Global secular stagnation and monetary policy

Professor Martin Eichenbaum

Northwestern | Kellogg

Key facts

- Fact 1
  - The growth rate of the world economy has been declining since 2008.
    - Slow growth is the new normal.
- Fact 2
  - Real interest rates have been declining secularly and will continue to be low.
    - Low real interest rates are the new normal.
- Fact 3
  - We are facing an unusually high level of uncertainty because of the political environment.

Challenges to monetary policy

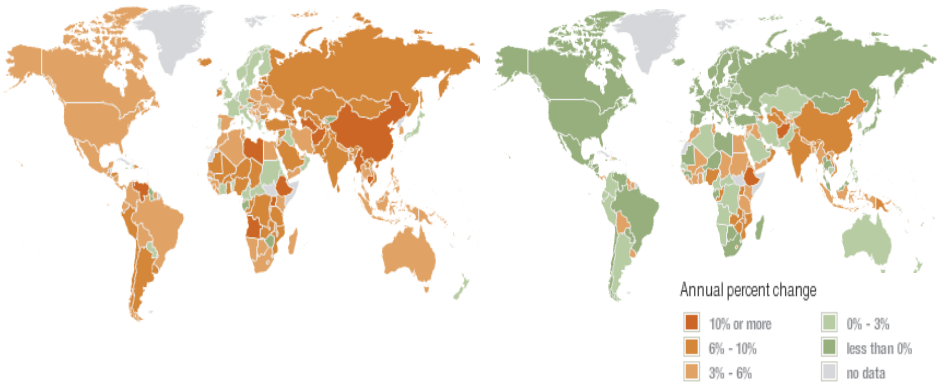
- Conventional monetary policy will be less effective in the future than in the past.
  - Recent research indicate that the zero lower bound on nominal interest rates will be binding far more frequently in the future
- Unconventional monetary policy is less effective than conventional monetary policy.
- The public needs to expect less of monetary policy and focus more on the deeper causes of slow growth.
- We also need to develop fiscal-policy based strategies to deal with cyclical downturns.

Background

- December 2007: the beginning of the Great Recession.
- June 2009: official end of the Great Recession.
- What did growth rates look like before and after the Great Recession?

The prelude to the Great Recession and its immediate aftermath

2005 2009



Source: FMI DataMapper

The Great Recession was a global phenomenon

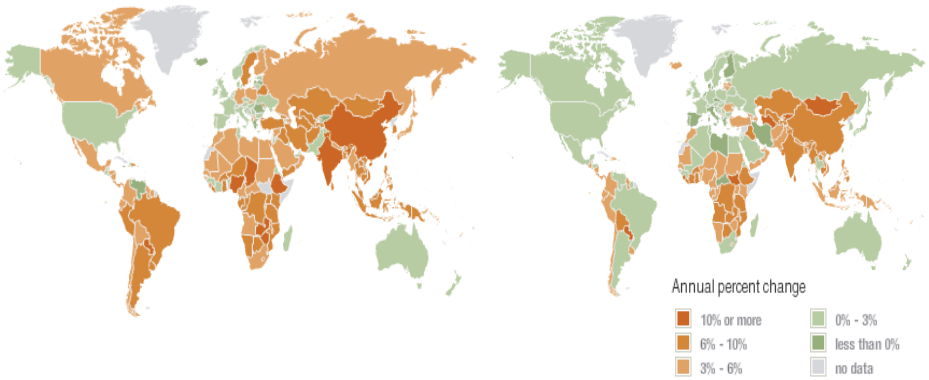
Annual percent change in output

	2006	2007	2008	2009
World output	5.2	5.4	2.9	-0.5
United States	2.7	1.9	0.0	-2.6
Euro area	3.1	2.9	0.4	-4.1
Russia	8.2	8.5	5.2	-7.8
China	12.7	14.2	9.6	9.2
India	9.7	9.9	6.2	6.8
Middle East	5.8	6.2	5.1	1.8
Brazil	4.0	6.1	5.2	-0.6
Mexico	5.2	3.2	1.5	-6.1

Source: World Economic Outlook, April 2011, International Monetary Fund

Slow post-recession growth

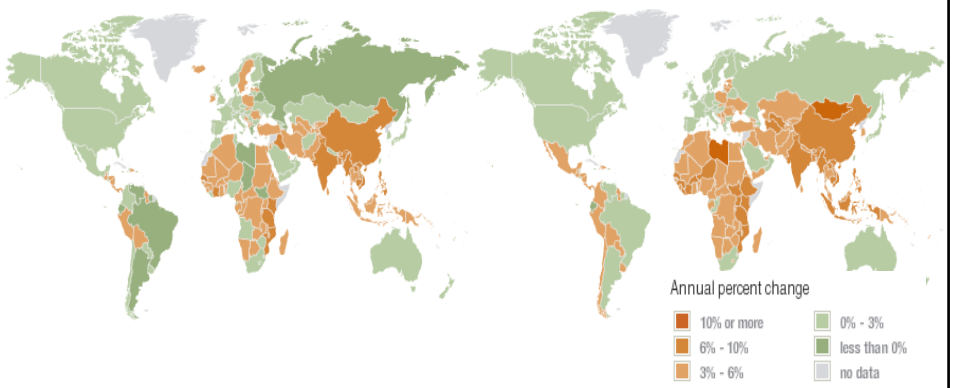
2010 2012



Source: FMI DataMapper

The global recovery continues to be slow and uneven.

2016 2020



Source: FMI DataMapper

Looking forward: uneven recovery

IMF Real GDP Growth Projections

	2016	2017	2018
World output	3.1	3.4	3.6
United States	1.6	2.3	2.5
Advanced Euro area	1.7	1.6	1.6
Germany	1.8	1.6	1.5
France	1.2	1.4	1.6
Japan	1.0	1.2	0.6
China	6.7	6.6	6.2
U.K.	1.8	2.0	1.5
Mexico	2.3	1.7	2.0
Brazil	-3.6	0.2	1.7

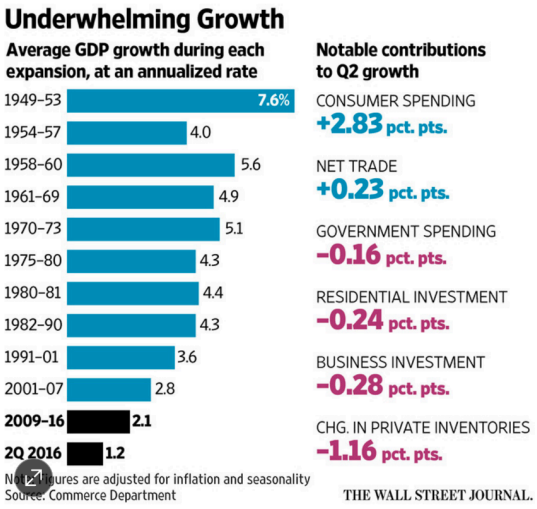
Source: IMF, April 2017

Fact 1: declining growth rates

IMF Real GDP Growth Projections

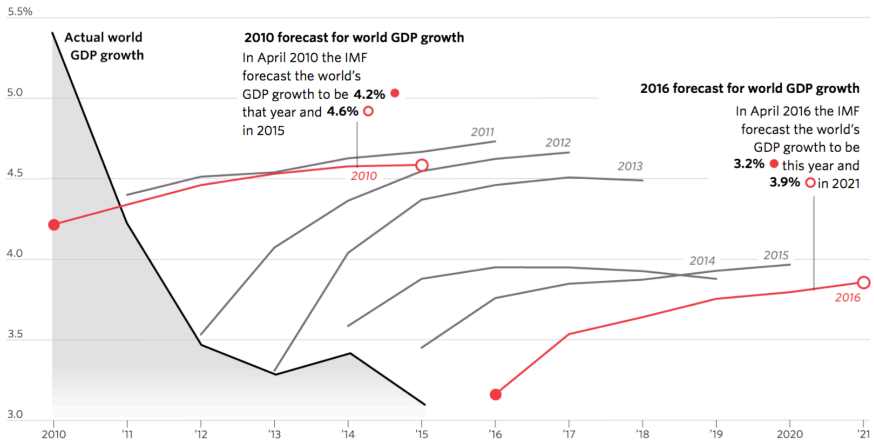
	1998-2007	2021
United States	3.0	2.0
Euro Area	2.4	1.5
India	7.1	7.5
Japan	1.0	0.7
Russia	5.8	1.5
China	9.9	6.0
Australia	3.6	2.8
Mexico	2.9	3.1
Brazil	3.0	2.0

The U.S. is in a recovery, but it's unusually weak.



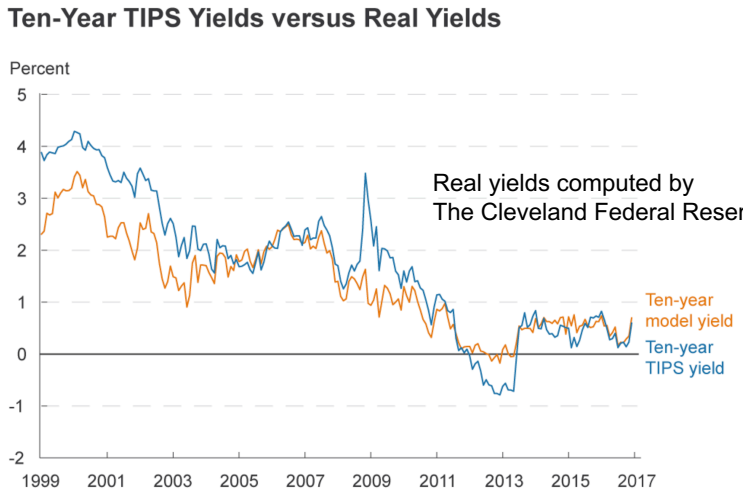
Persistent downward revisions

Forecasts are shown for the forecasting year and the next five years. Forecasts are made in April of each year.

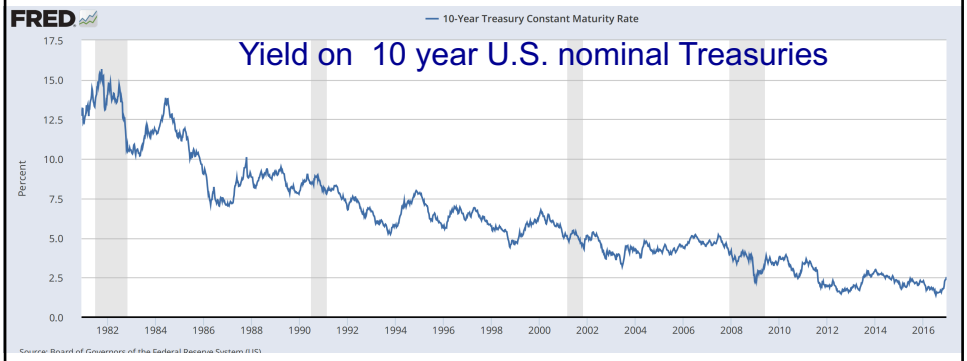


Source: International Monetary Fund

Fact 2: *Real* interest rates (interest rates minus inflation) have been declining and are extremely low

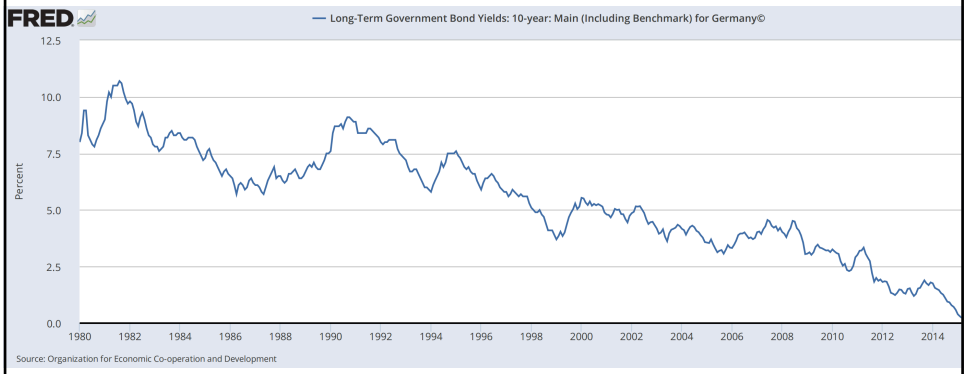


Nominal interest rates have also been on a secular decline



Nominal interest rates have been on a secular decline and are very low

Yield on 10 year German bonds



Why has the recovery been so weak?
The optimistic view

- Consumers entered the crisis with high leverage which they're *slowly* winding down.
- Monetary policy isn't very effective at the zero lower bound.
- Fiscal policy hasn't been sufficiently expansionary.
- There's been lots of uncertainty about future government policy.
- Uncertainty about future demand, here and abroad, has led to extremely low investment levels.

Why has the recovery been so weak? The pessimistic view

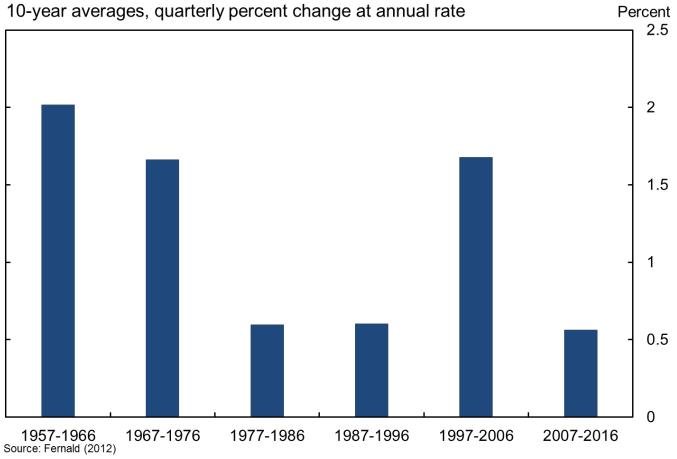
- The major economies are experiencing a very persistent decline in underlying growth rates associated with very low interest rates.
  - Secular stagnation
- Supply-side considerations
  - Declining growth rate of productivity.
  - Declining population growth rates.
  - Declining labor force participation rates.
- Demand-side considerations
  - Declining investment rates relative to high savings rates.
  - Persistent shortfalls in aggregate demand (Summers).
- Both demand and supply factors have contributed to low growth rates and low real interest rates.

Measuring productivity

- One simple measure of productivity: output per unit hour worked or output per unit of capital.
- More ambitious: a measure of productivity that controls for how much capital and labor are being used.
- We measure inputs and we measure output – so productivity will be a "residual".
- That residual is called Total Factor Productivity' (`TFP') or `The Solow Residual'.
- Turns out TFP plays a critical role in long-run growth.

Slowdown in TFP Growth

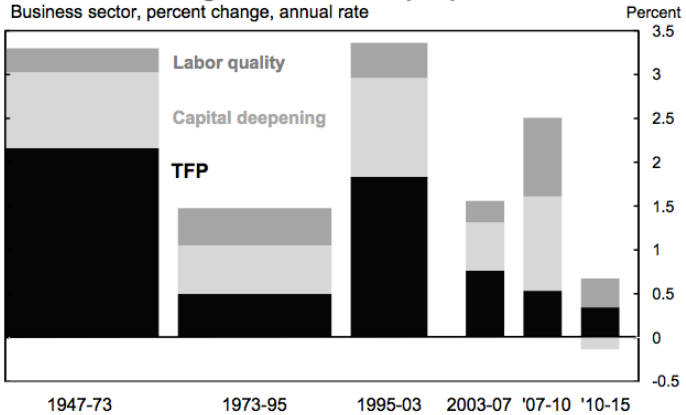
Utilization-adjusted TFP growth
10-year averages, quarterly percent change at annual rate



Source: Fernald (2012)

Productivity growth in the U.S. business sector

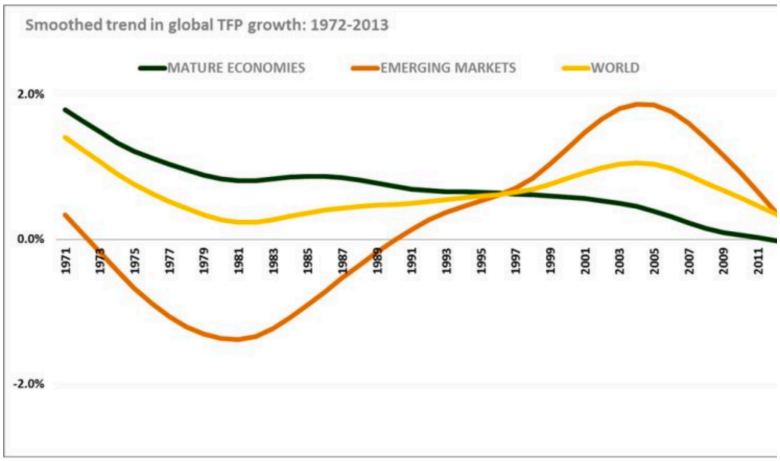
Contributions to growth in U.S. output per hour
Business sector, percent change, annual rate



Source: Fernald (2014a). Quarterly; samples end in Q4 of years shown except 1973 (ends Q1). Capital deepening is contribution of capital relative to quality-adjusted hours. Total factor productivity measured as a residual.

Total Factor Productivity: a measure of productivity correcting for capital per work
and the quality of the labor force. A widely used measure of technological progres

Falling TFP growth around the world



Note: Total factor productivity growth accounts for the changes in output not caused by changes in labor or capital inputs.
Source: The Conference Board Total Economy Database

Low growth rates of TFP around the world

Stuck

Total Factor Productivity growth by region, %

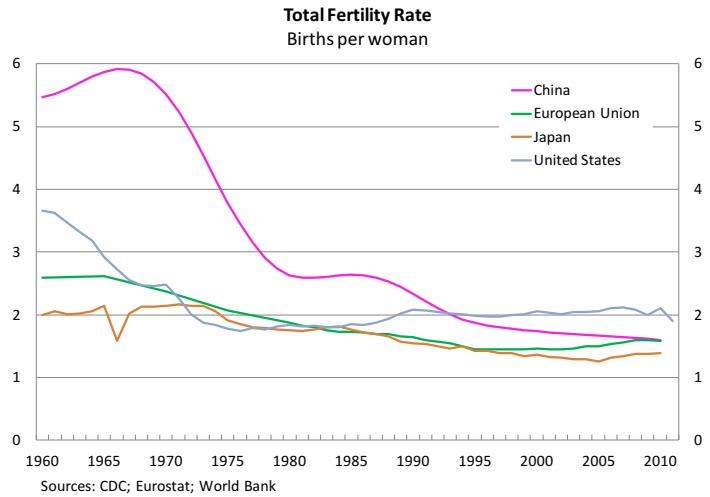
Country/region	1999-2006	2007-13	2013	2014	2015
United States	0.5	-0.2	-0.5	0.1	0.1
Europe	0.4	-0.6	-0.2	-0.1	0.3
of which: Euro Area	0.1	-0.7	-0.2	-0.2	0.2
Japan	0.1	0.1	0.7	-0.8	-0.1
Other mature economies	1	0.4	0.4	0.1	-0.1
All Mature Economies	**0.5**	**-0.3**	**-0.1**	**-0.1**	**0.1**
China	2.3	1.3	0.2	0.1	-1.3
India	0.1	0.6	0.9	1.6	1.9
Other developing Asia	2.1	0.6	1.1	1.1	1.3
Latin America	-0.1	-0.1	-0.2	-1.6	-2.5
of which: Brazil	0.1	0.9	0.2	-2.2	-5.0
of which: Mexico	-0.5	-1.4	-1.5	-0.1	-0.5
Middle East & North Africa	0.2	-1.9	-2.5	-0.8	-0.9
Sub-Saharan Africa	2.3	1.1	-0.2	0.2	1.2
Russia, Central Asia and Southeast Europe	4.5	1.2	1.0	-0.1	-2.6
Emerging markets and developing economies	1.6	0.4	0.1	0.0	-0.7
World	**0.9**	**0.1**	**0.0**	**0.0**	**-0.3**
Addenda:					
EU-15	0.1	-0.7	-0.2	-0.2	0.2
EU-13	2.3	-0.1	0.2	0.3	0.9
EU-28	0.4	-0.6	-0.2	-0.1	0.3
OECD	0.3	-0.4	-0.2	-0.2	0.0

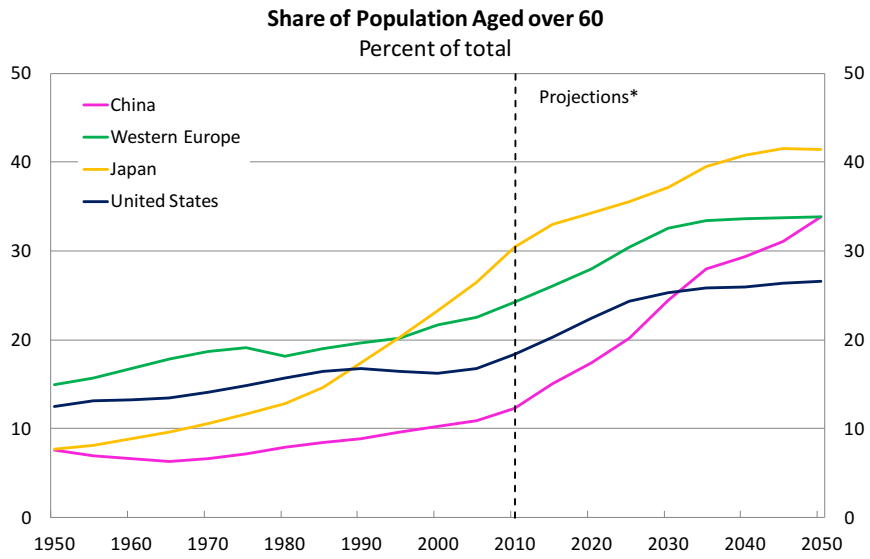
Source: The Conference Board

Demographics

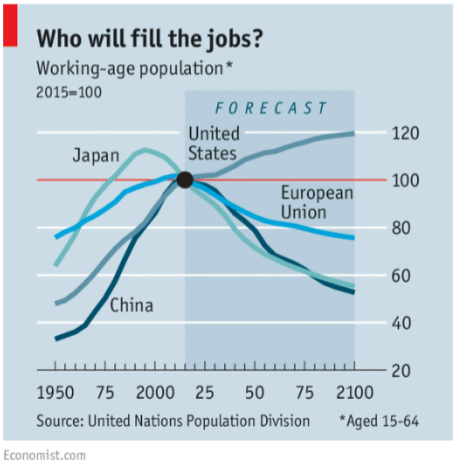
- The population growth rate is falling.
  - Other things equal, the growth rate of the labor force and employment will fall.
    - A global phenomenon (except South America and the Middle East).
- Life expectancy is rising.
  - An aging population implies a falling labor force participation rate and employment ratio.
- These demographic changes will have a profound impact on the growth rate of GDP, the fiscal position of the government, and the business environment.

Fertility rates across the world





Working Age Population Around the World



A drag on growth

- By 2030, there will be 2.86 people of working age (18 to 64 years old) for each U.S. citizen over 65.
- That compares with 5 people per older person in 2000 and 9.09 people in 1940.
- The problem is worse in Western Europe.
- The decreased ranks of the working-age population and the higher costs of funding entitlements for retirees threaten to depress economic activity and slow economic growth.

Secular stagnation and interest rates

- Lower output growth is associated with lower `normal' real interest rates.
- The Fed is starting to raise nominal interest rates.
- But we won't go back to the old normal: nominal rates will remain low by historical standards.
- Why?

Conventional monetary policy
The Taylor rule

$$i = \pi + 0.5(\pi - \pi^*) - (\text{Output Gap}) + r^*$$

- i = nominal policy rate
- r^*: the natural rate (2%)
- π^* : the target inflation rate (2%)
- If π = 2 and the output gap zero, then the policy rate will be 4 percent.
- For each one-point increase in π, the policy rate rises by 1.5 percentage point.
- For each one percentage point increase in the output gap, the policy rate falls by one percentage point.

The natural rate of interest (r*)

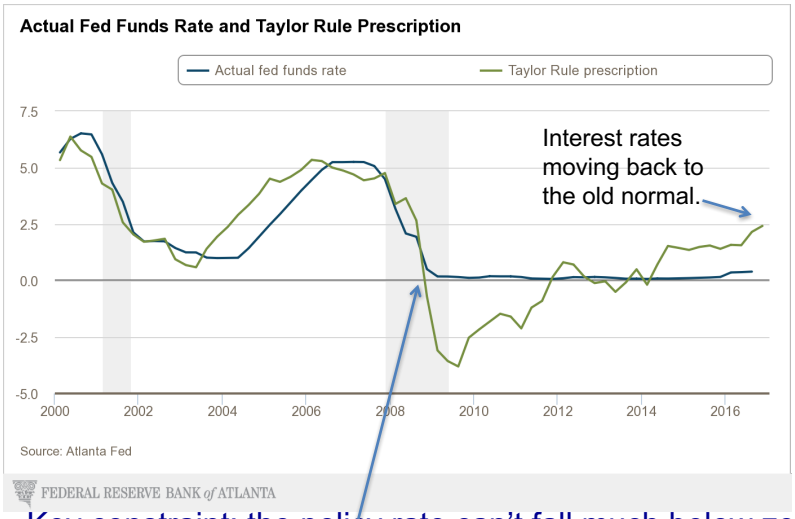
- The average *nominal* interest rate

$$R^* = r^* + \pi^*$$

where π^* is the Fed's target inflation rate (2%).

- The Fed raises R above R* when inflation is too high and lowers R below R* to fight recessions.
- r* is a key anchor of monetary policy.
- If r* falls, the normal level of R* will fall.

The Taylor rule, an inflation target of 2%, and a natural rate equal to 2%

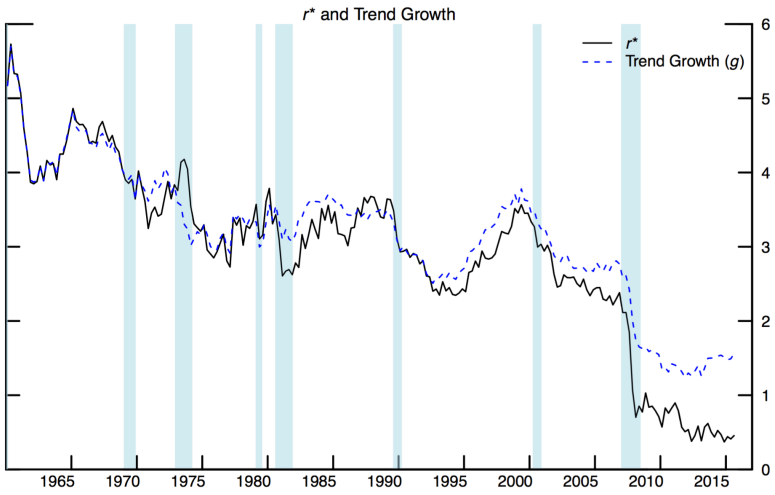


Key constraint: the policy rate can't fall much below zero.

Problem

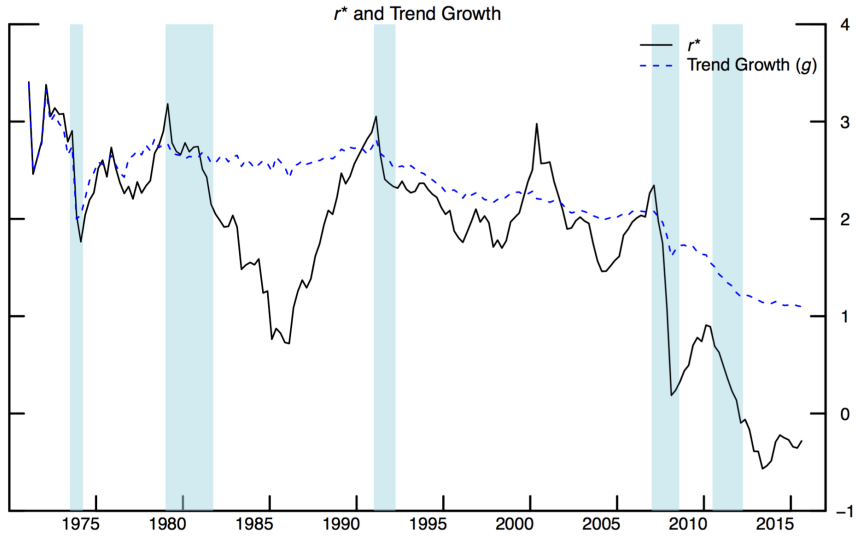
- Various authors have argued that the secular decline in real interest rates implies a downward trend in r*.
- Example: Holston, Laubach and Williams (December, 2016)
  - Estimate r^* for the U.S., the Euro area, the U.K. and Canada.
  - In all four economies r^* has fallen to historically low levels.
  - *The decline is, in large, part explained by a significant decline in the estimated trend growth rates of 0utput in all four economies.*

Holston et. al. results for the U.S.



Fall in r^* is highly correlated with the fall in the trend growth rates of outpu

Holston et. al. results for Europe



Holston et. al. results...

- For all four economies there's a secular downward trend in the estimated trend growth rates of output over the past 25 years.
- The process appeared to accelerate in the final part of the sample, with trend potential output growth slowing by a percentage point on average over 2007–2016.
- The fall in r^* is highly correlated with the fall in the trend growth rates of output

Holston et. al. results

- Pattern of declining trend GDP growth is consistent with alternative estimates based on methodologies that decompose potential output into its component parts
- Congressional Budget Office, 2016; and International Monetary Fund 2015.
  - Highlight the roles of slowing labor force growth and a slowdown in trend productivity growth.

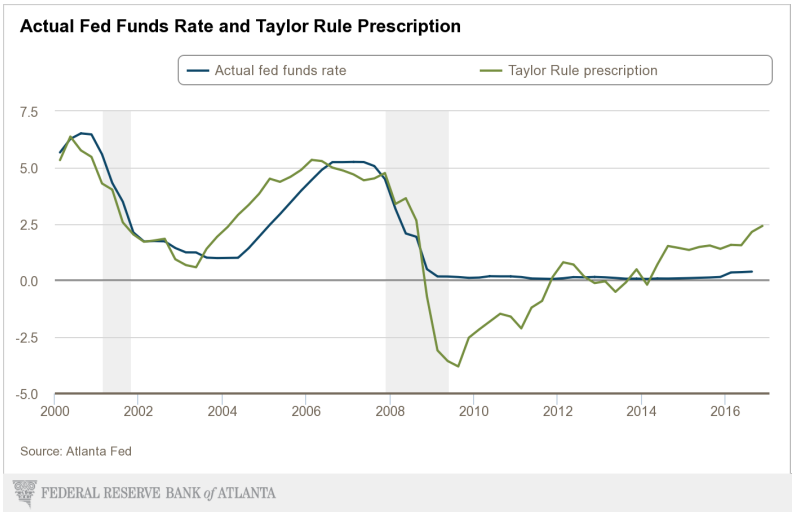
The decline in R* holds across different studies, using different methods

Estimates of R*

	1998	2016	Change 1998-2016
Laubach-Williams (2003)	2.5	0.2	-2.3
Holston-Laubach-Williams (2016)	3.0	0.4	-2.6
Kiley (2016)	2.5	0.9	-1.7
Lubik-Matthes (2016)	2.4	-0.2	-2.6
Johanssen-Mertens (2016)	2.5	0.8	-1.7
Christensen-Rudebusch (2017)	2.6	0.4	-2.2
Crump-Eusepi-Moench (2016)	2.4	1.0	-1.4
Mean of 7 estimates	2.6	0.5	-2.1
DGGT VAR – consumption	2.6	1.2	-1.4
DGGT VAR – productivity	2.7	1.1	-1.6
DGGT- DSGE (10-year forward)	2.7	0.3	-2.4

Chistensen-Rudebusch (2017) and Crump-Eusepi-Moench (2016) estimates are adjusted upwards by 0.35 to account for the mean difference in PCEPI and CPI inflation rates.

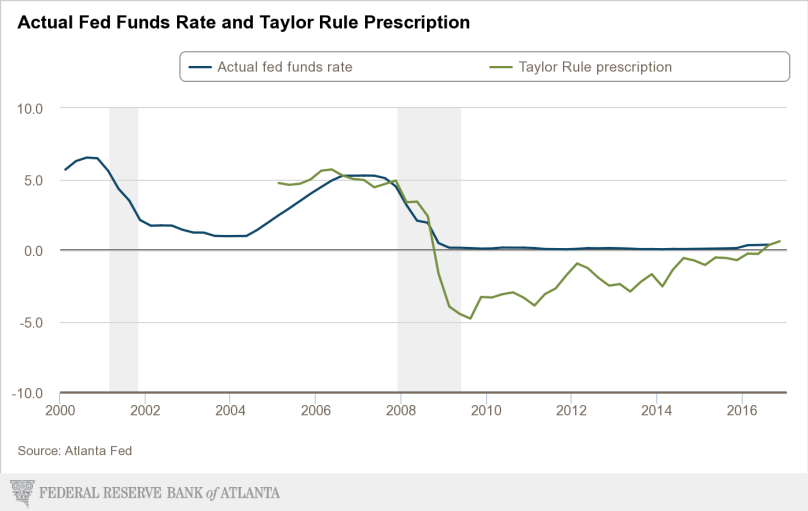
Under old assumptions about the natural rate and trend output, policy rates will go back to around 4% eventually



What does all of this have to do with monetary policy?

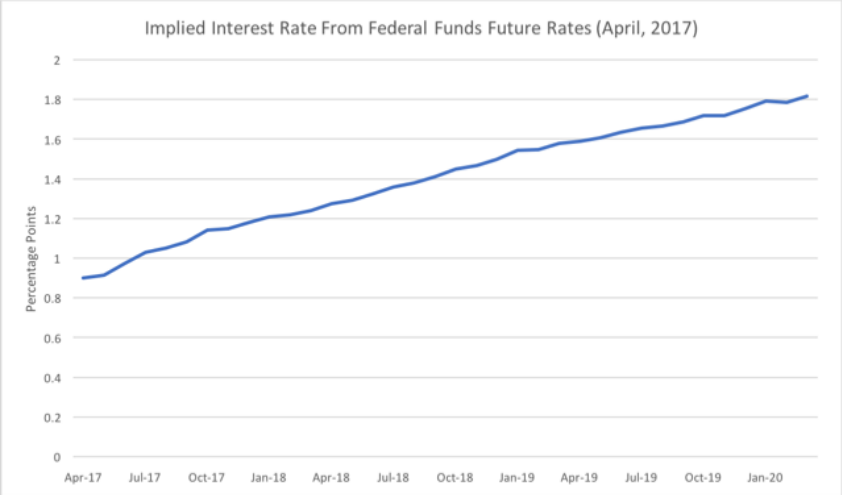
- The new normal depends critically on what we assume about the natural rate.
- Also we have to have a view about sustainable output growth to have a view about the output gap.
  - President-elect Trump thinks it's 4%.
  - The U.S. Economy last expanded at a 4 percent annual rate in 2000.
- In what follows I'll use the output gap as calculated by the Congressional Budget Office.

What if we replace the 2% natural interest rate with the natural interest rate estimates from Holston (2016)?

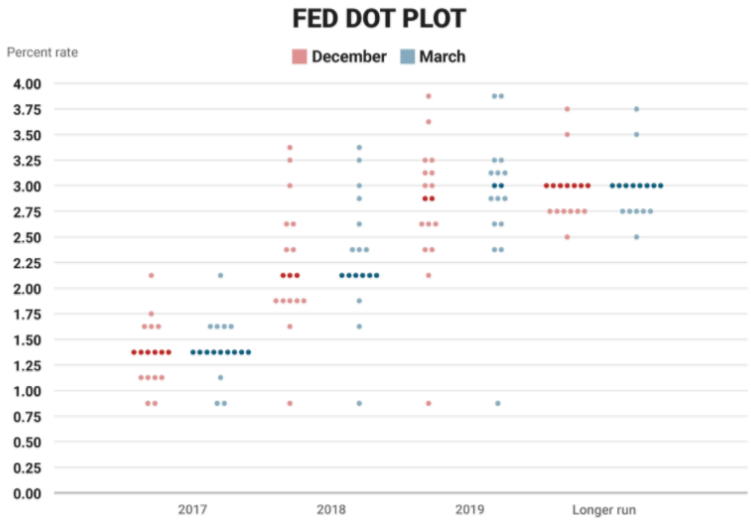


The new normal will be far lower interest rates into the indefinite future

What does the market believe?



What does the Fed believe?

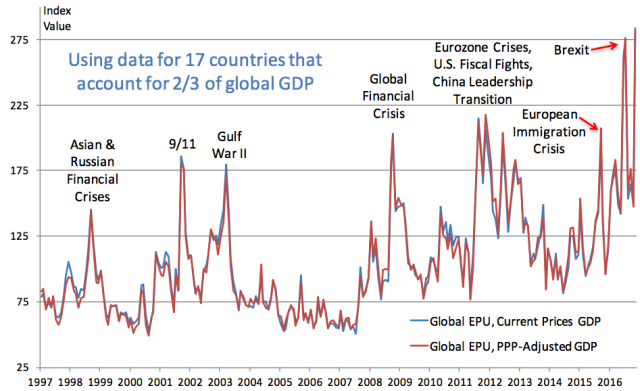


Binding ZLB

- Conventional monetary policy call for cutting the interest rate when we are in a recession (Taylor rule).
- But you can't go (much) below zero: the Effective Lower Bound (ELB)
- How often will this constrain be binding?
- This issue is the subject of intense research.
- Recent paper in the BPEA, Kiley and Roberds (2017), suggests that the constraint will be binding around 40% of the time!

Fact 3: unusually high level of uncertainty about shocks could send us into a downturn

Global Economic Policy Uncertainty Index, January 1997 to November 2016



Notes: Global EPU calculated as the GDP-weighted average of monthly EPU index values for US, Canada, Brazil, Chile, UK, Germany, Italy, Spain, France, Netherlands, Russia, India, China, South Korea, Japan, Ireland, and Australia, using GDP data from the IMF's World Economic Outlook Database. National EPU index values are from www.PolicyUncertainty.com and Baker, Bloom and Davis (2016). Each national EPU Index is renormalized to a mean of 100 from 1997 to 2015 before calculating the Global EPU Index.

Binding ZLB

- Under traditional policy approaches, the ELB may bind much more often than previously estimated .
- This should be expected: Even a mild recession would likely push interest rates to zero, starting from a 3 percent level
- Risk management approaches can ameliorate these consequences
- Findings are broadly similar in a large econometric model (FRB/US) and a dynamic-stochastic-general equilibrium (DSGE) model

Implications

- Episodes of monetary policy being constrained at the effective zero lower bound are likely to be more frequent and longer.
- Unconventional monetary policy might help.
- But we've learned from Japan that there are limits to how useful such policies are.
- Unconventional monetary policy and negative nominal interest rates have important *distributional effects* which threaten to *politicize* monetary policy.
- Are we willing to raise average inflation rates as an insurance policy?

The real problem

- Low growth rates due to
  - Falling growth rates of productivity
  - Falling fertility rates.
- It's hard to believe that monetary policy can have persistent effects on these sources of growth.
- It's important that the public and policy makers understand the limits to monetary policy.
- We must turn our attention to
  - the structural reforms required to increase the growth rate of productivity.
  - The design of contingency plans for using fiscal policy in the event of recessions.