



Session 14: Great Depressions???

Chad Jones
Stanford GSB

Outline: The Great Depression and the Financial Crisis

- The Great Depression
 - ... and why it did not repeat in 2008–2009
- Japan during the past decade
- Bernanke and asset price bubbles



The Great Depression

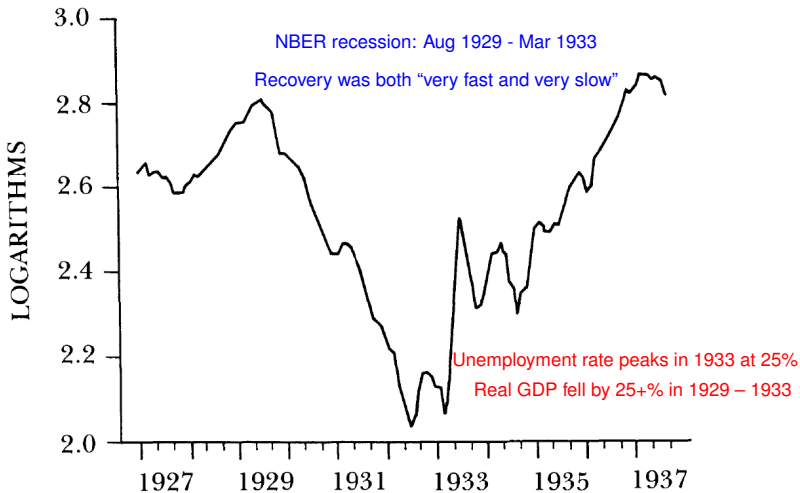
The Great Depression

- Robert Margo:

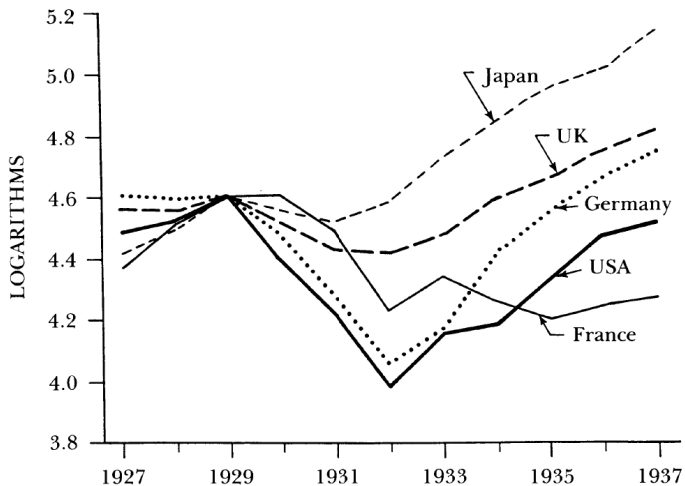
“The Great Depression is to economics what the Big Bang is to physics. As an event, the Depression is largely synonymous with the birth of modern macroeconomics, and it continues to haunt successive generations of economists.”

- How bad was the Great Depression?
 - U.S. unemployment peaked at 25 percent in 1933
 - U.S. Industrial production fell by more than 60 percent
 - Worldwide crisis: Output declined by more than 20 percent in countries as diverse as Chile, Canada, Germany, Italy, and Poland

U.S. Industrial Production, Monthly



Industrial Production around the World



The Timeline of the Great Depression

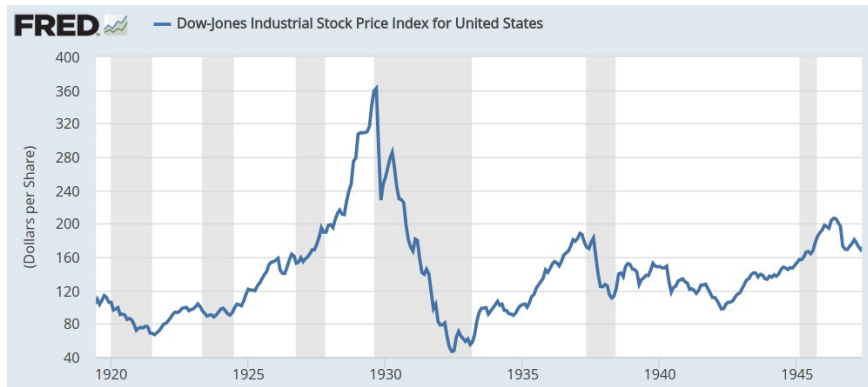
- Readings:

*What was **Christina Romer's** (chair of Council of Economic Advisers under Obama) and **Ben Bernanke's** main point about the cause of the Great Depression?*

The Timeline of the Great Depression

- 1928–29: The Fed raises interest rates, as “aggressive bubble poppers,” to prick the stock price bubble
- October 1929: Stock market crashes, creates enormous uncertainty, consumption falls
- 1930–33: Becomes Great: Bank panics ($\uparrow \bar{f}$), pessimism replaces uncertainty, deflation raises real rates, and investment collapses
- 1933–37: Monetary policy turns expansionary. Real GDP grows by 10% per year, but doesn't return to pre-Depression level until 1937

Stock Market Crash

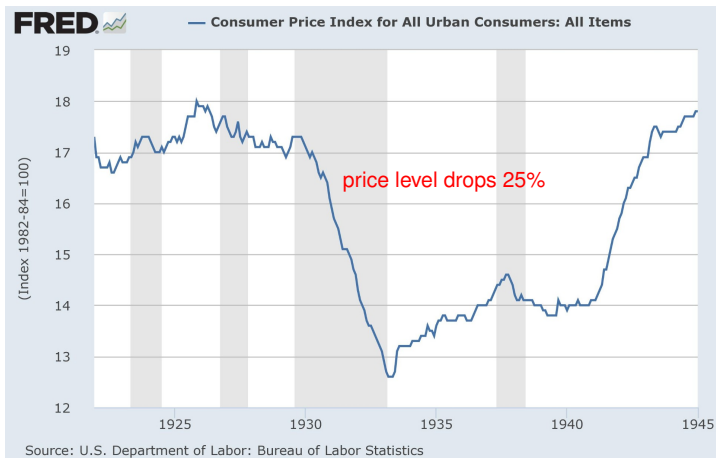


Stock market falls by 80%

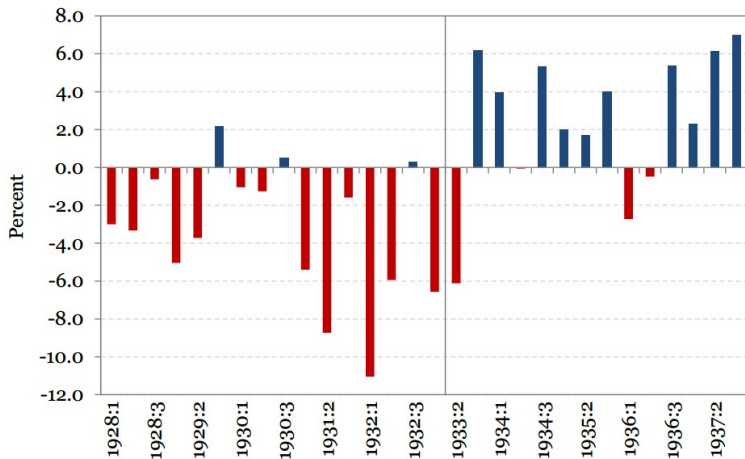
Stock Market Crash and Monetary Policy

- What role did the crash play in starting the Great Depression?
 - It was important in worsening the recession...
- But the main cause was bad monetary policy!
 - Massive contraction in money supply
 - Banking panics 1930-33
 - Gold Standard
 - The result was a deflationary spiral!

Deflation during the Great Depression



Expected Inflation (via commodity futures prices)



Source: Hamilton (1992, Table 7, p. 171).

A “lightswitch” goes on in 1933? What?
Why not earlier???

Deflation

- Recall the Fisher equation

$$i_t = R_t + \pi_t^e$$

- Liquidity Trap:** The nominal interest rate cannot be negative; the lowest it can go is zero.
- Even if $i_t = 0$, then

$$R_t = -\pi_t^e$$

*A deflation (negative inflation) and a zero nominal interest rate produces a **high** real interest rate!*

- Intuition?

Deflation

- Recall the Fisher equation

$$i_t = R_t + \pi_t^e$$

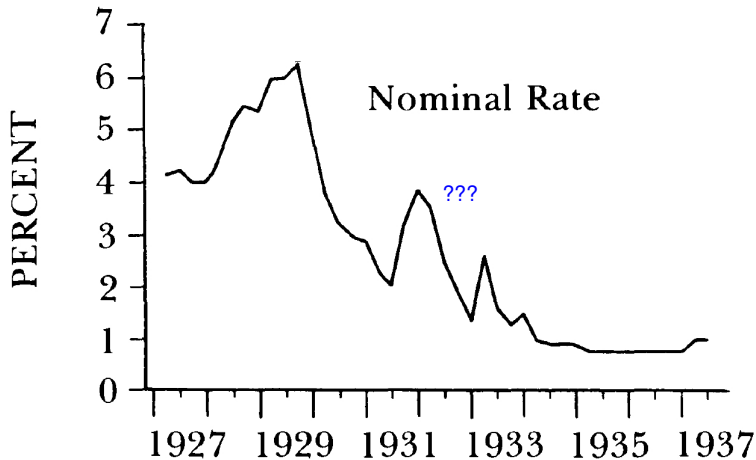
- Liquidity Trap:** The nominal interest rate cannot be negative; the lowest it can go is zero.
- Even if $i_t = 0$, then

$$R_t = -\pi_t^e$$

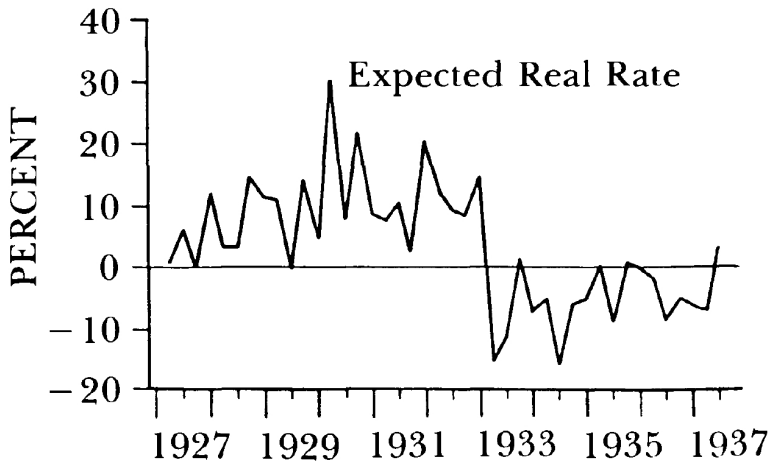
*A deflation (negative inflation) and a zero nominal interest rate produces a **high** real interest rate!*

- Intuition?** Consider a dollar of saving. Even with a zero nominal rate, if prices are falling, your dollar is worth **more** next year.

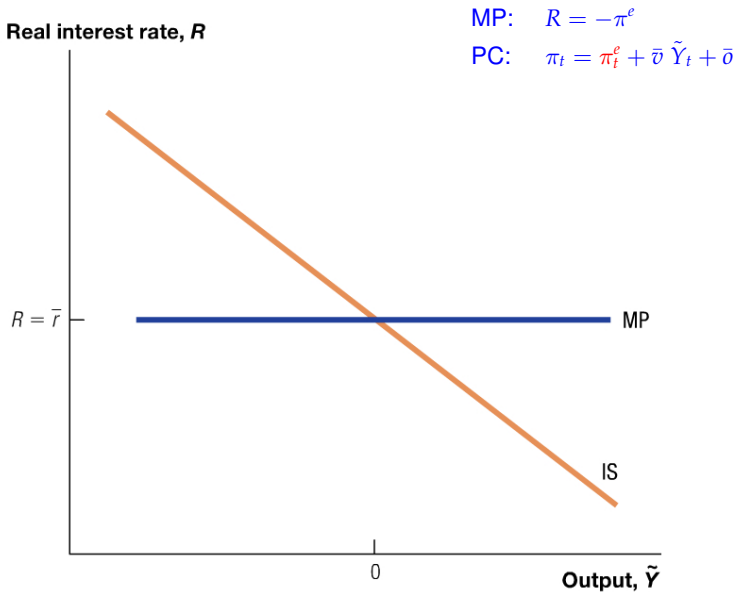
The Nominal Interest Rate



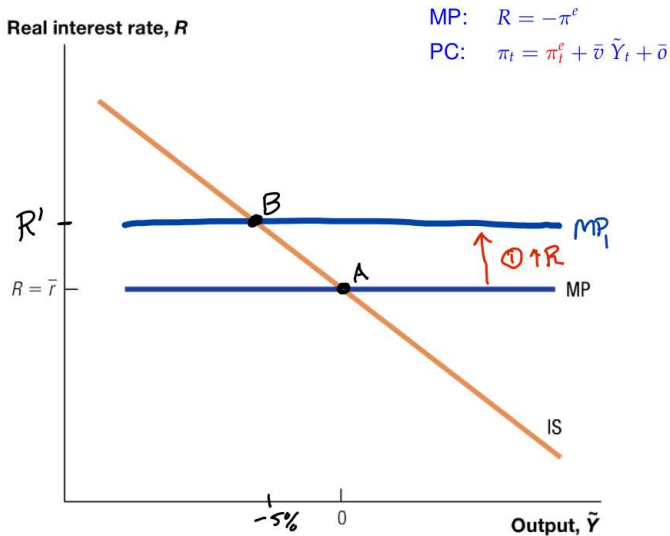
The Real Interest Rate



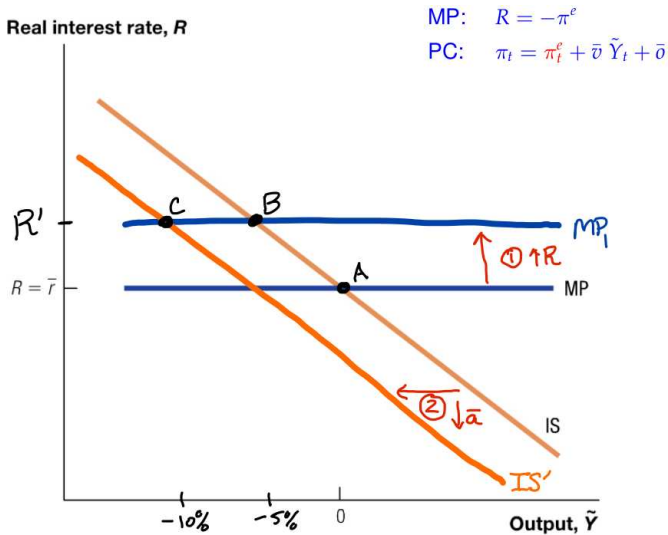
The Great Depression in the IS-MP Diagram



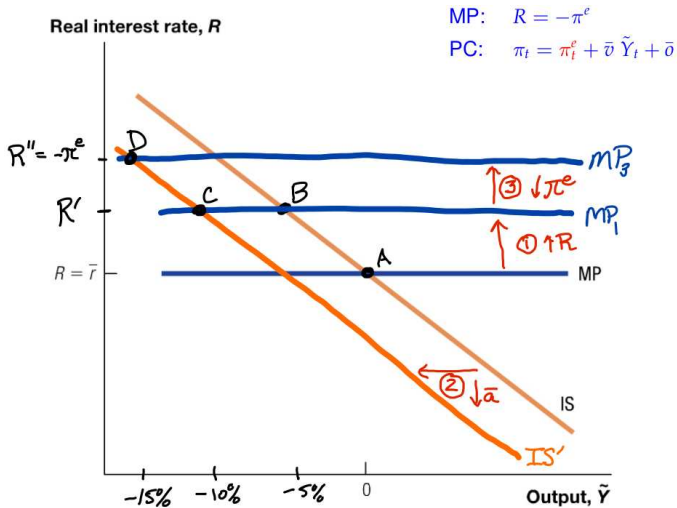
The Great Depression in the IS-MP Diagram



The Great Depression in the IS-MP Diagram



The Great Depression in the IS-MP Diagram



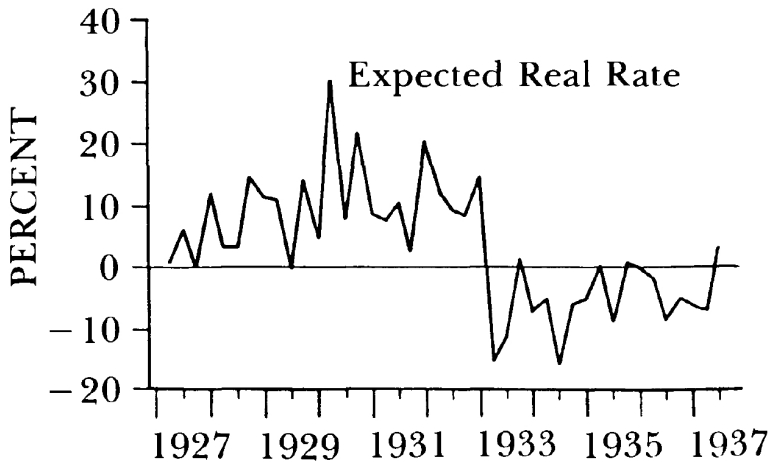
Deflation and the liquidity trap

- With deflation, even a zero nominal interest rate produces a **high** real interest rate!
- ... further reducing investment and short-run output \tilde{Y}_t
- ... and depressing prices even further
 - Inflation expectations were not anchored
 - Weak economy \Rightarrow inflation falls (e.g. adaptive expectations)
- Two key examples:
 - Great Depression: $\downarrow \pi^e \Rightarrow \uparrow R$
 - 2008–2009: Fed **kept** inflation expectations at 2%: $\uparrow \pi^e \Rightarrow \downarrow R$

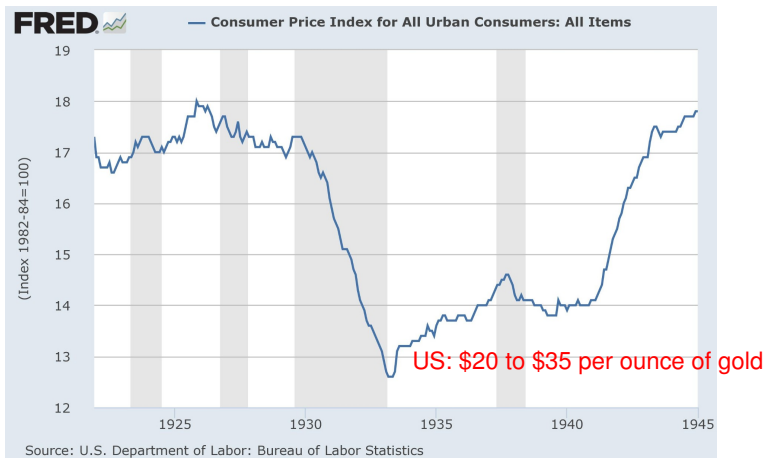
So how did the deflation stop?

- Monetary policy turns expansionary
- **Lightswitch:** 1933 – U.S. halts the gold standard / devalues the dollar
 - Before: 1 ounce of gold = 20.67 U.S. dollar
 - After: 1 ounce of gold = 35 U.S. dollars
 - 70% devaluation!
 - Simple view is that this is just a large expansion in the money supply
 - ... and **raised inflation expectations** (IS/MP graph again)
- Bernanke (1995): Countries that left the gold standard recovered from the depression more quickly = expansionary monetary policy.
- Fiscal stimulus? In a few slides...

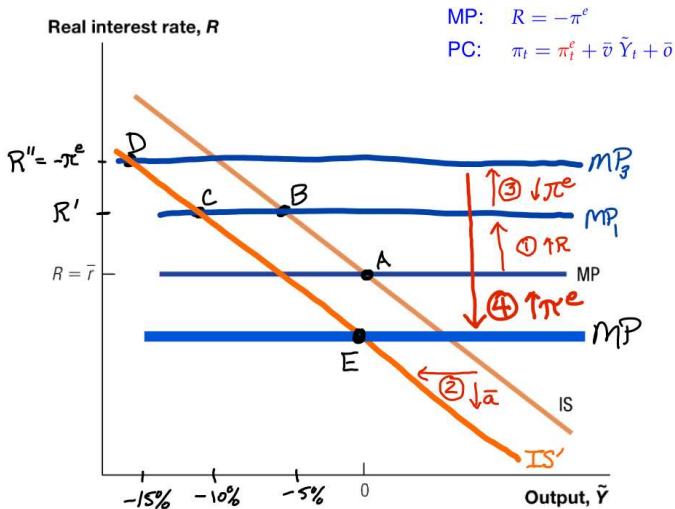
The Real Interest Rate



Reflation after suspending the gold standard



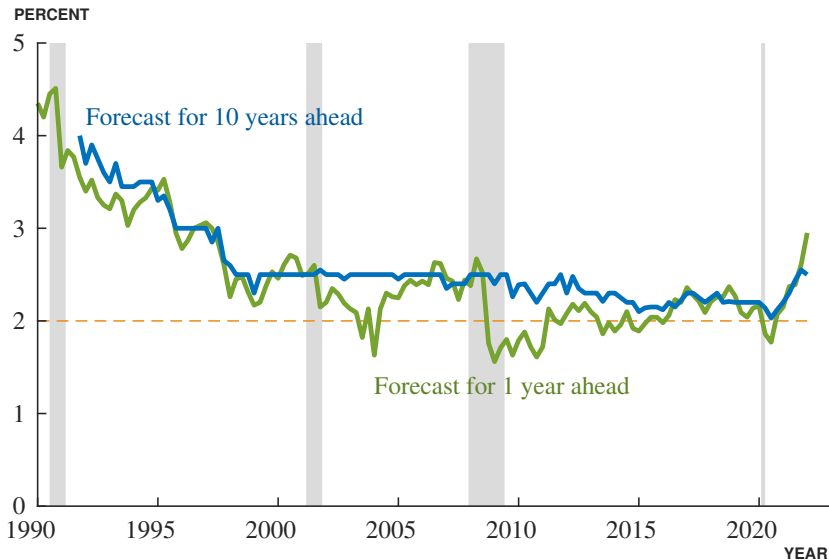
The Great Depression in the IS-MP Diagram



What was different in 2008–2009?

- What was different in the Global Financial Crisis?
 - Fed reacted very quickly
 - Unconventional monetary policy
 - No widespread bank failures
 - Anchored inflation expectations
- Fed **kept** inflation expectations at 2%: $\uparrow \pi^e \Rightarrow \downarrow R$
 - Interesting that Fed could not get to 2% inflation!
 - Still, recall from last class that π^e remained at 2%

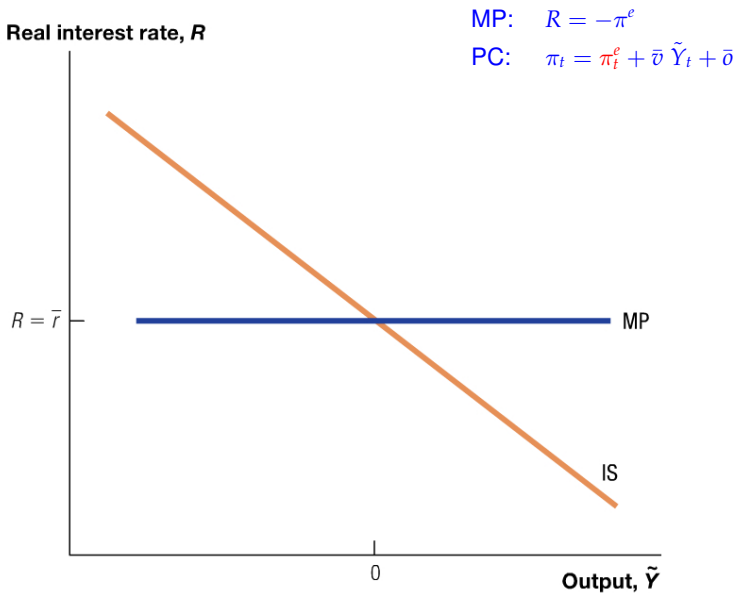
The Fed kept π^e anchored at 2%



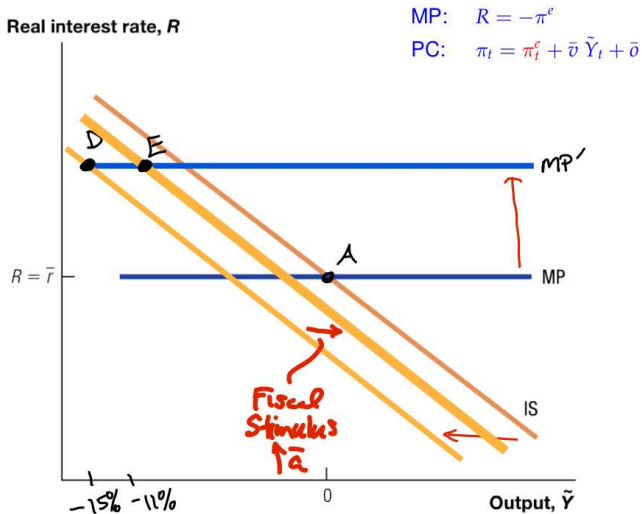
Fiscal stimulus in a liquidity trap

- During normal times, the impact of fiscal stimulus is reduced by monetary offset (think about the Taylor Rule)
- But in a liquidity trap, the Fed would like to stimulate the economy but can't.
- So interest rates don't rise, and the fiscal stimulus can have a bigger impact.

Fiscal stimulus during a liquidity trap



The Great Depression in the IS-MP Diagram

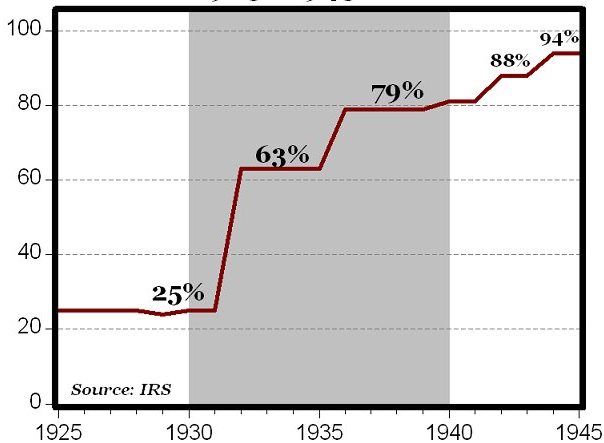


The New Deal and the Great Depression

- Between 1929 and 1939, government spending as a share of GDP went from 3.0% to 10.1%.
 - But taxes rose as well (3.8% to 7.0%); see graph next page.
 - Went from a surplus of 0.8% to a deficit of 3.1%.
- General expert view (C. Romer, Bernanke, Brown, Krugman) is that the fiscal stimulus of the New Deal was not crucial to end of depression
 - Monetary policy was first
 - World War II was later a big fiscal stimulus.
- The Smoot-Hawley Tariff Act (June 1930) raised tariffs sharply and led to retaliation.
 - Partly to help farmers suffering because of deflation

Tax Rates during the Great Depression

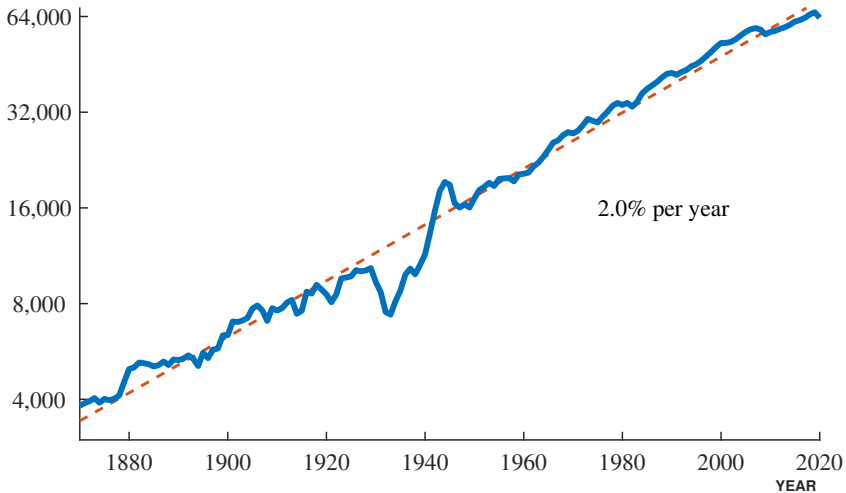
Highest Marginal Individual Income Tax Rate 1925 - 1945



Source: Alex Tabarrok, *Marginal Revolution*

The Economy Recovered from the Great Depression

PER CAPITA GDP (RATIO SCALE, 2020 DOLLARS)





Japan

- The “bubble economy” in the late 80’s
 - driven in part by lax monetary policy

At its height, in 1989, real estate in Tokyo sold for as much as \$139,000 a square foot [...] more than 350 times as much as choice property in Manhattan. Such valuation made the land under the Imperial Palace in Tokyo notionally worth more than all the real estate in California.

— E. Epstein, *Vanity Fair* 2009

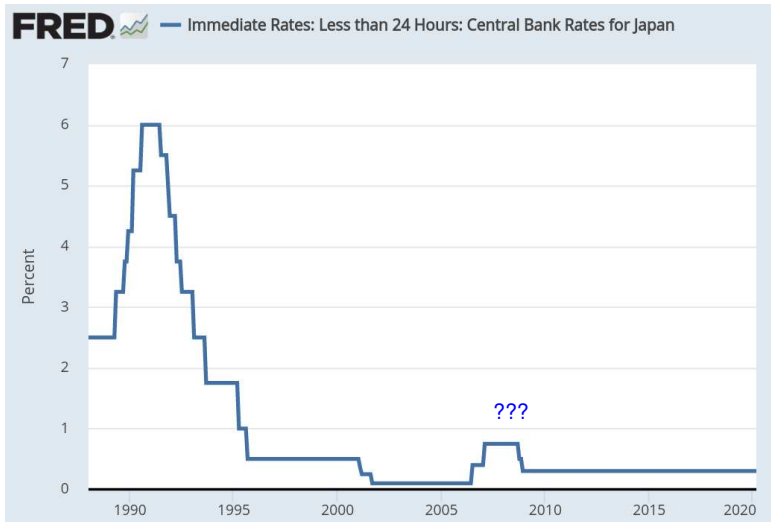
Stock Market



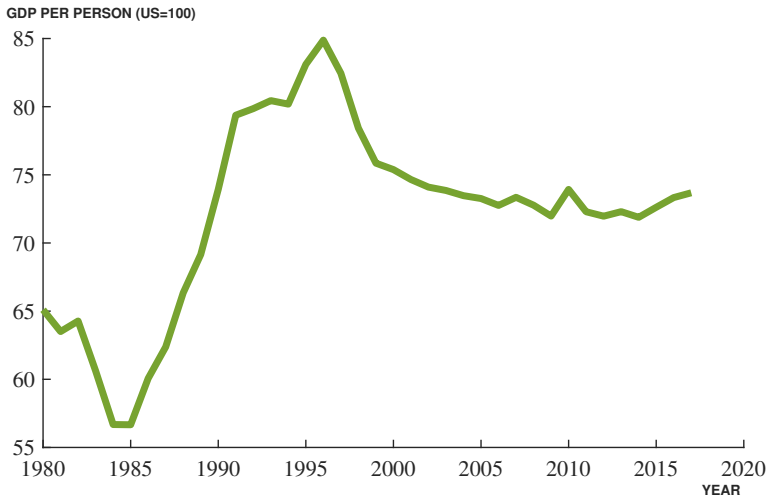
The BOJ pops the bubble

- The BOJ raises interest rates to pop the bubble
- Good news: they succeeded!
- Bad news: a decade of stagnation followed
- Per capita GDP growth
 - 1970-1990: 3.2%
 - 1991-2005: 0.7%
- Deflation: Between 1993 and 2012, cumulative inflation was zero (negative since 1998).

Japan: Central Bank interest rate



Japan: GDP per person, relative to the U.S.



Japan's CPI Inflation

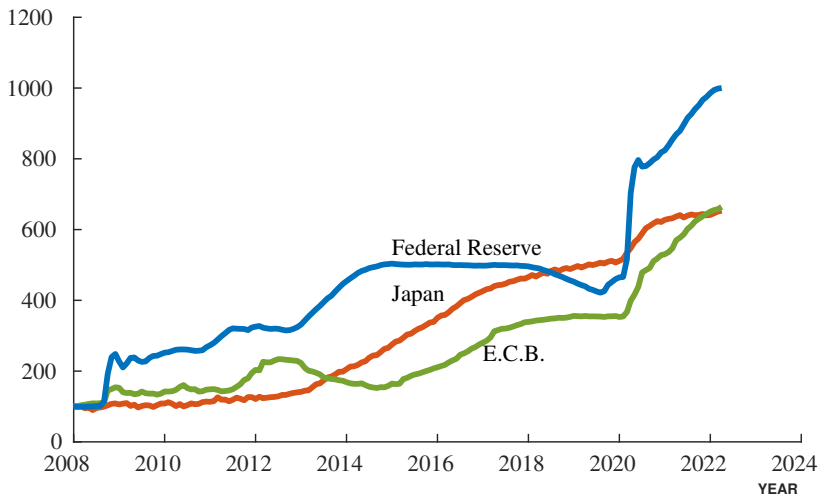


Why no deflationary spiral in Japan?

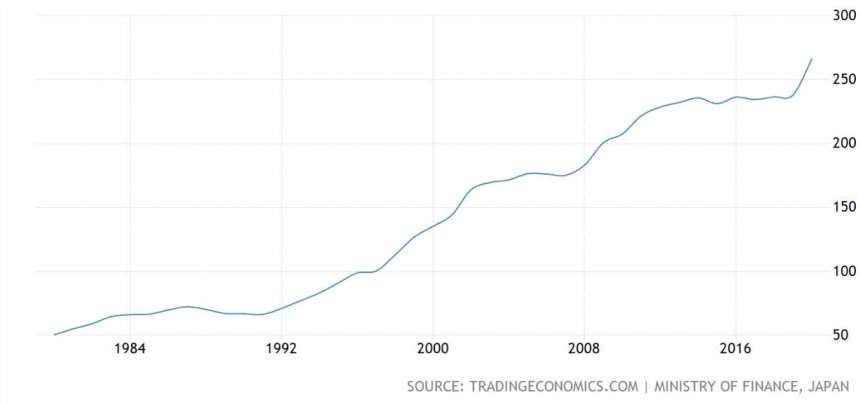
- Quantitative easing (from 2001)
 - but didn't want inflation either
 - BOJ slightly raised interest rates in 2006, when inflation (almost) reached 1%
- Fiscal stimulus
 - Debt/GDP in 1990: 67%
 - Debt/GDP in 2020: 260%

Central Bank Balance Sheets

CENTRAL BANK ASSETS (2008=100)



Japan's Debt-GDP Ratio (% of GDP)

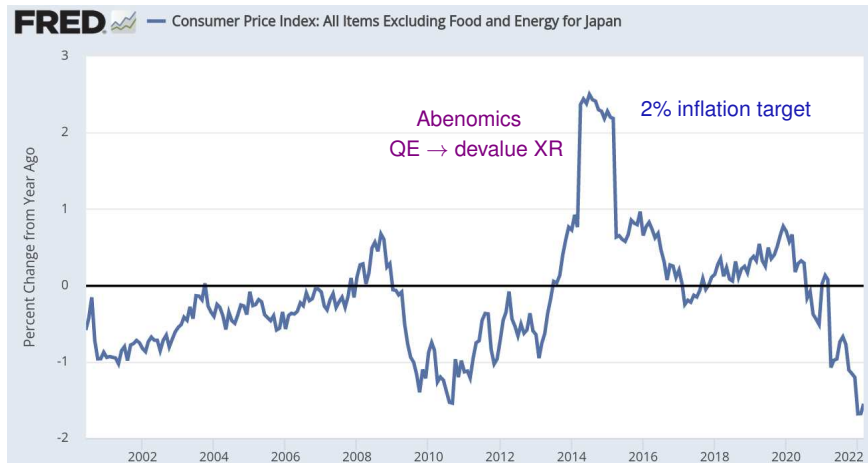


Source: <http://www.tradingeconomics.com>

Abenomics

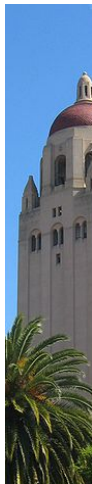
- Shinzo Abe, new Prime Minister since Dec 2012
- Three arrows
 - Fiscal stimulus
 - Monetary easing (e.g. 2% inflation target Jan 2013)
 - Structural reforms
- Has it succeeded?
 - Modern Monetary Theory and Japan? (Hamada reading)
 - Japan's 10 year government bond yield = 0%

Japan's Inflation under Abenomics



Wholesale PPI inflation 10% over past year!

BoJ forecasts 1.9% core inflation in 2022



Bernanke on Asset Prices and Monetary Policy

What is Bernanke's view?

- What is Bernanke's conclusion about whether or not monetary policy should respond to asset prices?

What is Bernanke's view?

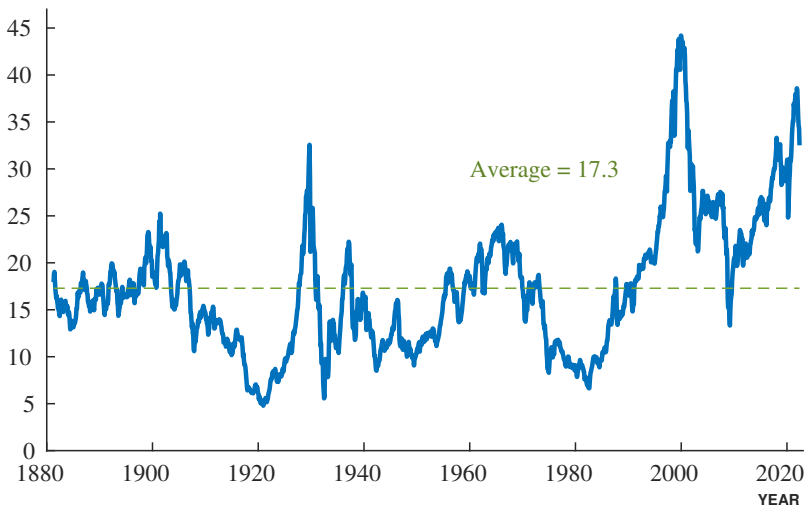
- What is Bernanke's conclusion about whether or not monetary policy should respond to asset prices?
 - Difficult to identify bubbles
 - Monetary policy for stabilization
Financial regulation for bubbles

Paul Samuelson on predicting recessions

... commentators quote economic studies alleging that market downturns predicted four out of the last five recessions. That is an understatement. Wall Street indexes predicted nine out of the last five recessions!

The Price-Earnings Ratio (Campbell-Shiller)

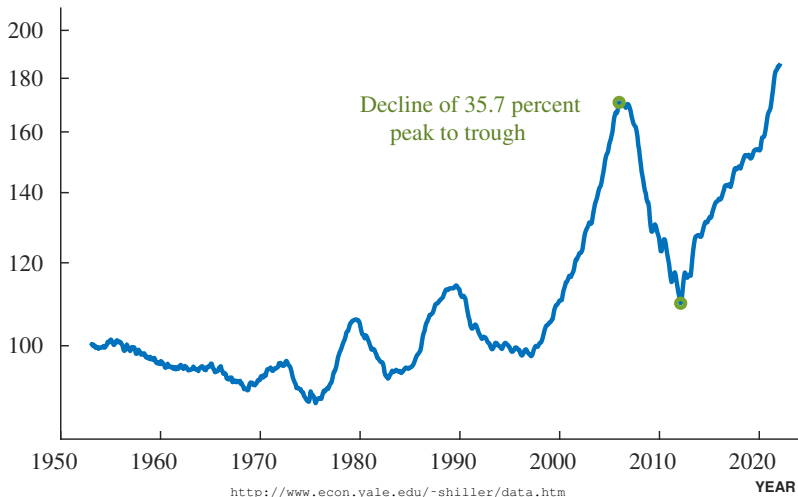
P/E RATIO



<http://www.econ.yale.edu/~shiller/data.htm>

Real Home Prices in the United States

REAL HOME PRICE INDEX (1953=100, RATIO SCALE)



Questions for Review

- What were the main factors that caused Great Depression?
- What factors led the economy to turn around in 1933?
- What are the lessons from the Great Depression for macroeconomic policy today?
- Can a financial crisis have long-run effects?
- What is Bernanke's view on monetary policy and asset prices?
- How do you think asset price bubbles should be dealt with, and why?