Fiscal Inflation in 1933

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Next Steps for the Fiscal Theory of the Price Level

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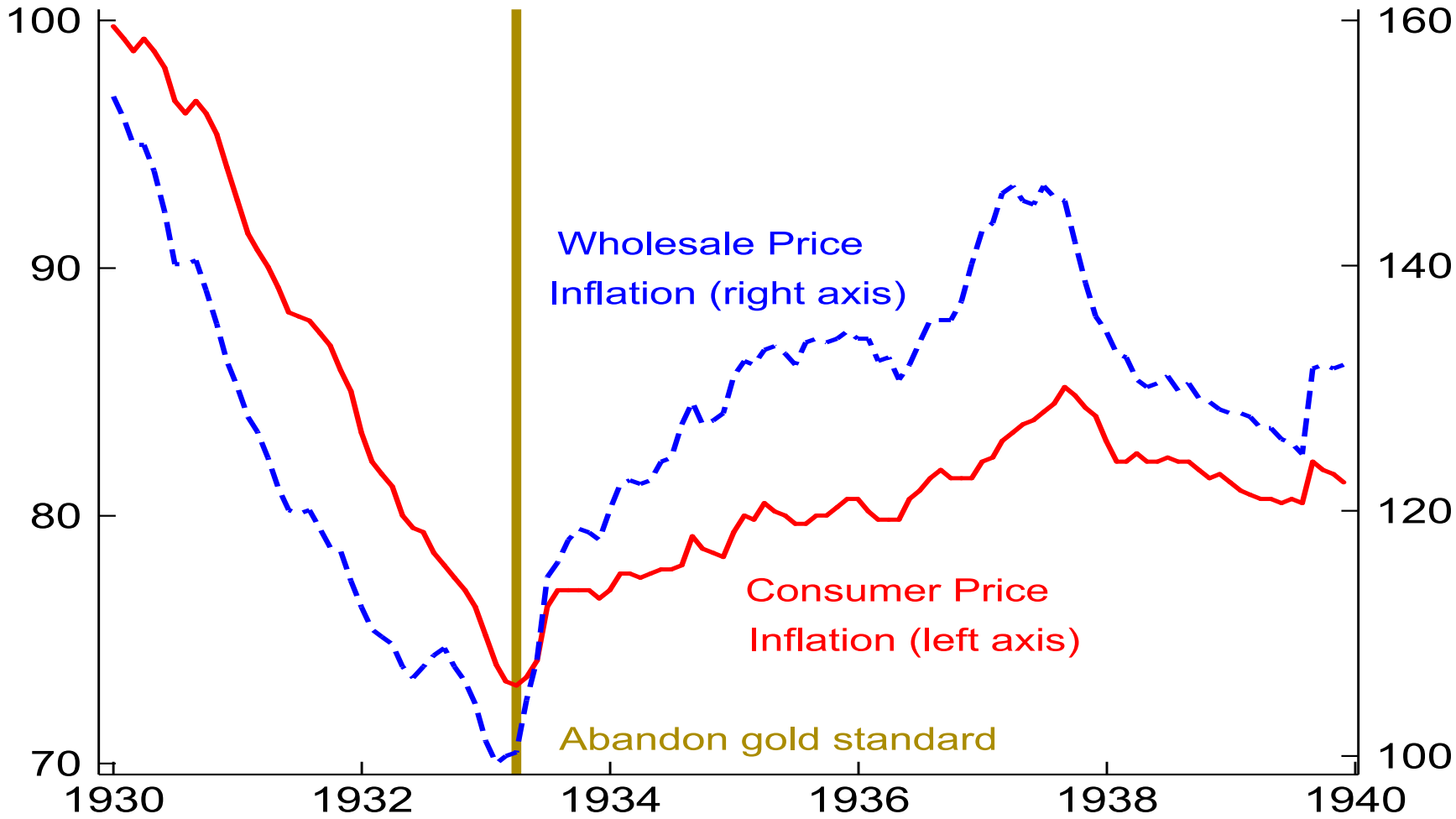
Introduction

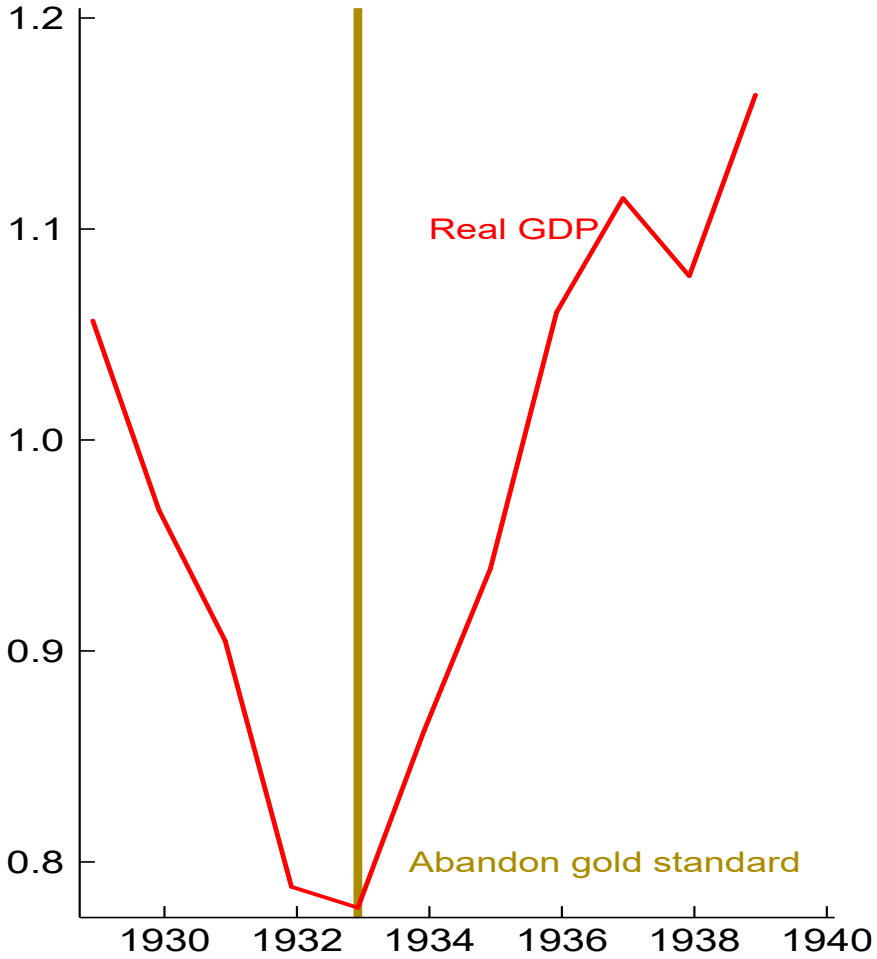
- Role of fiscal financing in the Great Depression
- Was an unbacked fiscal expansion behind the 1933 recovery in the United States?
- Previous work emphasizes regime change associated with Roosevelt
  - Leaving the gold standard brought on a large depreciation in the dollar, stimulating exports and demand (Temin and Wigmore).
  - But France and the UK had similar devaluations without the boom. What was different about the US?
- We argue that leaving gold was a necessary condition
  - Converted effectively real government debt into nominal debt
  - Not sufficient because policy could have opted to aggressively target inflation and adjust surpluses to stabilize debt $\Longrightarrow$ tepid recovery
  - Instead, monetary policy pegged the nominal interest rate
- Contribution: fiscal sustainability and fiscal stimulus need not be in conflict
  - Roosevelt convinced people that fiscal expansion would not be followed by fiscal contraction

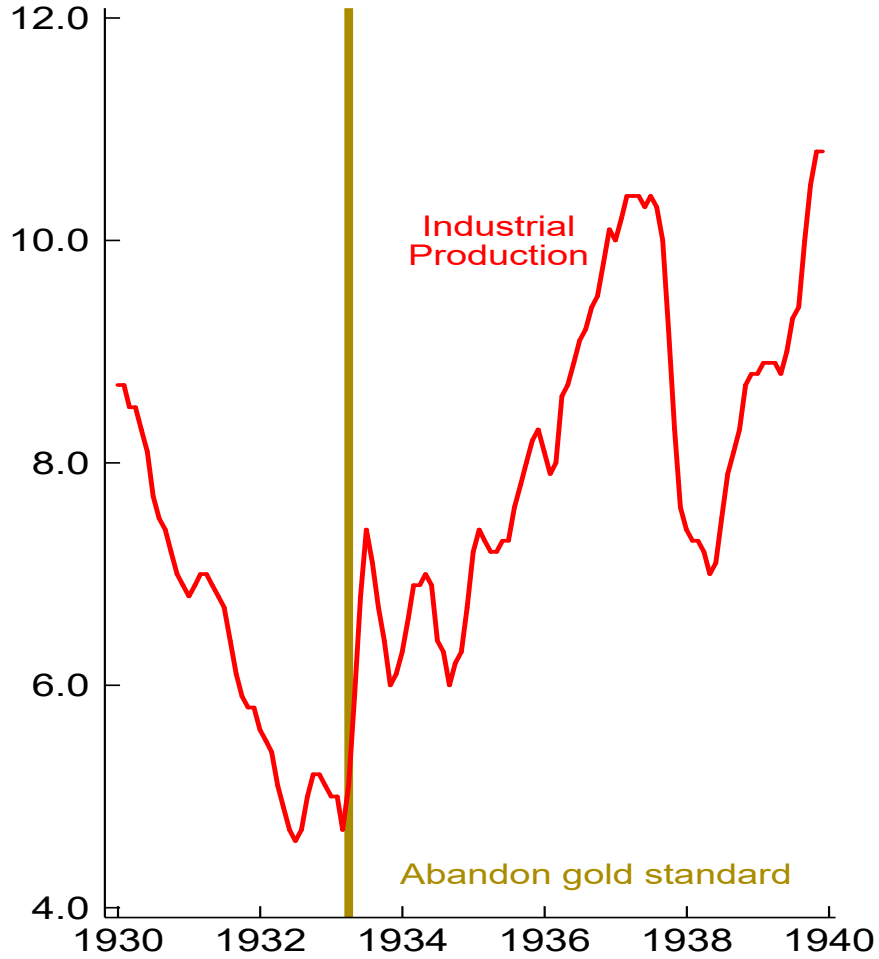
U.S. Inflation



Index, 1957-1959=100. Sources: BEA & BLS from NBER Macrohistory Database, Eggertsson (2008)

U.S. Output





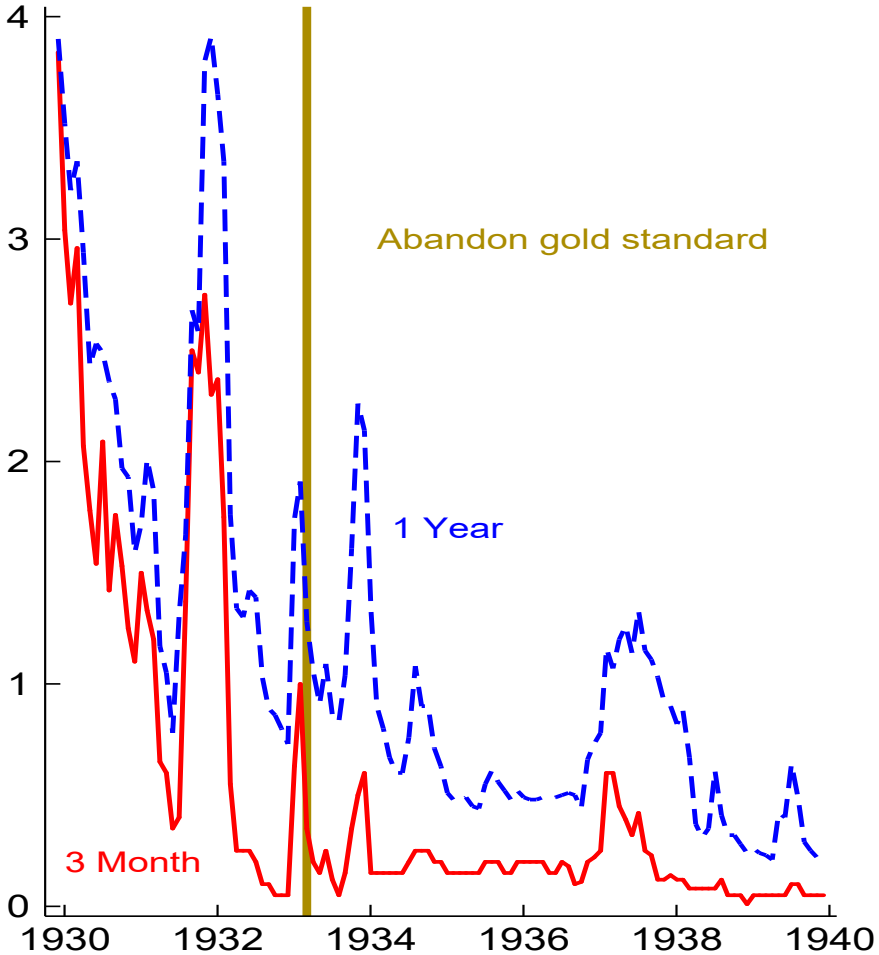
Real GDP in trillions of 2009 dollars. Industrial production, 2012=100. Sources: Measuring Worth, Federal Reserve Board.

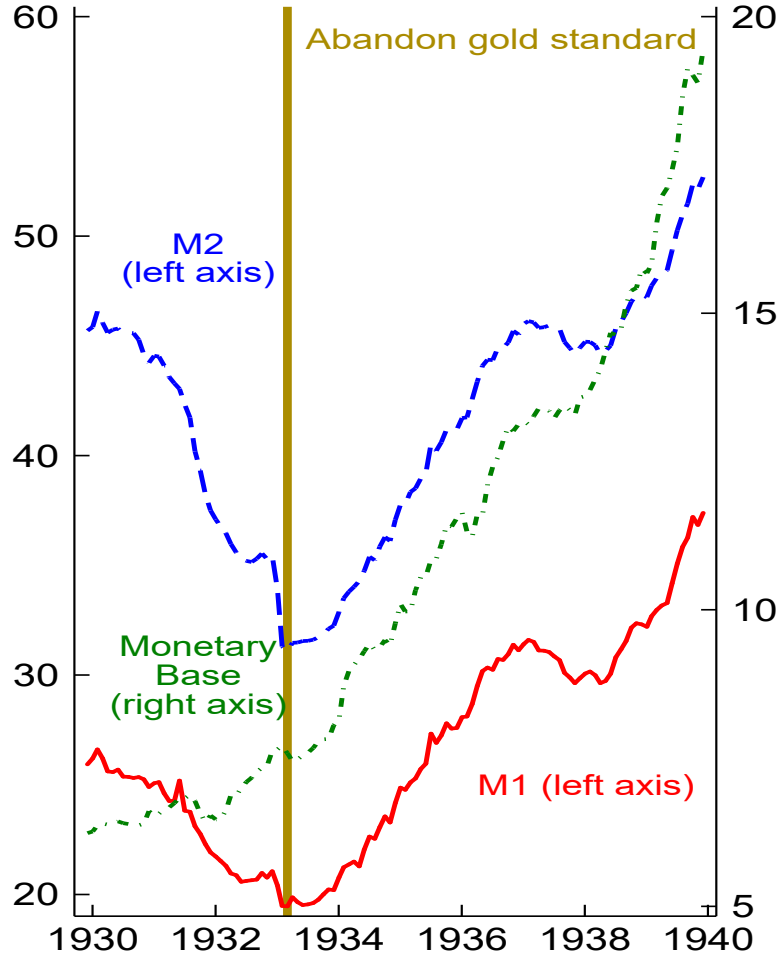
Unemployment Rate

Monetary Policy

- In 1933, the Fed was not adjusting interest rates in response to the price level
- Meltzer (2003): Fed followed Rielfer-Burgess doctrine and the gold standard
- Friedman & Schwartz (1963): recovery in the spring of 1933
  "owed nothing to monetary expansion"
- Pegged interest rates laid groundwork for unbacked fiscal expansion by pushing all revaluation of government debt into the short run, producing higher inflation and lower real interest rates

U.S. Short Term Interest Rates and Monetary Aggregates





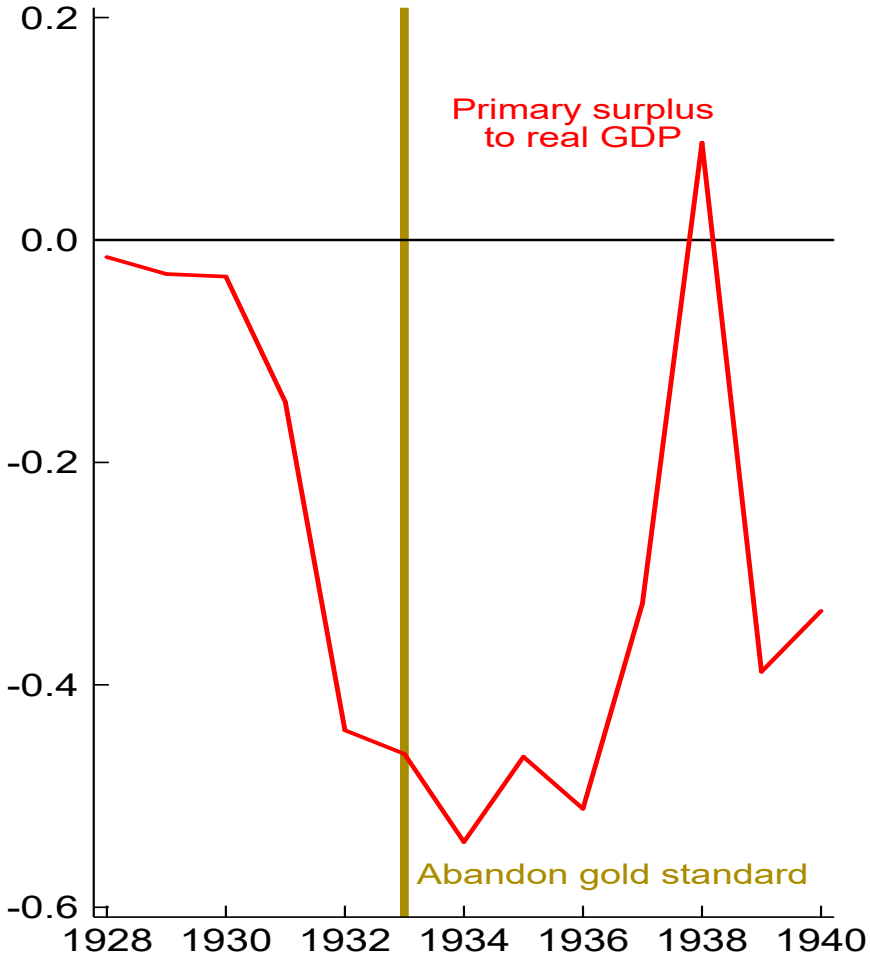
Interest rates in percent. Monetary aggregates in billions of dollars. Sources: Cecchetti (1998), Eggertsson (2008), Friedman and Schwartz (1970), *Banking and Monetary Statistics, 1914-1941* (1943).

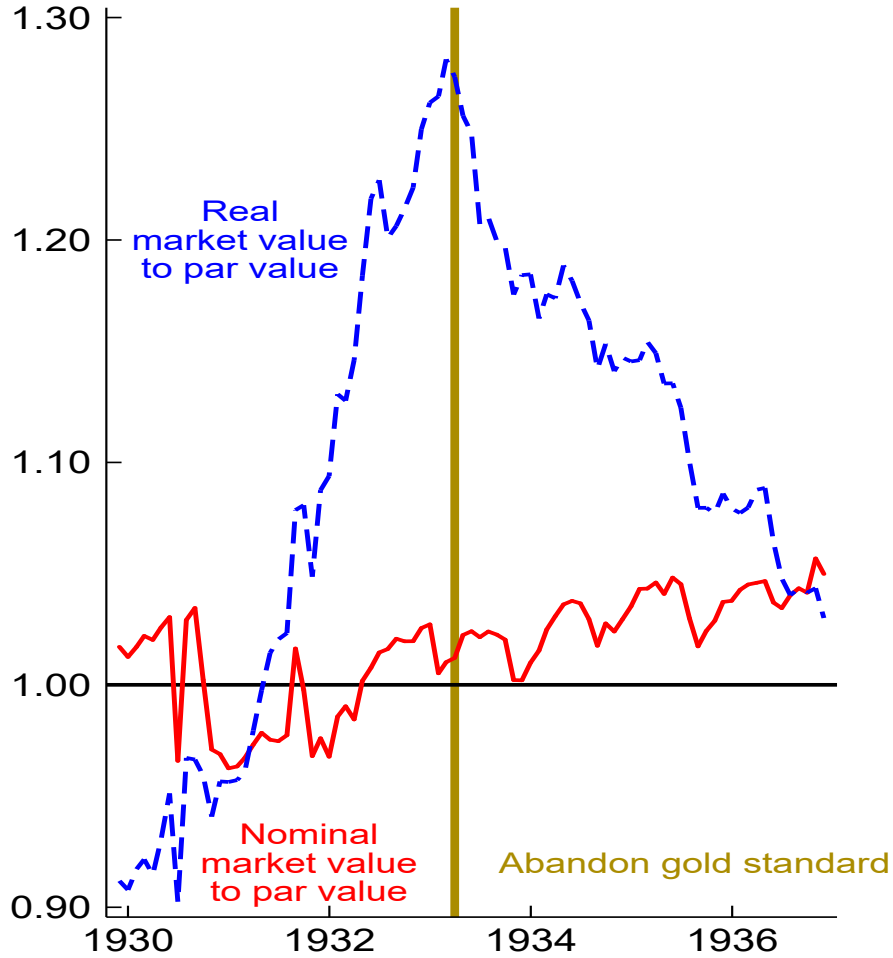
More

Fiscal Policy

- Unbacked fiscal expansion: expansion in nominal government debt not associated with a belief that the present value of primary surpluses will rise by an amount equal to the value of the increase in debt, evaluated at the pre-expansion prices.
- Roosevelt touted the evils of deficits
  - Balanced the "regular" budget
  - Ran deficits on "emergency budget"
  - Vague promises to finance emergency spending in the future
  - Kept focus on the need to raise prices
  - Deficits were widely perceived as inflationary, particularly by bankers
- Fiscal rule: surplus in normal times, deficits in emergencies to re-inflate. Roosevelt seemed committed to running budget deficits financed by nominal debt issuance until the price level rose.
- Nominal debt growth without the expectation of higher taxes induces substitution out of bonds and into goods, raising aggregate demand

U.S. Unbacked Fiscal Expansion





Primary surplus to real GDP in percent. CPI, 100=1926. Sources: various *Annual Reports of the Treasury*, various monthly Treasury Bulletins, NBER Macrohistory Database, CRSP, Measuring Worth.

Leaving the Gold Standard

- Lesson for today: policymakers in the US could have chosen not to reinflate
  - Many countries today choose not to reinflate as did France and the UK in the 1930s
- Departing gold was "regime change" rather than shift in "policy dogmas" from balanced budgets to a belief in deficits (contrast to Eggertsson)
- Preliminary theoretical results of price level determination under the gold standard hinge on how the gold cover ratio is modeled
- Gold cover ratio: statutory requirement that every Federal Reserve bank maintain 35% gold or lawful money against deposits and 40% of gold against FRS notes in circulation
- Fixed gold cover ratio
  - Government cannot vary the money supply independently of the monetary gold stock
  - With the price of gold pegged, the price level depends on all shocks, particularly shocks to gold supply and demand
  - Fiscal and monetary policy must be passive
- Gold cover ratio as a function of endogenous variables
  - Possible for either monetary or fiscal policy to determine the price level
  - May require fluctuations in the cover ratio unlike those observed Gold Cover Ratio

Surprise Gains and Losses on Debt (Sims (2013))

$$\left(P_t^M B_t^M (1-\tilde{\pi}_t) + S_t - (1+r_{t-1}) P_{t-1}^M B_{t-1}^M\right) / P_t^M B_t^M$$

$P_t^M B_t^M$: Market value of US debt

$\tilde{\pi}_t$: Inflation forecast error $(\pi_t - \pi_{t-1})$, where π_t is the log difference of the CPI

S_t : Primary surplus

r_t : One-year interest rate on Treasuries

Correlation of Surprise Gains and Losses with Components

	Gold standard 2/1929-3/1933	After gold standard 4/1933-12/1936
$P_t^M B_t^M$	0.3237	0.1726
$\tilde{\pi}_t$	-0.4175	-0.4093
S_t	0.0953	0.3610
r_t	-0.3597	-0.0780
$(P_t^M B_t^M / P_t)/B_t$	0.3317	-0.1154
$S_t/(P_t^M B_t^M / P_t)$	0.0975	0.4085

Sources: BLS, Eggertsson(2008), *Annual Reports of the Treasury*, various monthly Treasury Bulletins, NBER Macrohistory database, CRSP.

Graph

Calculation of Revaluation Effects

Par value of all outstanding debt at $t-1$: $B_{t-1} = \sum_{j=0}^{\infty} \sum_{i=1}^{N} B_{i,t-1}(t+j)$

Where $i = 1, \ldots, N$ are the securities that mature in $t+j$

And $j = 0, \ldots, \infty$ are all possible maturities in month $t-1$

Let:

$$\mu_{jt} \equiv \frac{B_{t-1}(t+j)}{B_{t-1}} = \frac{\sum_{i=1}^{N} B_{i,t-1}(t+j)}{B_{t-1}}, \qquad \text{where} \qquad \sum_{j} \mu_{jt} = 1$$

Let the market value of debt be defined as:

$$P_t^M B_t^M = \sum_{j=0}^{\infty} B_t(t+j) N^{-1} \sum_{i=1}^{N} Q_{i,t}(t+j)\mu_{jt}$$

Where $P_t^M \equiv \sum_{j=0}^{\infty} N^{-1} \sum_{i=1}^{N} Q_{i,t}(t+j)\mu_{jt}$

Let weighted real returns from holding the portfolio of zero coupon bonds be given as:

$$r_t^M \equiv \frac{R_t^M}{\pi_t} = \sum_{j=0}^{\infty} \frac{Q_t(t+j)/P_t}{Q_{t-1}(t+j)/P_{t-1}} \frac{Q_{t-1}(t+j)B_{t-1}(t+j)}{P_{t-1}^M B_{t-1}^M}$$

Then the surprise component in real returns on the bond portfolio can be given as:

$$\eta_t^M \equiv r_t^M - \mathbb{E}_{t-1} r_t^M = \sum \left(\frac{Q_t(t+j)/P_t}{Q_{t-1}(t+j)/P_{t-1}} - 1 \right) \frac{Q_{t-1}(t+j)B_{t-1}(t+j)}{P_{t-1}^M B_{t-1}^M}$$

Conclusion/Questions

- Can an unbacked fiscal expansion of the size engineered by Roosevelt quantitatively account for the increase in the price level and economic recovery in the spring of 1933?
- Going off gold allowed fiscal policy to pursue goals other than debt stabilization and allowed monetary and fiscal policy to determine the price level
  - Other equally plausible alternative explanations?
- Departure from the gold standard allowed inflationary fiscal policies
  - How important is modeling int'l gold flows for the unbacked fiscal expansion story?
  - What determined gold cover ratio policies?
  - Did Roosevelt's backtracking on fiscal expansion contribute to the recession of 1937-1938?
- Contrasting the US to the UK and France
  - Weaker recoveries because they did not take full advantage of their policy latitude once departed from the gold standard?

References

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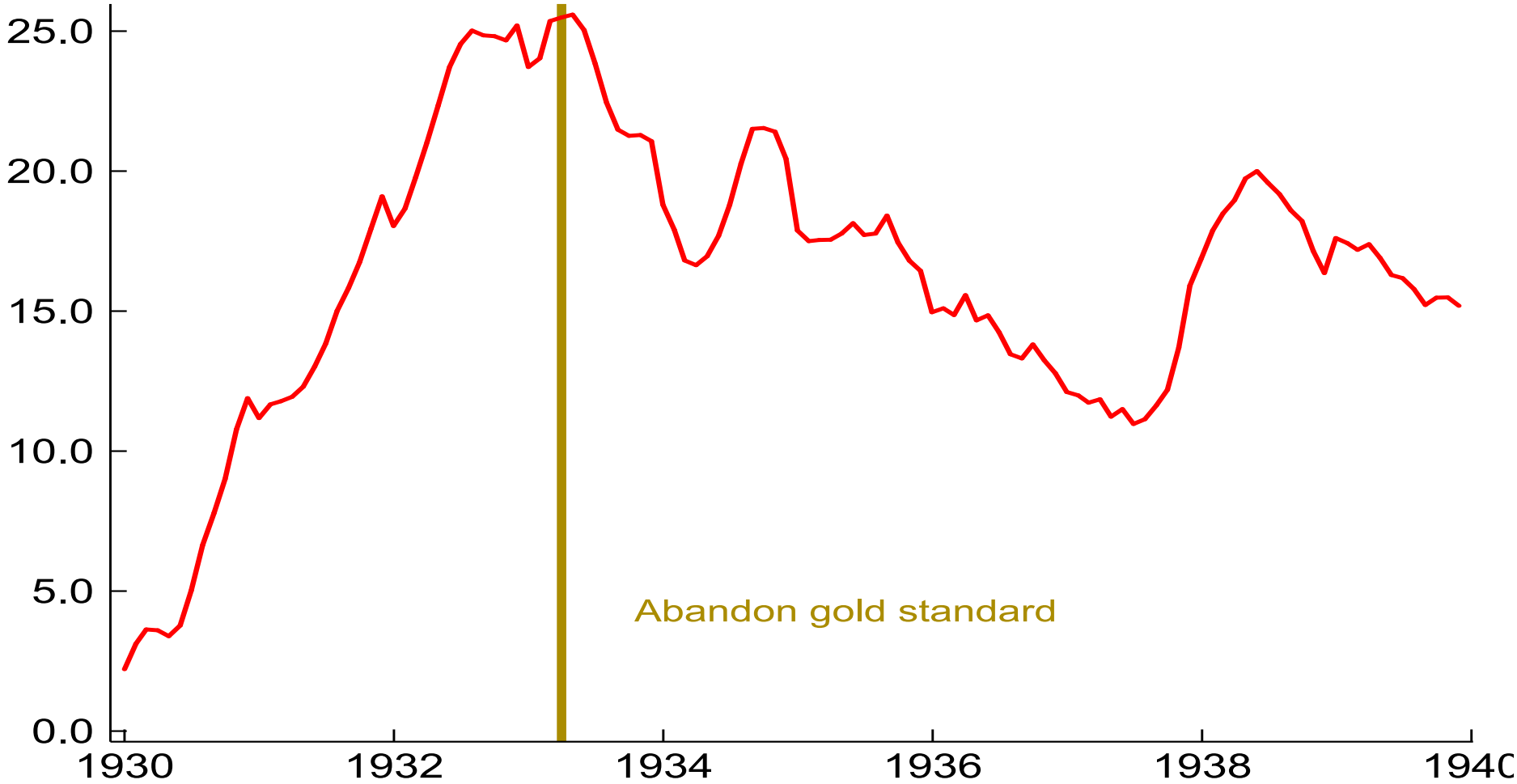
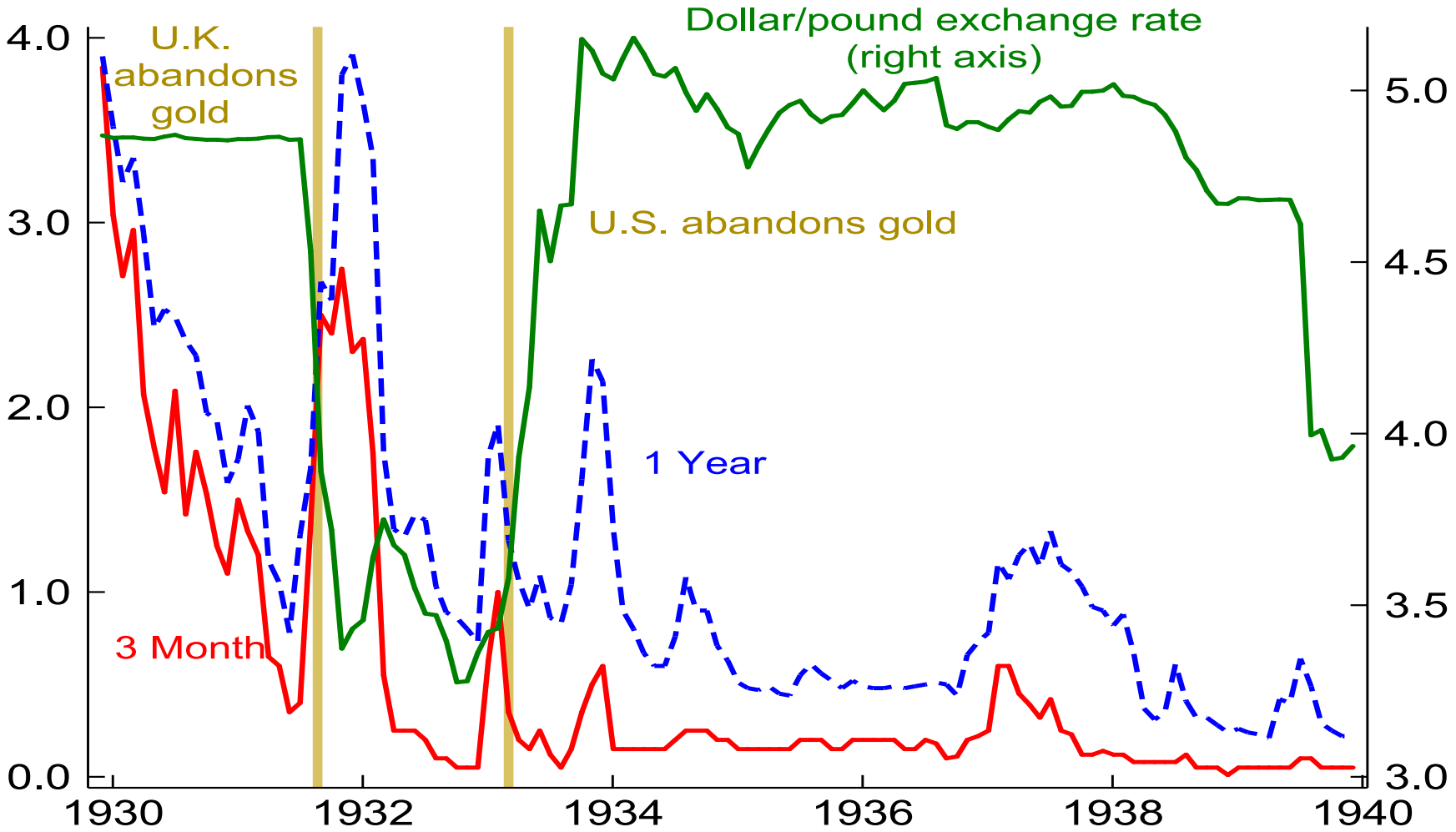
Unemployment Rate



Source: NBER Macrohistory database

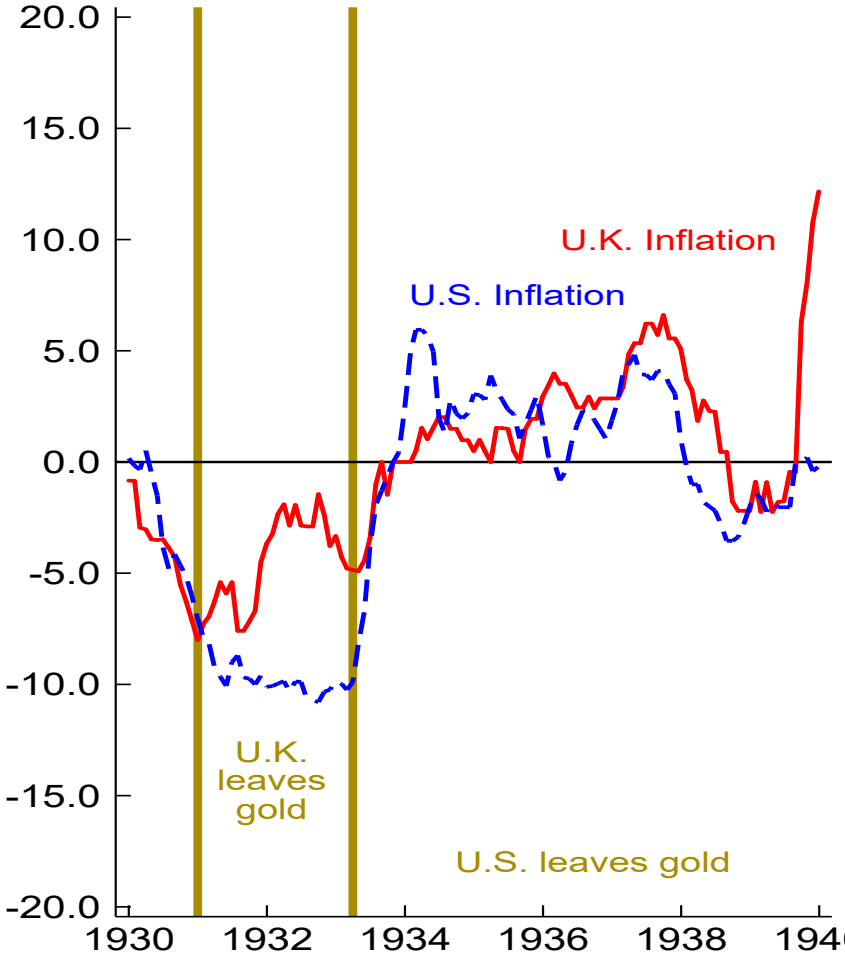
Return

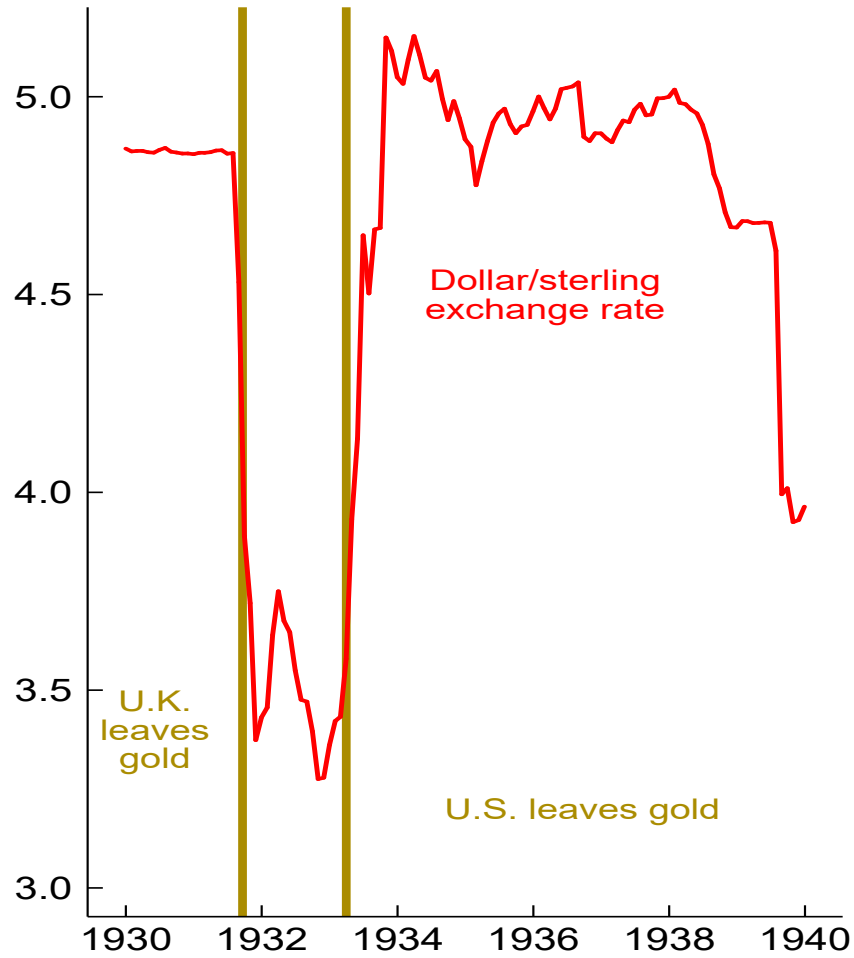
U.S. Short Term Interest Rates



Sources: Cecchetti (1998), Eggertsson (2008), and *Banking and Monetary Statistics, 1914-1941* (1943) Return

US and UK Recoveries





Annual growth rate, in percent. Sources: U.K. Office of National Statistics and O'Donoghue et al (2004) and BEA & BLS from NBER Macrohistory Database, Eggertsson (2008), *Banking and Monetary Statistics, 1914-1941* (1943)

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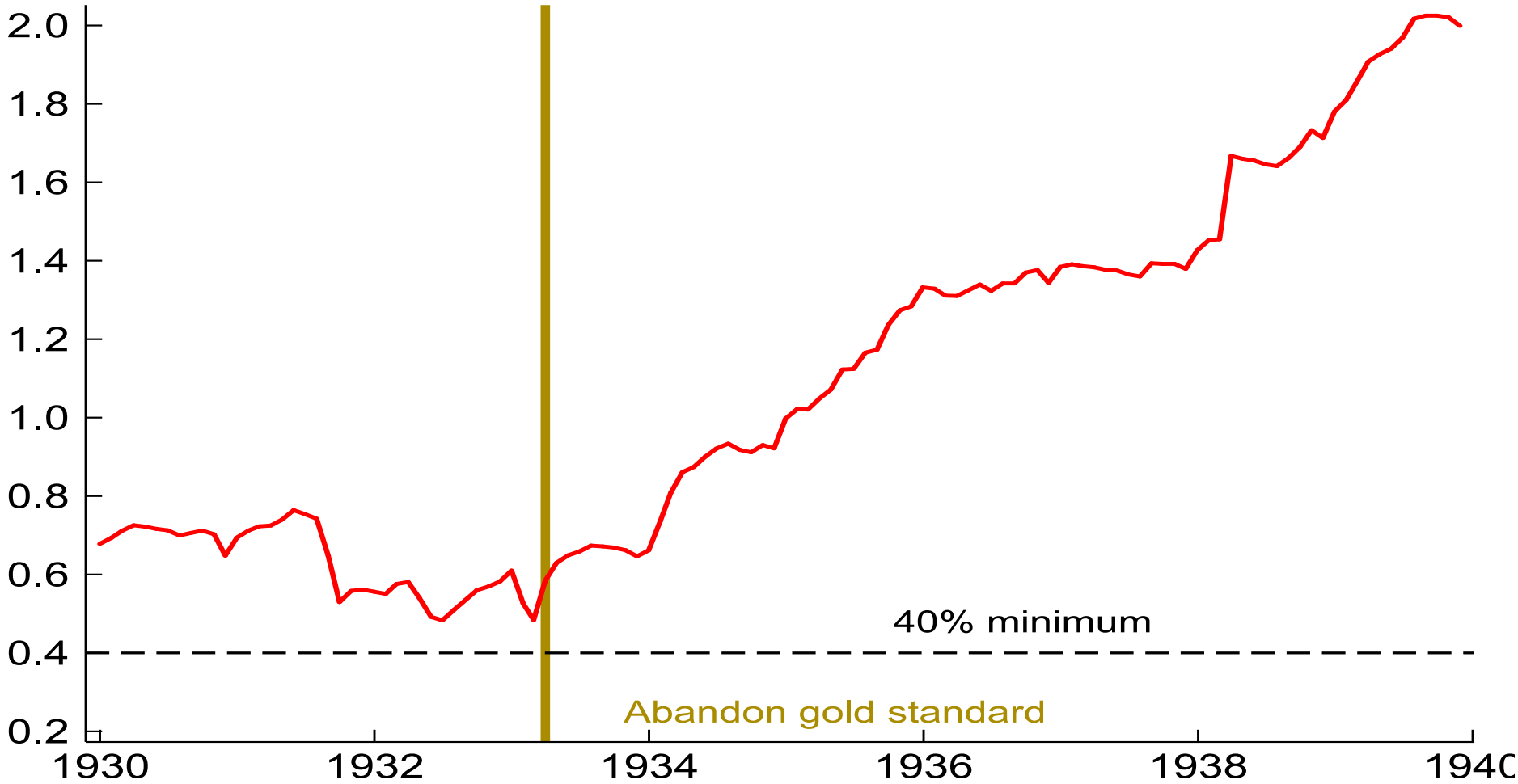
Gold Cover Ratio



Gold reserves of federal reserve banks to currency in circulation. Sources: NBER Macrohistory database, *Annual Reports of the Federal Reserve Board* and Federal Reserve Bulletins

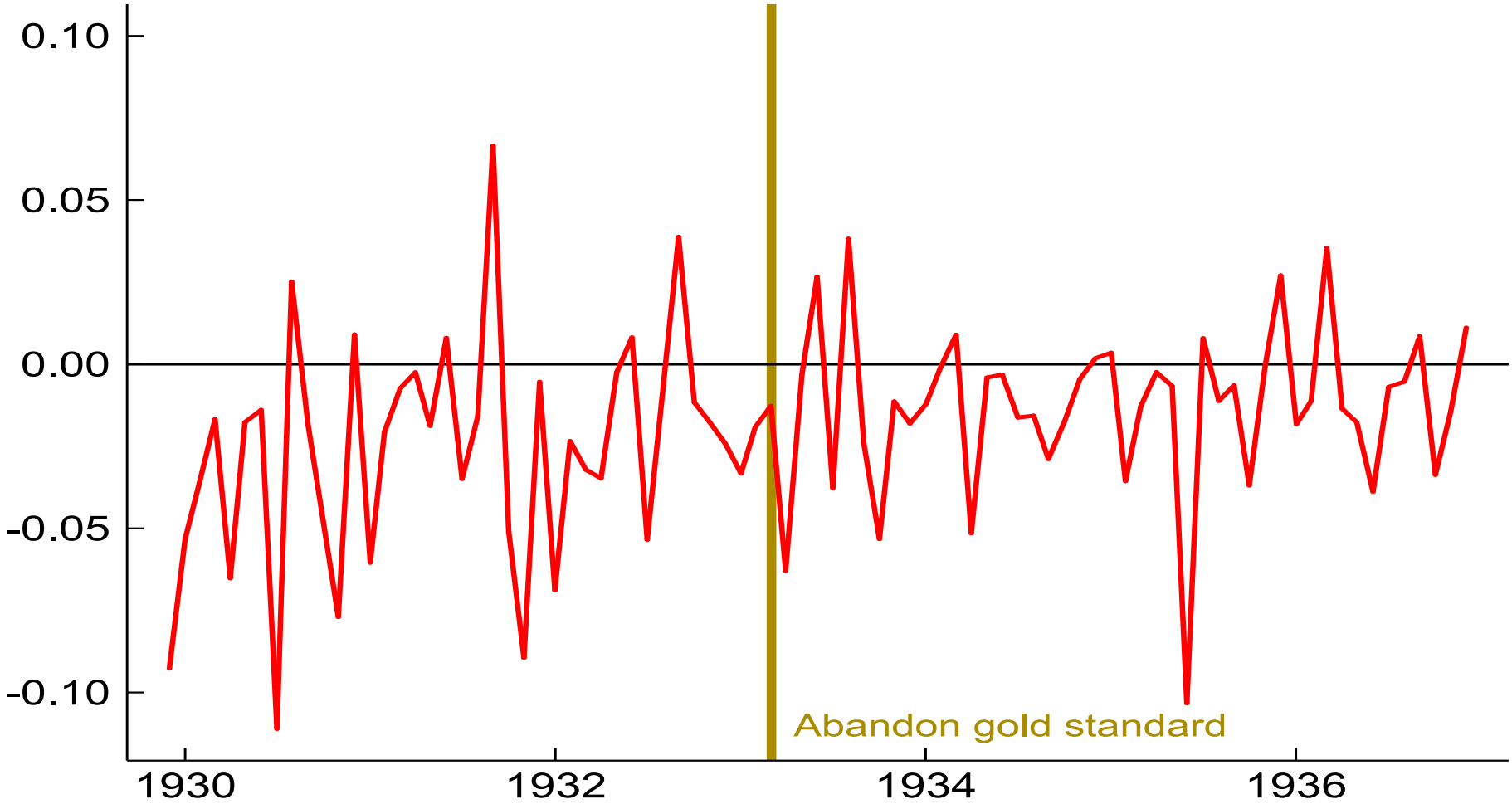
Return

Roosevelt's "Balanced" Budget

	Fiscal Year	
	1934	1935
Total receipts	$3,116	$3,800
Total expenditures (excluding debt retirement)	$6,745	$6,802
Regular	$3,084	$3,733
Recovery & Relief	$3,661	$3,002
Net deficit (total expenditures)	$3,629	$3,002

Millions of dollars. Source: Stein (1969) Return

Surprise Gains and Losses on Debt (Sims (2013))



Proportion of market value. Sources: BLS, Eggertsson(2008), *Annual Reports of the Treasury*, various monthly Treasury Bulletins, NBER Macrohistory database, CRSP

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