

OUTLINE — November 20, 2017

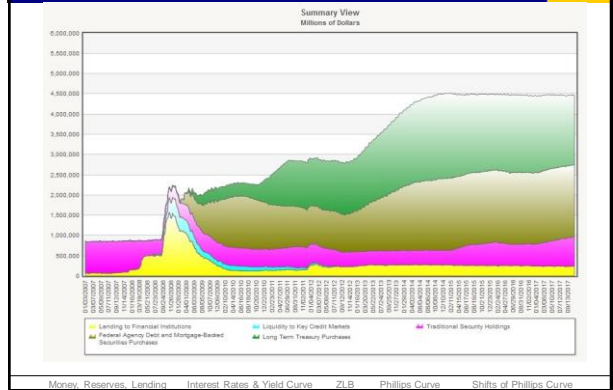
- A few comments about the essay
- The Fed & Monetary Policy, cont.
 - Yield Curve
 - Zero Lower Bound
- Phillips Curve
 - Why a Tradeoff?
 - Shifts of Phillips Curve



*PS4 due Mon/Tues Nov. 20/21
Other announcements sent by e-mail*

Comprehensive Essay due [via bCourses](#) 8 am Tues Dec 5

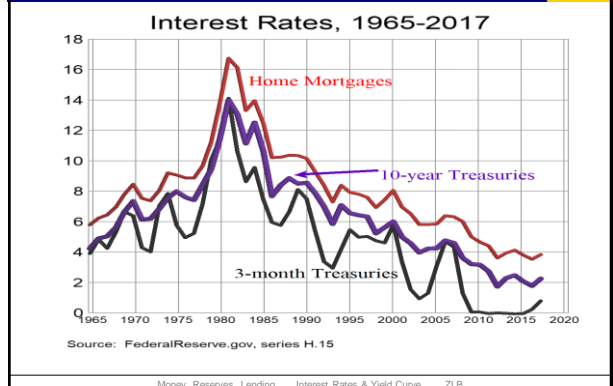
Fed Balance Sheet 2007-2017



FFR & Other Interest Rates

- Different types of loans are substitutes for each other
 - What are choices for bank that wants to make loans?
- Federal funds rate influences other interest rates
 - Prime rate (for best commercial customers)
 - Home mortgage rates
 - Home equity loan rates
 - And many other interest rates

Historical pattern of interest rates



Long-term & Short-term Rates, 1

- Borrowing for investment spending is mostly *long-term* borrowing
 - 10-year, 20-year, 30-year loans
- Fed policy directly affects *short-term* interest rates
 - Rate paid on excess reserves (IOER)
 - Overnight rate (federal funds rate, FFR)
 - Treasury-bill rate (30-day, 90-day, 1-year)

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

Long-term & Short-term rates, 2

- What is connection between short-term (ST) and long-term (LT) interest rates?
 - $LT\ rate = average\ of\ current\ \&\ future\ expected\ ST\ rates + "term\ premium" + "risk\ premium"$
- What determines "future expected ST rates"?
- "Forward guidance"
 - Fed policy starting 2004 to clearly state "this is what we're going to do in the future to interest rates"
 - Sometimes expressed as a conditional: "If X happens, then we will do <this> to interest rates"
 - Eliminates interest rate uncertainty (aside from uncertainty about when X will happen)

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

Yield Curve

- Yield curve shows – *on any one day* – relationship between *that day's* ST rates and LT rates

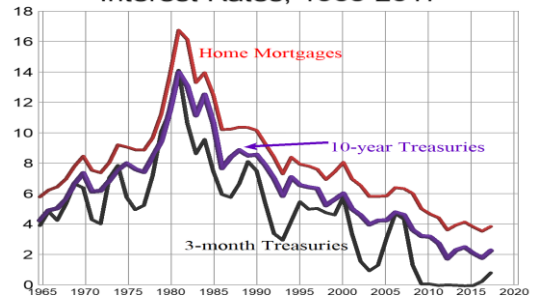


- Animated Yield Curve: <http://stockcharts.com/charts/YieldCurve.html>

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

Historical pattern of interest rates

Interest Rates, 1965-2017



Source: FederalReserve.gov, series H.15

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

Zero Lower Bound (ZLB)

- Traditional belief: Target FFR can't go below 0
 - Fed's 2008-2015 target for Federal Funds Rate was "in the range of 0 – 0.25 percent"
 - Fed was at **zero lower bound**
- So Fed tried other strategies
 - "Quantitative Easing" (2009-2014)
 - Operation Twist (late 2011, 2012)
- All had same goal: increasing lending & spending

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

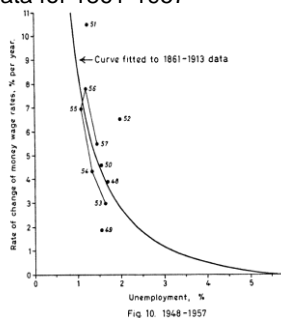
Zero Lower Bound (ZLB)

- Traditional belief: Target FFR can't go below 0
 - Fed's 2008-2015 target for Federal Funds Rate was "in the range of 0 – 0.25 percent"
 - Fed was at **zero lower bound**
- *Why do I say "Traditional belief"?* Because other countries have broken ZLB and Fed officials ponder whether Fed will eventually do so, too
 - Why is zero no longer "a lower bound"?
 - That's a question addressed in a section exercise

Money, Reserves, Lending Interest Rates & Yield Curve ZLB

Original Phillips Curve

- A.W. Phillips used U.K. data for 1861-1957
- Found:
 - tradeoff between unemployment and wage inflation
- Story:
 - Bargaining power



Money, Reserves, Lending Interest Rates & Yield Curve ZLB Phillips Curve Shifts of Phillips Curve

Phillips Curve

- Is a relationship between unemployment and price inflation (rate of change of CPI or other price index)
- Original, by A.W. Phillips, used UK data, 1861-1957
 - He found **stable** trade-off between unemployment & wage inflation (rate of change of nominal wages)
- Story: Bargaining power
 - Change demand for labor → change wages
 - Lots of slack in labor market: low wage inflation
 - Little slack in labor market: high wage inflation

Money, Reserves, Lending Interest Rates & Yield Curve ZLB Phillips Curve Shifts of Phillips Curve

Phillips Curve (U.S. version)

- Tradeoff between unemployment and *price* inflation

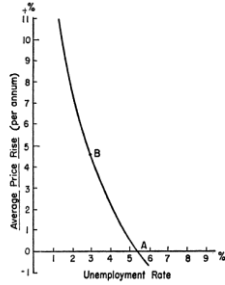


FIGURE 2
MODIFIED PHILLIPS CURVE FOR U.S.
This shows the menu of choice between different degrees of unemployment and price stability as roughly estimated from last twenty-five years of American data.

- "This shows the menu of choice..."

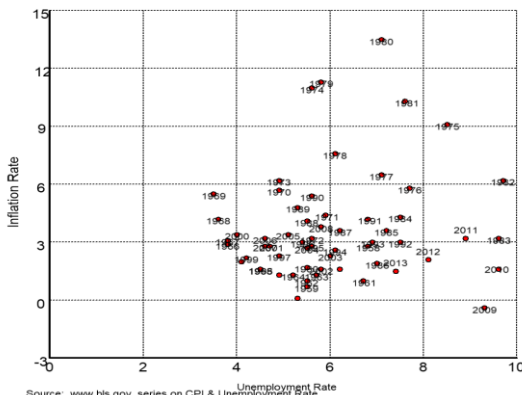
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Phillips Curve



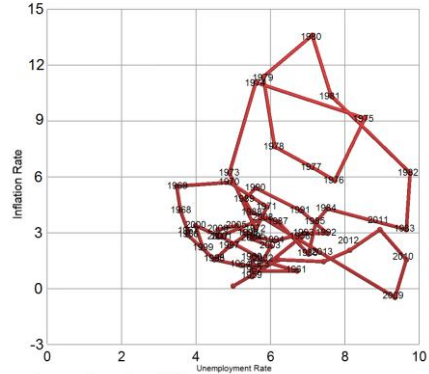
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Phillips Curve Data, 1958-2017

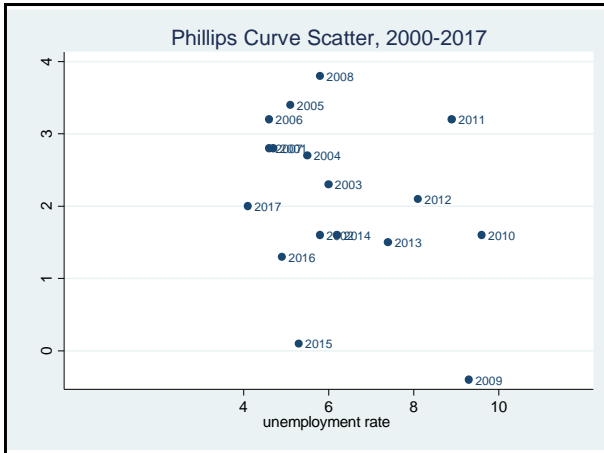
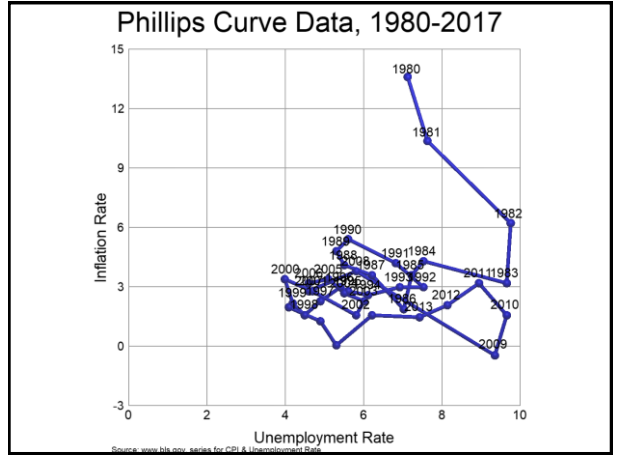
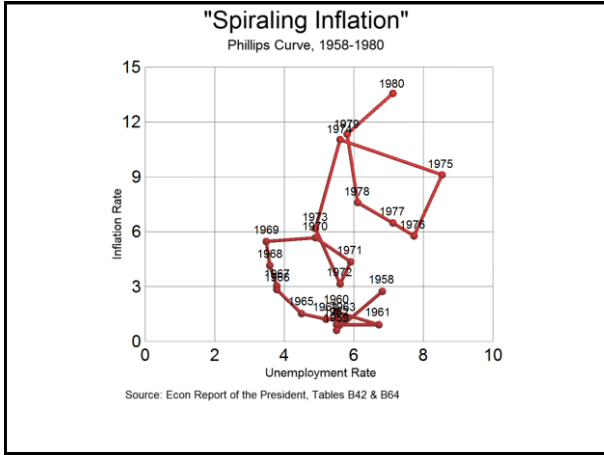


Source: www.bls.gov, series on CPI & Unemployment Rate

Phillips Curve Data, 1958-2015



Source: www.bls.gov, series on CPI & Unemployment Rate



Movements Along vs. Shifts

- If aggregate demand changes (which of course then changes GDP, employment, and unemployment), **move along** Phillips Curve
- If prices change for some reason other than "change in AD," **shift of** Phillips Curve

Money, Reserves, Lending Interest Rates & Yield Curve ZLB **Phillips Curve** Shifts of Phillips Curve

What makes Phillips Curve shift?

1. Change in inflationary expectations



Money, Reserves, Lending Interest Rates & Yield Curve ZLB Phillips Curve Shifts of Phillips Curve

What makes Phillips Curve shift?

2. cost shocks ("supply shocks")



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What makes Phillips Curve shift?

3. change in labor productivity growth



Money, Reserves, Lending Interest Rates & Yield Curve ZLB Phillips Curve Shifts of Phillips Curve

Most recent statement (Nov 1 2017)

Information received since the Federal Open Market Committee met in September indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate despite hurricane-related disruptions. **Although the hurricanes caused a drop in payroll employment in September, the unemployment rate declined further.** Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters. Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September; however, inflation for items other than food and energy remained soft. On a 12-month basis, both inflation measures have declined this year and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Money, Reserves, Lending Interest Rates & Yield Curve ZLB Phillips Curve Shifts of Phillips Curve