



FEDERAL RESERVE BANK *of* NEW YORK

The Federal Reserve in the 21st Century Monetary Policy Decision Making

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The views expressed in this presentation are those of the presenter and not necessarily those of the Federal Reserve Bank of New York or the Federal Reserve System

Outline

- **Monetary policy** refers to the **actions** undertaken by a **central bank** to influence availability and cost of money and credit to help promote **national economic goals**
- In what follows we will review:
 - the institutional framework and organization of the **Federal Reserve System**, the *central bank* of the U.S.
 - its *goals and objectives* (the so-called **dual mandate**)
- We will focus on how the Fed chooses its *actions* to achieve the dual mandate
- And close with an assessment of issues and concerns in the current policy debate



The Fed in a nutshell (get used to the acronyms...)

The **Federal Reserve System** includes:

- **12 Federal Reserve Banks (FRBs)**
 - part private, part government institutions
 - each with a Board of Directors (9 in number)
 - who appoint the president and officers of the FRB subject to approval by BOG
- **Board of Governors of the Federal Reserve System (BOG)**
 - headquartered in Washington DC
 - up to seven members appointed by POTUS and confirmed by the Senate
 - currently (March 2015) five members, two vacancies
- **Federal Open Market Committee (FOMC)**
- Around 2900 member commercial banks

Depending on the context, the shorthand “Fed” can refer to the whole system, or the Washington Board, or the FOMC...



The FOMwhat?

Federal Open Market Committee:

- the (up to) seven members of the BOG in Washington DC
 - (BOG Chair = FOMC Chair)
- the president of the Federal Reserve Bank of New York
 - (FOMC Vice Chair)
- four of the remaining eleven FRB presidents, serve one-year terms on a rotating basis

The FOMC holds eight regularly scheduled meetings per year

- at these meetings, the Committee reviews economic and financial conditions, assesses the risks to its long-run goals, and **votes on actions that influence the money supply and interest rates**
- nonvoting FRB presidents attend the meetings of the Committee, participate in the discussions, and contribute to the Committee's assessment of the economy and policy options
- the policy actions are explained in a public **statement** released shortly after each meeting



How do FOMC meetings look like (March 2014)



What are the Fed's ultimate objectives?

In very general terms, central bank's goals are to **foster economic prosperity and promote social welfare**

More specific objectives are **established by the government**

Federal Reserve Act: provides statutory basis for monetary policy

- **Goals of monetary policy: Original language from 1913**
 - “. . . to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish more effective supervision of banking in the United States, and for other purposes.”
- **Goals of monetary policy: Amendment in 1977**
 - “The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as **to promote effectively the goals of maximum employment, stable prices**, and moderate long-term interest rates”
 - **“maximum employment and stable prices” = Fed's dual mandate**



More detail, please

Statement on 'Longer-Run Goals and Monetary Policy Strategy' (*adopted in 2012, most recently amended in Jan 2015*) contains an interpretation of the dual mandate

- **Price stability** → longer-run goal for inflation
 - inflation at the rate of 2 percent is most consistent over the longer run with the FED's statutory mandate
 - measured by the annual change in the price index for personal consumption expenditures (PCE), a comprehensive measure of prices faced by US households
- **Maximum employment** → no fixed goal
 - policy decisions must be informed by assessments of the maximum level of employment, based on a wide range of indicators
 - assessments are uncertain and subject to revision
 - estimates of the longer-run normal rates of output growth and unemployment are published four times per year in the FOMC's **Summary of Economic Projections (SEP)**.
 - For example, according to the latest SEP, longer-run normal rate of unemployment is between 4.9 and 5.8 percent (central tendency: 5.0 to 5.2)



Why price stability

- Prices act as the **key mechanism for allocating resources efficiently** throughout the economy
 - If inflation is high, *lenders* are harmed because they can buy fewer goods and services with their payments than they expected. If inflation is low, *borrowers* are harmed
 - If inflation is high, demand for goods and services is pushing hard on available resources. If inflation is low there is not enough demand to fully use the available resources in society.
- When inflation is *stable* and *not too high nor too low* over time, it does not materially enter into the decisions of households and firms



Goldilocks inflation = 2 percent!



What causes inflation and what can the Fed do?

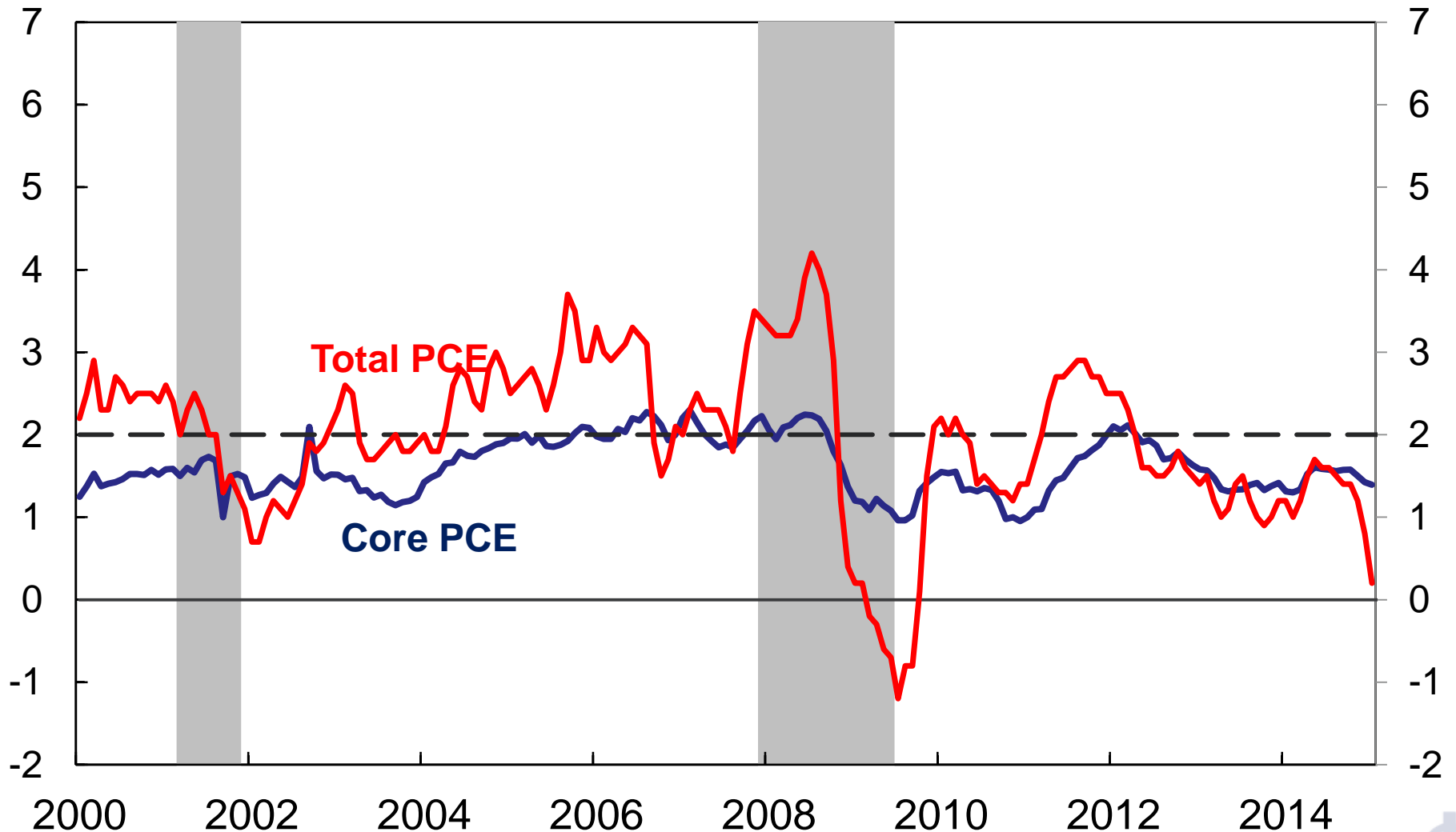
- Inflation is influenced by several factors:
 - Transitory shocks (e.g. food and energy prices)
 - Supply shocks (e.g. productivity) and external factors (e.g. import prices, exchange rates) affecting business costs
 - Either excess demand or slack in resource utilization
 - Inflation expectations
 - Inertial components (e.g. indexation)
- The central bank has primary influence over the long-run behavior of the general price level
 - Importance of “well-anchored” inflation expectations around levels consistent with objectives of price stability
- Over the short-run, appropriate policy reduces risk of inflation persistently too high or too low
 - Does not focus on transitory volatility (e.g. in energy prices) or changes in relative prices
 - Focuses on underlying (“core”) inflation



Total and core PCE inflation in recent years

% Change – Year to Year

% Change – Year to Year



Source: Bureau of Economic Analysis

Note: Grey shading shows NBER recessions

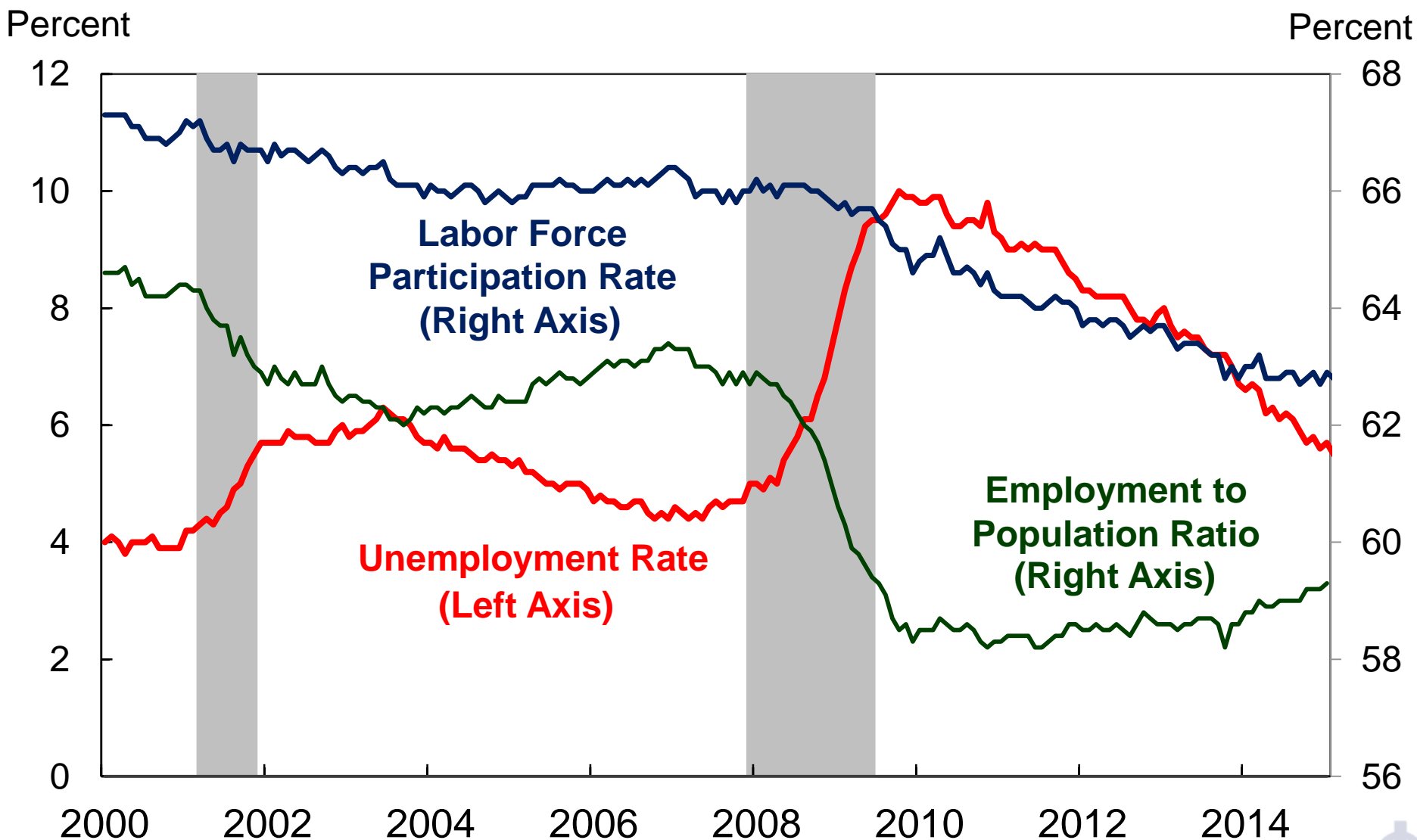


Why maximum employment and what can the Fed do?

- Obviously social welfare improves as human resources are utilized more fully and efficiently
- *Long-run* employment and output are determined by:
 - Population growth, technological progress, preferences for saving, risk and work effort
 - **Not by monetary policy**
- In the *short-run*, the economy goes through business cycles
 - Output and employment fluctuate above or below long-run levels (changes in demand relative to supply)
 - **Monetary policy can help** ‘smooth’ these fluctuations, and thus stabilize employment and incomes



Recent history of the US labor market



Source: Bureau of Labor Statistics

Note: Grey shading shows NBER recessions



Why is it difficult to assess employment objectives?

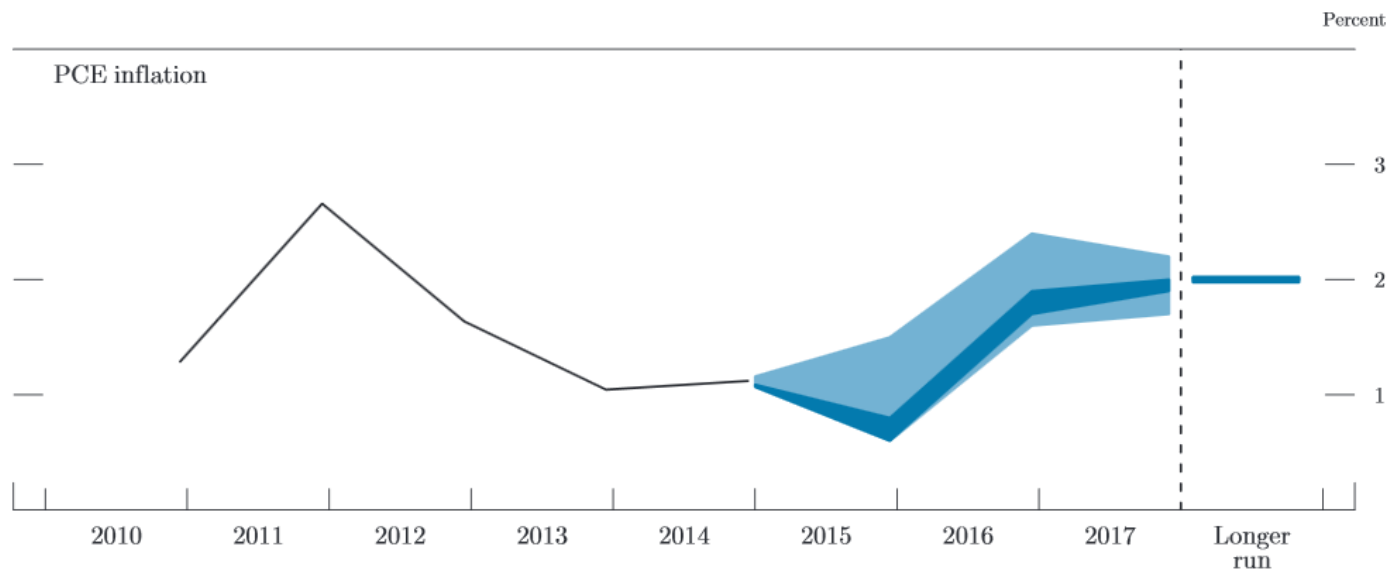
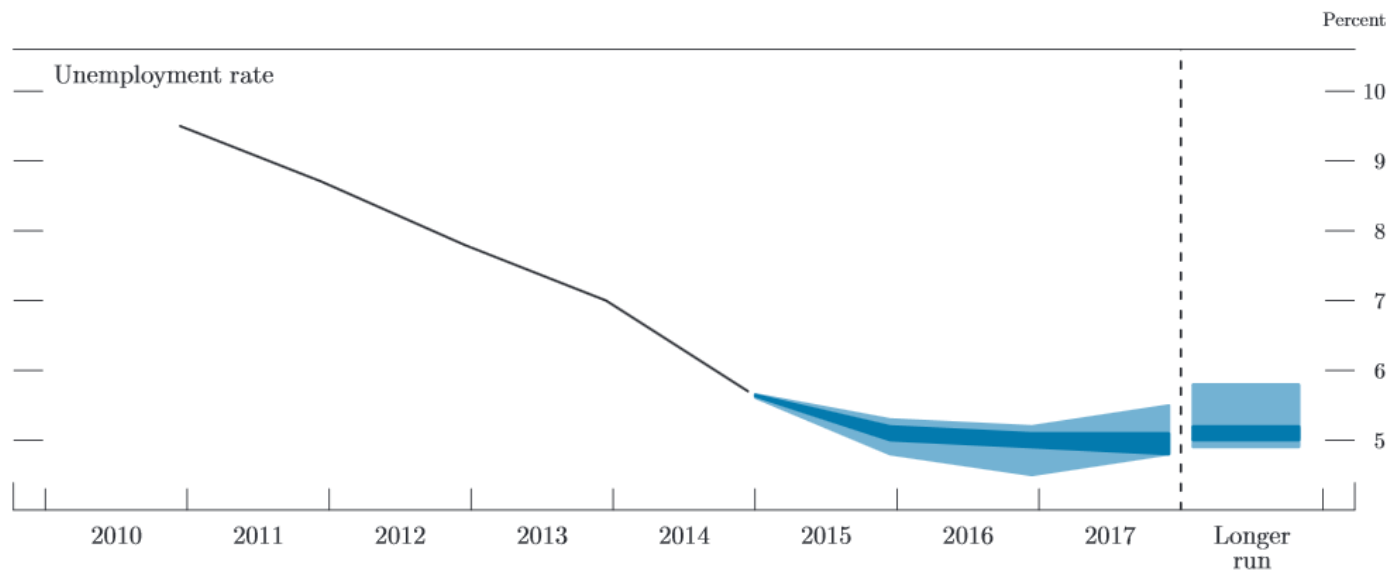
- Assessments of maximum employment by FOMC participants may differ depending on their views about what is **structural or frictional** (independent of policy) and what is **cyclical** (dependent on policy)
- Frictional causes: Turnover unemployment:
 - Economy is dynamic
 - Jobs are continually created and destroyed
 - Workers are continually entering and exiting the labor market
- Structural causes: Mismatch unemployment:
 - Current skills of some workers may not match opportunities for long-term employment
 - Re-allocation of labor from shrinking industries/depressed regions to expanding industries/booming regions



So, are we achieving our objectives?

- The FOMC has fallen short on both objectives since the Great Recession
 - Inflation has been running *below* the 2% longer-run objective of the Committee
 - Unemployment remains *above* estimates of its longer-run normal level, although the gap is currently narrow
- FOMC participants' forecasts from the SEP for unemployment and inflation generally indicate that both objectives are expected to be met over the medium term

Projections vs goals: from the latest SEP



Source: Summary of Economic Projections, March 18th 2015



What's in FOMC participants' crystal ball?



From the latest FOMC statement (March 2015):

- The Committee **expects** that, **with appropriate policy accommodation**, economic activity will expand at a moderate pace, with **labor market indicators continuing to move** toward levels the Committee judges consistent with its dual mandate.
- Inflation is anticipated to remain near its recent low level in the near term, but the Committee **expects inflation to rise gradually toward 2 percent over the medium term** as the labor market improves further and the transitory effects of energy price declines and other factors dissipate.

Note: FOMC **expectations** are based on the presumption that there will be **appropriate policy accommodation**. **What does it mean?**

What does accommodation mean?

- Monetary policy cannot directly affect employment or inflation (*ultimate objectives*)
 - What monetary policy can do is to affect the *flow of credit* to the economy by influencing *financial conditions*
 - The flow of credit in turn affects *aggregate demand* and *economic activity*
- **Accommodation**: Higher availability and lower cost of credit provides economic stimulus, boosts demand and spending, and puts upward pressure on prices
- **Tightening**: Lower availability and higher cost of credit reduces economic stimulus, contracts demand and spending, and contains risk of inflation



Policy stance and operating targets

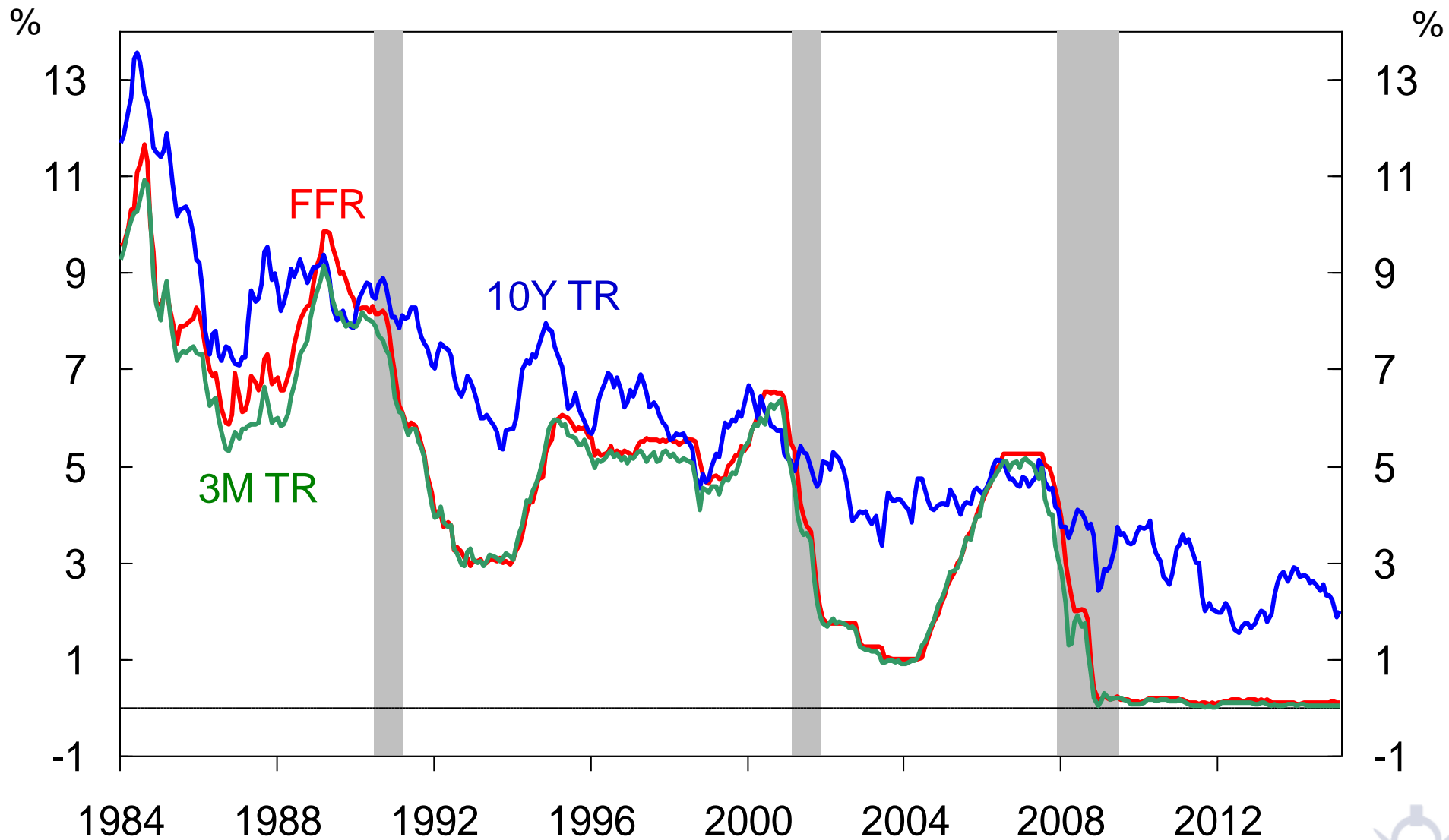
- Fed eases or tightens the **stance of policy** by choosing the appropriate levels of its *intermediate* (or *operating*) **targets**
- A good **target** is a variable that
 - is effective in *influencing the flow of credit*
 - *can be controlled* reasonably well by the Fed
- Possible examples of intermediate targets: short-term interest rates; money aggregates; exchange rate...
 - (vary across countries, change through time)



The federal funds rate (FFR)

- The **FFR** is the rate at which banks borrow and lend **reserves** in the **federal funds market**
 - **Reserves** are deposits that banks hold in their accounts at the Federal Reserve (these deposits are assets for the banks, but liabilities for the Fed)
 - The **federal funds market** is an overnight market
 - Loans in this market do not require collateral
- FFR is a good operating target
 - It is controlled fairly well by the Fed
 - The FFR influences other interest rates and borrowing costs
 - It is strongly linked to short-term rates such as Treasury bills
 - Short-term rates in turn affect long-term rates such as mortgage rates
- To increase (reduce) accommodation, FOMC lowers (hikes) FFR
 - Interest rates affect credit flows, foreign exchange rates, and ultimately a range of economic variables, including employment, output, and prices of goods and services (**transmission mechanism**)
 - Monetary policy affects economy with **“long and variable lags”** (Milton Friedman)

Fed funds rate, 3-month and 10-year Treasuries



Source: Federal Reserve Board



How does the Fed set its targets?

Once again, see Statement on 'Longer-Run Goals and Monetary Policy Strategy'

- In setting monetary policy, the Committee seeks to **mitigate deviations (or gaps) of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level.**
- These objectives are **generally complementary**.
 - This means that generally a stance of policy that helps closing the inflation gap also helps closing the employment gap
 - But sometime there may be **policy trade-offs**: a policy that helps closing the inflation gap may worsen the employment gap, and vice versa
- Under circumstances in which the Committee judges that the objectives are not complementary, it follows a **balanced approach** in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate

Let's play with the FFR: the Fed Chairman Game

YOU'RE IN CHARGE!

It's your job to keep **inflation** low and stable (around 2%) and keep the **unemployment** rate near its normal rate (around 5%).

Your tool is the **federal funds rate**. Here's how it works:

- You can lower inflation by setting the federal funds rate well above the inflation rate, but you will also push up unemployment for a while.
- You can lower unemployment for a while and push up inflation by setting the federal funds rate close to, or even below, the inflation rate.

You decide on the funds rate every three months for the next four years. Adjust it by clicking the plus (+) or minus (-) buttons, then clicking **GO** to see what happens to inflation and unemployment.

Watch the headlines for clues as to how you are doing. Headlines also reveal events beyond your control that may throw your plans off course unless you react.

Watch Out! There is some time lag between your rate changes and their effect on unemployment and inflation.

Adjust the federal funds rate below, then press GO.

4.50

+

-

GO

START OVER



16

QUARTERS REMAINING

4.50%

FEDERAL FUNDS RATE

4.75%

UNEMPLOYMENT RATE

◀ Normal rate

2.14%

INFLATION RATE

◀ Target rate

This is an interactive game on the SF Fed page.
<http://sffed-education.org/chairman/>

That was fun. Now, about making policy in practice...

How to decide whether to hike, reduce, or keep constant the FFR?

At each meeting, the Committee:

- assesses how *current* and *projected* economic conditions stand relative to its long-run goals
 - Summarized in the first and second paragraphs of the FOMC statement
- accounts for the potential *trade-offs* in *closing projected* inflation and employment/unemployment *gaps*
 - This is based on participants' views on how the economy operates, i.e. the *mechanism of transmission and its 'long and variable lags'*
 - Research staff plays a key role in affecting these views through data analysis, historical case studies, evaluation of policy alternatives, model-based simulations...
- debates extensively pros and cons of alternative choices
 - Based on participants' views of *costs and efficacy* of alternative options
 - A summary of these debates, without attributions, appears in the minutes of the meetings, published three weeks after the meetings
 - More comprehensive transcripts are released five years later
- votes on a specific action
 - Voters in favor and against are identified in the FOMC statement

Surprises vs. transparency

- FOMC decisions can sometime surprise market participants
 - Policymakers like flexibility and do not usually like to “telegraph” their actions, leading to some uncertainty about the outcome of a meeting
- But FOMC considers it valuable to be transparent about its **reaction function**: how policy will respond to shocks and unexpected contingencies
 - Market participants set expectations (about inflation, interest rates, etc.) based on conjectures about policy, and these expectations affect their behaviors
 - E.g. if firms think that future accommodative policy will raise wages and business costs, they set higher prices today to insure against loss of profitability, driving current inflation up
 - If policymakers want to stabilize market expectations, they need to be predictable and transparent about their future intentions, preferences and judgmental views
 - Extensive **communication** is key to effective monetary policymaking!

Channels of FOMC communication

- **The statement**
 - Issued at the end of each meeting
 - Includes the Committee's view on economic outlook and inflation, the policy decision and an assessment of risks
- **The minutes**
 - Published three weeks after the meeting
 - Summarize the discussion and the rationale of the policy decision
- **Press conferences**
 - 4 times a year, after every other meeting
 - Chair discusses statement and answers questions
 - Public release of FOMC projections for output, inflation and unemployment, as well as the appropriate pace of policy firming
- **Other communication (speeches of the Committee members)**
 - Help inform the public on FOMC members' views between meetings



Would a formal rule make policymaking easier?

- Simple **interest rate rules** can encapsulate some aspects of the FOMC's policy approach
 - E.g. the so-called "**Taylor rule**" suggests to move the interest rate predictably in response to inflation and output gaps

$$i_t = 2 + \pi_t + a(\pi_t - \pi^*) + b(y_t - y_t^*)$$

- The constant '2' above represents the long-run equilibrium real interest rate
- Formal interest rate rules have some attractive properties
 - Clear link between adjustment of policy rate and deviations from objectives
 - Policy setting is data-dependent
 - Transparent communication
 - Reasonably good guidepost for US monetary policy, from mid-1980s to 2007
- But simplicity is both a virtue and a shortcoming
 - Policy rules do not capture complex link between FFR and financial conditions
 - If mechanism of transmission were tight and stable over time, a simple rule would generate acceptable results
 - If transmission is uncertain and variable, monetary policy cannot be put on autopilot

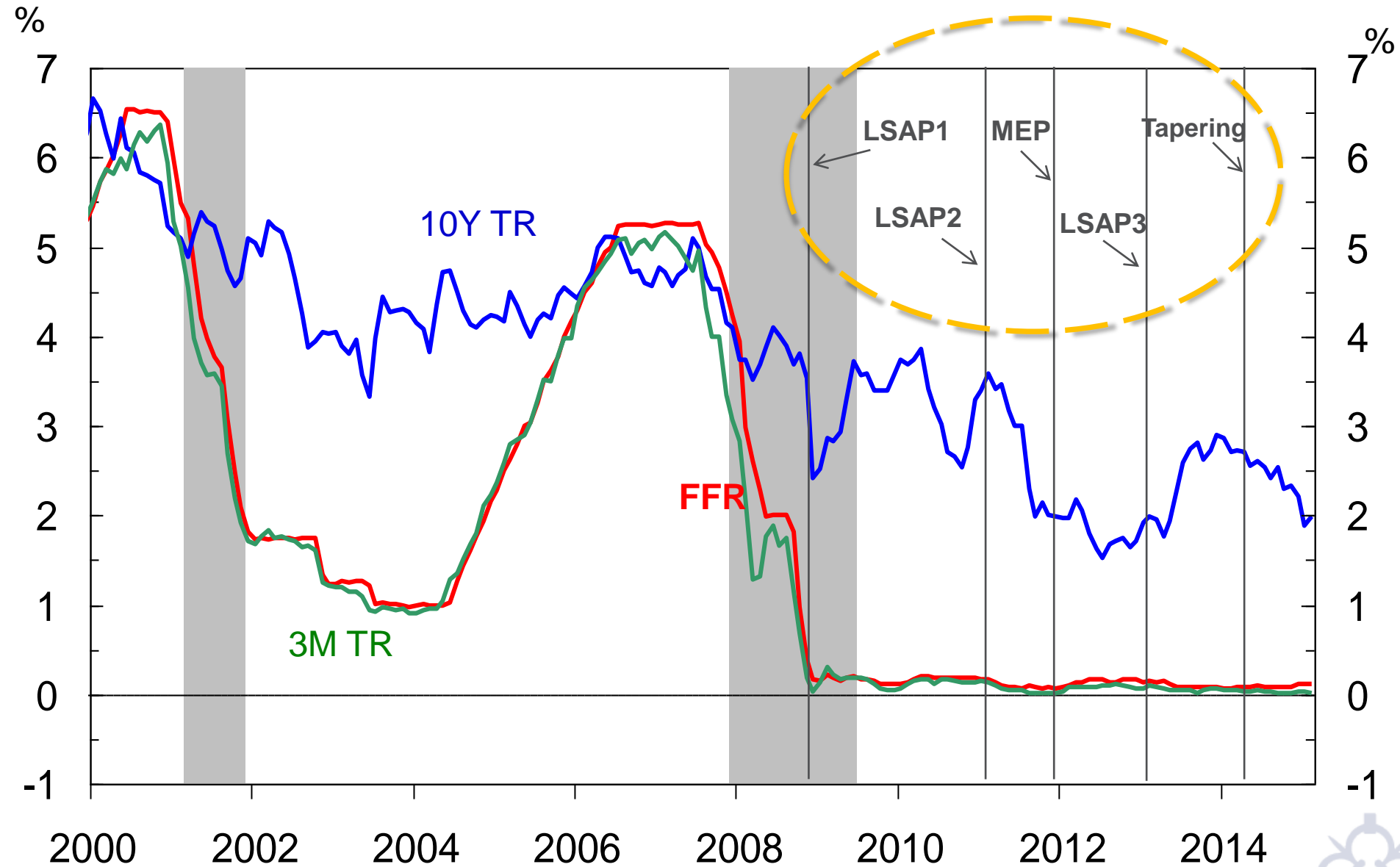
The mix of instruments to provide accommodation

- In the world of the Fed Chairman Game, FFR is the single instrument of monetary policy
- But monetary policy response to the recession has lowered the FFR:
 - Down by 325 basis points from Aug 2007 to Sep 2008
 - Down to 0-1/4 percent range (**effectively zero**) since Dec 08
- Does this situation preclude further accommodation? **Not necessarily**
 - Some central banks have recently lowered their policy rate below zero
- In fact, there are **two unconventional approaches** to monetary policy when FFR is at or near the zero lower bound:
 - **Forward guidance** on the future path of the FFR
 - **Quantitative and credit easing policy** involving changes in the size and/or composition of the balance sheet

Accommodation at the zero bound

- Even when the FFR and **short-term rates** cannot go further down, one can still use monetary policy to lower **long-term rates**
- Return on long-term securities depends on two elements:
 - **expectations** about future short-term interest rates
 - uncertainty about future events
 - risky to get locked into long-term contracts (**duration** risk)
 - agents demand compensation (**term premium**) for taking long-term positions
- If you want to provide more accommodation by lowering long-term returns, you can
 - **use communication** about keeping the FFR low for long (**forward guidance**)
 - **purchase long-term securities** to drive down the term premium (**quantitative easing**)
 - *We explore these issues in detail in the next presentation*

The alphabet soup of policy and long-term rates



Source: Federal Reserve Board

Where are we now? (March 2015)

- Time to start hiking the FFR after six years (and counting) at the zero bound?
 - When is the appropriate timing of the FFR **lift-off**?
 - Will the recovery be “sufficiently” strong once we remove accommodation?
 - What the appropriate pace of FFR renormalization be after lift-off?
- What will happen to forward guidance?
- To the balance sheet?



About goal #1: Maximum employment

- Labor market conditions have improved significantly.
 - The 12-month change in total nonfarm payroll employment through February 2015 was 3.296 million (2.4%), the highest since May 2000.
 - The unemployment rate was 5.5% in February.
 - The labor force participation rate was fairly stable over the past year after falling considerably over 2008-13.
 - The employment-to-population ratio for prime-age workers was at its highest level since December 2008.



About goal #2: Price stability

- Oil prices have pushed inflation down.
 - Total PCE inflation fell in 2014H2 due to declines in energy and goods prices.
 - While core PCE inflation (which excludes volatile food and energy prices) has been steadier, it has also fallen modestly in recent months.
 - On a 12-month basis, both measures are significantly below the FOMC's longer-run objective of 2%.
 - Movement of inflation toward the FOMC's longer-run objective will likely be restrained in the short run by the stronger dollar and lower energy prices.



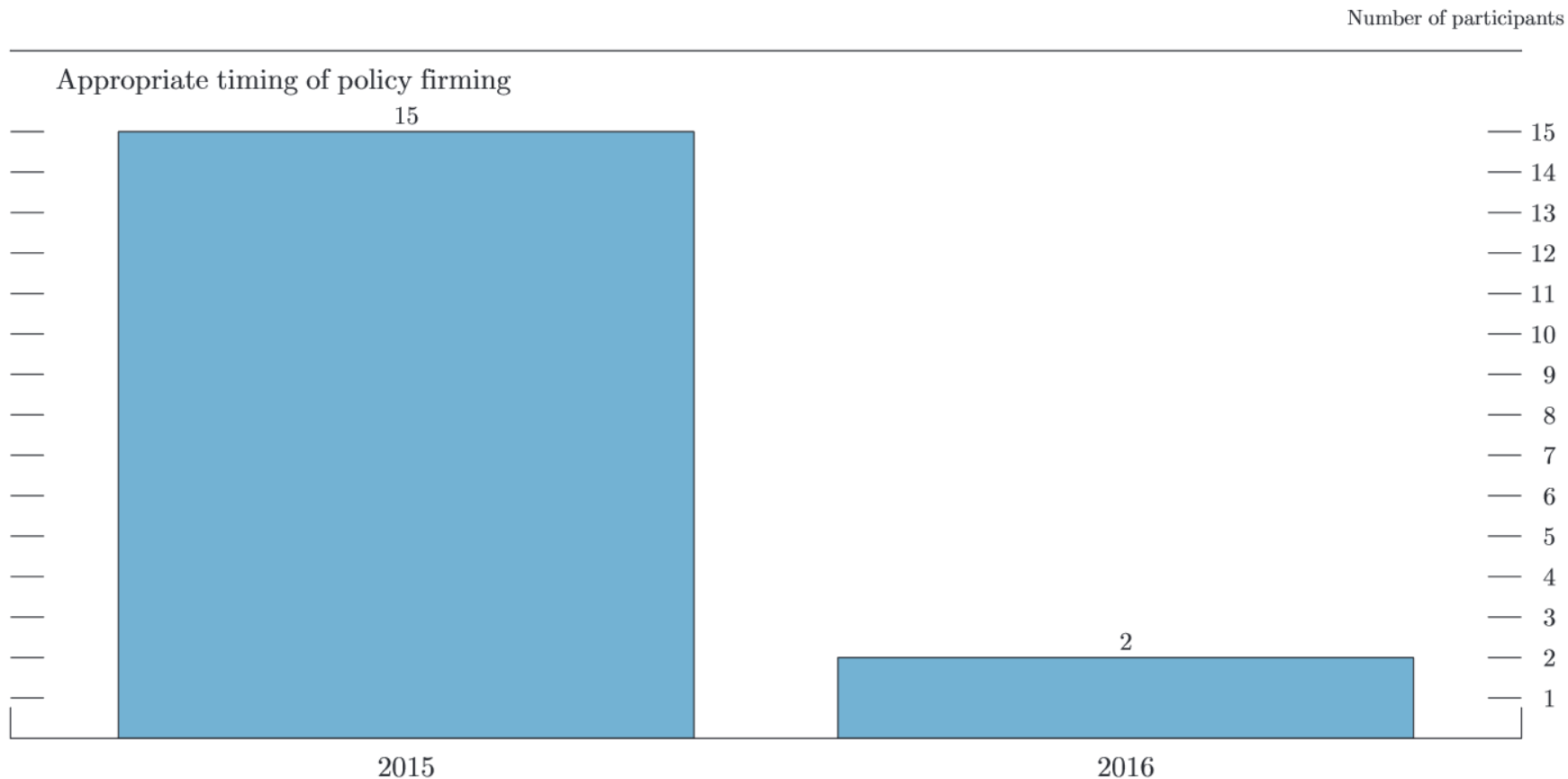
On the timing of lift-off

From the March 2015 statement:

- To support continued progress toward maximum employment and price stability, the Committee today reaffirmed its view that the current 0 to 1/4 percent target range for the federal funds rate remains appropriate.
- In determining how long to maintain this target range, the Committee will assess progress--both realized and expected--toward its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.
- The Committee judges that an increase in the target range for the federal funds rate remains unlikely at the April FOMC meeting.



SEP: Dispersion of views on the timing of lift-off



The height of each bar denotes the number of FOMC participants who judge that, under appropriate monetary policy, the first increase in the target range for the federal funds rate from its current range of 0 to 1/4 percent will occur in the specified calendar year.

Are there risks in a prolonged accommodation?

- Are there **inflation** risks?
 - Possibly. Fed's critics long warned about reserve expansion
 - However, inflation remains *below* objective despite sizable balance sheet
 - And inflation expectations remain stable.
- Is there risk of **financial instability**?
 - Concern about persistently low rates leading to excessive risk taking
 - Compression of risk premia may abruptly unwind when policy is tightened
 - Disruption of financial stability may impair the ability to achieve macro objectives
 - Should monetary policy be used for financial stability purposes?
 - Jury still out
 - How to balance need for accommodative policy with safeguard against excessive risk taking?
 - Majority view is that short-term interest rates are too blunt a tool to address specific segments of risk-taking

Forward guidance today

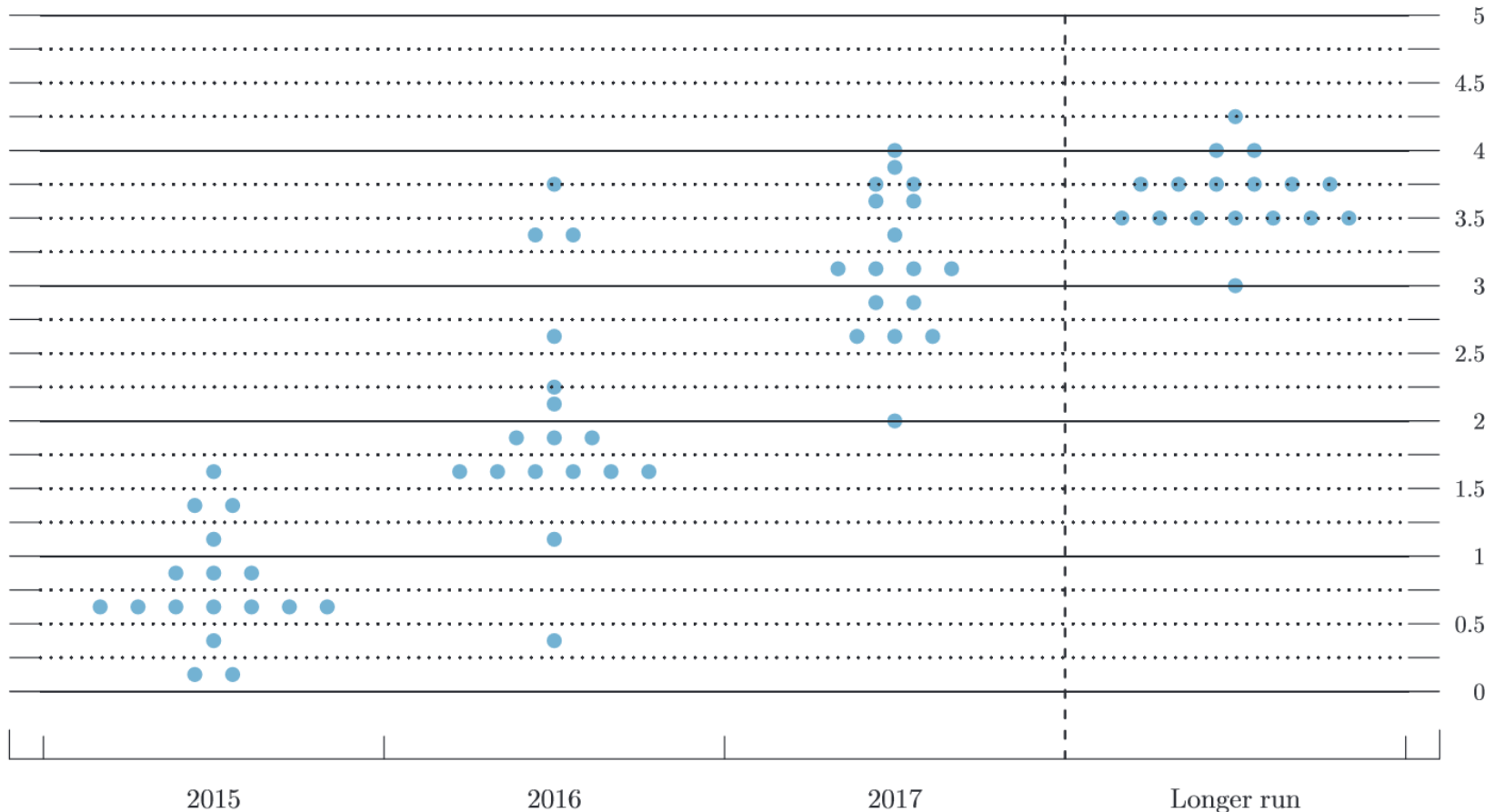
Again, from the March 2015 statement

- Data-dependent lift-off
 - The Committee anticipates that it will be appropriate to raise the target range for the federal funds rate when it has seen further improvement in the labor market and is **reasonably confident** that inflation will move back to its 2 percent objective over the medium term.
- Post lift-off pace of normalization
 - When the Committee decides to begin to remove policy accommodation, it will take a balanced approach consistent with its longer-run goals of maximum employment and inflation of 2 percent. The Committee currently anticipates that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run.



SEP: Dispersion of views on the pace of normalization

Appropriate pace of policy firming: Midpoint of target range or target level for the federal funds rate



Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.

Conclusion

Fed Chair Janet Yellen, February 2015 **Semiannual Monetary Policy Report to the Congress:**

In sum, since the July 2014 *Monetary Policy Report*, there has been **important progress** toward the FOMC's objective of maximum employment.

However, despite this improvement, **too many Americans remain unemployed or underemployed**, wage growth is still sluggish, and **inflation remains well below our longer-run objective**.

As always, the **Federal Reserve remains committed to employing its tools to best promote the attainment of its objectives** of maximum employment and price stability.

