels corresponding to full or maximum employment can result in an unanticipated rise in inflation pressures that necessitates relatively sharp upward adjustments in rates. Such rapid adjustments can be hard to calibrate, and they heighten the risk of overdoing it and sending the economy into an unnecessary recession. In contrast, sustaining unemployment at

or below full employment is associated with pre-emptive rate increases, before inflation pressures are clearly visible.

In the mid-1960s, for example, after an extended period of low and stable inflation, a combination of political considerations caused the Fed to hold off raising rates in the face of mounting fiscal pressures, departing from the pattern of behavior that had sustained price stability in prior years. The inflationary decade and a half that followed that episode — a fascinating chapter in the Fed's history — provides important cautionary lessons for us today.[9]

Although I just cautioned against deviating too far from benchmarks, this does not mean the FOMC should closely follow a single pre-specified monetary policy rule, as some proposed legislation would require. While there are benefits to conducting policy in a way that tightly tracks a policy rule, in practice such an approach is likely to be too inflexible and limit warranted responses to unanticipated developments. The FOMC could take steps, however, to increase transparency around our policymaking, such as including calculations for a representative set of rules in the Board's semiannual Monetary Policy Report to Congress, along with a discussion of how and why the Committee has departed from these rules, if applicable.

At the present time, I am skeptical of justifications for the large and growing departure of current policy from the policy rule recommendations. My own view, as I've said, is that the magnitude of the gap suggests that rates need to rise more briskly than markets now seem to expect. And the elevated uncertainty now surrounding fiscal policy, particularly the potential for substantial fiscal stimulus, suggests that our next increase should come sooner rather than later in order to reduce the risks associated with having to raise rates more rapidly later on. Such an approach would maximize our chance of continuing to benefit from price stability and healthy employment growth.

Thank you for your kind attention.

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[1] I would like to thank John Weinberg, Roy Webb and Jessie Romero for assistance in preparing these remarks.
[2] Glenn D. Rudebusch, "Will the Economic Recovery Die of Old Age?" Federal Reserve Bank of San Francisco *Economic Letter* no. 2016-03, February 4, 2016.
[3] Growth from fourth quarter 1959 to fourth quarter 1969. The peak 10-year average real growth rate, 5.0 percent, was reached in the second quarter of 1968.
[4] Rhys Bidder, Tim Mahedy, and Rob Valletta, "Trend Job Growth: Where's Normal?" Federal Reserve Bank of San Francisco *Economic Letter* no. 2016-32, October 24, 2016.
[5] For a discussion of various theories of why productivity growth may have slowed in recent years, see Aaron Steelman and John Weinberg, "A 'New Normal'? The Prospects for Long-Term Growth in the United States," Federal Reserve Bank of Richmond 2015 *Annual Report.*
[6] In other words, increased growth in potential output should raise *r**, the so-called natural rate of interest. See Thomas Lubik and Christian Matthes, "Calculating the Natural Rate of Interest: A Comparison of Two Approaches," Federal Reserve Bank of Richmond *Economic Brief* no. 15-10, October 2015; Thomas Laubach and John C. Williams, "Measuring the Natural Rate of Interest," *Review of Economics and Statistics*, November 2003, vol. 85, no. 4, pp. 1063-1070; and Kevin J. Lansing, "Projecting the Long-Run Natural Rate of Interest," Federal Reserve Bank of San Francisco *Economic Letter* no. 2016-25, August 29, 2016.
[7] Jeffrey M. Lacker, "Interest Rate Benchmarks," Speech to the Virginia Association of Economists and the Richmond Association for Business Economics, Richmond, Va., September 2, 2016; and "Economic Outlook, October 2016," Speech at the West Virginia Economic Outlook Conference, Charleston, W.Va., October 4, 2016.

[8] Janet Yellen, "The Economic Outlook and the Conduct of Monetary Policy," Speech at the Stanford Institute for Economic Policy Research, Stanford, Calif., January 19, 2017.
[9] Helen Fessenden, "1965: The Year the Fed and LBJ Clashed," Federal Reserve Bank of Richmond *Econ Focus*, Third/Fourth Quarter 2016.