
Monetary Policy ● ● ●

Charles L. Evans
President and Chief Executive Officer
Federal Reserve Bank of Chicago

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The views expressed today are my own and not necessarily
Those of the Federal Reserve System or the FOMC.

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Introduction

Good afternoon and thank you. It is a pleasure to be here. Let me begin by noting that my comments today reflect my own views and do not necessarily represent those of my colleagues on the Federal Open Market Committee (FOMC) or within the Federal Reserve System.

Sharing an outlook with this group is a bit like carting sand to the beach. You already know the details of the latest data. And you have spent a good deal of time and effort applying your own expertise in putting together your projections. What more, then, can I offer? Well, I can bore you with my own outlook for the U.S. economy, of course! But, I'll also try to spice things up by focusing on some broader economic issues facing the U.S. today, their implications for our longer-term growth prospects and how best to steer monetary policy in this complicated environment.

So, first, let me give you a preview of my comments today:

- Like many of you in this room, I expect real gross domestic product (GDP) to increase in the range of 2 to 2-1/2 percent in 2016, with the U.S. household sector leading the way in supporting growth in aggregate demand. This is my modal outlook; but I see the balance of risks as tilted to the downside.
- I will next discuss the pretty modest assumption for the potential growth rate of the U.S. economy that underlies this projection. Ten years ago, potential growth was around 3 percent. Today, I think it is around 2 percent. This is an enormous difference.
- With regard to monetary policy, lower long-run potential growth means that the long-run equilibrium real interest rate—our good friend, r^* —will likely be lower than it has been in the past.
- Furthermore, given the headwinds from the international sector and some remaining hangovers from the Great Recession, the current level of r^* probably is even lower than its long-run level.
- I will finish up by talking about how my views of appropriate monetary policy are shaped by these assessments of the equilibrium real interest rate, as well as by the importance of risk management in policymaking.
- For the punch line: My fed funds rate assumptions used to be some of the most accommodative ones on the FOMC. Today, with the latest changes in the Committee's well-known "dot plot," I am comfortable with the path for the federal

funds rate projected by the median FOMC participant in the March Summary of Economic Projections (SEP).¹

Now let me turn to my outlook for the U.S. economy.

U.S. Economic Outlook

I anticipate growth will be in the range of 2 to 2-1/2 percent in 2016. So, close to or a bit better than last year's 2 percent rate. The U.S. consumer is the linchpin behind this outlook. I think this winter's somewhat softer readings on consumption will prove to be transitory. This is because the most important fundamental supporting household spending is the substantially improved labor market in the U.S. Over the past two years, employment growth has averaged more than 200,000 per month and the unemployment rate has fallen to below 5 percent, half its 2009 peak. Such job gains, the attendant growth in households' income and improved confidence over future job prospects should continue to support fairly solid increases in consumer spending.

Lower energy prices also add to the health of the American consumer. Two years ago the average price for a gallon of regular gasoline was about \$3.50 per gallon.² Today, it is around \$2. Those savings at the pump are available to support spending on other items, pay off debt or add to the household's nest egg. Furthermore, for my forecast, I assume interest rates will stay quite low for some time, which should further bolster consumer spending. For example, low borrowing rates helped push new motor vehicle sales in 2015 to a near-record level, and vehicle sales have remained strong so far in 2016. Healthy labor markets, improved balance sheets and low interest rates will also help housing markets. Indeed, although new home building still remains below what would be considered normal, growth in residential investment has been improving slowly but steadily for the past four years.

However, juxtaposed against the relatively solid prospects for household spending, there are several factors weighing on growth in the U.S. The slowdown in global economic growth — notably in emerging market economies — and uncertainty about future international prospects have contributed to a rising dollar and declining commodity prices since mid-2014. The trade-weighted dollar has appreciated almost 20 percent since June 2014, while oil prices are down around 65 percent over the same period. As a result, U.S. manufacturers and agricultural producers that sell their products in global markets face challenges, as do oil, gas and mining companies and their suppliers. As the uncertainties over foreign growth prospects resolve — hopefully, for the better — the upward pressure on the dollar should diminish and the international headwinds on domestic growth should dissipate. Still, I do not expect the international sector to be an engine for U.S. growth for some time.

¹ Federal Open Market Committee (2016a). The Summary of Economic Projections, which is released four times a year, gives FOMC participants' forecasts of key economic variables over the next three years and for the longer run.

² See U.S. Energy Information Administration (2016).

In part reflecting these global issues, financial conditions in the U.S. have tightened noticeably since the middle of last year. While stock prices are about the same, they have been at times highly volatile, perhaps reflecting the heightened uncertainty among investors. Although declining somewhat in recent weeks, spreads on corporate bonds, particularly for riskier borrowers, have on net widened significantly over the past year or so. All told, tighter financial conditions have presented an additional headwind for growth, likely dampening the spending by both households and businesses. Indeed, business capital expenditures have been lackluster since late 2014, reflecting a sharp pull-back in energy-related spending, as well as a heightened degree of caution and tighter credit for a broader set of firms.

Given my growth outlook, I expect that the unemployment rate will edge down further to between 4-1/2 and 4-3/4 percent by the end of next year. Along with most of my colleagues on the Federal Open Market Committee, I judge that an unemployment rate that averages somewhat under 5 percent over the longer run is consistent with the Federal Reserve's maximum employment mandate. I expect the unemployment rate to go slightly below this benchmark. That said a few other labor market indicators — such as the large number of people who are employed part time but who would prefer a full-time job and subdued wage growth — suggest that today there remains some additional resource slack beyond what is indicated by the unemployment rate alone. So I'm not completely confident that we have met our employment objective just yet. And there are additional benefits from reinforcing labor market attachment to greater numbers of workers. Let me be clear, we have made tremendous progress in recent years. However, I don't think that, broadly speaking, labor market conditions will reach neutral until the unemployment rate is modestly below its long-run normal level.

Let me now turn to inflation. We have not done well on this leg of our dual mandate. As you all know, in January 2012 the FOMC set 2 percent inflation — measured by the annual change in the Price Index for Personal Consumption Expenditures (PCE) — as the explicit inflation target consistent with our price stability mandate.³ Well, over the past eight years PCE inflation has averaged only 1.5 percent. I am of the school that likes to strip out the volatile and transitory food and energy components and look at core inflation. This is because core inflation gives a better indicator of where total inflation is likely to be headed over the next year or so than total inflation itself. Core PCE inflation also has run well below 2 percent for quite a long time. Over the past couple of months, however, core inflation moved up to 1.7 percent on a year-over-year basis. I am encouraged by this development, and have raised my forecast for core inflation in 2016 to 1.6 percent. Looking further ahead, I see both core and total inflation moving up gradually to approach our 2 percent inflation target within the next three years. This path reflects the dissipating effects on consumer prices of earlier declines in energy prices and the appreciation in the dollar. It also reflects the influence of further improvements in labor markets and growth in economic activity.

However, I am a bit uneasy about this forecast. It is too early to tell whether the recent firmer readings in the inflation data will last or prove to be temporary volatility and

³ This was first acknowledged in Federal Open Market Committee (2012a). It remains in the most recent statement of our longer-run goals; see Federal Open Market Committee (2016b).

reverse in coming months. We saw this happen in 2012. And there are some other downside risks to consider. International developments may result in further declines in energy prices or greater appreciation of the dollar. Most worrisome to me is the risk that inflation expectations might drift lower. Undershooting our 2 percent inflation target for as long as we have raises the risk that the public will expect persistently low inflation in the future. If such a mind-set becomes embedded in decisions regarding wages and prices, then returning inflation to 2 percent will be that much more difficult. Here, I find it troubling that the compensation for prospective inflation built into a number of financial market asset prices has drifted down considerably over the past two years. More recently, some survey-based measures of inflation expectations, which had previously seemed unmovable, edged down to historically low levels. True, financial market inflation compensation and survey measures of inflation expectations have risen some of late, but they still remain quite low.

To recap, I expect the U.S. economy to grow at a moderate pace over the next few years. This growth will be primarily driven by further increases in household spending. I also expect to make additional progress toward our 2 percent inflation target. While I see this path for the U.S. economy as the most likely outcome, there are a number of downside risks to my outlook for both growth and inflation. Before discussing the implications of this forecast for my views on appropriate monetary policy, let me put my growth outlook in a longer-run context.

My Growth Forecast in Longer-Run Context

By historical standards, my forecast of real GDP growth in the range of 2 to 2-1/2 percent doesn't seem particularly optimistic. It's in line with the average pace of growth since 2009, which is about 2-1/4 percent. By comparison, over the previous three expansions real GDP growth averaged closer to an annual rate of 3-1/2 percent. The decline from 3-1/2 percent growth to 2-1/4 percent makes one sit back and take notice. What's going on? Why has growth in real activity been so subdued in the current expansion?

For one thing, the financial crisis and the ensuing Great Recession had far-reaching negative effects. You are all too well aware of these scars. With the support of accommodative monetary policy, these impediments to growth have been slowly dissipating. Nonetheless, I think these and other headwinds will take some more time to completely fade away.

In addition, as I survey the economic landscape, I see other factors that could hold growth back even after these impediments recede. Broadly speaking, an economy's long-run growth potential depends upon increases in its productive resources and the technological improvements that enable those resources to produce more.

One of those key productive resources is labor. Here, demographics are working against us. Population growth has slowed. Moreover, the labor force participation rate has been declining steadily. Some of this decline is due to the graying of the population, but other trends are at work as well. Slower labor force growth translates directly into slower potential output growth. Additionally, for the economy to make the best use of its labor resources, workers must possess the right skills. My staff estimates that between

1965 and 1985, educational improvement added more than half a percent annually to labor quality — that is, effective labor input into the aggregate production function for the U.S. grew a half a percentage point a year faster than the increase in total hours worked.⁴ However, further progress seems to have stalled as new entrants to the labor force have roughly similar educational attainment as retiring baby boomers, but less work experience. This is another possible reason for slower potential economic growth.

Economic growth over the longer run also depends upon technological progress. By one carefully estimated measure — made by John Fernald and co-authors at the San Francisco Fed — the underlying trend in total factor productivity growth has declined from 1.8 percent during the productivity boom of the mid-1990s to mid-2000s to a mere half a percent today.⁵ That is in line with the low productivity growth period from the 1970s to the mid-1990s. Some economists, such as Robert Gordon (2012) at Northwestern, think that the slowdown in trend productivity growth is probably here to stay. Gordon argues that the search for transformative technologies that spurred productivity and economic growth in the past has become increasingly costly and more difficult to harvest: We have already picked the low-hanging fruit. Consequently, Gordon sees limited potential for a continuing stream of transformative inventions.⁶ The gloomy conclusion of his line of reasoning is that slow productivity growth will hold back potential economic growth for the foreseeable future.

The notion that longer-run potential growth is slowing is a view that has been gaining traction lately. This assessment is reflected to some degree in the economic projections of FOMC participants. As recently as January 2012, FOMC participants assessed the long-run potential growth rate of the economy to be around 2.5 percent.⁷ Today, the median FOMC participant believes that longer-run real GDP growth is only 2 percent. Even the most optimistic of my colleagues places this number at around 2.4 percent.⁸

When measured against these benchmarks, my forecast of GDP growth in the range of 2 to 2-1/2 percent in 2016 is simply saying that the economy will expand a bit faster than its longer-run productive capabilities. This number may be disappointing — we would certainly like stronger sustainable growth — but only in Lake Wobegone can growth be above trend every year. There is nothing much that monetary policy can do about labor force trends or technical progress. These are structural conditions the FOMC must recognize when setting monetary policy.

⁴ Aaronson and Sullivan (2002).

⁵ Byrne, Fernald and Reinsdorf (2016). Total factor productivity captures the residual growth in total output of the national economy that cannot be explained by the accumulation of measured inputs, such as labor and capital.

⁶ Not everyone subscribes to this viewpoint. Information technology has transformed production in ways we may not fully comprehend. Moreover, transformative technological advances are inherently difficult to predict. Although measured productivity growth has slowed in recent years, the transformative innovations of tomorrow may well be in the pipeline. We just may not be able to see measurable widespread evidence yet.

⁷ See Federal Open Market Committee (2012b). The full range of the longer-run estimates was 2.2 percent to 3 percent and the central tendency was in the 2.3 percent to 2.6 percent range.

⁸ Federal Open Market Committee (2016a).

Lower Potential Growth, Lower Equilibrium Interest Rates

That is not to say, however, that these benchmarks do not influence policy. Importantly, lower potential output growth implies lower returns to investment. As a result, equilibrium short-term real interest rates, which are the rates consistent with fully employed resources, are lower in an economy with lower potential output growth. And, of course, lower real rates imply lower nominal rates, even when inflation is at its target. So, the equilibrium federal funds rate — which is the funds rate associated with a neutral monetary policy (policy that is neither expansionary nor contractionary) — is lower in an economy with a lower potential output growth.⁹ Possibly reflecting these new circumstances, in March FOMC participants' projections for the longer-run nominal federal funds rate were in the range of 3 to 4 percent, with the median projection at 3-1/4 percent.¹⁰ Four years ago, when forecasts of potential growth were higher, the Committee was projecting the long-run funds rate would be in the range of 3-3/4 to 4-1/2 percent — about 50 basis points higher than today's estimates.¹¹

What Is Next for Monetary Policy?

So, even after normalizing policy, the federal funds rate will likely end up at a lower level than in the past. I'd now like to talk about what the transition path to that new level might look like.

Again, I will refer to the Summary of Economic Projections. Here is the well-known and extremely valuable dot plot. The chart shows each FOMC participant's views of the appropriate target federal funds rate at the end of each of the next three years and in the longer run. These views are conditional on the data and outlook as of our March FOMC meeting.

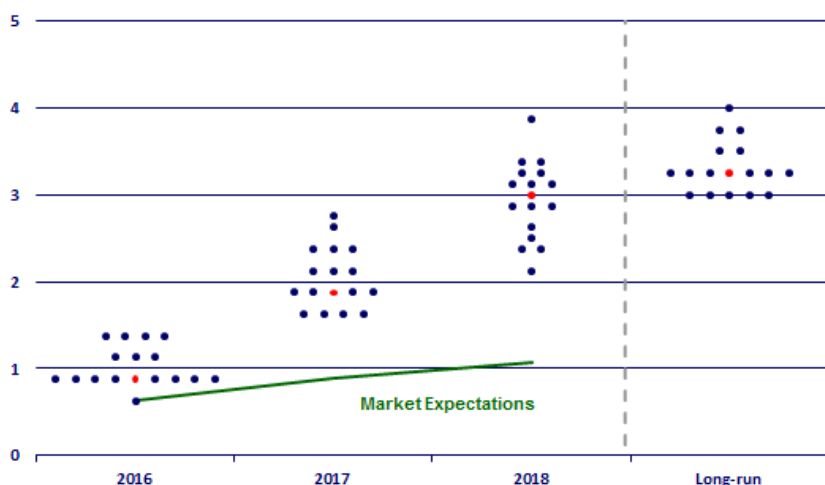
⁹ Of course, there are other reasons why equilibrium interest rates are likely lower than they were in the past. For example, former Fed Chair Ben Bernanke has frequently discussed the global savings glut as a key factor driving down equilibrium interest rates. As the world population has aged and as residents of fast-growing emerging economies have grown wealthier, the saving rate in most countries has increased. This has resulted in a larger pool of funds seeking safe, profitable opportunities for investment. However, domestic investment opportunities in most of these countries have not kept pace with the increased saving rates. This higher supply of investable funds relative to domestic demand has driven down interest rates worldwide. In addition, former Treasury Secretary Lawrence Summers has expanded on these influences, speculating that soft aggregate demand worldwide has discouraged structural investment and capital stock growth (his view of the "secular stagnation" hypothesis). These two ideas are closely related.

¹⁰ Federal Open Market Committee (2016a).

¹¹ Federal Open Market Committee (2012b).

Appropriate Pace of Policy Firming

Federal Funds Rate at Year-End
(percent)



Sources: Interest rate projections are from the March 16, 2016 FOMC Summary of Economic Projections. Market expectations are from OIS futures as of March 24, 2016. Red dots indicate the median projection.

Focus for a moment on the median of the policy projections, indicated by the red dots. The median participant expects only two more rate hikes over the remainder of this year and then an additional 100 basis points or so of tightening in each of 2017 and 2018. By historical standards, this certainly is a gradual path. It is even slower than the so-called measured pace of increases over the 2004–06 tightening cycle — that was 25 basis points per meeting, or 200 basis points a year.

At the same time, the median FOMC projection for the next three years envisions growth averaging slightly better than its long-run potential, the unemployment rate falling below its long-run natural rate¹² and inflation gradually reaching our target. Given such relatively good projections for the economy's performance, why is the median expected policy path so low?

Naturally, I cannot speak for my colleagues on the FOMC. However, there are several reasons why I think a very shallow funds rate path, such as the one envisioned by the median FOMC participant, is appropriate.

First, my forecasts for above-potential growth and lower unemployment depend critically on the accommodative boost from a gradual path for policy rates. Given my interpretation of conditions today, a faster pace of tightening than the one I envision would lead me to a less optimistic economic forecast.

¹² The natural (or trend) rate of unemployment is the unemployment rate that would prevail in an economy making full use of its productive resources.

Second, as I noted earlier, the FOMC needs to be concerned about inflation expectations slipping below its inflation target. If the public doesn't believe policymakers are trying to hit a symmetric 2 percent inflation target, it will be all that much harder to reach that policy goal. To convince them of this, appropriate policy should provide enough accommodation to generate a reasonable likelihood that inflation in the future could moderately exceed 2 percent.¹³

Third, the very shallow path also reflects my view that the neutral level of the federal funds rate today is lower than its eventual long-run level. By some estimates, the equilibrium inflation-adjusted rate is currently near zero. The degree of accommodation in actual policy needs to be judged against this benchmark. So the 75 to 100 basis point range for the nominal fed funds rate in the median SEP forecast for the end of 2016 is not terribly far below neutral.¹⁴ The equilibrium real rate should rise gradually as headwinds fade over time. And as this rate does, the benchmark to judge policy accommodation will also rise. But this is likely to be a slow adjustment.

And finally, my view of optimal policy also provides for risk management. Here is what I mean.

Although I foresee moderate growth, that forecast faces a number of risks. On the upside, the solid labor market and continued low energy prices could lead to stronger household spending than expected, with attendant spillovers to other components of domestic demand. On the downside, the international situation could deteriorate, with related movements in the dollar and financial conditions weighing more heavily on domestic spending than assumed. Similarly, my inflation forecast faces two-sided risks. On the upside, the recent higher readings on core prices could prove to be more persistent than I have assumed. On the downside, the recent improvements could prove to be ephemeral or there could be further declines in energy prices, appreciation of the dollar or a slippage in inflation expectations.

Faced with such uncertainty, policymakers could make two potential policy mistakes.

The first mistake is that the FOMC could raise rates too quickly, only to be hit by one or more of the downside surprises. In order to put the economy back on track, we would have to cut interest rates back to zero and possibly even resort to unconventional policy tools, such as more quantitative easing.¹⁵ I think unconventional policy tools have been effective, but they clearly are second-best alternatives to traditional policy and something we would all like to avoid. I should note, too, that with the economy facing a potentially lower growth rate and lower equilibrium interest rates, the likelihood of some

¹³ This is not as heretical as it might first appear. After all, it is a simple consequence of having a symmetric inflation target: It is difficult to average 2 percent inflation over the medium term if there is little chance of inflation ever running above 2 percent. If policy preempts this possibility, the public could begin to mistakenly believe that 2 percent inflation is a ceiling — and not a symmetric target. As a result, expectations for average inflation could fall, lessening the upward pull on actual inflation and making it even more difficult for us to achieve our 2 percent target.

¹⁴ Federal Open Market Committee (2016a).

¹⁵ For more about the quantitative easing programs (also referred to as large-scale asset purchases) and the rationale behind them, see Board of Governors of the Federal Reserve System (2015).

shock forcing us back to the effective lower bound may be uncomfortably high. The difficulties experienced in Japan and Europe come to mind.

The second (alternative) potential policy mistake the Committee could make is that sometime during the gradual normalization process the U.S. economy experiences upside surprises in growth and inflation. Well, policymakers have the experience and the appropriate tools to deal with such an outcome; we probably could keep inflation in check with only moderate increases in interest rates relative to current forecasts. Given how gradual the rate increases are in the baseline SEP, policy could be made a good deal more restrictive, for example, by simply increasing rates 25 basis points at every meeting — just as we did during the measured pace adjustments in 2004–06. A question for the audience: Who thinks those were fast? So, to me, concerns about the risks of rapid increases in rates in this scenario seem overblown.

To summarize, policymakers would have to resort to second-best policy tools to deal with unexpected weakness in activity or inflation, but we can use our old tried-and-true instruments for addressing stronger-than-expected outcomes. Even if the odds of upside and downside shocks are the same, the costs are not. How should the FOMC address these asymmetric risks? Well, we should buy some insurance against unexpected weakness by accepting a somewhat higher likelihood of stronger outcomes. Translated into monetary policy, this means being more accommodative than usual to provide an extra boost to aggregate demand as a buffer against possible future downside shocks that might otherwise drive us back to the effective lower bound.

But beyond this asymmetry in costs, I see the distribution of future shocks as skewed in the direction of output running somewhat softer and inflation somewhat lower than what I have written down in my baseline projection. This tilting of the odds strengthens the rationale for shading policy in the direction of accommodation and provides additional support for a gradual path in normalizing policy.

To sum up, in 2016, I expect growth that is somewhat above trend and further progress in moving inflation toward our 2 percent target. As I consider how to calibrate monetary policy in the months and years ahead, I see two general — but key — considerations to keep in mind: 1) There are a number of downside risks to my near-term forecast; and 2) the equilibrium real federal funds rate is likely lower today than in the past (not only in the short run, as the economy continues to heal from past wounds, but also in the long run). Today, the confluence of these considerations leads me to conclude that a very shallow path — such as the one envisioned by the median FOMC participant in March — is the most appropriate path for policy normalization over the next three years.

Thank you.

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