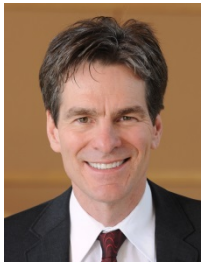
The Role of Monetary Policy: A Re-evaluation

John H. Cochrane

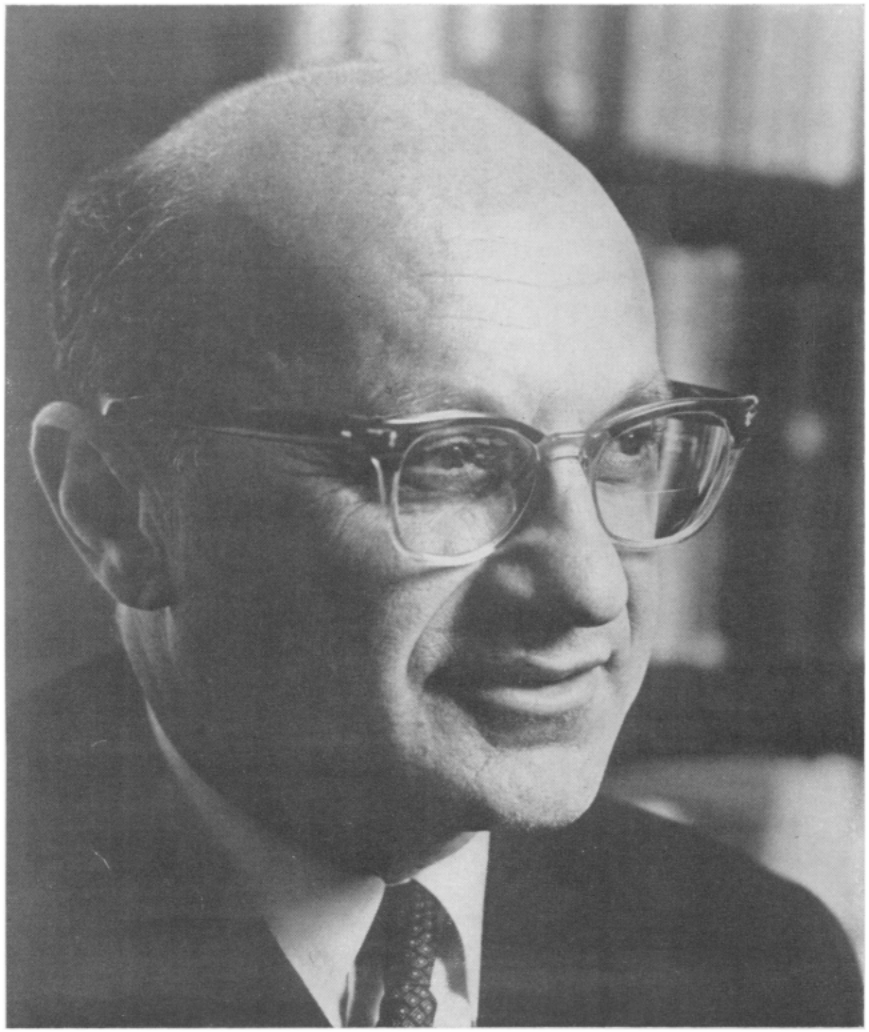
University of Chicago Booth School of Business,

Hoover institution, Cato institute,

http://faculty.chicagobooth.edu/john.cochrane



Also “The Grumpy Economist”



The American Economic Review

Volume LVIII MARCH 1968 Number 1

THE ROLE OF MONETARY POLICY*

By MILTON FRIEDMAN**

There is wide agreement about the major goals of economic policy: high employment, stable prices, and rapid growth. There is less agreement that these goals are mutually compatible or, among those who regard them as incompatible, about the terms at which they can and should be substituted for one another. There is least agreement about the role that various instruments of policy can and should play in achieving the several goals.

My topic for tonight is the role of one such instrument—monetary policy. What can it contribute? And how should it be conducted to contribute the most? Opinion on these questions has fluctuated widely. In the first flush of enthusiasm about the newly created Federal Reserve System, many observers attributed the relative stability of the 1920s to the System's capacity for fine tuning—to apply an apt modern term. It came to be widely believed that a new era had arrived in which business cycles had been rendered obsolete by advances in monetary technology. This opinion was shared by economist and layman alike, though, of course, there were some dissonant voices. The Great Contraction destroyed this naive attitude. Opinion swung to the other extreme. Monetary policy was a string. You could pull on it to stop inflation but you could not push on it to halt recession. You could lead a horse to water but you could not make him drink. Such theory by aphorism was soon replaced by Keynes' rigorous and sophisticated analysis.

Keynes offered simultaneously an explanation for the presumed impotence of monetary policy to stem the depression, a nonmonetary interpretation of the depression, and an alternative to monetary policy

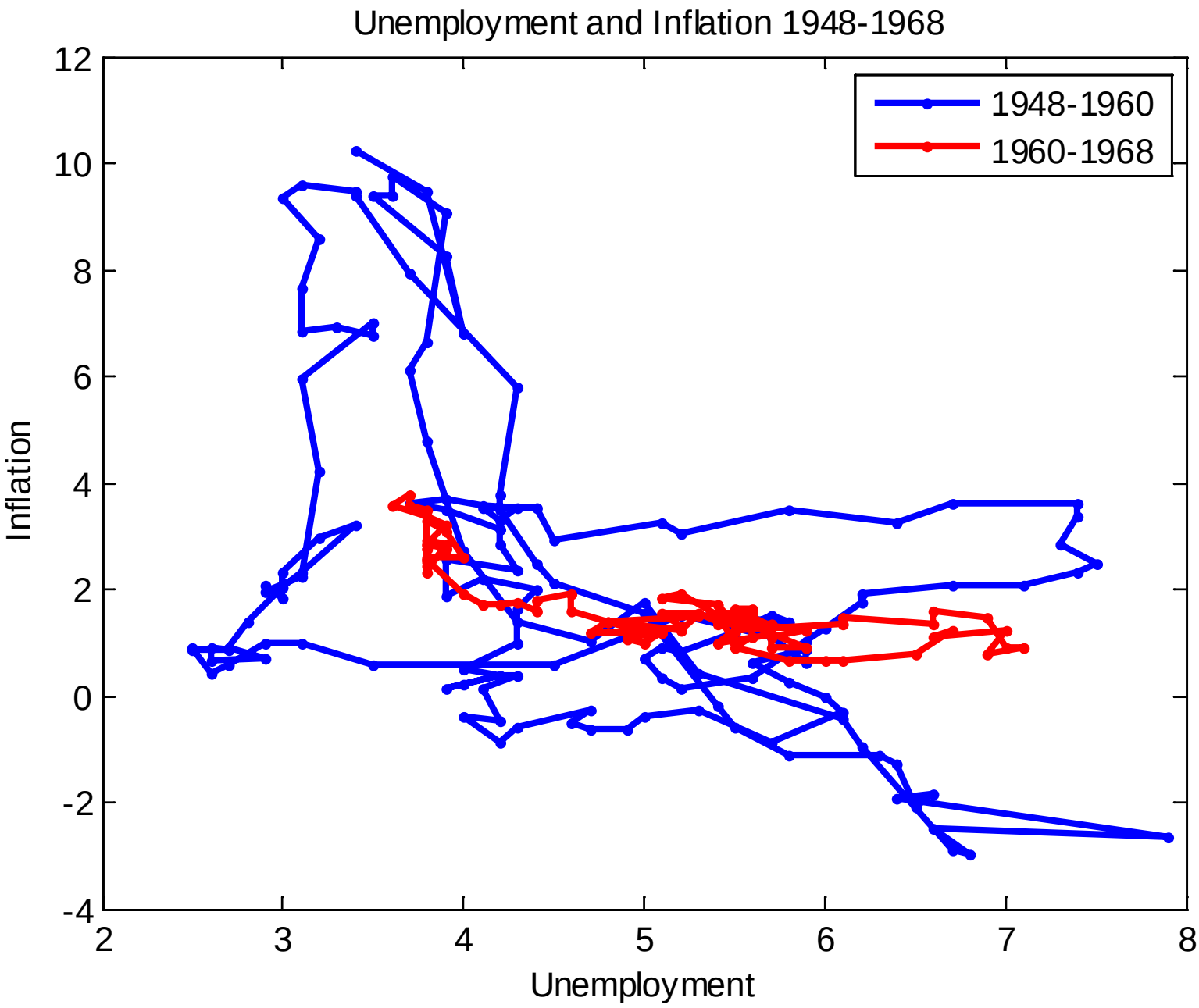
* Presidential address delivered at the Eightieth Annual Meeting of the American Economic Association, Washington, D.C., December 29, 1967.

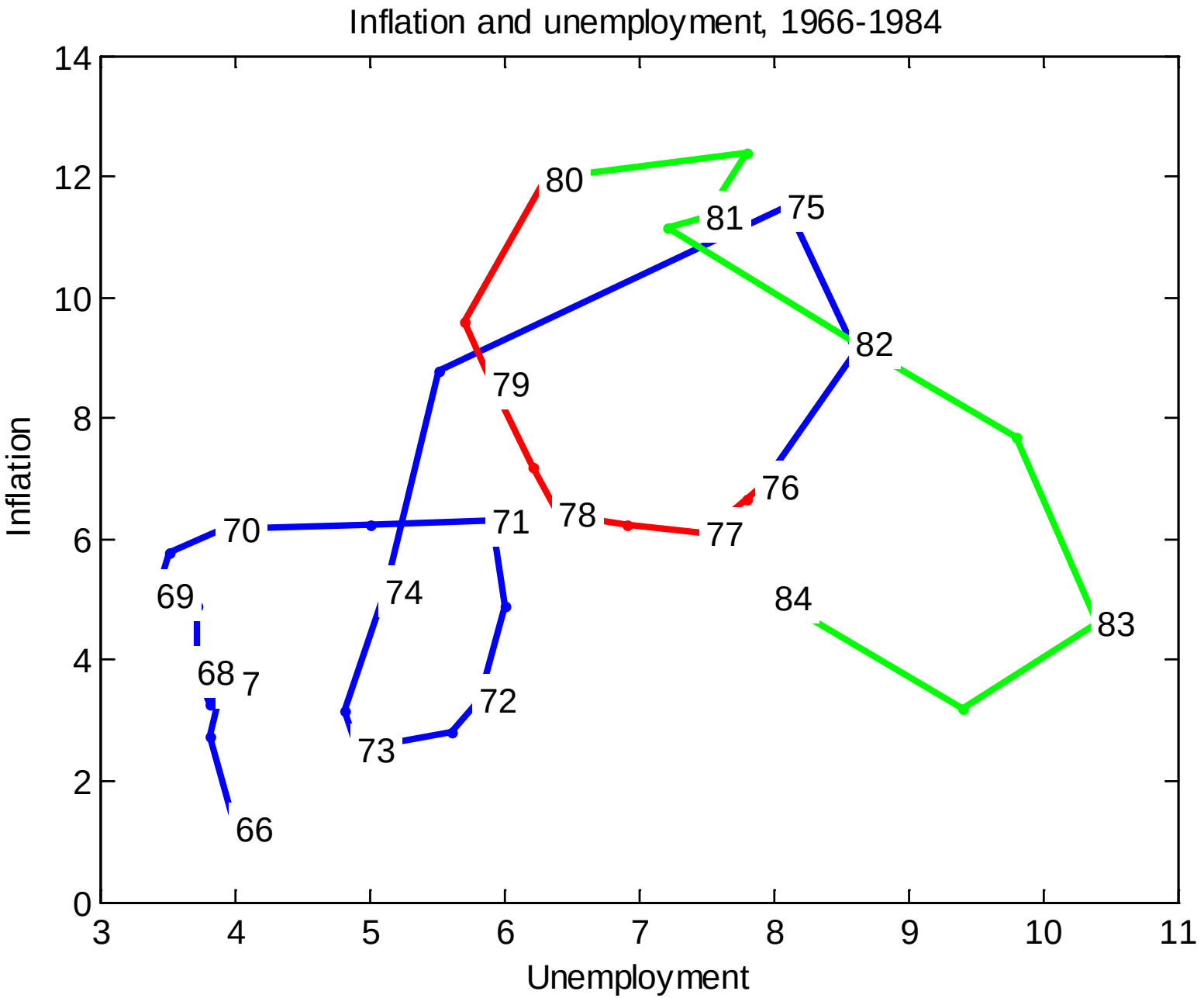
** I am indebted for helpful criticisms of earlier drafts to Armen Alchian, Gary Becker, Martin Bronfenbrenner, Arthur F. Burns, Phillip Cagan, David D. Friedman, Lawrence Harris, Harry G. Johnson, Homer Jones, Jerry Jordan, David Meiselman, Allan H. Meltzer, Theodore W. Schultz, Anna J. Schwartz, Herbert Stein, George J. Stigler, and James Tobin.

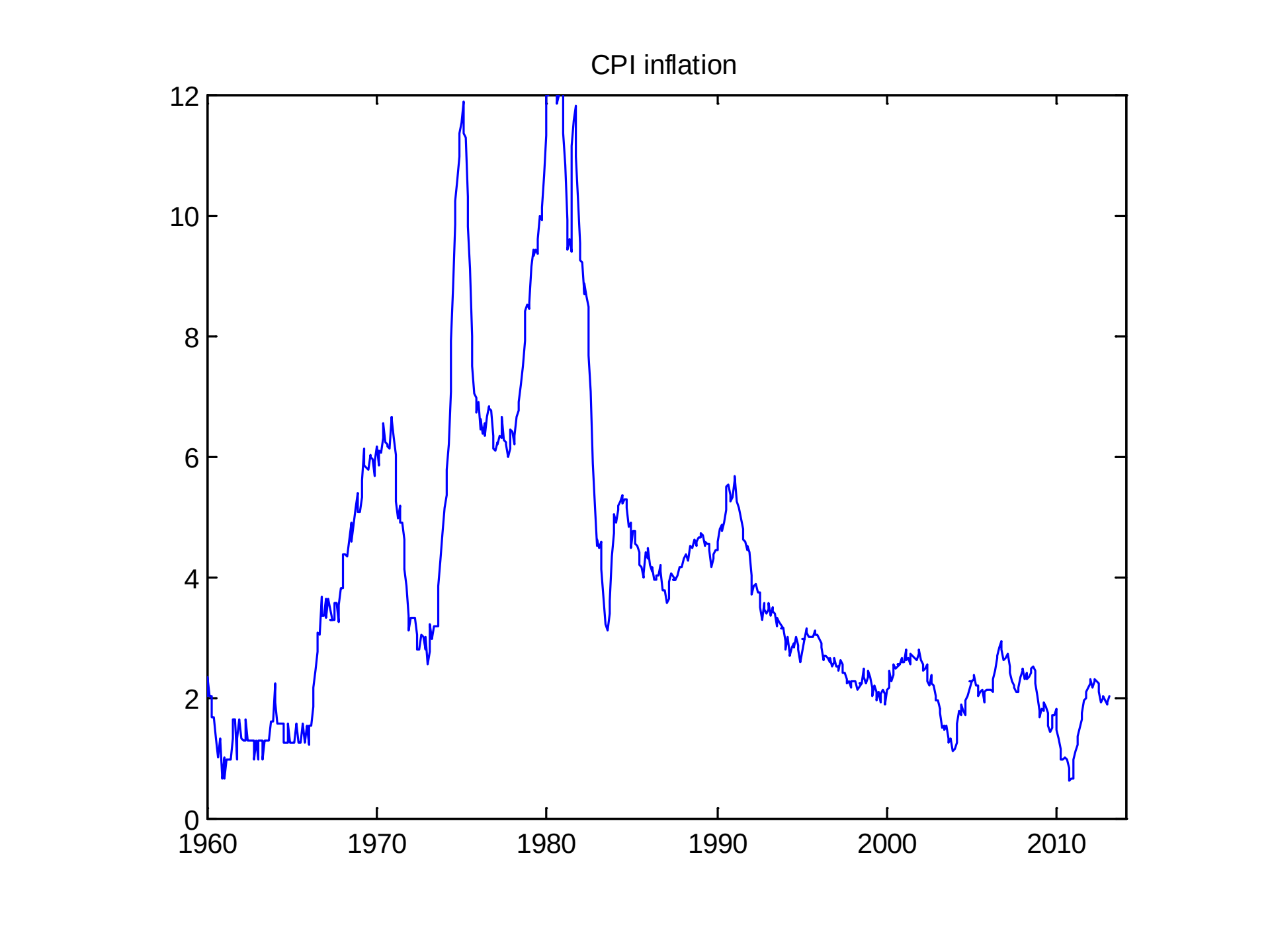
Friedman 1968

- MV = PY
- Monetary policy can: PY, P
- Monetary policy cannot: Y, U forever
- PY, P: Monetary policy is powerful!
- Monetary policy can also: screw things up
- Monetary policy should: control M. Rules vs. discretion.

Photo courtesy Alberto Garcia


Unemployment and Inflation 1948-1968
1948-1960
1960-1968
Inflation
Unemployment
12
10
8
6
4
2
0
-2
-4
2
3
4
5
6
7
8


Inflation and unemployment, 1966-1984
Inflation
Unemployment
0
2
4
6
8
10
12
14
3
4
5
6
7
8
9
10
11
80
81
75
82
79
76
78
77
70
71
69
74
84
83
68
7
72
73
66


CPI inflation
12
10
8
6
4
2
0
1960
1970
1980
1990
2000
2010

1968-2008

- Friedman confirmation
- Interest rates, not money
- Taylor rule, not 4% rule
- Rule vs. discretion? Inflation only?

2008 and beyond

Unconventional (!) policy innovation / expansion

- (Crisis management, lender/bailouter of “last” resort)
- Huge ($50b -> $2 Trillion) Quantitative Easing
- Twist: Buy long sell short
- Interventions: Long Treasuries, MBS, Commercial paper, PIGS debt, Equities?
- Talk policy, forward guidance, managing expectations
- Regulate whole financial system.
- “Macro-Prudential” policy.
- Diagnose and prick “bubbles”, “imbalances”, target many asset prices
- Financial / transactions innovation

Future

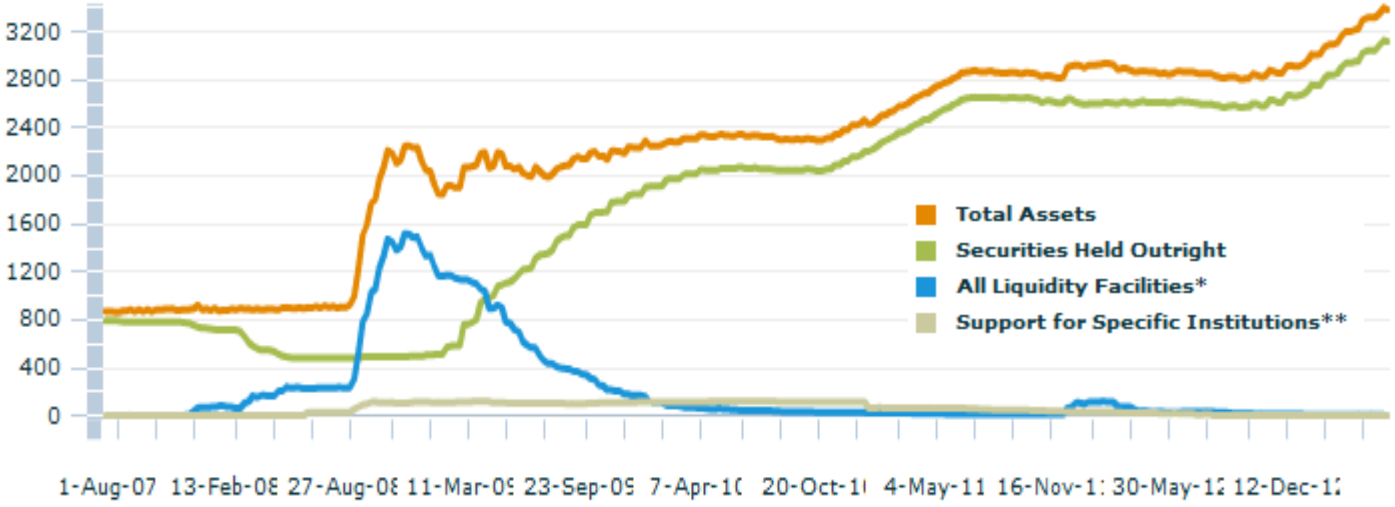
- Interest on reserves/large balance sheet? I hope so!
- Do-what-it-takes financial dirigisme mixing regulation, intervention, talk.
- Academics lose the rules vs. discretion debate for another 45 years

Issues for us

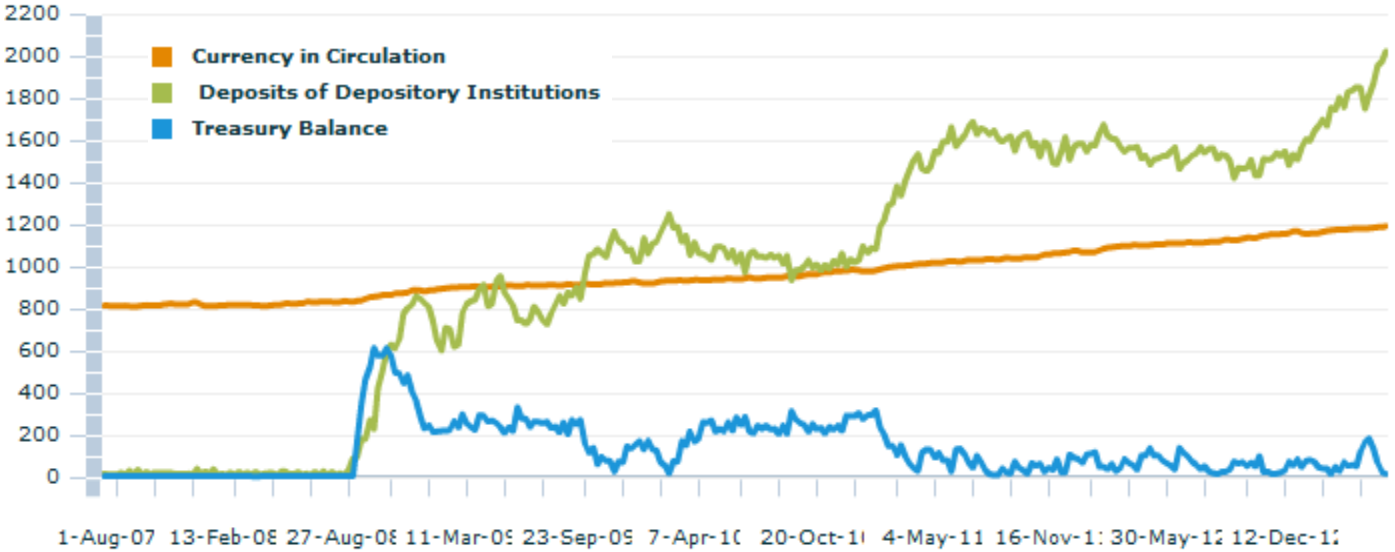
- What can / can't / should new policies do?
- *Why?* Analyze mechanisms, not policies
- Three mechanisms to start
  1. MV=PY / QE / Open market operations
  2. Interest rates to PY, P
  3. Backing, asset demand, fiscal/monetary issues
- Unconventional mechanisms follow

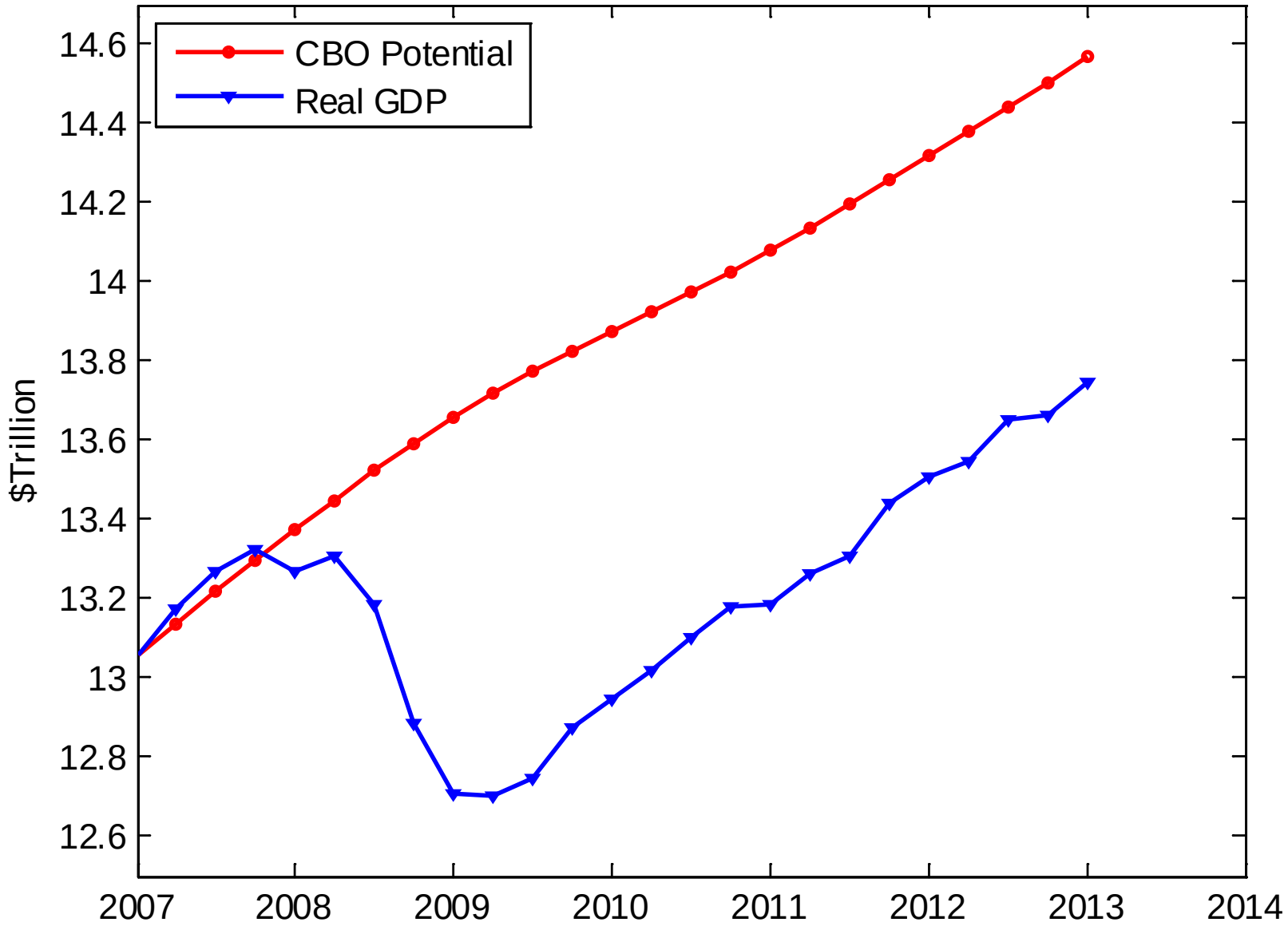
Quantitative Easing / Open Market Operations

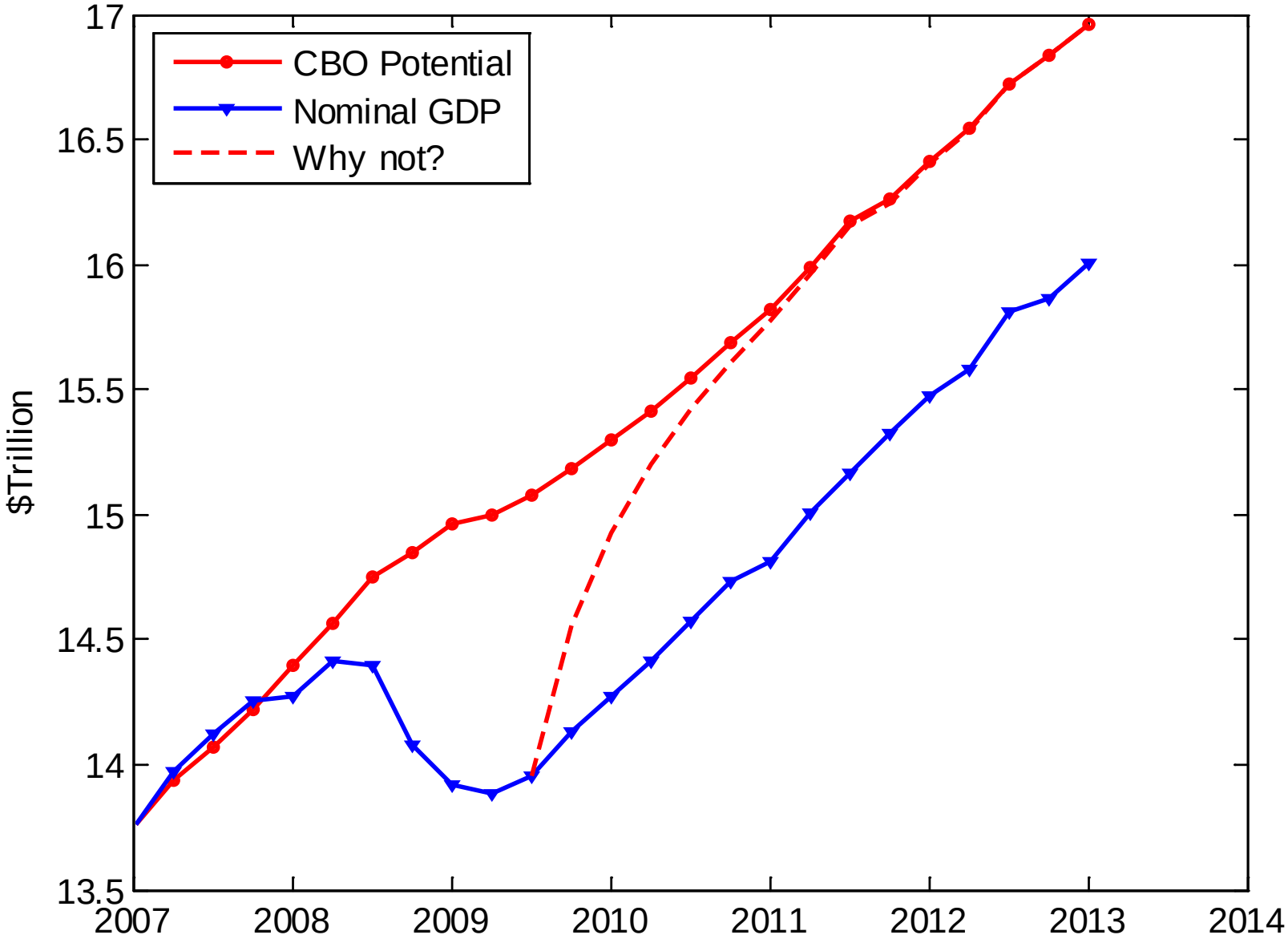
$Billions Assets

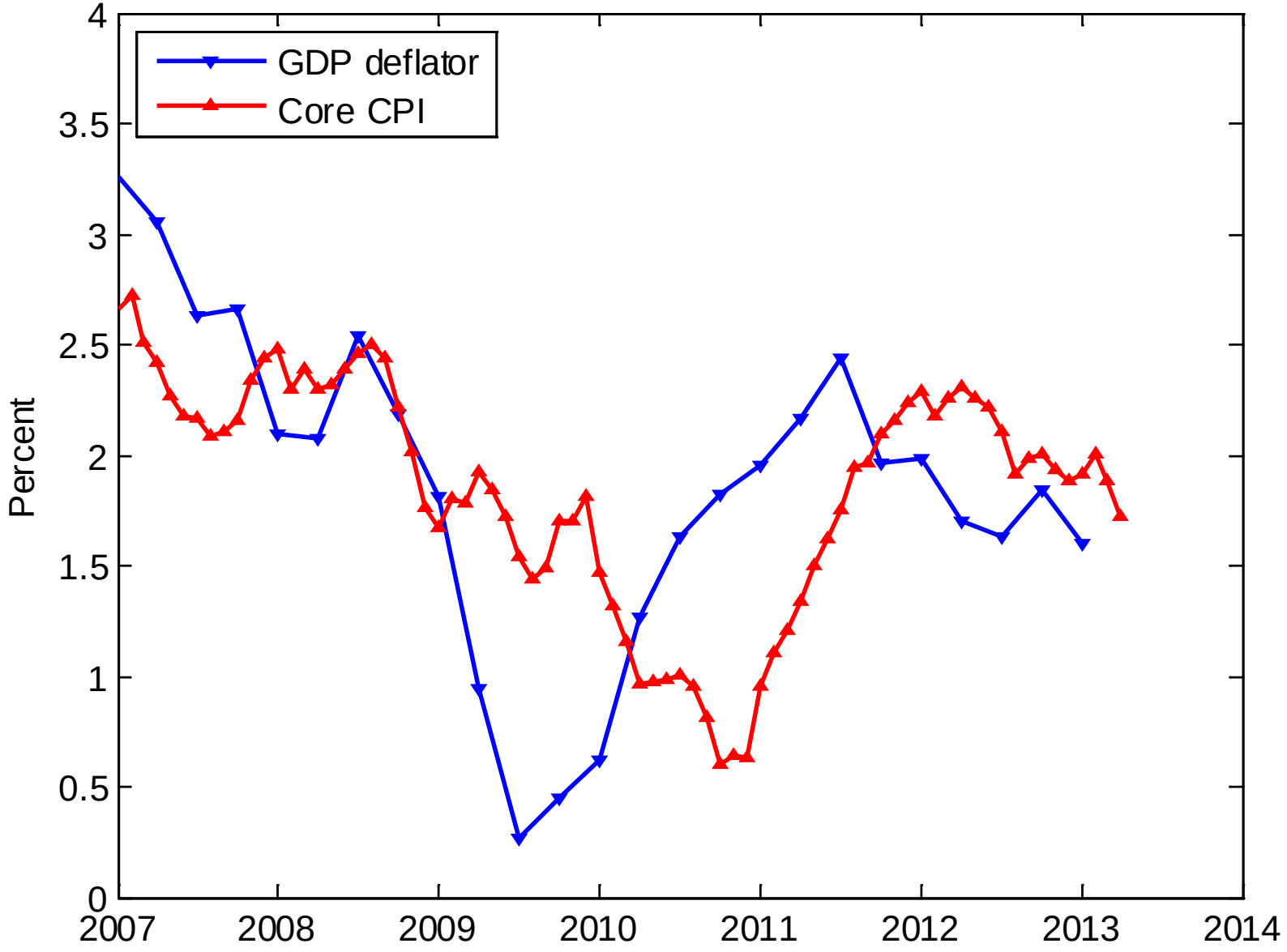


$Billions Liabilities



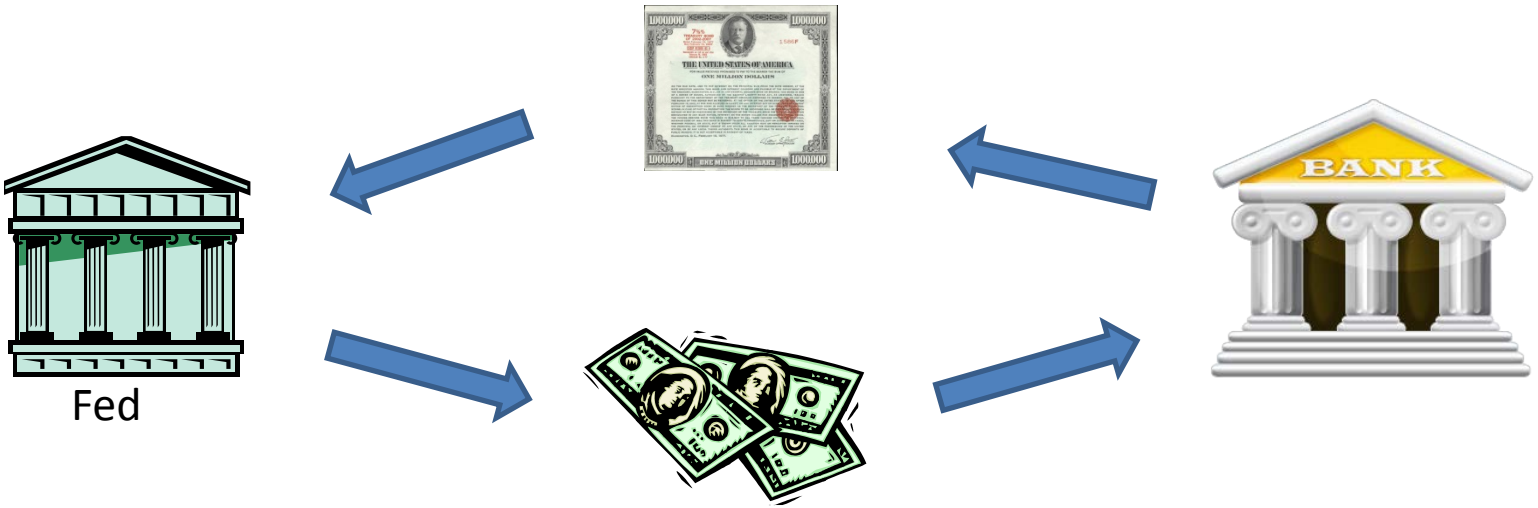

CBO Potential
Real GDP
$Trillion
14.6
14.4
14.2
14
13.8
13.6
13.4
13.2
13
12.8
12.6
2007
2008
2009
2010
2011
2012
2013
2014

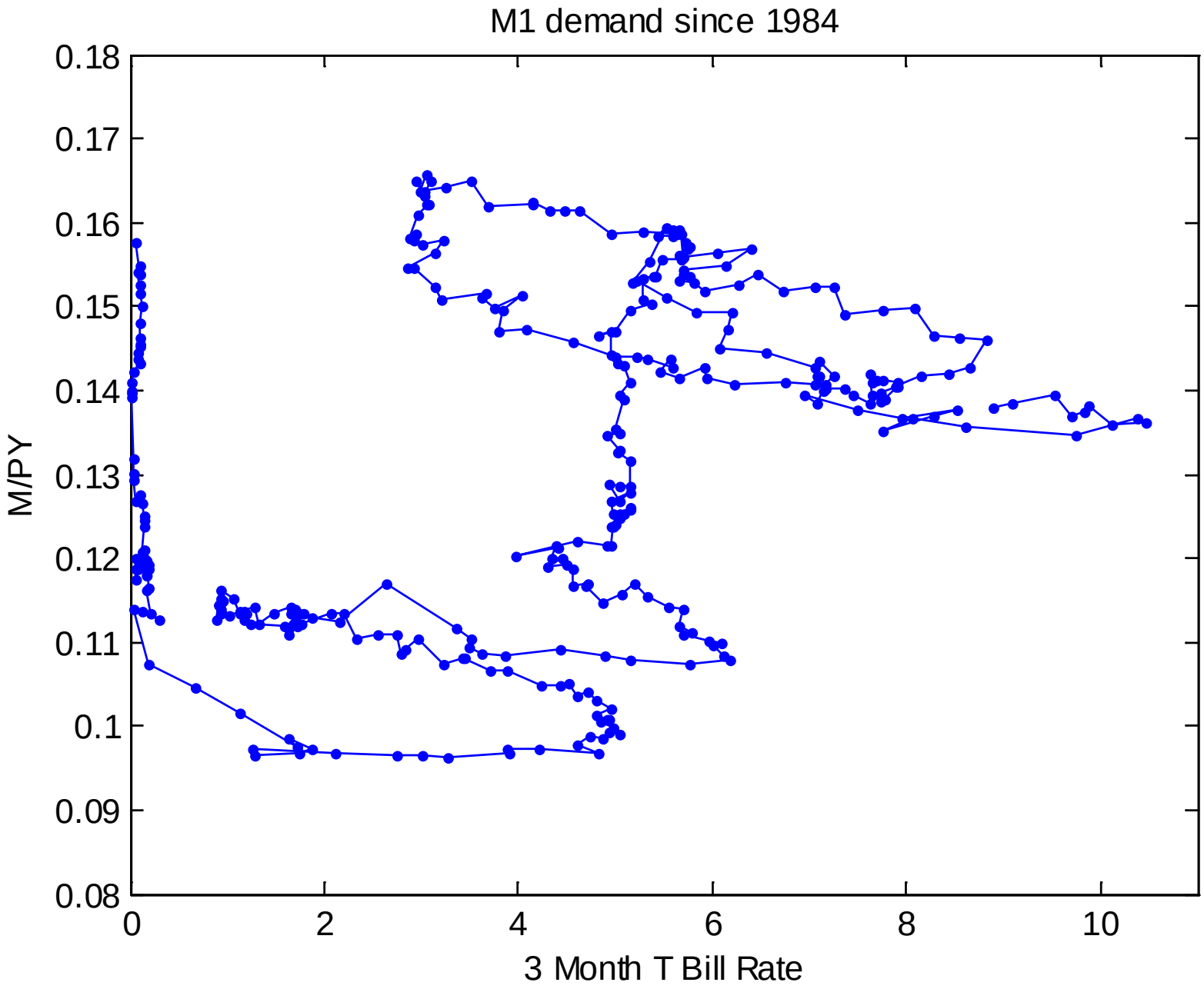

CBO Potential
Nominal GDP
Why not?
$Trillion
17
16.5
16
15.5
15
14.5
14
13.5
2007
2008
2009
2010
2011
2012
2013
2014

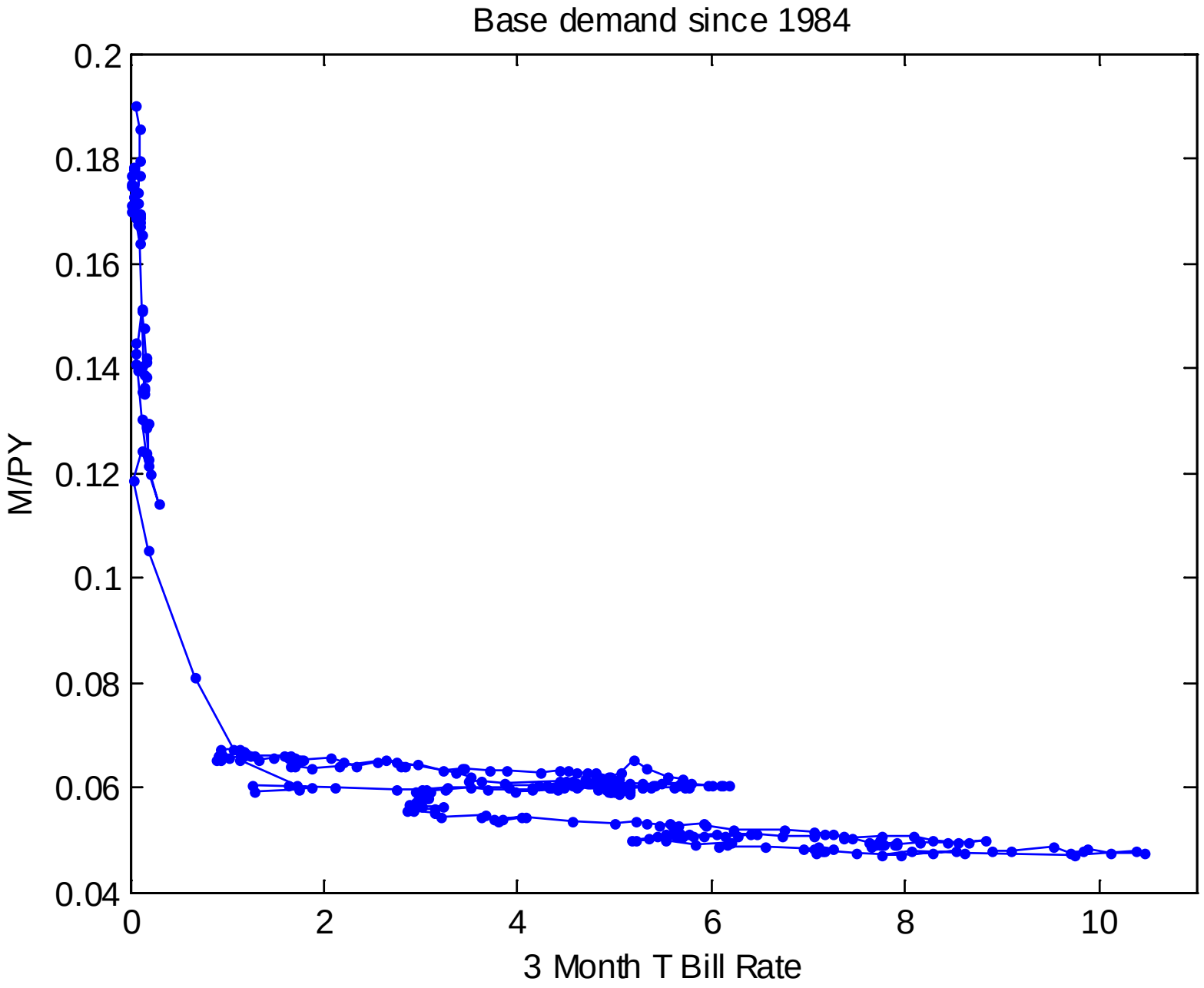

GDP deflator
Core CPI
Percent
4
3.5
3
2.5
2
1.5
1
0.5
0
2007
2008
2009
2010
2011
2012
2013
2014

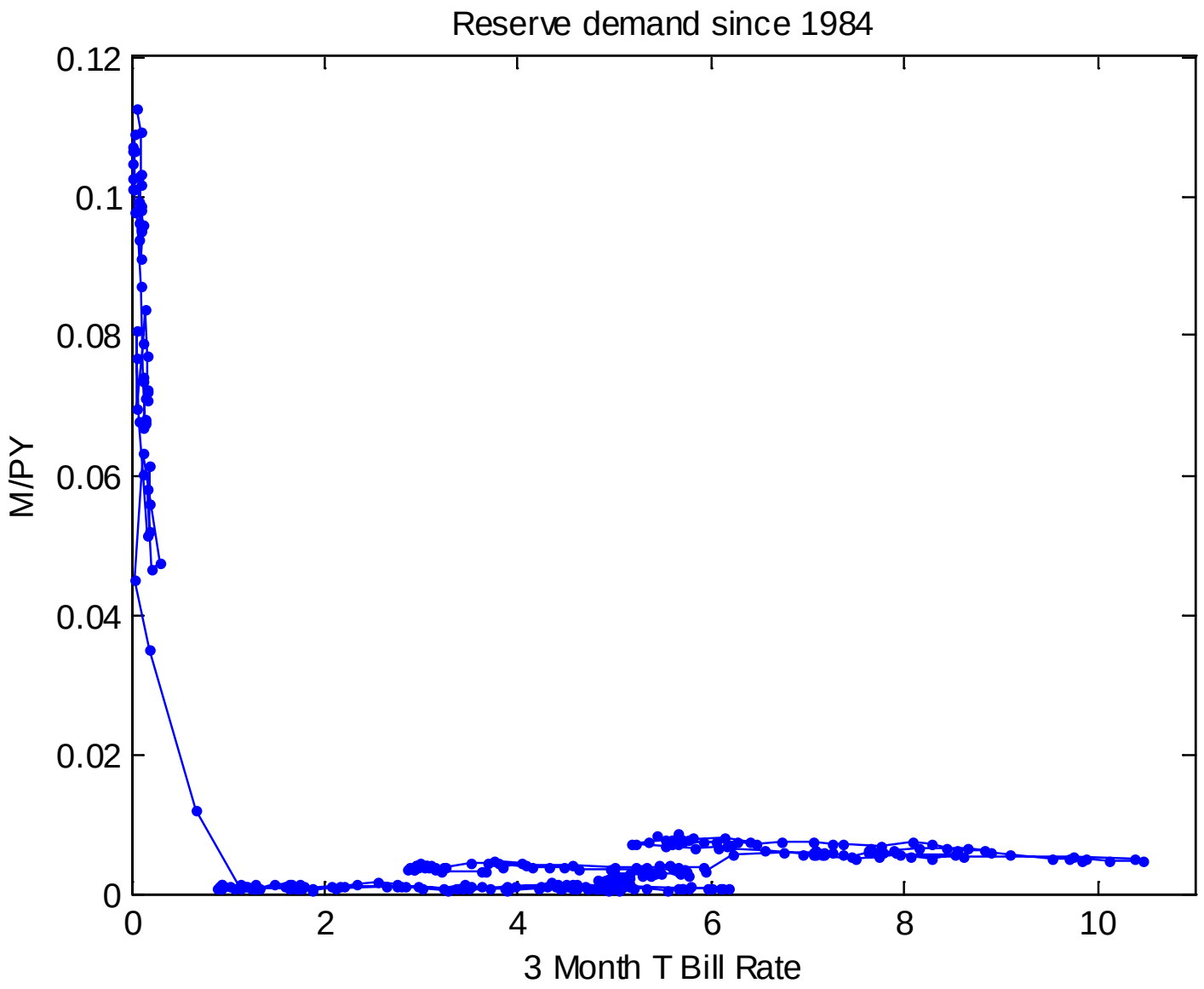
Quantitative Easing Theory

- QE=OM. Exchange reserves for Treasuries. No helicopters
- M policy *rearranges the liquidity/maturity structure of a given amount of debt*.
- MM theorem (Neil Wallace 1981): No effect
- Answer: MV=PY (not BV=PY)
  - OM=helicopter. What the CB buys does not matter.
  - Link to PY matters. Numeriare, medium of exchange, liquidity do not matter.
  - MV=PY is lost with asset demand, modern transactions technology
- Answer: Credit/lending channel?
- Conclusion: OM mechanism for QE is completely powerless at the lower bound, and likely above it as well
- Implication: no stimulus. No inflation danger! No need to shrink balance sheet.




M1 demand since 1984
M/PY
3 Month T Bill Rate
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0
2
4
6
8
10


Base demand since 1984
M/PY
3 Month T Bill Rate
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0
2
4
6
8
10



- MV=PY now determines V. More M/less B? Sure, who cares?
- Other stories (signal, bond markets)? Maybe, wait.

Interest rate policy

- IOR regime likely and good.
- Theories of P: 1) ~~MV=PY~~ 2) Control of i -> P?
- How does interest rate policy (i) determine P/PY without M?
- Yes, $i_t = E_t\pi_{t+1}$ but what about $\pi_{t+1} - E_t\pi_{t+1}$?
- Issues:
  1. Friedman "instability." Sargent-Wallace "indeterminacy?"
  2. Mechanism?
- Answers:
  1. Fed/old Keynesian
  2. New Keynesian
  3. A fiscal channel?

How does interest rate policy control inflation?

- Fed/old Keynesian: Rate → Demand → Output/Employment → Phillips → Inflation

$$y_t = -\sigma(i_t - \pi_t - r) \quad (1)$$
$$\pi_t = \pi_{t-1} + \gamma y_{t-1} \quad (2)$$
$$i_t = r + \varphi_\pi \pi_t + \varphi_y y_t + x_t \quad (3)$$

$$(\pi_t \; or \; x_t \rightarrow) \quad i_t \uparrow (3) \rightarrow \; y_t \downarrow (1) \rightarrow \; \pi_{t+1} \downarrow (2)$$

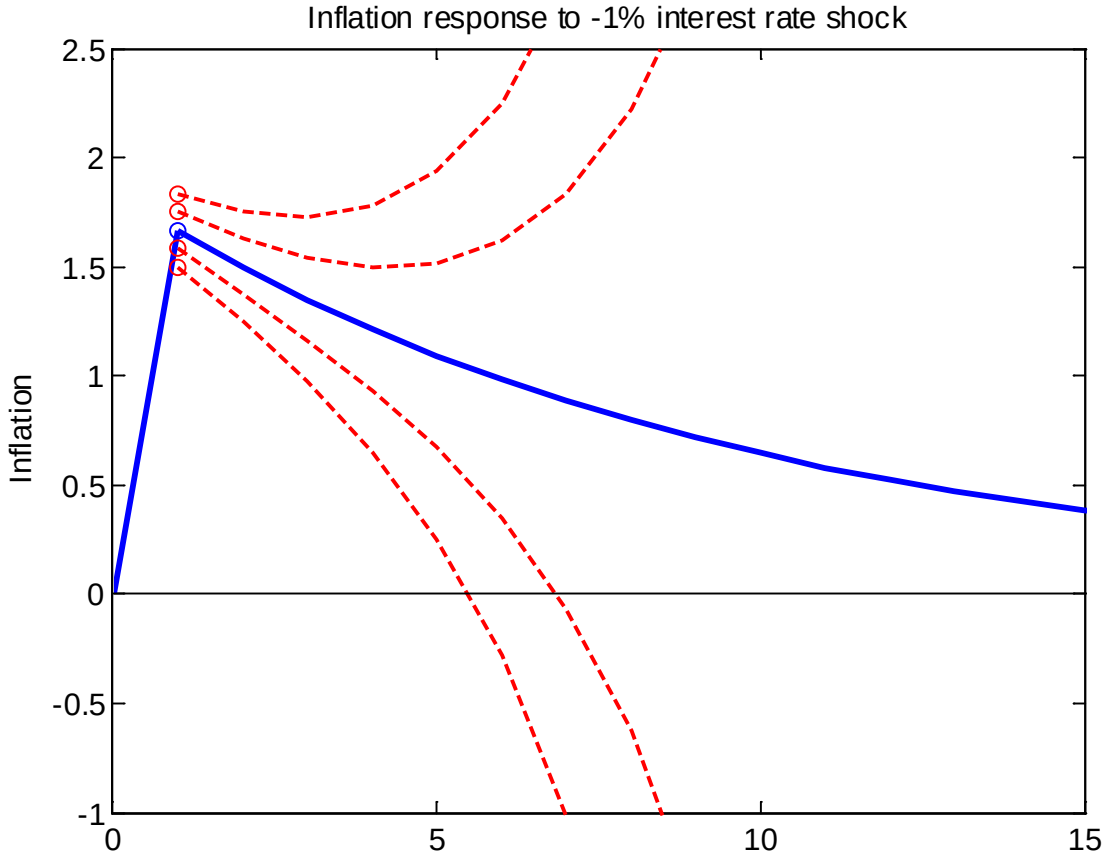
- The Taylor principle *stabilizes* the economy
- The Phillips curve replaces MV=PY as the central economics determining inflation
- Problem: Phillips curve?
- Problem: It's *wrong*. Lucas, etc.

- New-Keynesian, forward-looking. Changing dates *changes everything*.

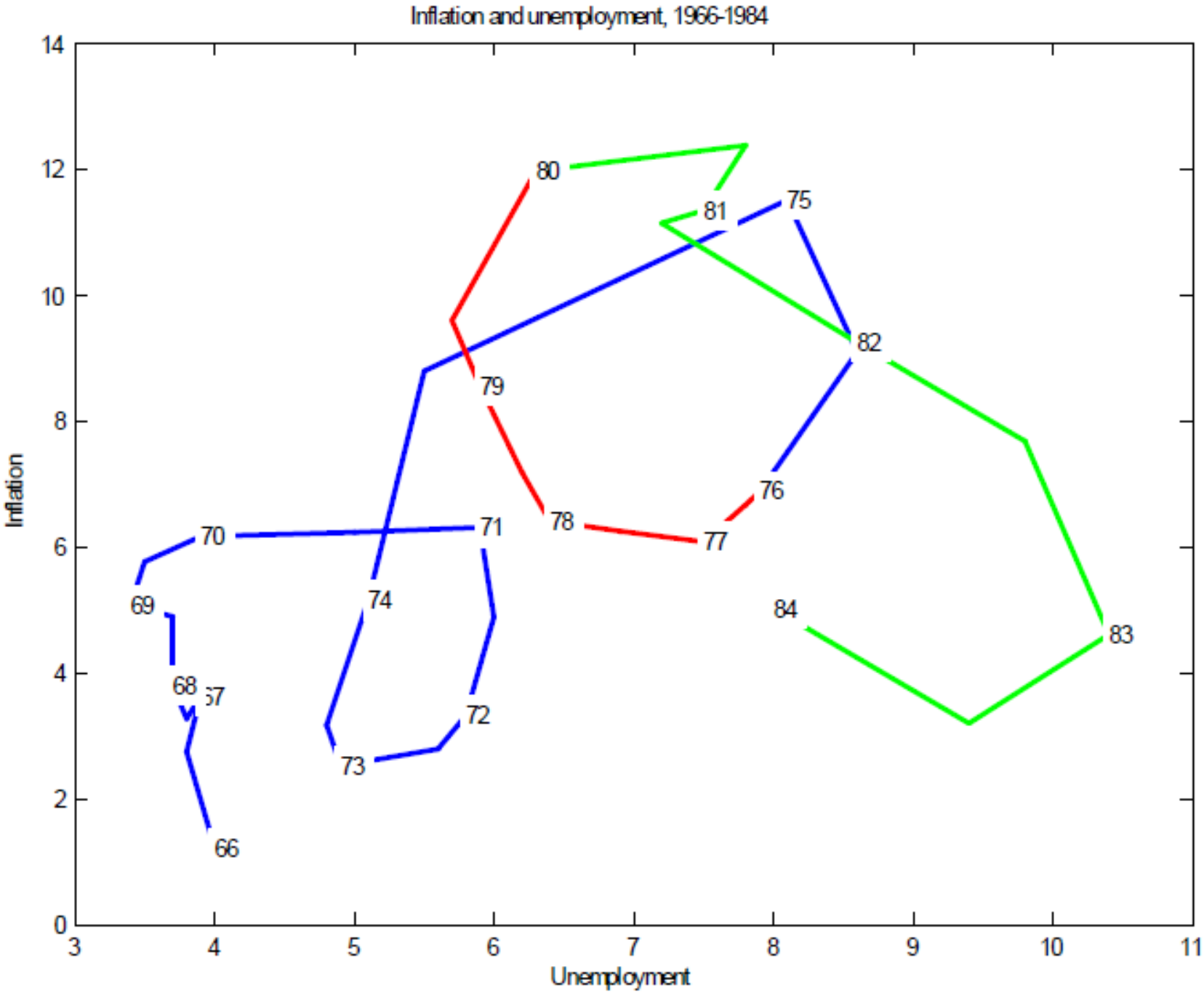
$$y_t = \boldsymbol{E_t y_{t+1}} - \sigma(i_t - \boldsymbol{E_t \pi_{t+1}} - r) \quad (1)$$
$$\pi_t = \boldsymbol{\beta E_t \pi_{t+1}} + \gamma \boldsymbol{y_t} \quad (2)$$
$$i_t = r + \varphi_\pi \pi_t + \varphi_y y_t + v_t \quad (3)$$

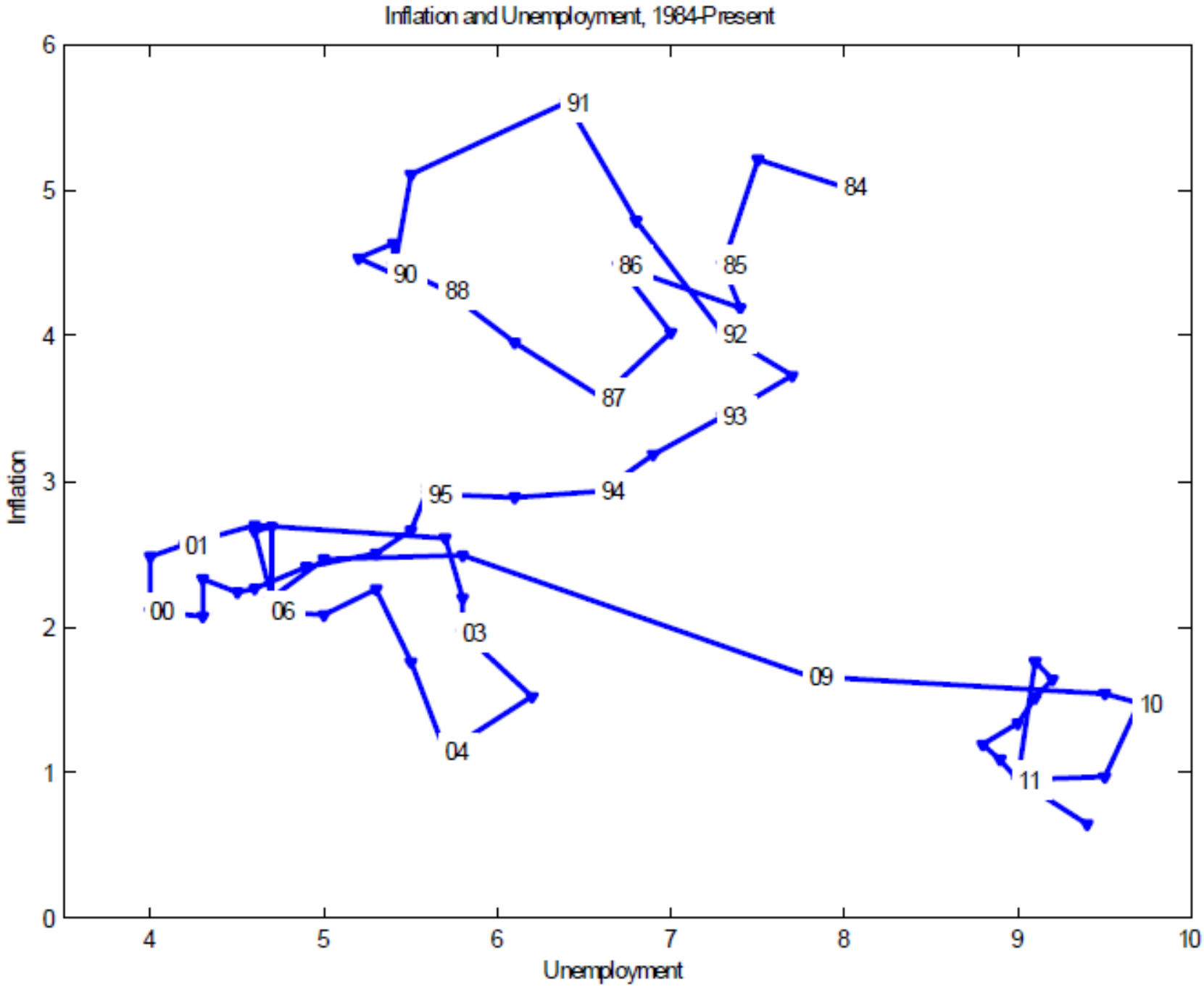
How do interest rates affect inflation? New-Keynesian model

$$i_t = r + E_t\pi_{t+1} \qquad E_t\pi_{t+1} = \varphi_\pi \pi_t + x_t$$
$$i_t = r + \varphi_\pi \pi_t + x_t$$
$$x_t = \rho x_{t-1} + \varepsilon_t$$



- The Phillips curve can be absent!
- The Taylor principle *destabilizes* the economy to give (local) determinacy
- Fed: Jump to the equilibrium we like or we induce hyperinflation


Inflation and unemployment, 1966-1984
Inflation
Unemployment
0
2
4
6
8
10
12
14
3
4
5
6
7
8
9
10
11
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84


Inflation and Unemployment, 1984-Present
Inflation
Unemployment
0
1
2
3
4
5
6
4
5
6
7
8
9
10
84
85
86
87
88
90
91
92
93
94
95
00
01
03
04
06
09
10
11

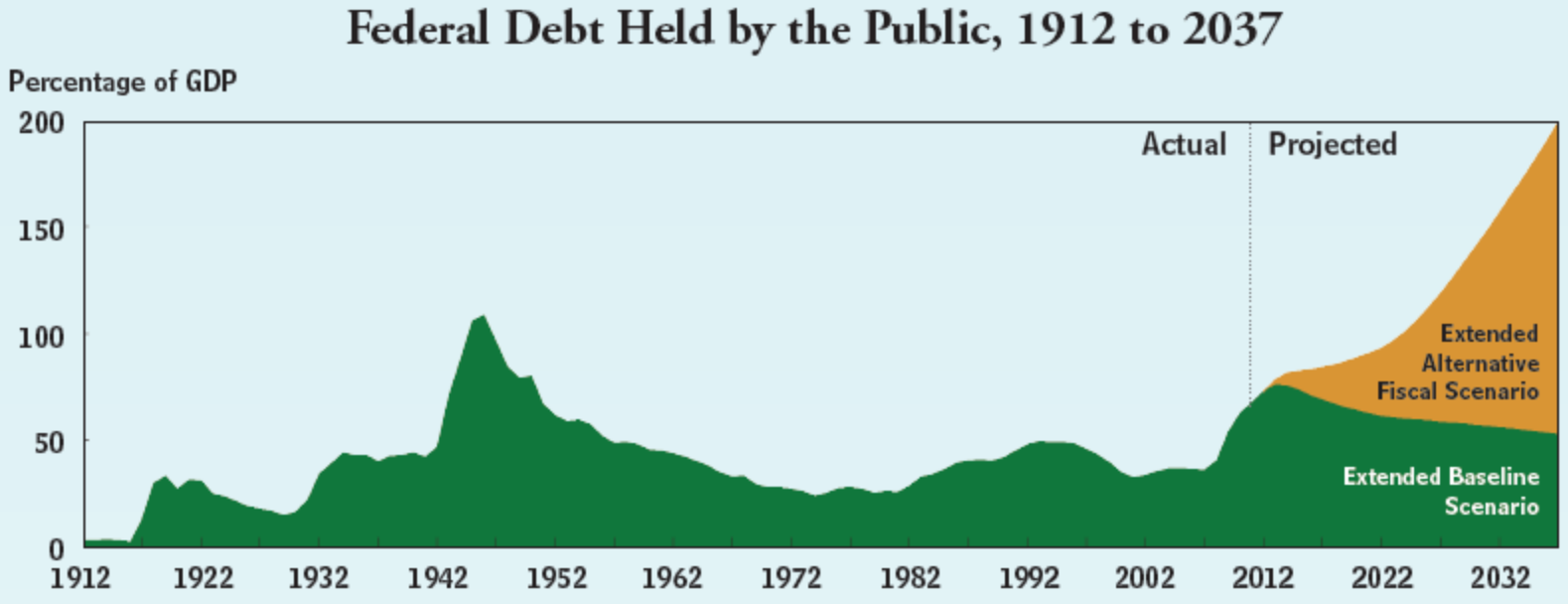
M Policy in the shadow of sovereign debt

Revenue: $2.5T
Expense: $3.5T
Debt: $16T
Promises:Gazillions

CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

CBO

The 2012 Long-Term Budget Outlook



What can monetary policy do? In a time of debt/deficits?

- Monetary policy cannot control P without fiscal backing
- Scenarios:
  - ECB if the South defaults.
  - US tightening: 5% = $900 billion. Raising rates is a fiscal policy!
  - Fed cannot tighten. Control over rates less than we think. Anchoring?
- Theories of inflation
  1. ~~MV = PY. Reserves are "special," linked to PY in a way bonds are not~~
  2. ~~Control of nominal interest rates alone determines inflation~~
  3. Money is valued as an asset, "backing" or intrinsically valuable. (Pay taxes)
- Volker tightening, Sargent/Wallace forecast?

Some Unpleasant Monetarist Arithmetic

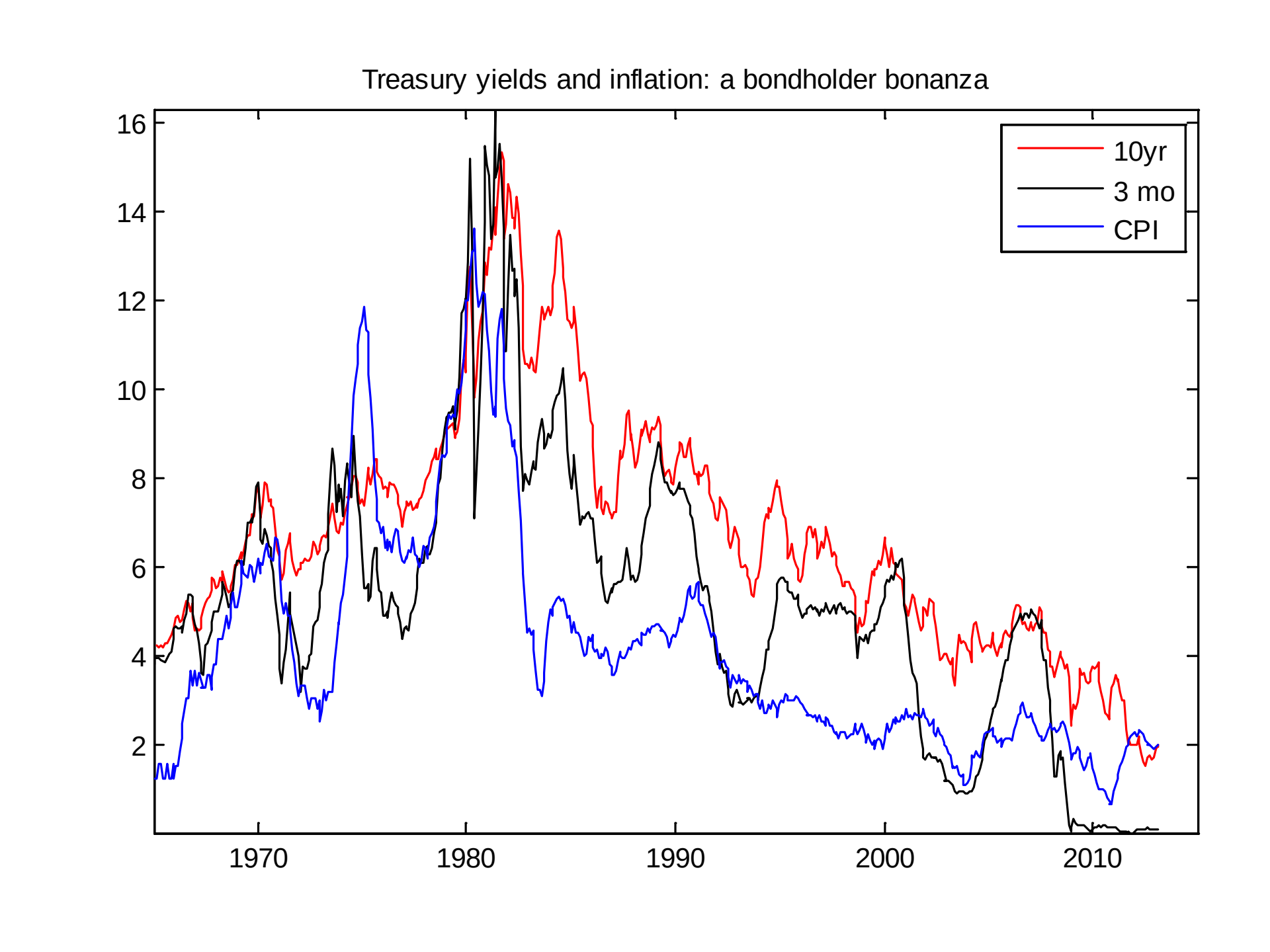
Thomas J. Sargent
Neil Wallace

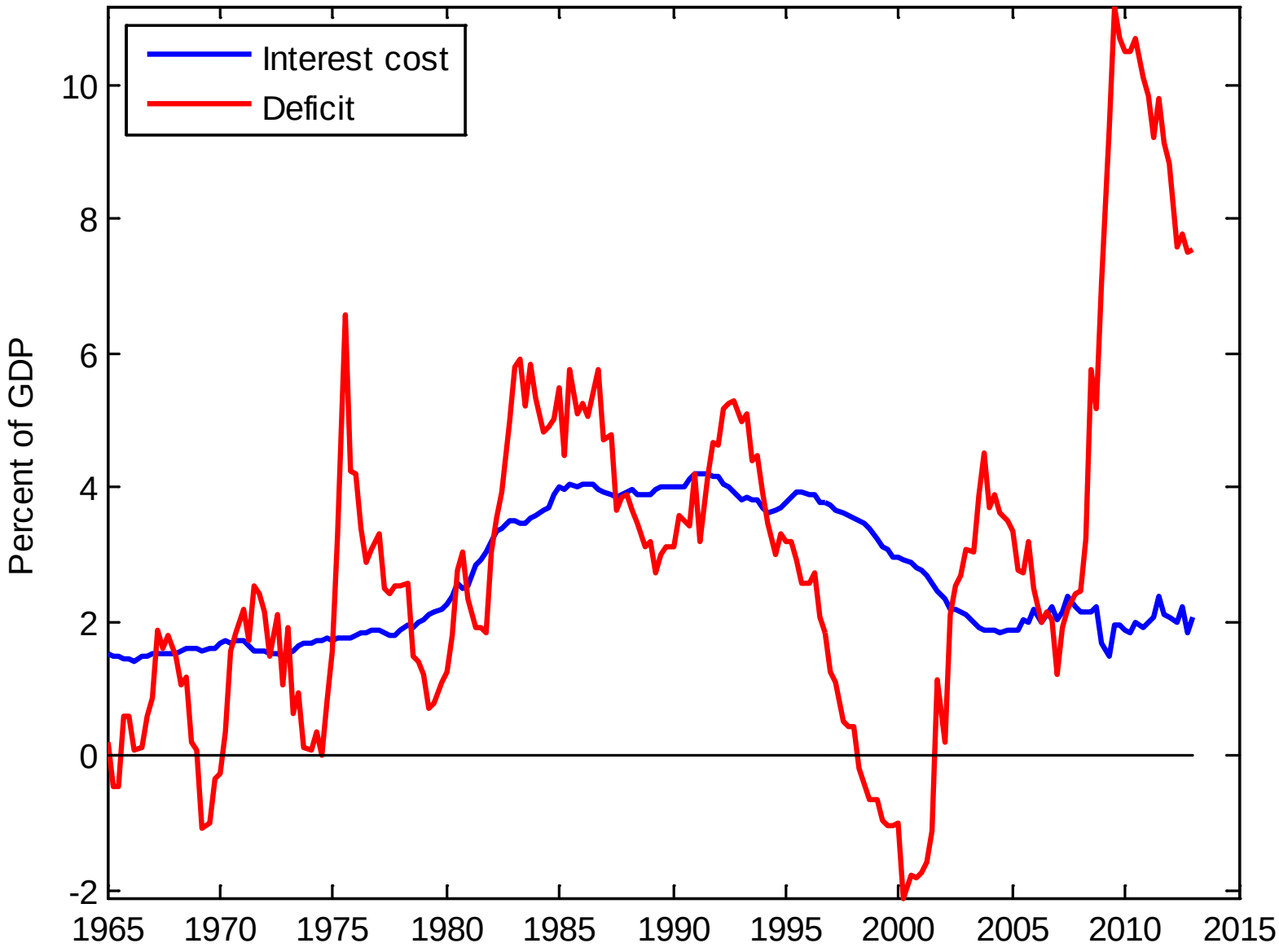
Advisers
Research Department
Federal Reserve Bank of Minneapolis
and
Professors of Economics
University of Minnesota

In his presidential address to the American Economic Association (AEA), Milton Friedman (1968) warned not to expect too much from monetary policy. In particular, Friedman argued that monetary policy could not permanently influence the levels of real output, unemployment, or real rates of return on securities. However, Friedman did assert that a monetary authority could exert substantial control over the inflation rate, especially in the long run. The purpose of this paper* is to argue that, even in an economy that satisfies monetarist assumptions, if monetary policy is interpreted as open market operations, then Friedman's list of the things that monetary policy cannot permanently control may have to be expanded to include inflation.

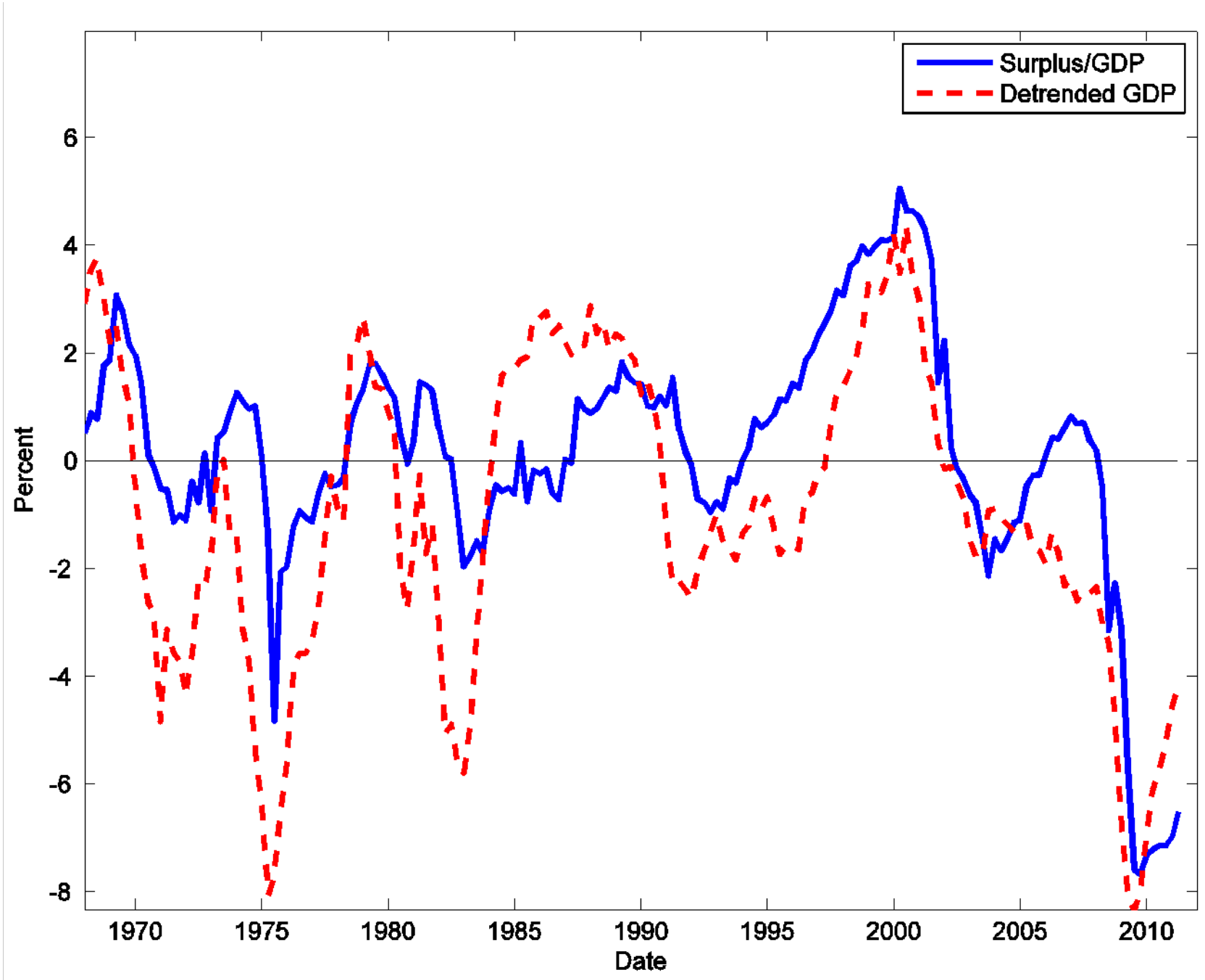
in at least two ways. (For simplicity, we will refer to publicly held interest-bearing government debt as *government bonds*.) One way the public's demand for bonds constrains the government is by setting an upper limit on the real stock of government bonds relative to the size of the economy. Another way is by affecting the interest rate the government must pay on bonds. The extent to which these constraints bind the monetary authority and thus possibly limit its ability to control inflation permanently partly depends on the way fiscal and monetary policies are coordinated. To see this, consider two polar forms of coordination.

On the one hand, imagine that monetary policy dominates fiscal policy. Under this coordination scheme,

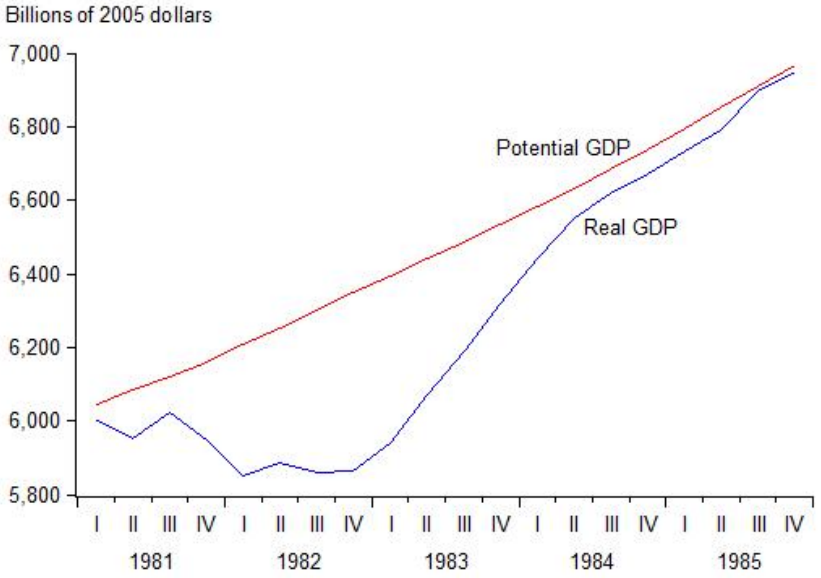

Treasury yields and inflation: a bondholder bonanza
16
14
12
10
8
6
4
2
1970
1980
1990
2000
2010
10yr
3 mo
CPI


Interest cost
Deficit
Percent of GDP
10
8
6
4
2
0
-2
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015

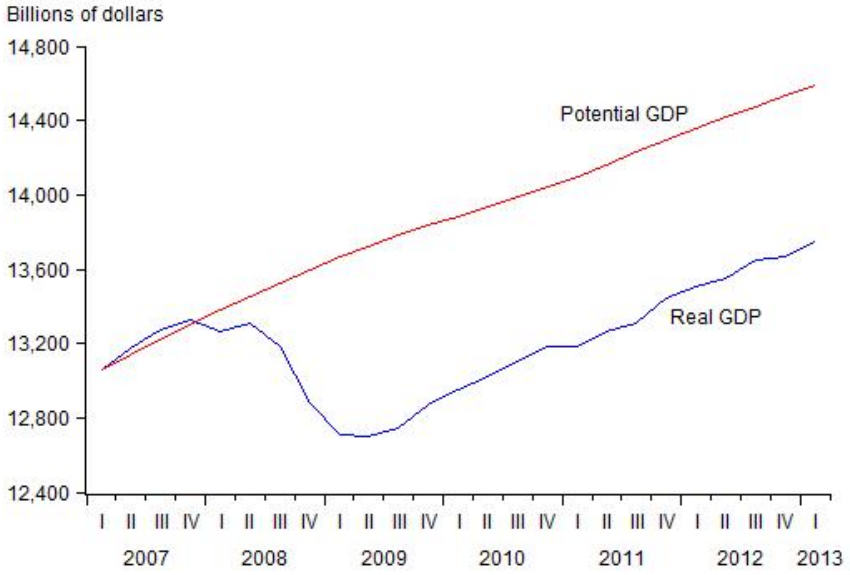
Primary Surplus and Detrended GDP



1982 recession and now



Then



Now

Graphs: John Taylor

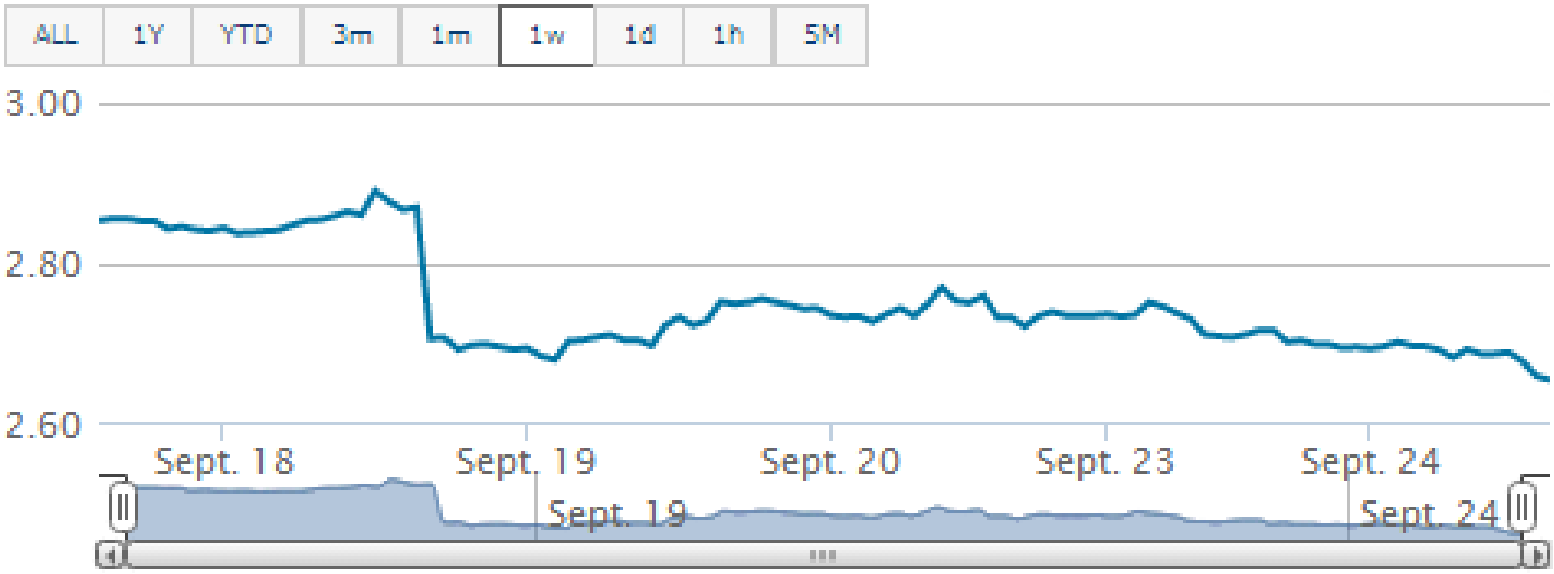
Monetary/fiscal policy

- Volker tightening, SW forecast: a fiscal view.
- Fiscal channel of interest rate policy effects?
  1. Higher interest costs cause primary deficit reductions.
  2. IOR as fiscal policy!
- What *can* change the price level?
  1. Currency reform / join Euro
  2. FX peg (historically, gold peg)
  3. Helicopters
- All are *fiscal* policy commitments.
- No need to fear deflation, no need for a positive inflation target
- M policy with 100% D/Y is a lot different than with 20% D/Y!
- Lots for central bank (maturity management) to do even with a completely fiscal-dominant regime.
  - $i_t = E_t \pi_{t+1}$
  - Maturity controls the *timing* of inflation / AD
- Better ways to communicate fiscal commitments of stable p?

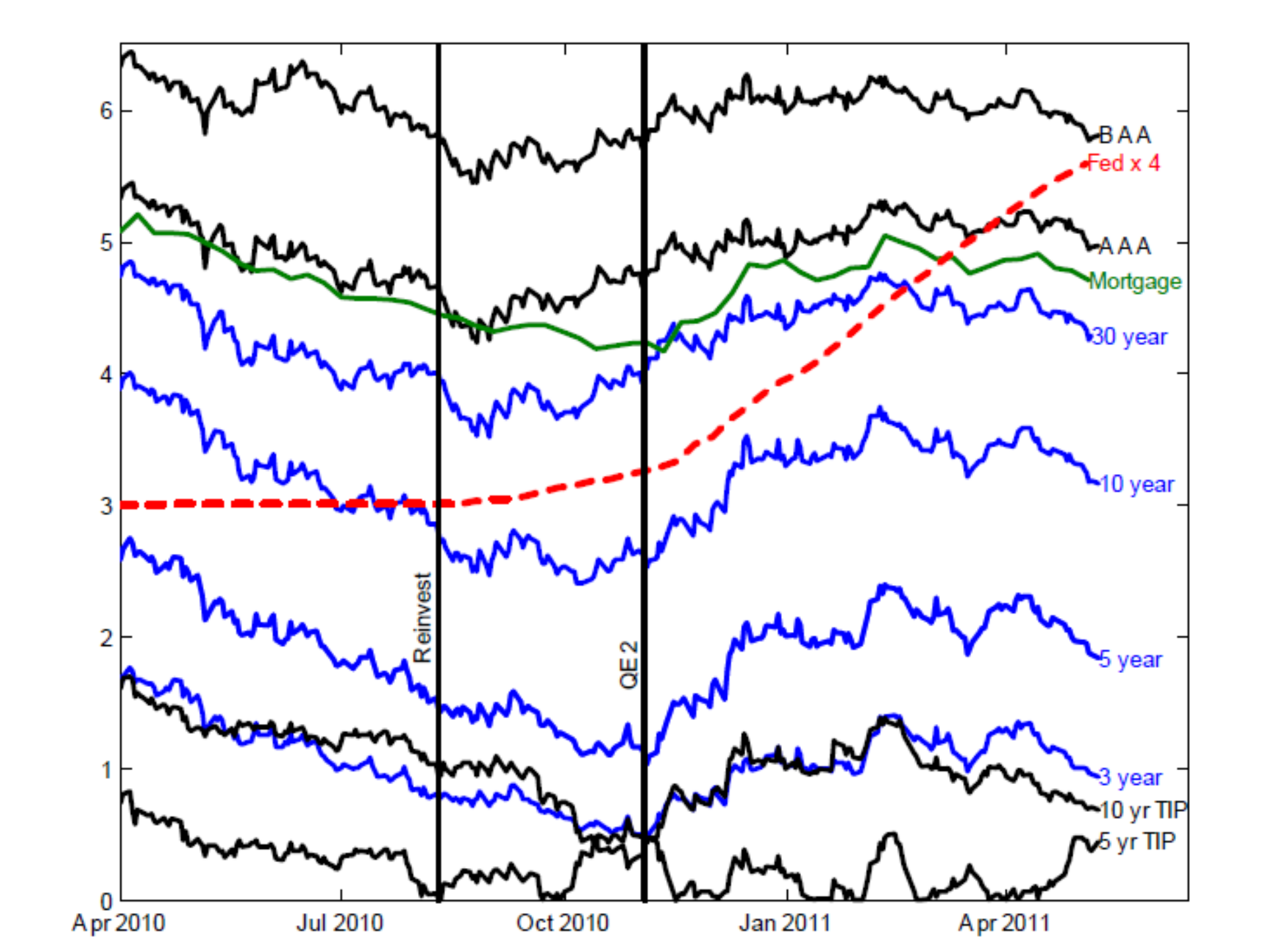
Unconventional policy mechanisms

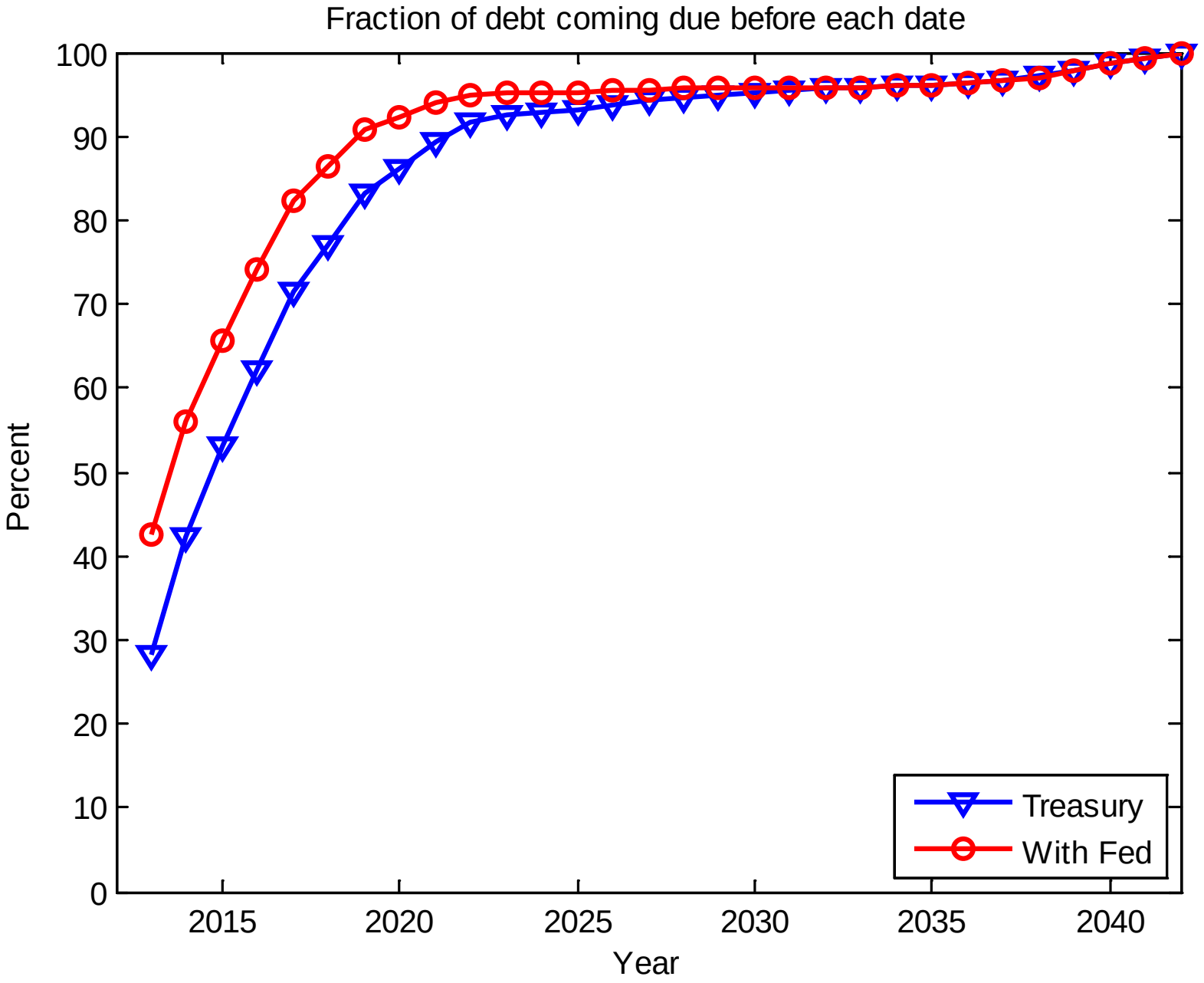
- Interest on reserves.
  - Optimal quantity of money! "Monetary" policy is over! i=0!
  - Financial stability
  - Once MV=PY is not in charge of P, no reason to starve
- QE to affect *bought* assets in "segmented" markets.
  - Theory. How? How long? How big? How does R affect PY?
  - Evidence: Tiny and from announcements.
- "Macroprudential" policies. Diagnose and prick "bubbles." Capital controls, target asset prices.
  - Can monetary policy affect asset risk premiums? No theory.
- Use vastly expanded regulatory power to direct lending.
- Talk policy.
  - "Manage expectations" "Announce higher inflation target" "Forward guidance" "Commit now to hold rates lower than we know we will want when the time comes." QE as signal.
- Precommitment needs a rule that actually limits power ex post.

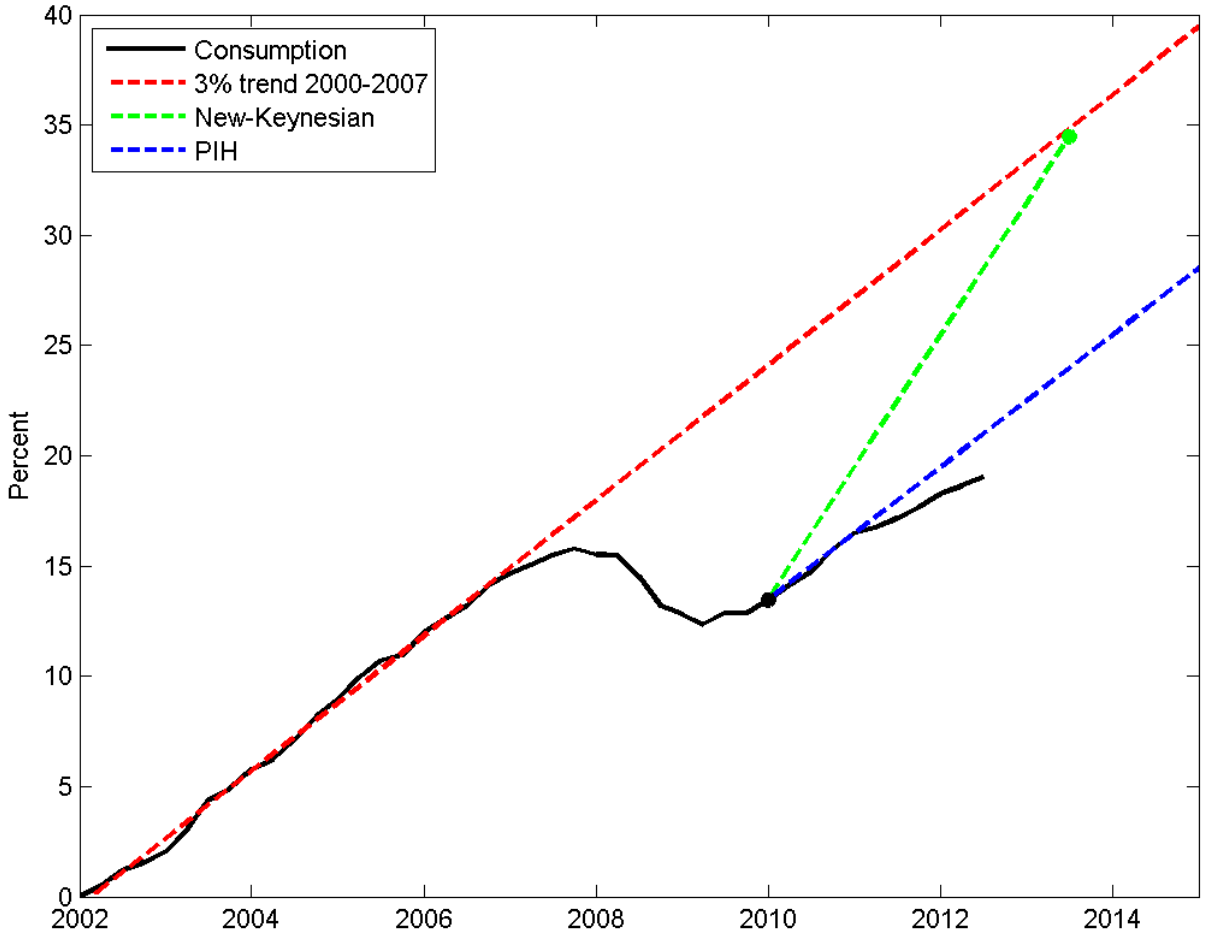
U.S. 10-Year Treasury Yield



Source: WSJ Market Data Group


6
5
4
3
2
1
0
Apr 2010
Jul 2010
Oct 2010
Jan 2011
Apr 2011
Reinvest
QE 2
BAA
Fed x 4
AAA
Mortgage
30 year
10 year
5 year
3 year
10 yr TIP
5 yr TIP


Fraction of debt coming due before each date
Percent
Year
100
90
80
70
60
50
40
30
20
10
0
2015
2020
2025
2030
2035
2040
Treasury
With Fed



$$\gamma \frac{dc_t}{dt} = i_t - \pi_t - \rho \quad (1)$$

$$c_t = -\frac{1}{\gamma} \int_{s=t}^{\infty} (i_s - \pi_s - \rho)\, ds + \lim_{T \to \infty} c_T \quad (2)$$

Rules, discretion, mandates

- 2007: inflation target? Short rate instrument. Almost Taylor rule
- Now:
  - Mandate, targets expanded enormously
  - Instruments expanded enormously
  - Policies have huge fiscal, allocational, consequences
  - "Do what it takes" not instrument rules (mandate ≠ rule)
  - Great political independence (for now)
- Toxic stew must end badly

- Limited power is the price of independence
- Functions in separate institutions with different independence/political accountabilty
  - Regulation, systemic regulation, and monetary policy
  - Discretionary fine-tuning, credit allocation, etc. to Treasury
  - Price-level policy: independence is important
  - Central *bank*
- ECB: common currency with sovereign default.

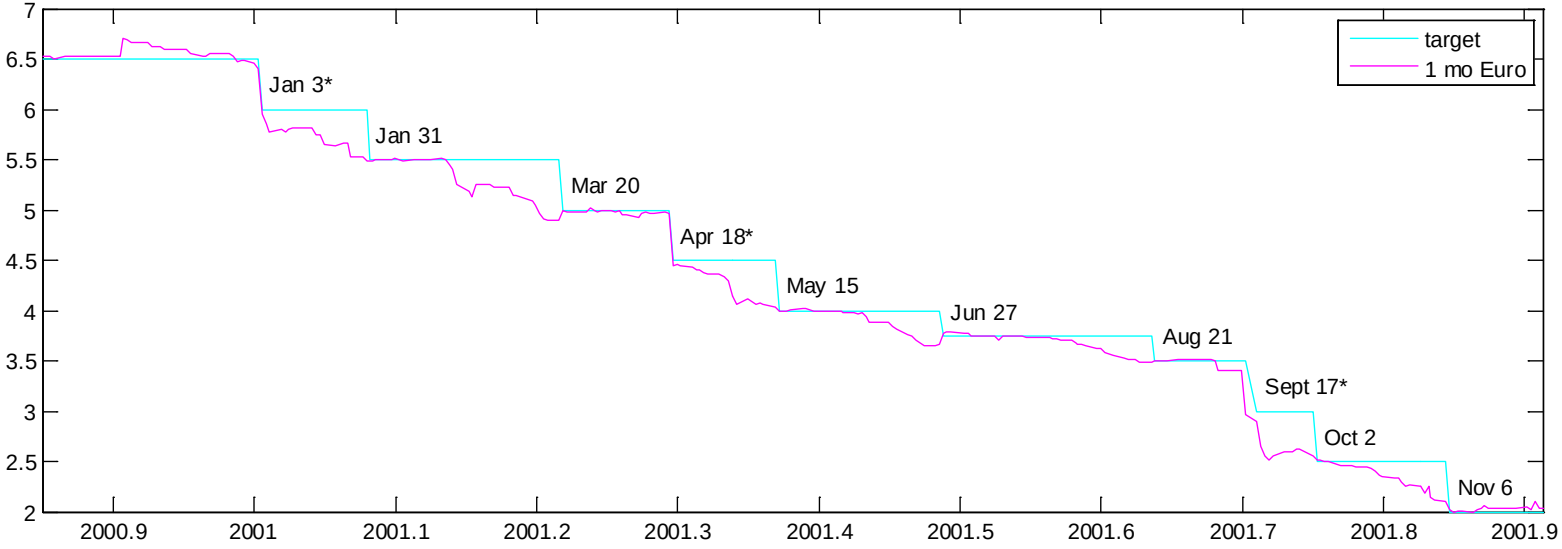
Summary: Central banks

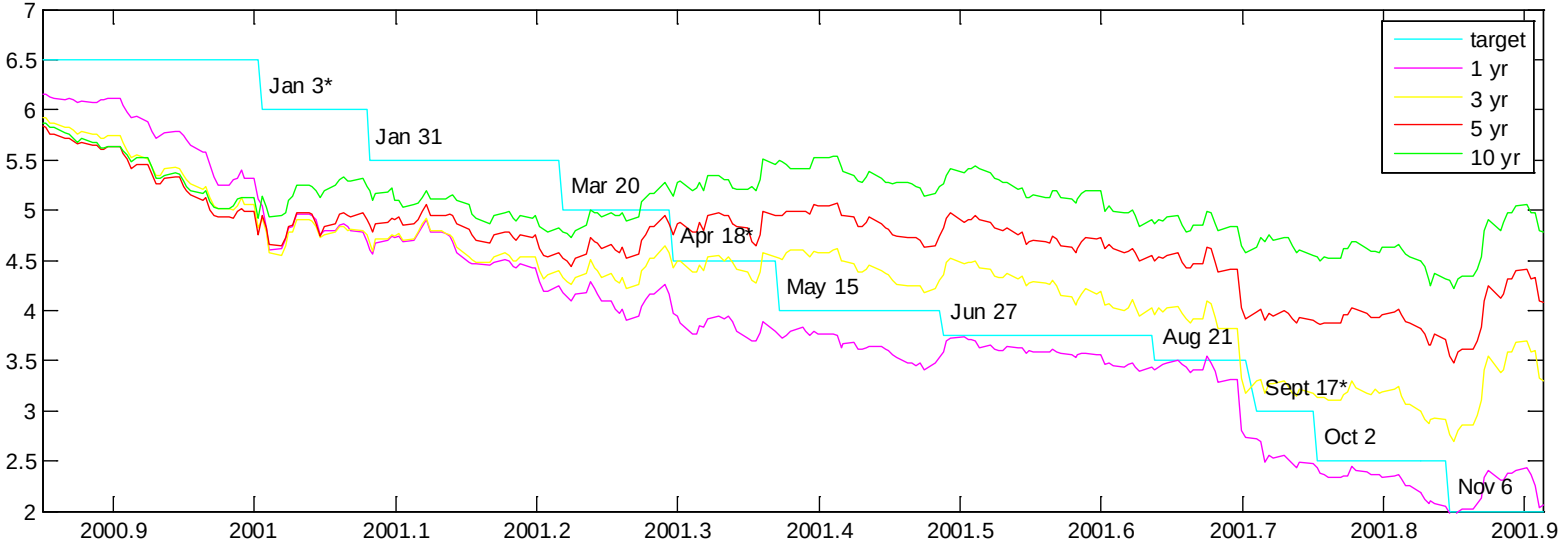
or

?

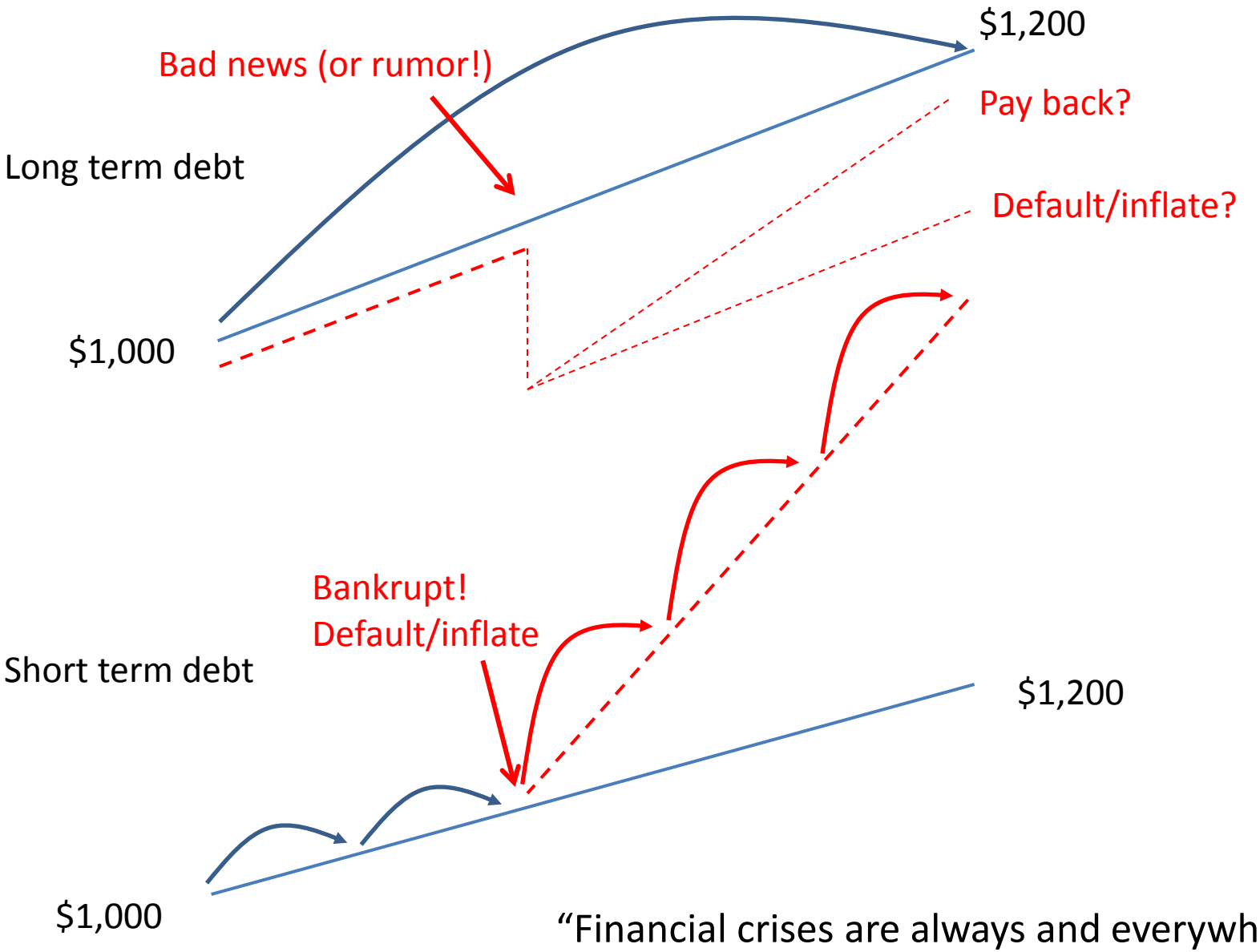
The End

Questions?


target
1 mo Euro
Jan 3*
Jan 31
Mar 20
Apr 18*
May 15
Jun 27
Aug 21
Sept 17*
Oct 2
Nov 6
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
2000.9
2001
2001.1
2001.2
2001.3
2001.4
2001.5
2001.6
2001.7
2001.8
2001.9


target
1 yr
3 yr
5 yr
10 yr
Jan 3*
Jan 31
Mar 20
Apr 18*
May 15
Jun 27
Aug 21
Sept 17*
Oct 2
Nov 6
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
2000.9
2001
2001.1
2001.2
2001.3
2001.4
2001.5
2001.6
2001.7
2001.8
2001.9

Short term debt: Future problems cause crisis today



"Financial crises are always and everywhere the result of short term debt"