UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ECONOMICS

Economics 134
Spring 2018
Professor David Romer

LECTURE 7

MONETARY FACTORS IN THE GREAT DEPRESSION?
FEBRUARY 7, 2018

I. MONETARY ARRANGEMENTS IN THE 1920S
- A. Early Federal Reserve
- B. Gold standard

II. MONETARY CONTRACTION IN 1928
- A. U.S. economy in the 1920s
- B. Fed tightens to stem stock market bubble
- C. Effect in the IS-LM model
- D. International repercussions

III. MONETARY FACTORS AND THE 1929 PLUNGE
- A. Output plummets in late 1929
- B. Fall in the real interest rate suggests a shift in IS curve
- C. Monetary policy immediately after the stock market crash

IV. BANKING PANICS
- A. Four waves of panics
- B. Modeling the effect of a panic
  1. Money market
  2. IS-LM
- C. Role of a fall in expected inflation (to expected deflation)
  1. Evidence of expected deflation
  2. Source of expected deflation
  2. Impact in IS-LM model
- D. Why didn't the Federal Reserve act?

V. GOLD STANDARD
- A. Transmission of Great Depression from U.S. to the rest of the world
- B. Was the Federal Reserve constrained by the gold standard?
- C. October 1931monetary shock

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Monetary Factors in the Great Depression

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Announcements

- Hand in Problem Set 1.
- Suggested answers will be posted on Friday.

I. Monetary Arrangements in the 1920s

Early Federal Reserve

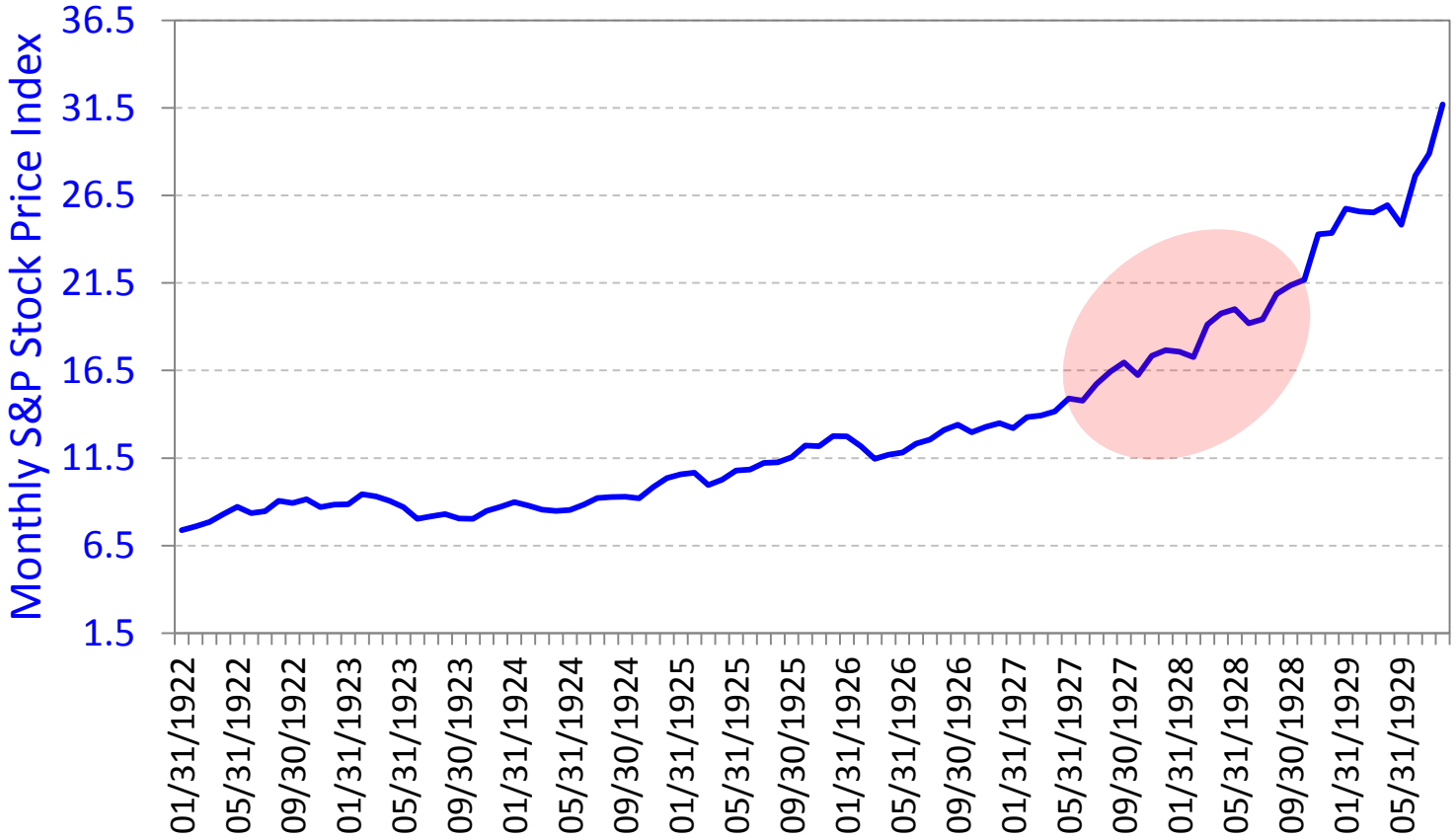
- Still learning its job.
- Initially NY Fed was dominant.
- Famous head, Benjamin Strong, died in October 1928.
- Starting in 1929, conflict between NY Fed, Board of Governors, and other FR banks.
- Friedman and Schwartz argue Fed was dysfunctional in early 1930s.

Gold Standard

- System of fixed exchange rates.
- Price-specie flow mechanism: if prices fall in one country, gold (specie) will flow to that country leading to growth and inflation.
- Gold standard under pressure in 1920s. Many countries are low on gold reserves.
- U.S. unwilling to play managerial role.

II. Monetary Contraction in 1928

Monthly Stock Prices
1922:1- 1929:8



Stock prices begin to rise rapidly in 1927 and 1928.

Table 2

Alternative measures of U.S. monetary policy.

Year	Rate of growth of prices (CPI) (1)[a]	Rate of growth of high-powered money (2)[b]	Rate of growth of nominal money (M1) (3)[c]	Rate of growth of nominal money (M2) (4)[d]	Rate of growth of real money (M1/CPI) (5)[e]
1919	+14.1%	+10.1%	+15.7%	+16.0%	+1.6%
1920	+14.7%	+10.2%	+9.8%	+13.5%	[−4.9%]
1921	[−11.5%]	[−9.7%]	[−11.9%]	[−7.5%]	[−0.4%]
1922	[−6.5%]	[−3.5%]	+3.1%	+4.4%	+9.6%
1923	+1.8%	+5.6%	+4.7%	+7.9%	+2.9%
1924	+0.3%	+2.5%	+2.5%	+4.3%	+2.2%
1925	+2.6%	+1.4%	+8.8%	+9.3%	+6.2%
1926	+0.8%	+2.5%	+2.8%	+4.3%	+2.0%
1927	[−1.9%]	+1.5%	[−1.1%]	[+1.9%]	[+0.8%]
1928	[−1.2%]	[−1.2%]	[−0.1%]	[+3.3%]	+1.1%
1929	[0.0%]	[−0.7%]	[+1.6%]	[+0.1%]	+1.6%
1930	[−2.6%]	[−2.8%]	[−3.5%]	[−1.3%]	[−0.9%]
1931	[−9.4%]	+5.5%	[−5.7%]	[−6.2%]	+3.7%
1932	[−10.7%]	+6.4%	[−15.5%]	[−21.1%]	[−4.8%]
1933	[−5.5%]	+2.0%	[−6.1%]	[−13.6%]	[−0.6%]

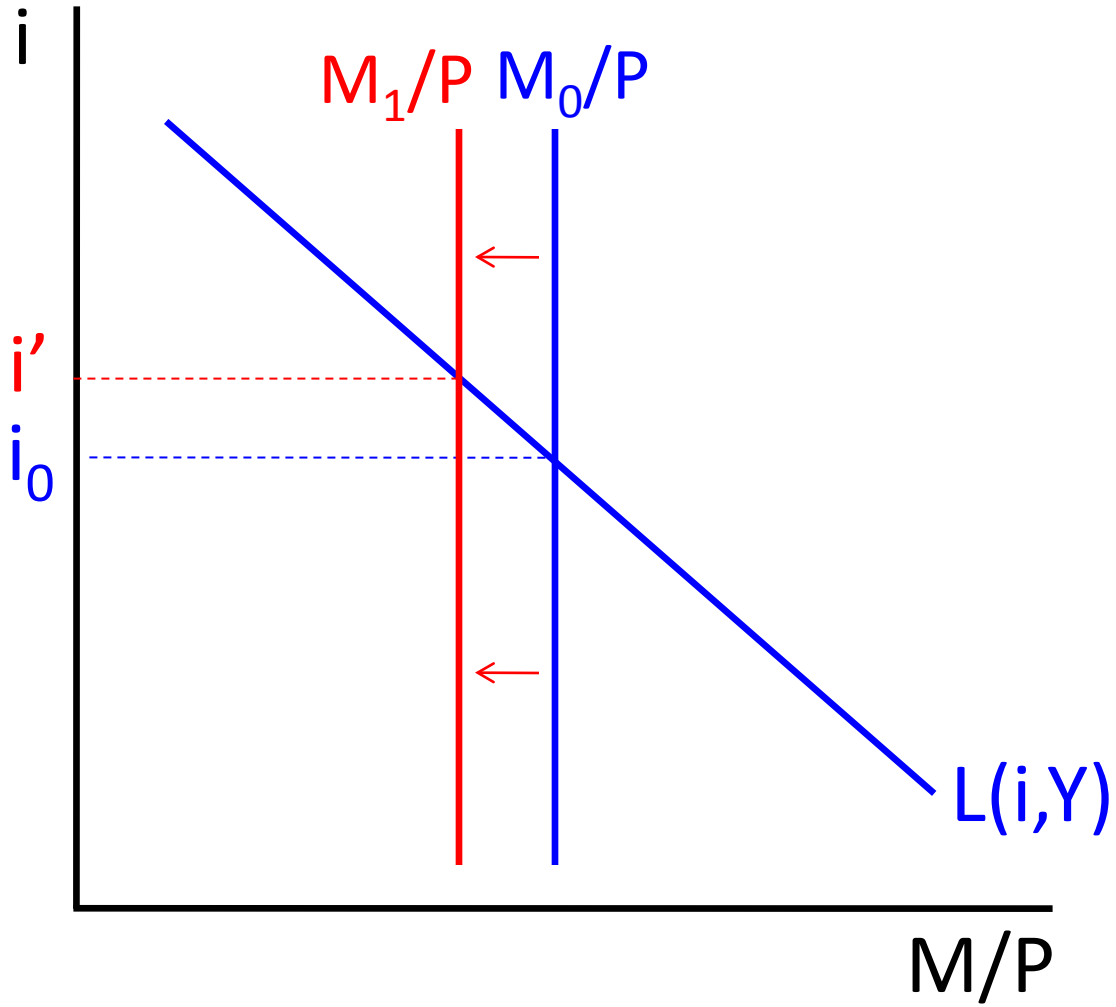
Source: James Hamilton, *Journal of Monetary Economics*, July 1987.

High-powered money fell in 1928.

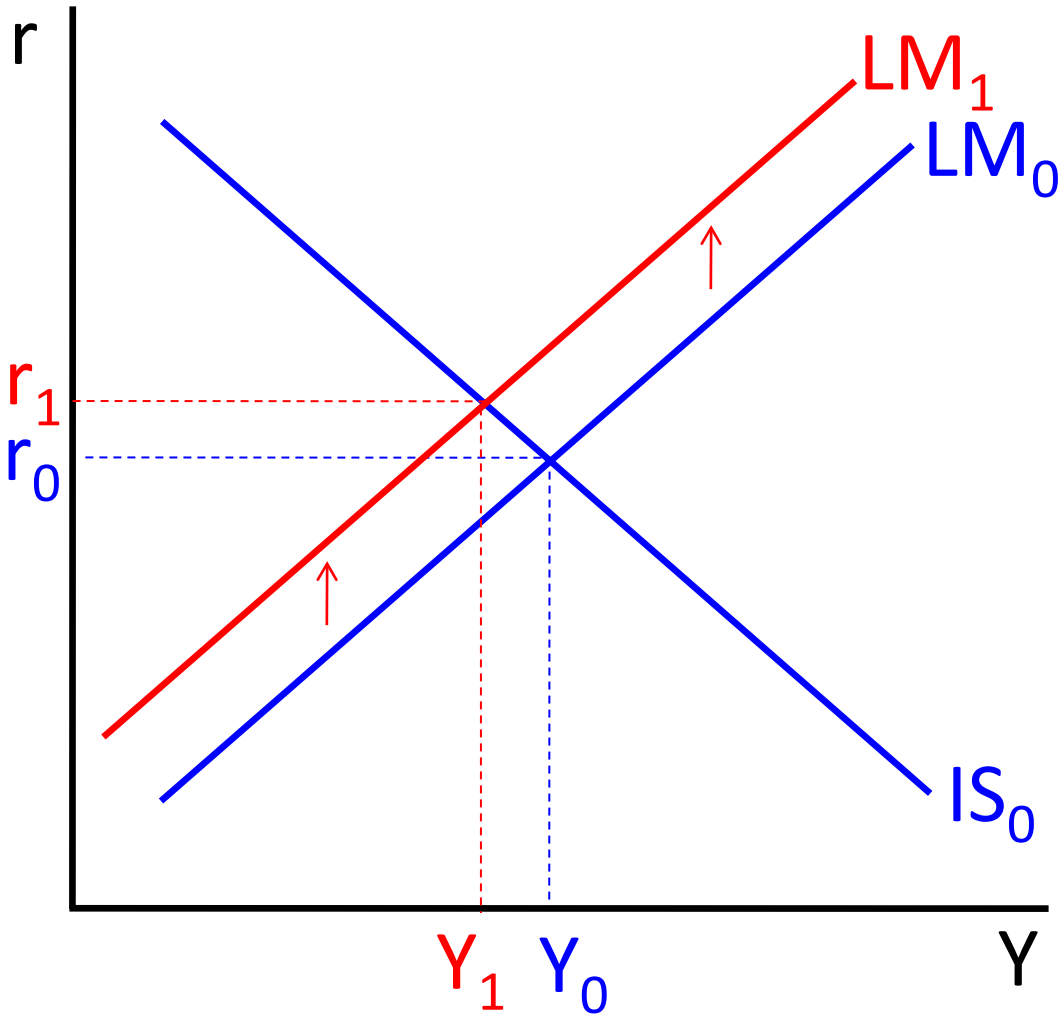
Which framework to use – IS-MP or IS-LM?

- IS-LM because the Fed in the 1920s was closer to a money targeter than to following an interest rate rule.

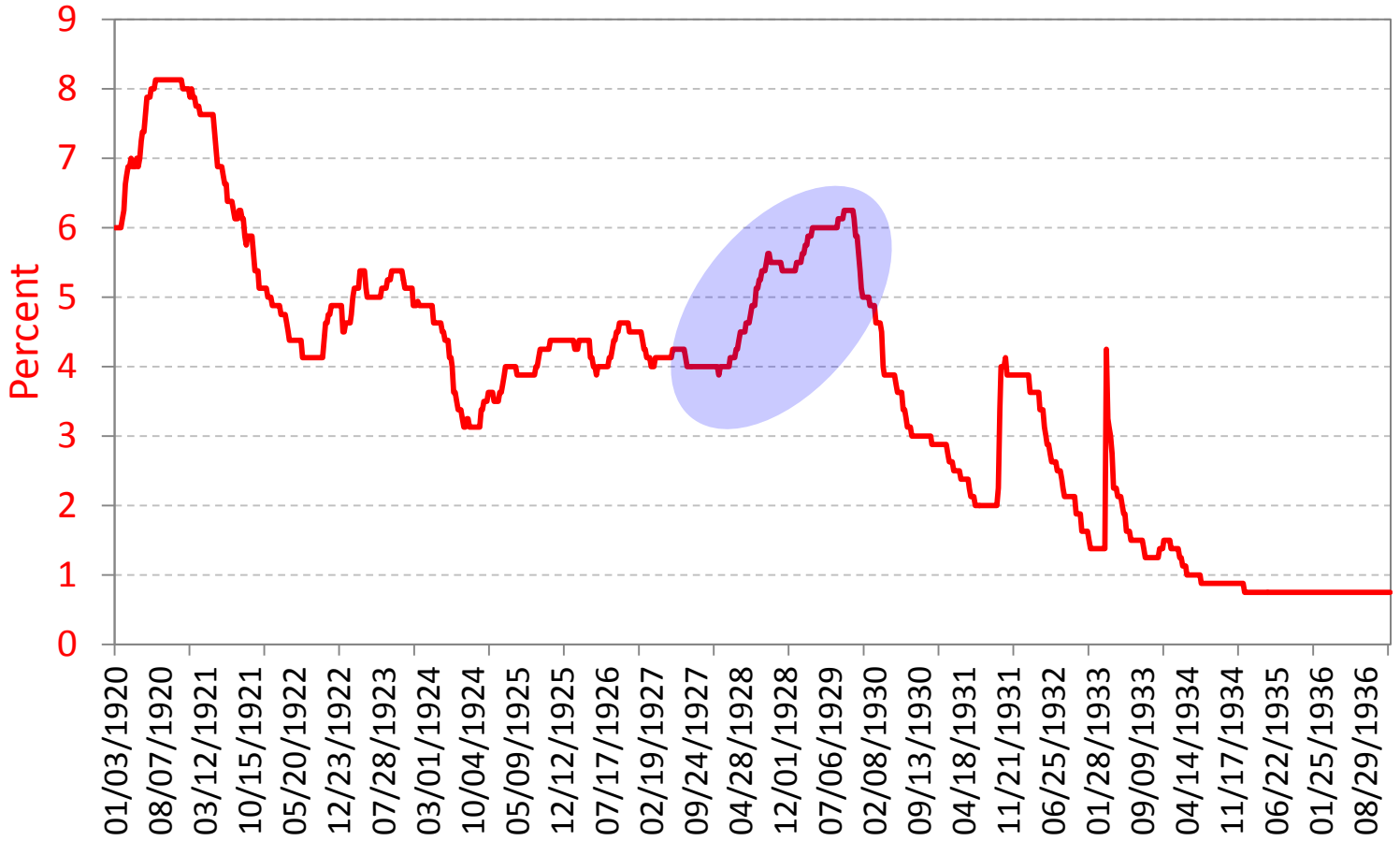
The Effects of Decline in M in the Money Market Diagram



The Effects of Decline in M in the IS-LM Diagram

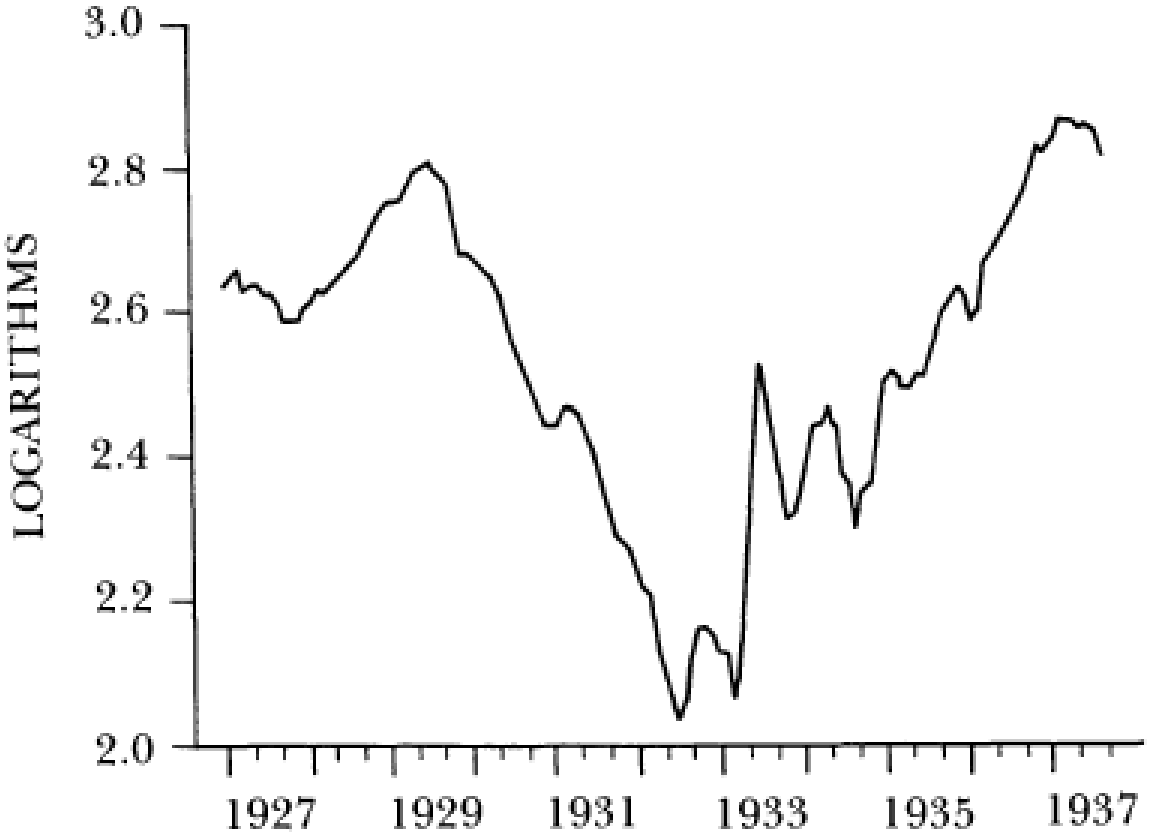


Commercial Paper Rate



Nominal interest rates rose in 1928 and early 1929.

Monthly Industrial Production in the U.S.



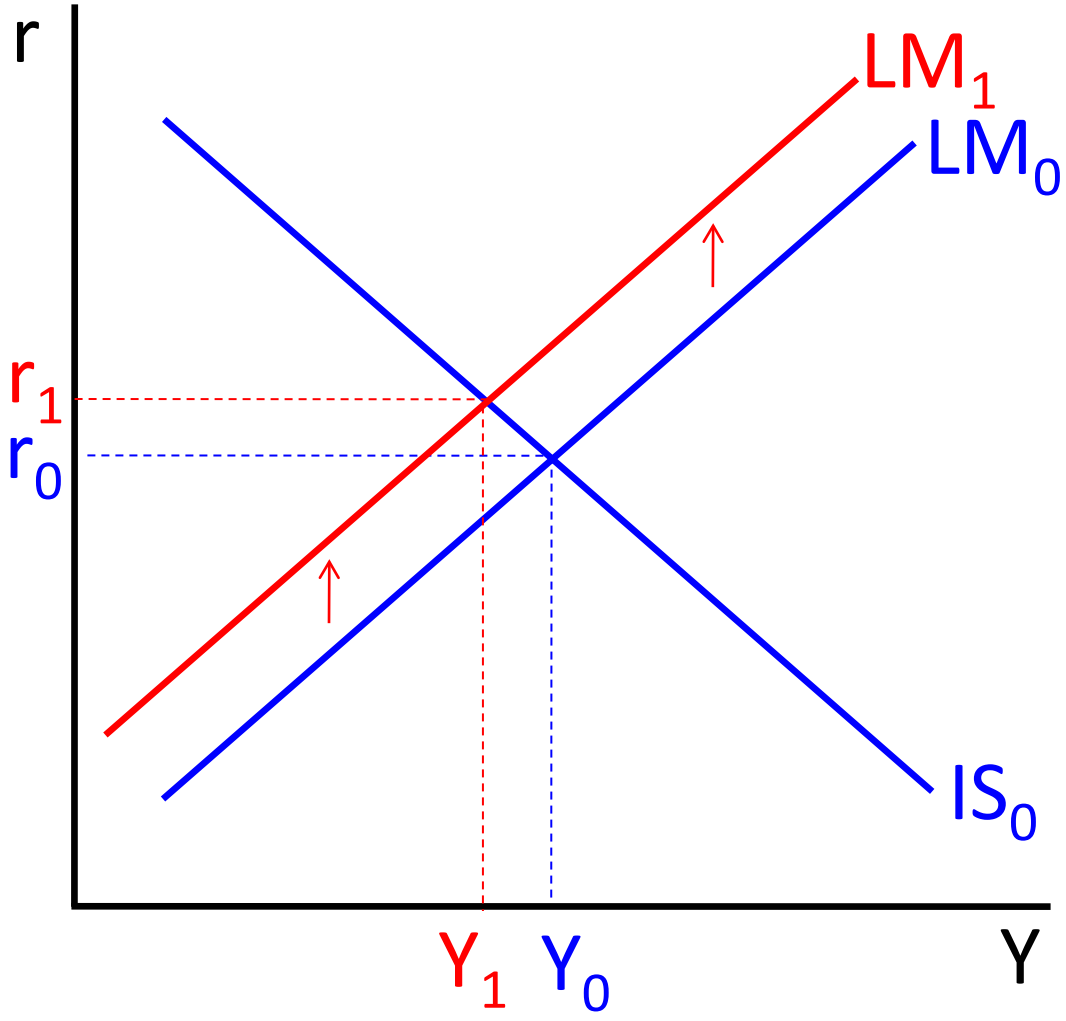
Business cycle peak was in August 1929.

International Repercussions

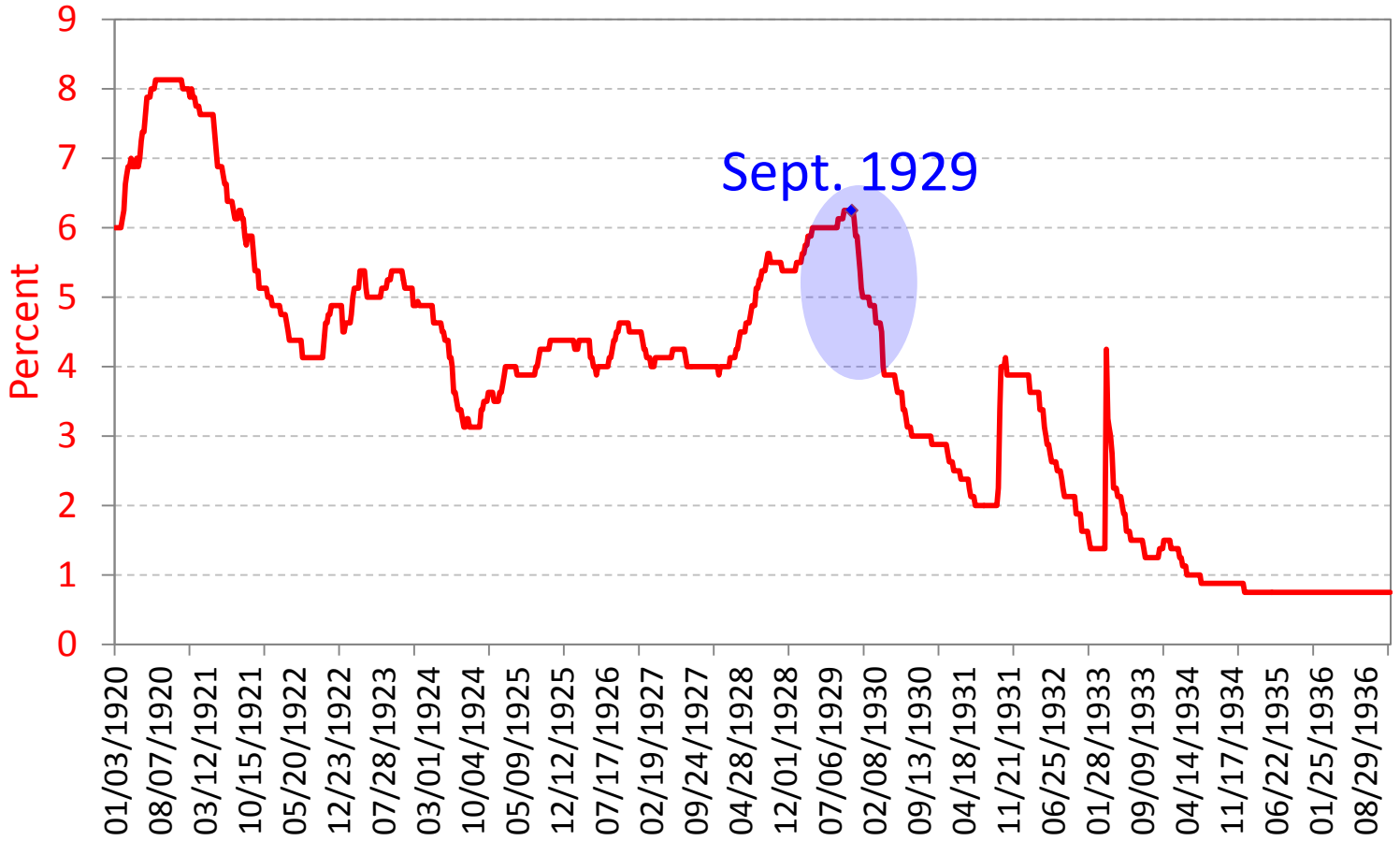
- Other countries have to tighten along with the U.S. to prevent gold outflows.
- Effect is important, but not huge.

III. Monetary Factors and the 1929 Plunge

If the decline in Y were due to further monetary contraction, would expect r to rise.

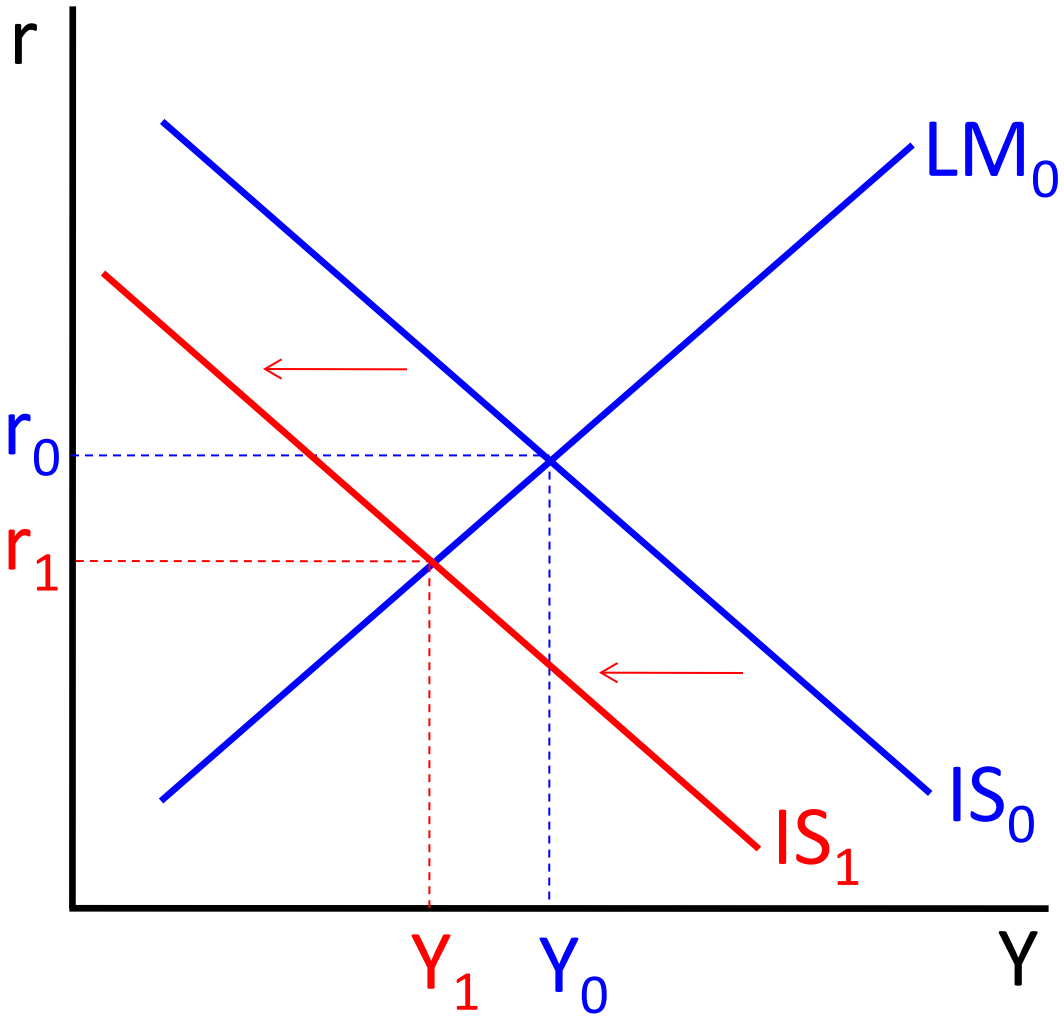


Commercial Paper Rate

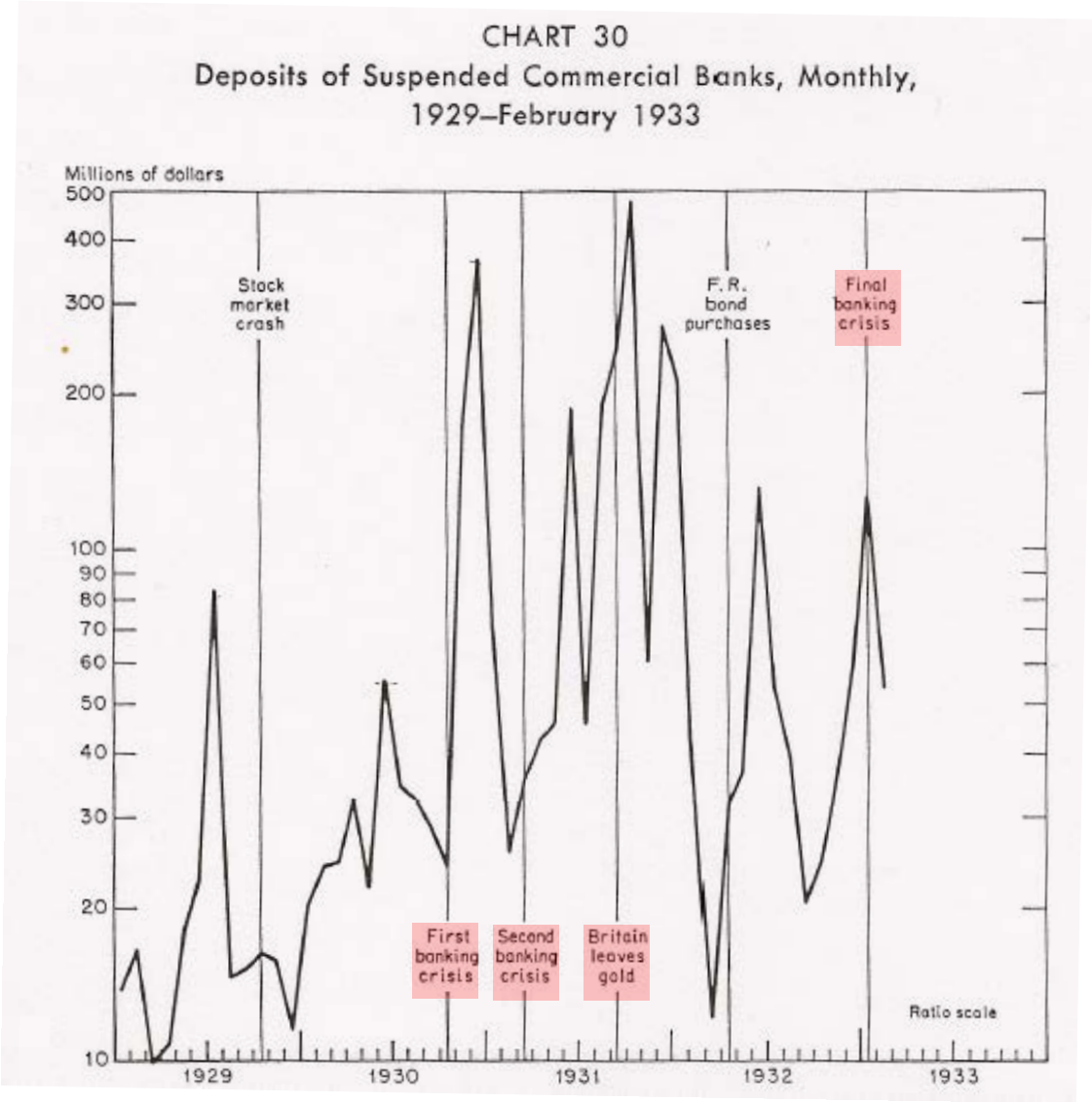


Nominal and real interest rates in fact fell sharply in late 1929 and early 1930.

Explaining the fall in Y and r in late 1929
IS likely shifted back.



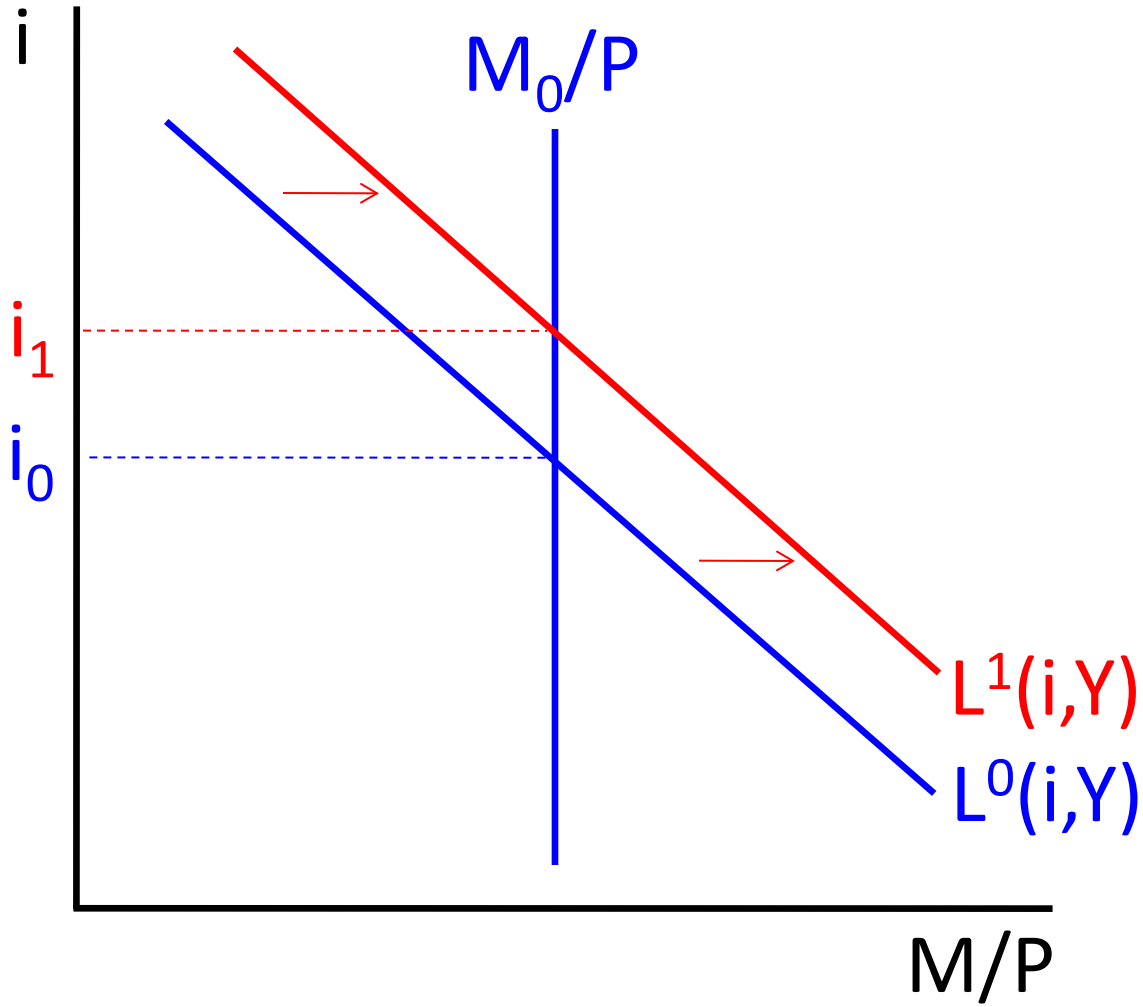
IV. Banking Panics



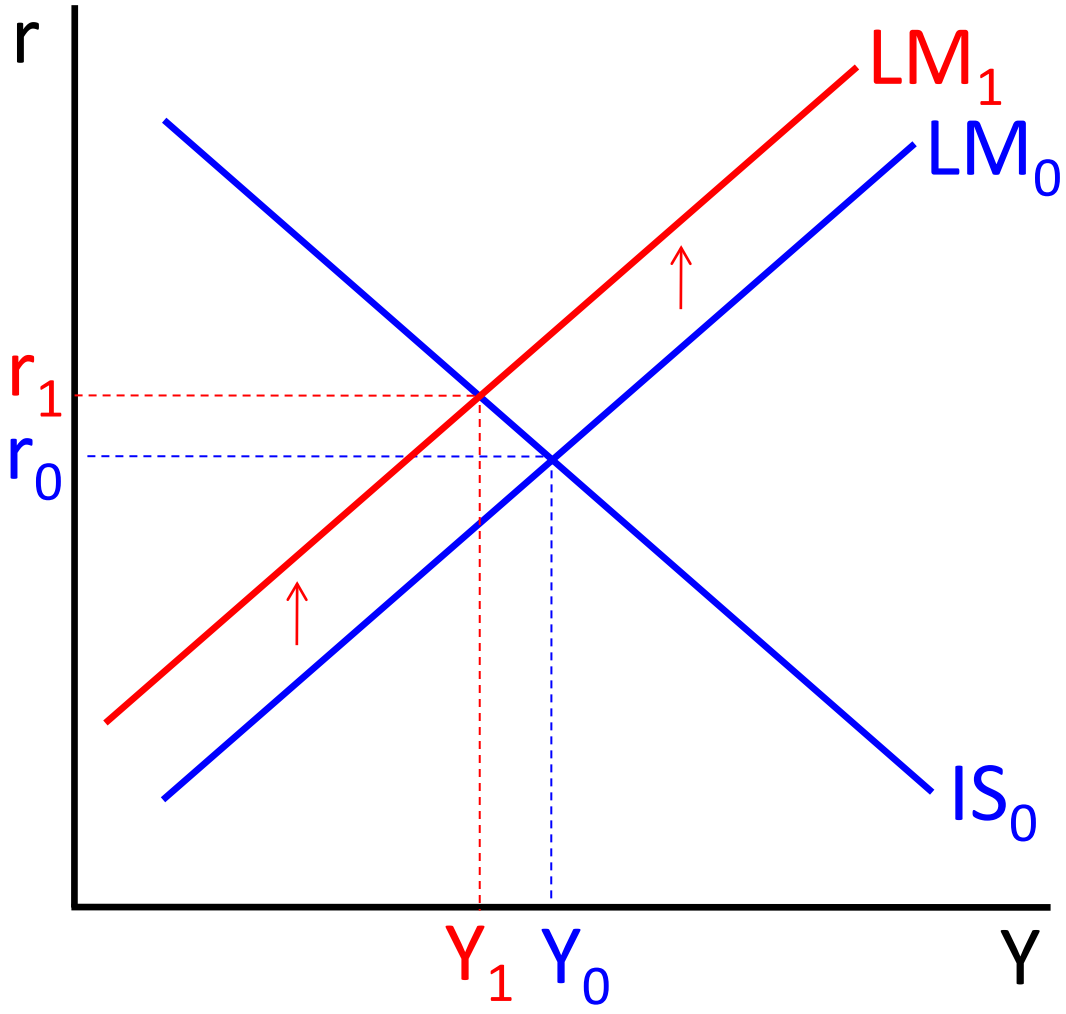
Source: Friedman and Schwartz, *A Monetary History of the United States*, 1963

Deposits in suspended banks surged during panics.

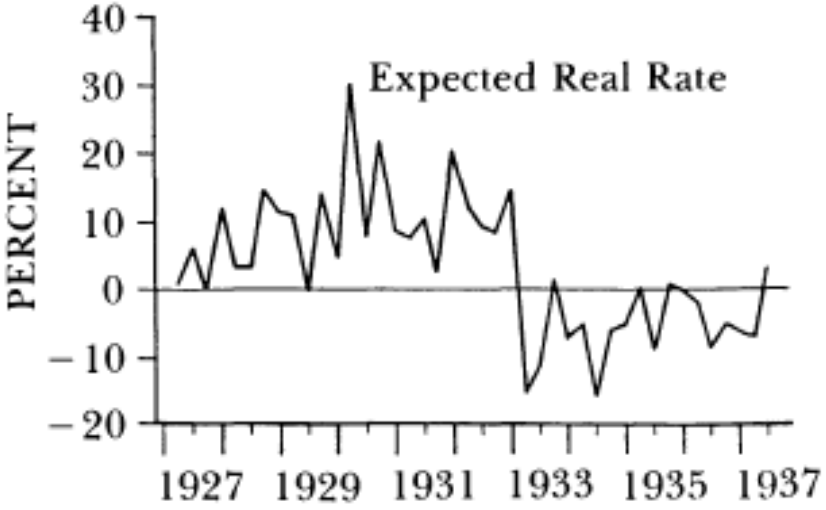
The Effects of a Banking Panic in the Market for High-Powered Money

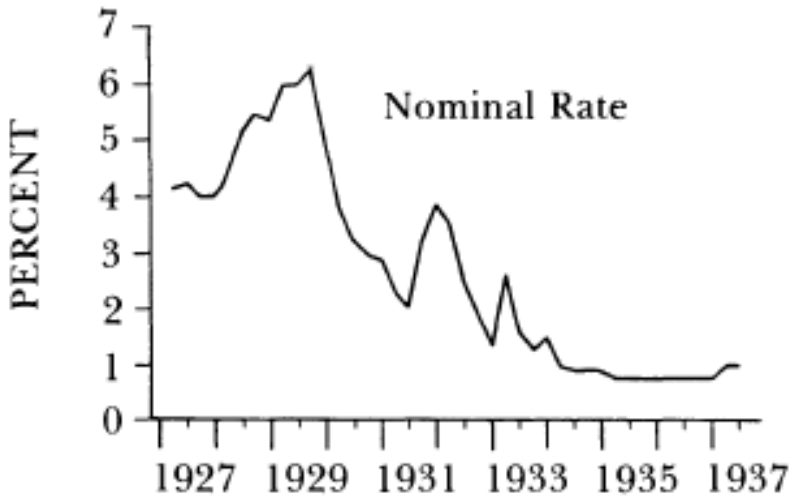


The Effects of a Panic in the IS-LM Diagram



Commercial Paper Rate





Source: Christina Romer, *Journal of Economic Perspectives*, Spring 1993.

Expected real rates rose during panics, nominal rates often fell.

Real versus Nominal Interest Rates

$$i \equiv r + \pi^e$$

- i is the nominal rate
- r is the real rate
- π^e is expected inflation

$$r \equiv i - \pi^e$$

How could we measure expectations of inflation?

- Newspapers or popular accounts.
- Use evidence from futures markets.
- Forecast inflation using data available at the time (lagged inflation, perhaps the money stock, etc.).

TABLE 3—ACTUAL AND EXPECTED INFLATION, 1929–1933

Quarter	Expected inflation		
	MA(2) model	AR(1) model	Interest-rate model
1929:1	−0.81	−2.73	−0.43
1929:2	−6.30	−2.09	−4.20
1929:3	2.27	0.55	−8.37
1929:4	7.03	4.17	0.10
1930:1	−2.83	−1.75	−5.32
1930:2	−8.09	−4.27	−3.99
1930:3	−0.13	−2.40	−3.98
1930:4	−1.46	−3.98	−3.29
1931:1	−8.96	−7.89	1.04
1931:2	−8.24	−9.60	−7.77
1931:3	−4.62	−8.69	−12.14
1931:4	0.08	−1.81	−10.29
1932:1	−5.46	−9.02	−18.08
1932:2	−12.43	−10.58	−12.96
1932:3	−3.60	−8.41	−12.20
1932:4	1.48	−3.94	−1.21
1933:1	−4.68	−6.48	22.07
1933:2	−10.48	−11.75	12.39
1933:3	7.07	3.51	−4.04
1933:4	22.97	16.62	4.47

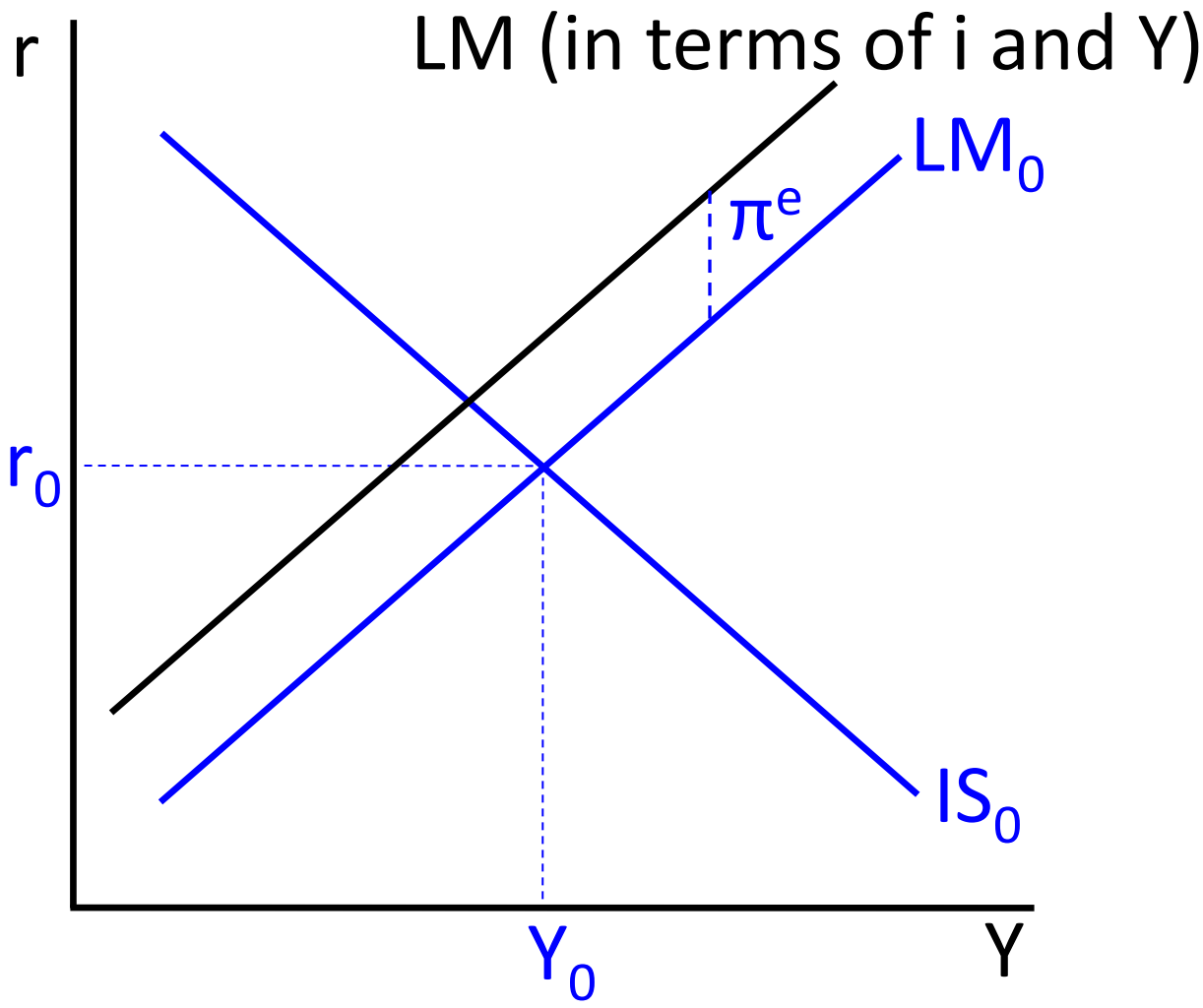
Source: Stephen Cecchetti, *American Economic Review*, March 1992.

There was a large fall in expected inflation in 1930 and 1931.

Narrative Evidence from *Business Week*

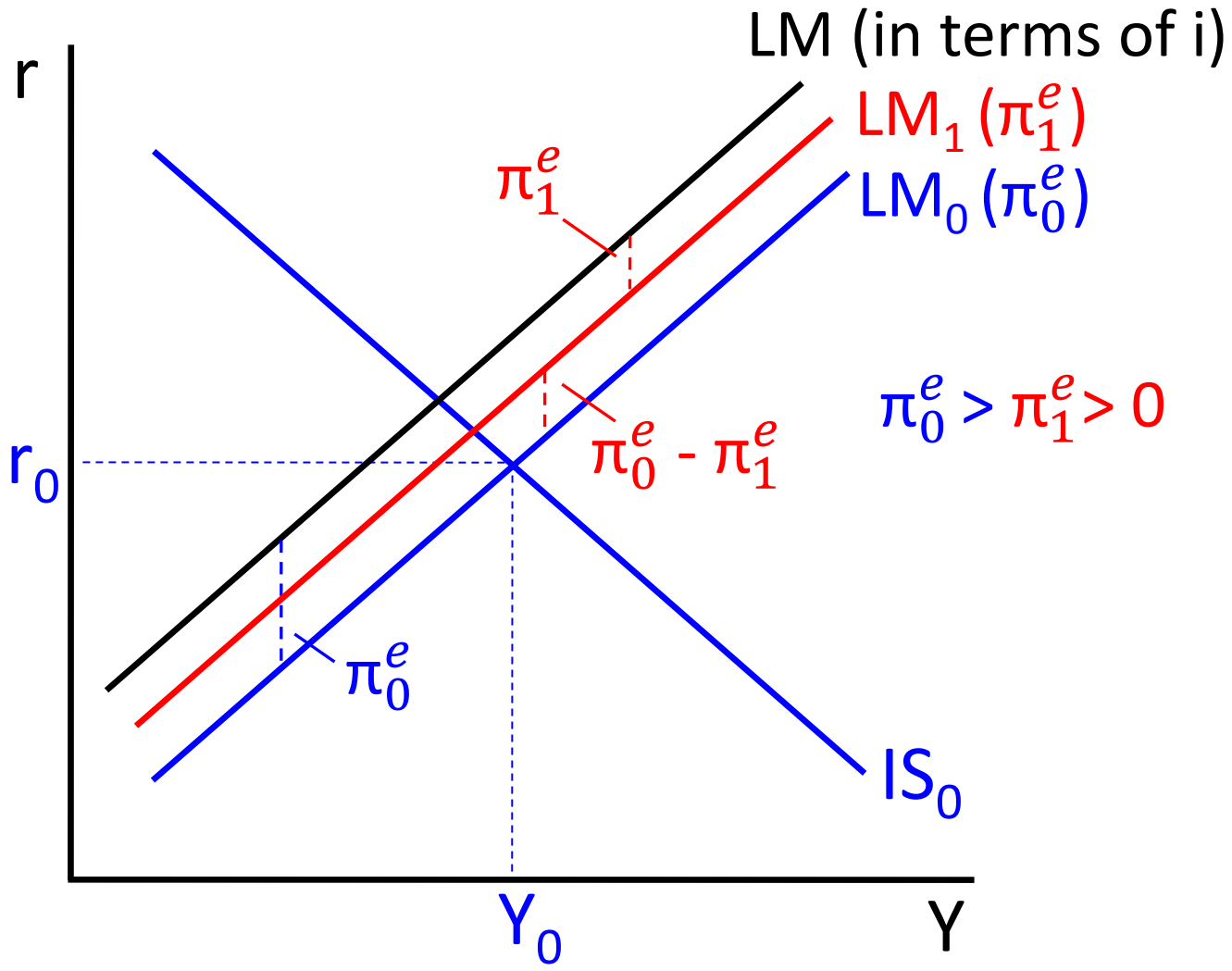
- Expected deflation after mid-1930.
- Monetary developments and Fed policy were a key source of expectations of deflation.
- "Our idle gold hoard piles up without increasing the means of payment by credit expansion because of paralysis of banking policy, thus prolonging price deflation" (4/29/31, cover).

Expected Inflation in IS-LM



We subtract off π^e from each point on the LM curve in terms of i and Y to get the LM curve in terms of r and y.

Fall in Expected Inflation in IS-LM

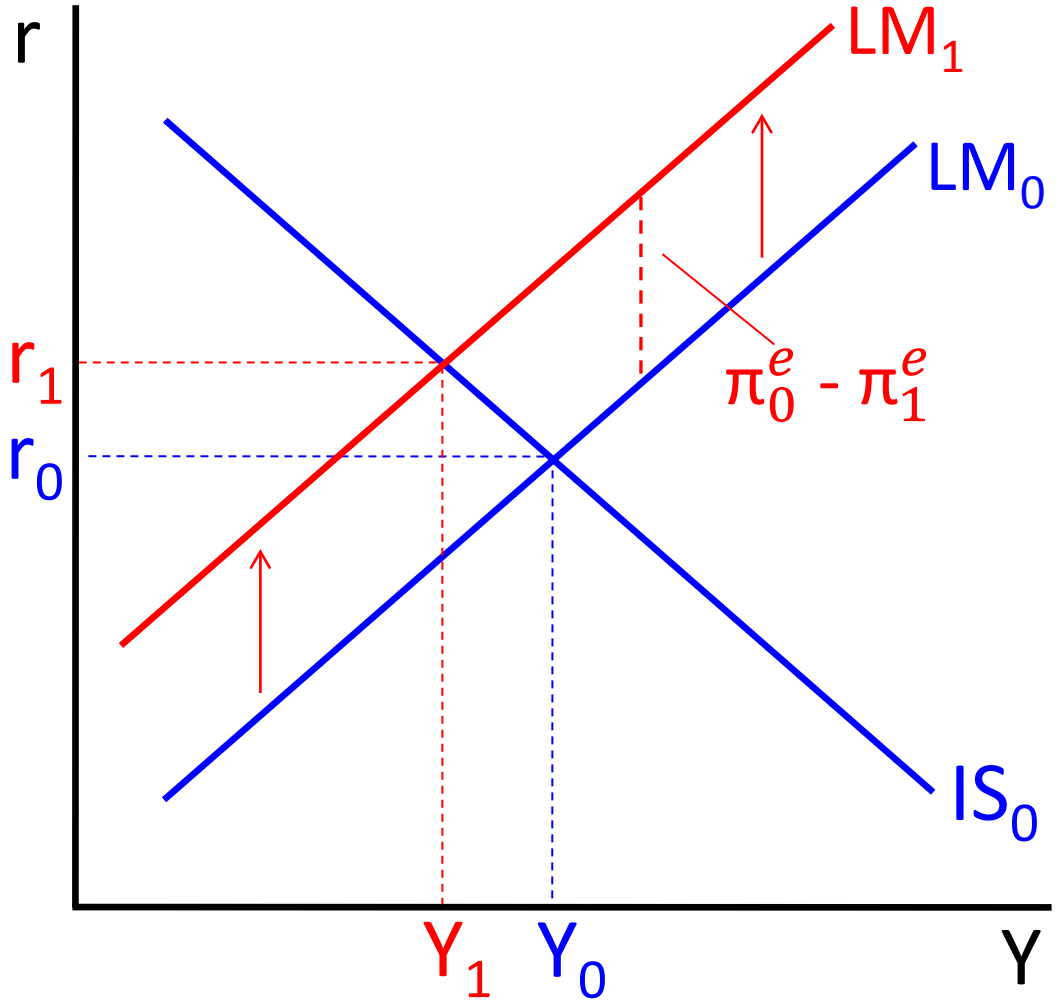


LM curve shifts up by the fall in π^e.

Effect of a Fall in Expected Inflation in IS-LM

- A fall in π^e shifts the LM curve (in terms of r and Y) up.
- The LM curve shifts up by the fall in π^e $(\pi_0^e - \pi_1^e)$.

Impact of the Large Fall in Expected Inflation
(From Expected Inflation to Expected Deflation in 1931)



What happens to i when there is a fall in expected inflation?

- $i = r + \pi^e$
- r rises, which tends to increase i.
- π^e falls, which tends to decrease i.
- r rises by less than π^e falls, so i falls.
- A fall in expected inflation (to expected deflation) can help explain why real rates rose and nominal rates fell in the early 1930s.

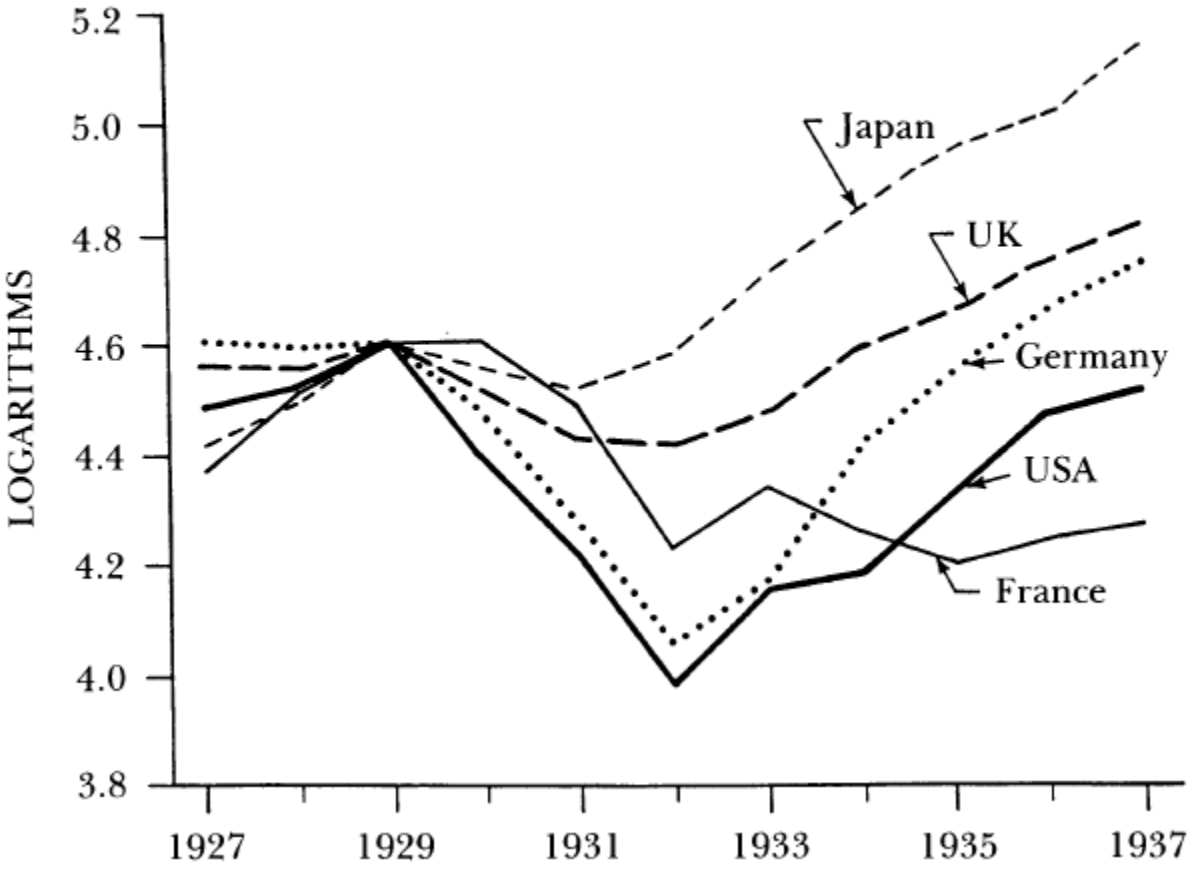
Why didn't the Federal Reserve do more to stop the panics?

- Power struggle/ power vacuum within the Federal Reserve System.
- Bad model of the economy.
- Gold standard.

V. Gold Standard

Figure 1

Annual Industrial Production in Five Countries, 1927–1937

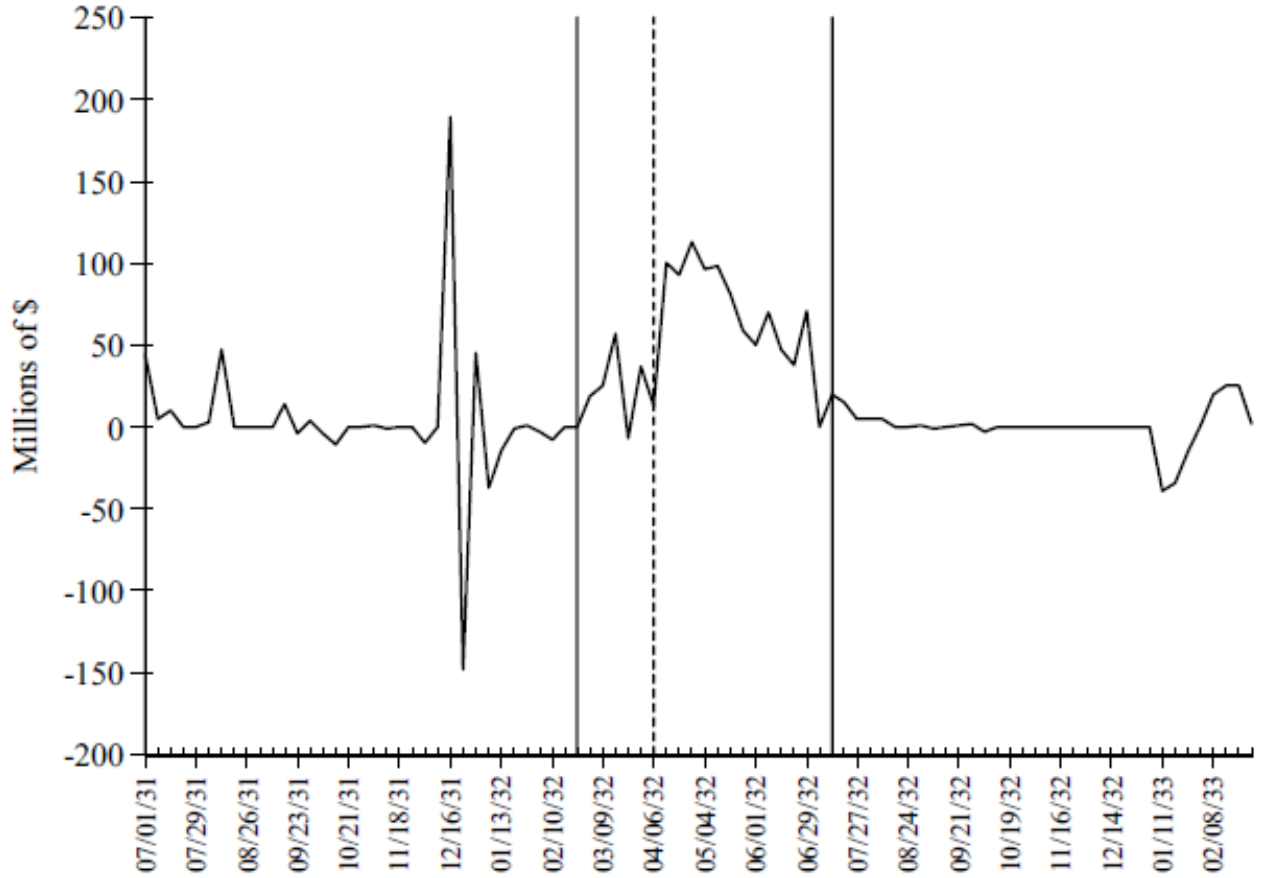


The gold standard was the key transmission mechanism of U.S. shocks to the rest of the world.

Was the gold standard a constraint on Federal Reserve action?

- Eichengreen says Fed couldn't expand M to deal with panics because it would call into question the U.S. commitment to the gold standard. Gold would flow out.
- Friedman and Schwartz disagree. U.S. had huge gold reserves.

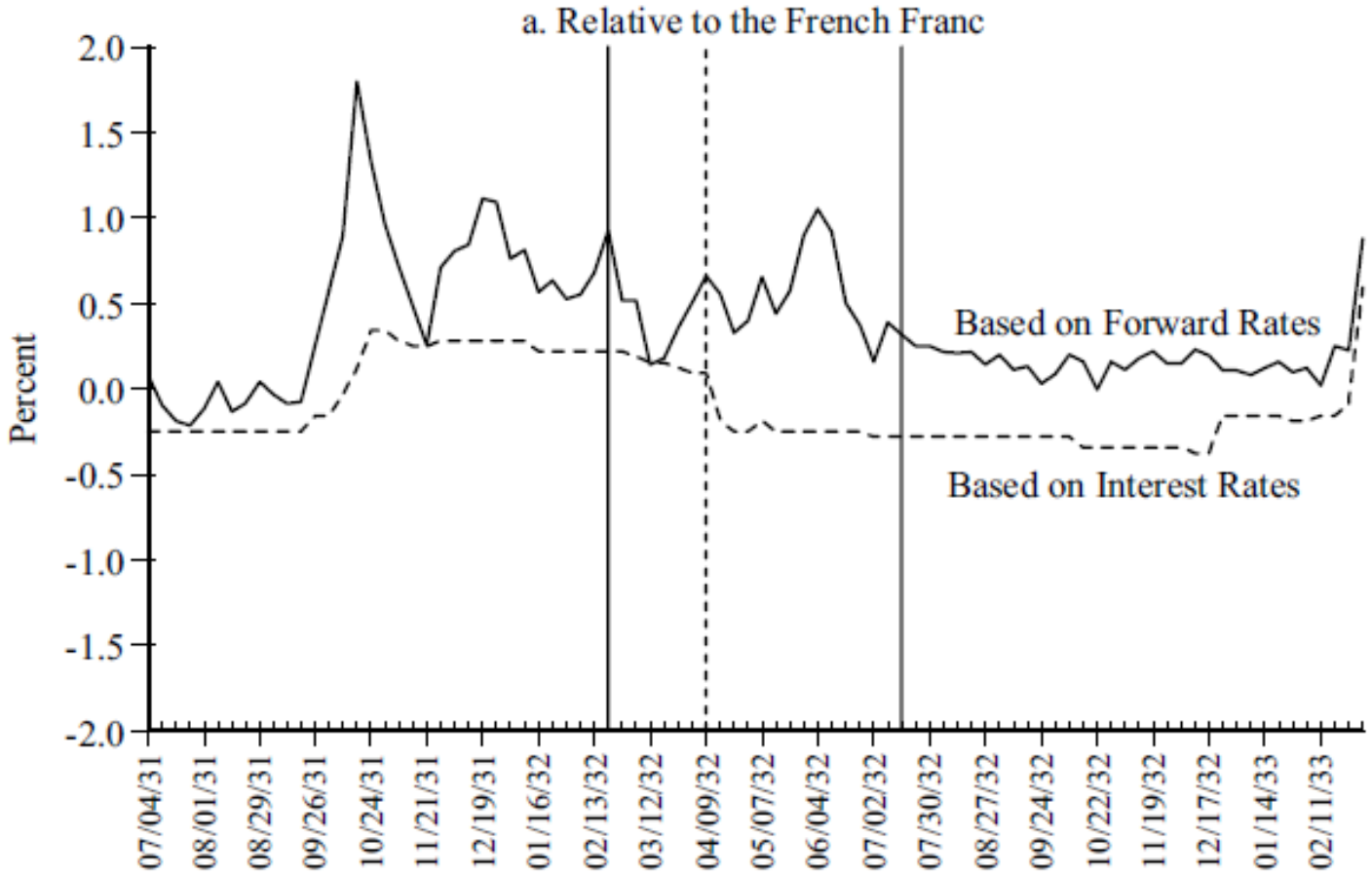
Change in Federal Reserve Holdings of U.S. Government Securities



Source: Hsieh and Romer, *Journal of Economic History*, March 2006.

Federal Reserve engaged in monetary expansion during the Open Market Purchase Program in the spring of 1932.

Expected Devaluation of the Dollar



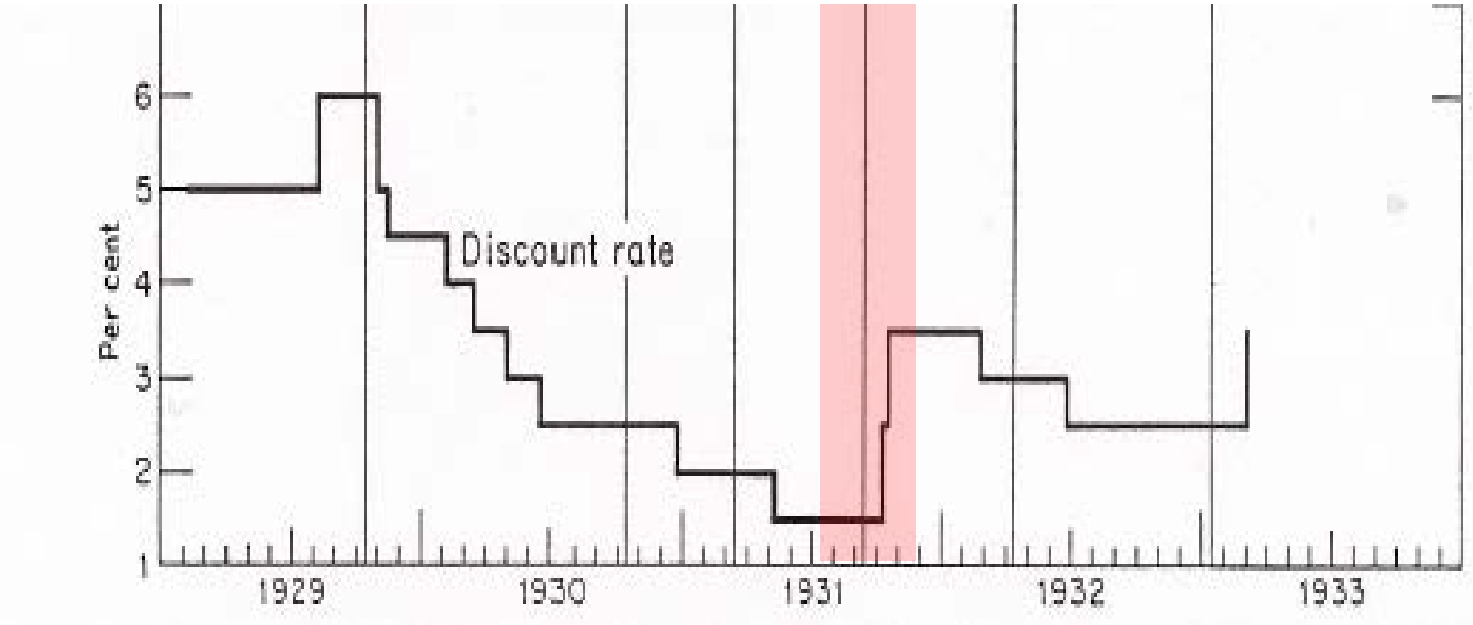
Source: Hsieh and Romer, *Journal of Economic History*, March 2006.

Expectations of devaluation actually fell following the Open Market Purchase Program.

October 1931

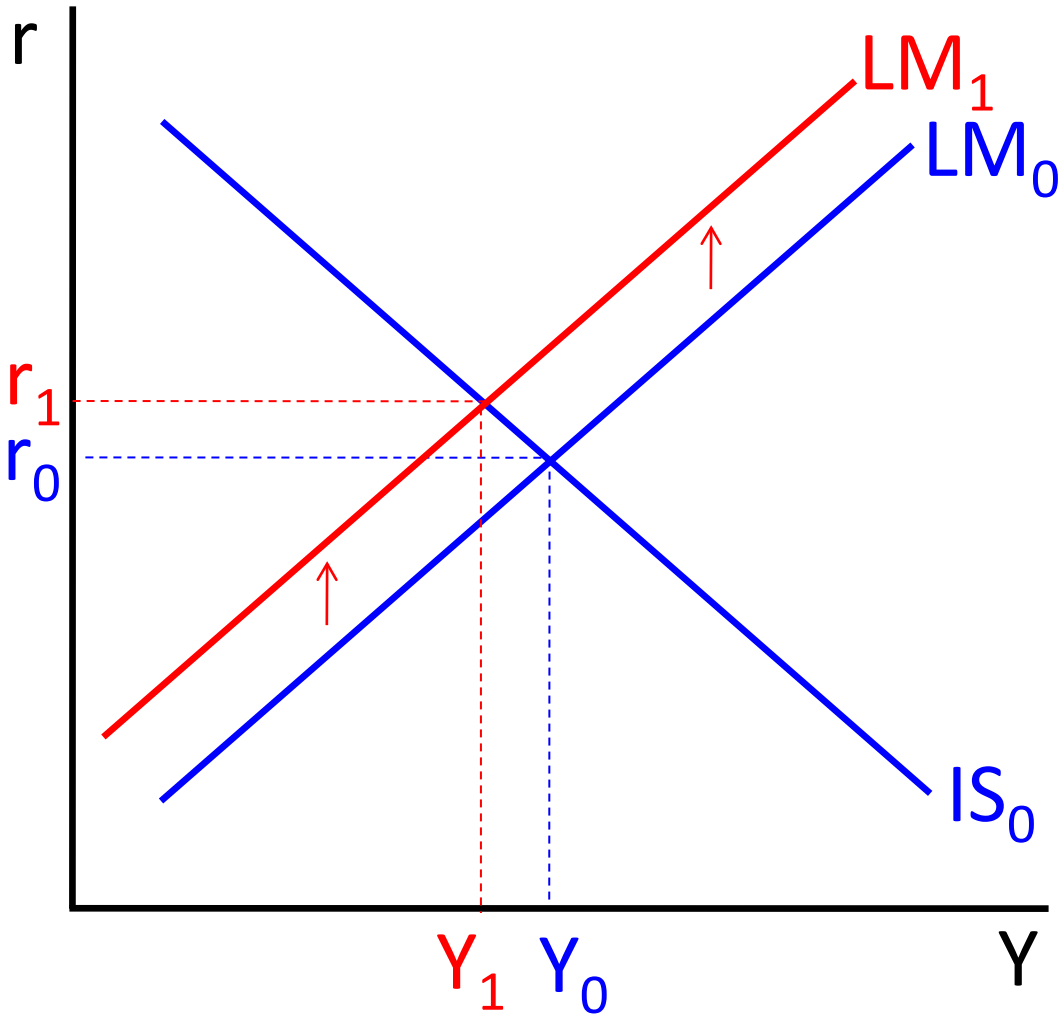
- One of Friedman and Schwartz's crucial episodes.
- Britain went off the gold standard in September 1931.
- Federal Reserve raised the discount rate 200 basis points to stem gold outflow.
- Pretty clearly another contractionary monetary shock.

Discount Rate



Source: Friedman and Schwartz, *A Monetary History of the United States*, 1963

Effect of the rise in the discount rate (and fall in high-powered money) in October 1931



VI. Conclusions