Coming of the Great Depression

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April 6, 2011

Understanding it is "holy grail" of macroeconomics (to quote Ben Bernanke)

- Power of historical analogy…
- Some useful distinctions
  - U.S.-centric vs. global explanations
  - Explanations that look at this business cycle and crisis largely in isolation vs. those that embed it in its longer-term historical context.
  - Analyses focusing on three phases of the Depression:
    - Onset (the initial shock)
    - Downward spiral (propagation mechanisms)
    - Recovery

Understanding the Great Depression requires us to understand the preceding events

- How the gold standard provided the framework for economic policy.
- How during WWI the gold standard was then abandoned almost everywhere (except in the US).
  - Countries passed laws suspending convertibility.
  - They placed embargoes on gold exports.
- The consequence was that currencies began to float against one another.
  - Some governments issued more debt and currency than others to finance the war and those currencies traded for one, mainly another outside of sanctioned circles.
- When the war ended, currencies continued to float.
- Governments disliked the resulting volatility (and high inflation).
- Thus, they moved, one at a time, to restore gold convertibility and remove embargoes on gold exports around the middle of the 1920s.
  - Here were the origins of the reconstructed interwar gold standard that proved to be part of the problem setting the stage for the Great Depression.

Understanding how the Depression came about also requires us to understand the preceding events

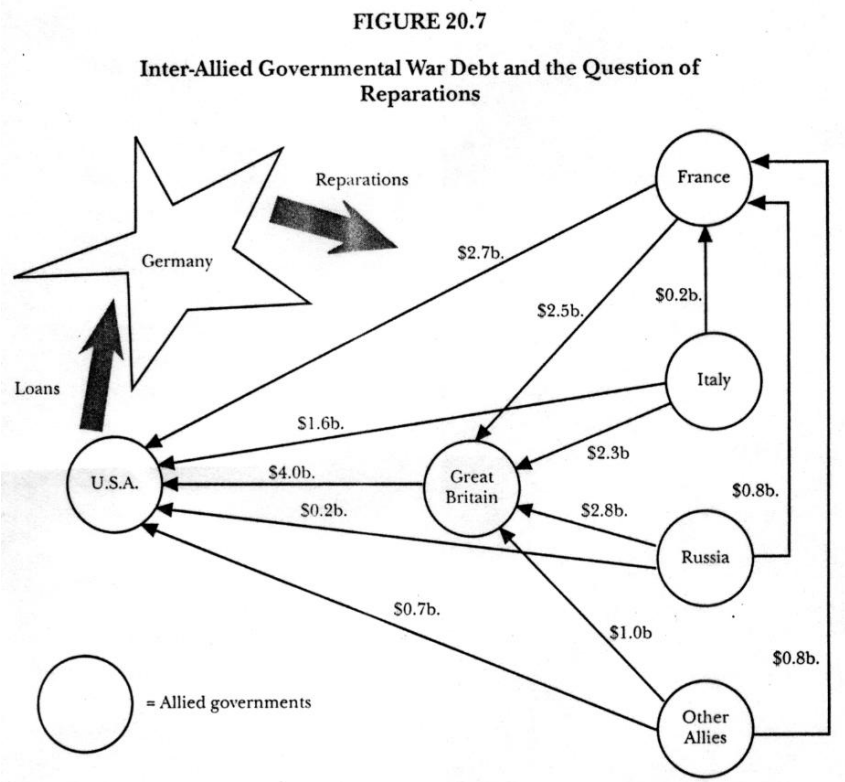
- The “Roaring Twenties” was then a boom decade in the U.S., Europe and rest of the world.
- It makes sense that demand should have been strong, given pent up consumption and delayed investment during the war.
- But that it was interest-rate sensitive sectors that boomed in particular (real estate, autos, household appliances), suggesting a role for accommodating monetary policy.
  - US monetary policy, in particular, was accommodating. The US had acquired excess gold during WWI, and now wanted to help other countries, notably Britain, back onto the gold standard.
- Cheap money and favorable growth prospects fueled stock market booms not just in the US but worldwide.
- But the foundations for this period of false prosperity were fragile and easily destabilized, as we will see momentarily.

Understanding how the Depression came about requires us to understand the preceding events

- This was the longest recorded continuous expansion in US history – until the 1990s .
  - (New Age/New Economy.) Had the advent of the Fed banished the business cycle?
- It was also perceived to be an era of rapid technological progress
  - Radio rather than internet; autos rather than computers.
- US growth construction and consumer-durables led
  - Florida land boom.
  - Household appliances, autos
  - Again, suggesting the important role of Federal Reserve monetary policy.
- Post-1924 boom in Europe
  - As currencies were stabilized, the US lent large amounts of money to Europe, allowing consumption and production to finally recover from the war
- European growth was construction led
  - Again suggesting a role for US and global interest rates
- Expansion was similarly rapid in other parts of the world (e.g. Latin America) that were on the receiving end of capital flows from the United States.
  - Again, low interest rates here meant that foreign investment there was relatively attractive.

Thus, the boom was global

- US expansion fueled foreign expansion
- But this hinged on the triangular pattern of international settlements
  - War debts and reparations problem.
- Specifically, stability hinged on US sustaining its lending to Europe and to other regions such as Latin America.
- A rise in US interest rates could therefore be highly disruptive.
- This occurred in 1928-9.
  - It is tempting to draw parallels with 2006-8:
    - Boom was global
    - There was a considerable housing and credit boom
    - US began normalizing the level of interest rates in 2005



Source: Adapted from John Maynard Keynes, *The Economic Consequences of the Peace* (London: Macmillan, 1920).

Then came the restrictive shift in US interest rates

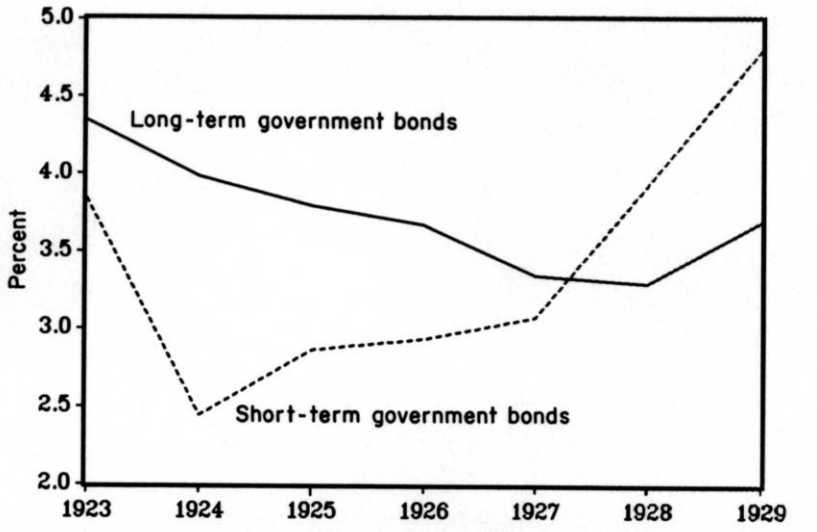


Fig. 7.5. **U.S. interest rates, 1923–29.** Short-term interest rates in the United States rose noticeably after 1927. Long-term interest rates followed, although their response was muted. *Source: Hamilton (1987), Table 2.*

- So far, so good, but one can ask several questions about this.
  - With what was the Fed concerned? No gold losses. No overt inflation.
  - How could a relatively small increase in long-term interest rates have such large effects?
  - The US was only a quarter of the world economy. How could such a small tail wag such a large dog?
  - How can we blame U.S. monetary policy if other countries (Germany, Poland, Argentina, Brazil, Australia, New Zealand) in fact entered the Depression before us?

What was the Fed worried about that led it to tighten?

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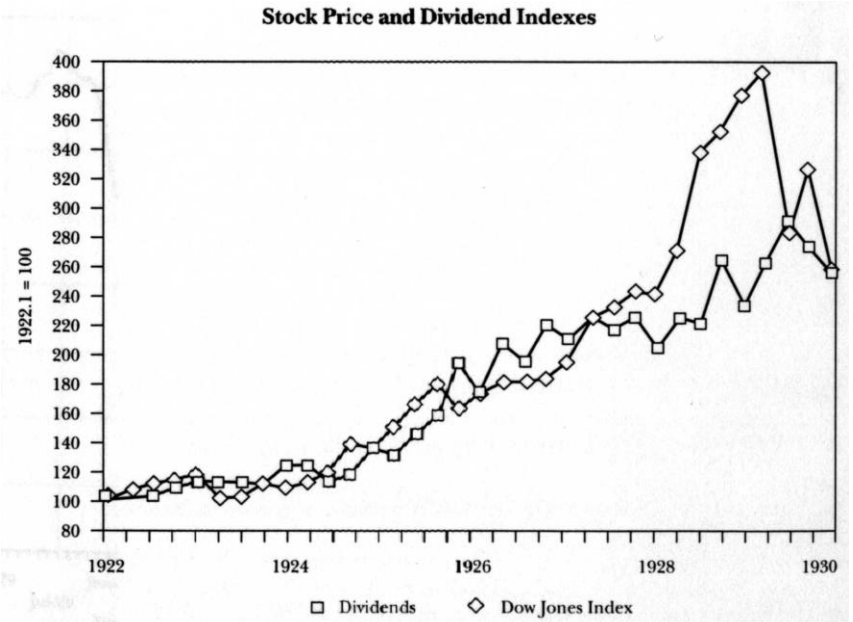
Answer: the Fed was concerned with stock market boom

- It believed the boom was diverting resources from more productive uses.
  - (This is not exactly how such concerns are voiced today.)
- Hence it sought to burst the bubble.
  - (In this it certainly succeeded; more on this in a moment.)



Source: Eugene N. White, "The Stock Market Boom and Crash of 1929 Revisited," *Journal of Economic Perspectives* 4 (1990): 73.

Question: Why Did The Fed's Interest-Rate Hikes Have Such Powerful Effects?

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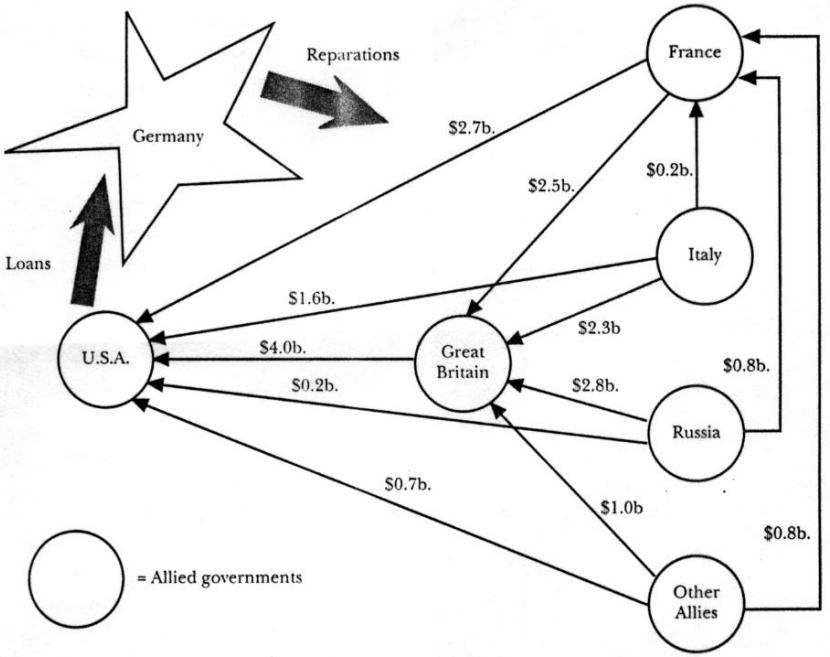
Question: Why Did The Fed's Interest-Rate Hikes Have Such Powerful Effects?

- The US now had the world's largest financial markets and largest gold reserves.
- Other central banks had to follow its lead, given their commitment to remain on the gold standard (and thus peg to the dollar).
- And the weakness of their balances of payments, reflected on their dependence on capital inflows from the US (which were now interrupted as a result of the Fed's action) forced them to respond in exaggerated fashion.

FIGURE 20.7

Inter-Allied Governmental War Debt and the Question of Reparations



Source: Adapted from John Maynard Keynes, *The Economic Consequences of the Peace* (London: Macmillan, 1920).

So why did money supplies contract more sharply in other countries than in the US?

- The weakness of their balances of payments increased the pressure for central banks to tighten.
- And lack of confidence in their currencies (the declining credibility of their gold standard commitments) increased the importance of signaling that they were prepared to take quick action.
- Hence while the growth rate of M1 declined by 2 points in North America between 1927 and 1928, it slowed by 5 percentage points in Latin America and 4 points in Europe. Between 1928 and 1928 the fall was 4 points in North America but fully 5 points in both Europe and Latin America.

Table 8.1. Percentage Change in M1 Between Ends of Successive Years (in percentage points)

	1926–27	1927–28	1928–29
North America	5.20	3.04	−0.91
Central and South America	12.14	7.53	2.66
Europe	11.54	7.82	2.45
Far East	1.38	5.37	0.20

What this way of viewing things helps us to understand

- How it was that other countries (Australia, New Zealand, Argentina, Brazil, Germany, Poland) entered the Depression before the US.
- Why US exports were the first component of US aggregate demand to turn down.
- Why US output declined so sharply (export demand fell off at the same time as domestic demand).
- Why global output declined so sharply (the contractionary impulse was global – it was not limited to one country).

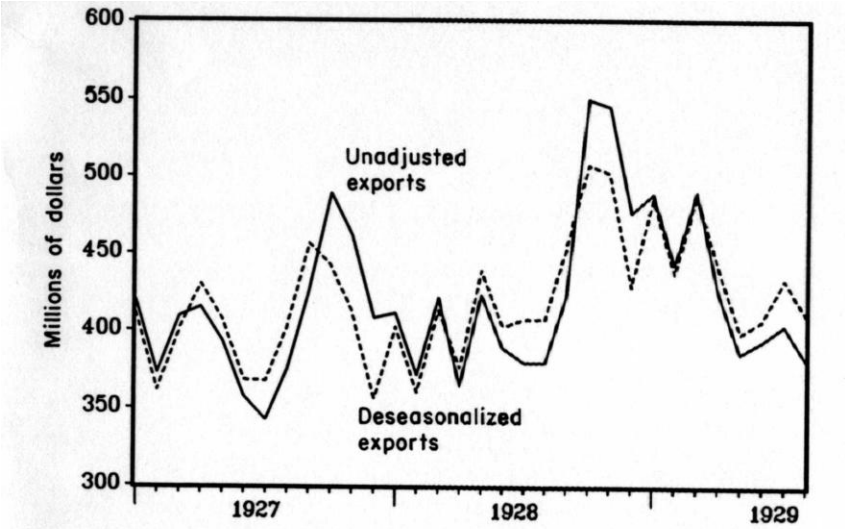


Fig. 8.7. **Value of U.S. merchandise exports, 1927–29.** American merchandise exports peaked in March 1929, nearly six months before industrial production turned down. Only a small portion of their decline in the second quarter of the year was due to seasonal factors. *Source: Tinbergen (1934), as deseasonalized by author.*

- This is the best I can do in the way of understanding the downturn in 1929
  - There was a restrictive shift in US monetary policy.
  - But this was not all: there was a shift toward more restrictive monetary policy globally.
  - Given how growth in the 1920s had been concentrated in interest-rate sensitive sectors, it follows that economic activity turned down.
- But none of this can explain how a garden variety recession turned into the greatest depression of modern times.

This was no garden-variety recession.

- Consider the case of the United States.
  - US Real GDP fell by 25 % between 1929 and 1933.
  - Industrial production fell by 48 % in US in same period.
  - Gross investment fell from 18% to 1% of GDP.
  - Prices fell by 33%.
  - Unemployment rose to 25 per cent

  - So even if you feel, on the basis of the preceding, that we have a satisfactory explanation for the business-cycle turning point, we also have to answer the analytically separate question of what made the subsequent downturn so severe.

Here there is no shortage of candidate explanations

- An exceptional stock market crash undermined confidence.
- Wages had grown more rigid (with the advent of unemployment insurance in the UK, personnel departments/ administered wages in US).
- Trade policy (Smoot-Hawley Tariff) created financial distress abroad and raised questions about future prospects of the international trading system.
- Bank failures disrupted the operation of the financial system and hence the economy.
- The international monetary system was unstable.
- And governments failed to respond in stabilizing fashion. Monetary and fiscal policies remained strangely inert.

It is the failure of governments to respond in stabilizing fashion that is particularly disturbing

- What explains this? The literature offers three (not mutually exclusive) answers:
  - Ideological considerations
  - Prior historical experience
  - Institutions poorly suited for organizing a response

Why governments failed to respond: ideology

- Real bills doctrine (the idea that a central bank should accommodate industry's demand for money and credit; Fed had been created to provide an "elastic currency."

- Liquidationist ideology

  - Andrew Mellon's famous comment to President Hoover: "Liquidate the farmer. Liquidate business. Liquidate banks. Purge the rottenness out of the system."

Why governments failed to respond: historical context and experience

- If reflating meant going off the gold standard, countries that had experienced high inflation in the 1920s were reluctant.
  - viz. Germany, Austria, Poland, Hungary, even France and Belgium.
- Worries about creating a still bigger stock market boom and crash (in both the US and France)
  - viz. Japan in the 1990s.
- In the US, lack of experience and leadership.
  - The Fed was a new organization, and its towering figure, Benjamin Strong, died in 1928.

Why governments failed to respond: arrangements for this were poorly organized

- Incomplete centralization of monetary policy in the United States, and inadequate cooperation among regional reserve banks.
  - Parallel w/ Northern Rock…
- Central banks were fettered by the gold standard; no single central bank could respond unilaterally.
  - Less credibility meant less room to maneuver.
  - Lender-of-last-resort operations to prop up the banking system might in fact undermine confidence in the currency and be counterproductive.
  - Even the Fed was constrained in 1931 and 1932 (though how severely is debated).

So once the US and world economies turned down, there were many sources of downward momentum

- Governments and central failed to respond in stabilizing fashion, for a combination of ideological, historical and institutional reasons.
- Then the crash of stock markets, starting on Wall Street, depressed economic activity further.
  - This last point is widespread in the popular literature.
    - But is it right? What does our own recent experience suggest?


STOCK VALUES CRASH IN RECORD STAMPEDE; BANKERS HALT ROUT

CURIOUS JAM WALL STREET TO SEE THE 'SHOW'

Huge Crowd Throngs "Money Lane" Seeking Thrill in Battle of Bulls and Bears

Stock Slump Fails to Dim Tax Cut Hope

UPSWING ENDS WILD SELLING IN 12,894,650 DAY

N. Y. Exchange Sees Most Violent Drop in Prices Since 1914; Ticker Hours Late

BUSINESS OF NATION UNSHAKEN, DECLARE TREASURY OFFICIALS

Officials Assert Underlying Security Not Touched by Slump

Collapse Brings Renewal of Demands That Congress Probe Wall Street

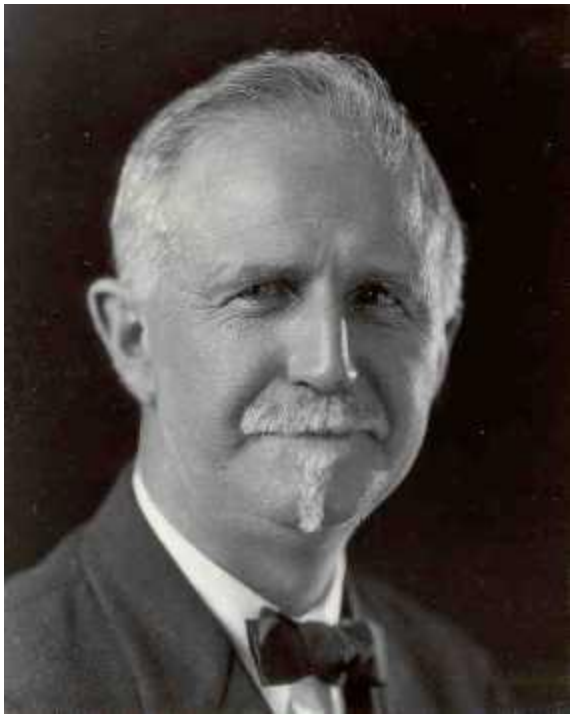
Market Rallies as Morgan and Other Financial Groups Meet and Issue Statement Declaring Trade Sound

Aside: So what caused the Crash?

- It is not clear we can answer this question.
  - If your professor (or anyone else) could explain large changes in prices on the stock market, he would be rich.

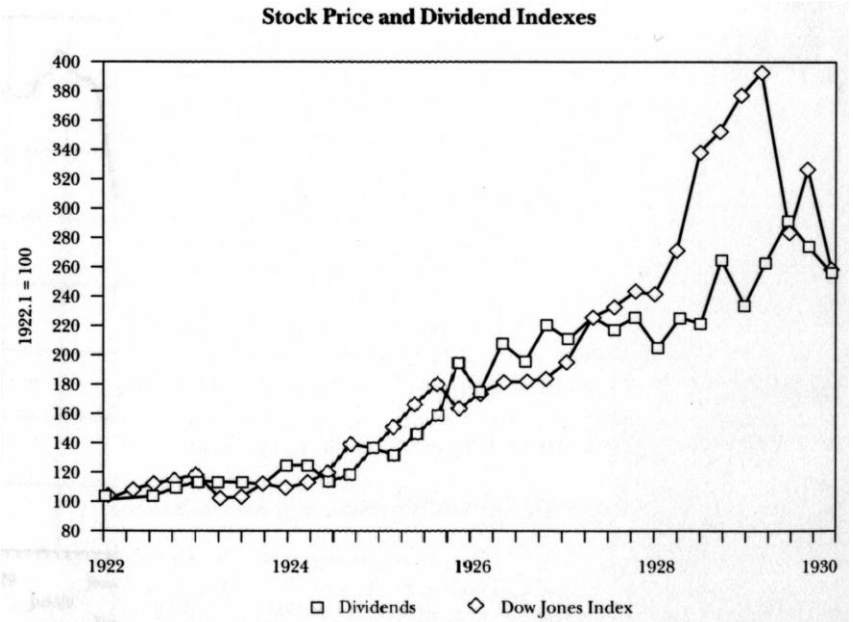
Ex post, one can point to:

- Ex post, one can of course point to:
  - Stock market guru Roger Babson's pessimistic Sept. 7th speech ("What goes up will come down" – Babson was a physicist…) ,
  - Protectionist rumblings in the US Congress (Smoot-Hawley had been reported out of a Congressional committee, although this got almost no press coverage).
  - And of course the fact that economic activity had already begun to turn down (so much for New Age theory).
  - But this is all wisdom after the fact (ten ex post explanations for one event).
- Tighter monetary policy clearly played (its desired) role in making margin purchases less attractive.
- And of course there's the view that the boom was a bubble and all bubbles eventually burst.



So how do we understand the 1926-29 Stock Market Boom?

- The economy – and dividends – had been growing strongly.
- New age rhetoric encouraged the view that the expansion would continue indefinitely.
  - This view was encouraged by the long duration of the expansion, attributed in turn to the founding of the Fed.
- Run-up was fueled by fascination with companies with developing and attempting to commercialize radical new technologies.
  - Radio was the Internet of the time.
- The 1928-29 divergence is kind of suggestive of a bubble.
  - Of course, one needs a model of what means by a bubble in order to properly answer this question. And the model at right is a very crude one.



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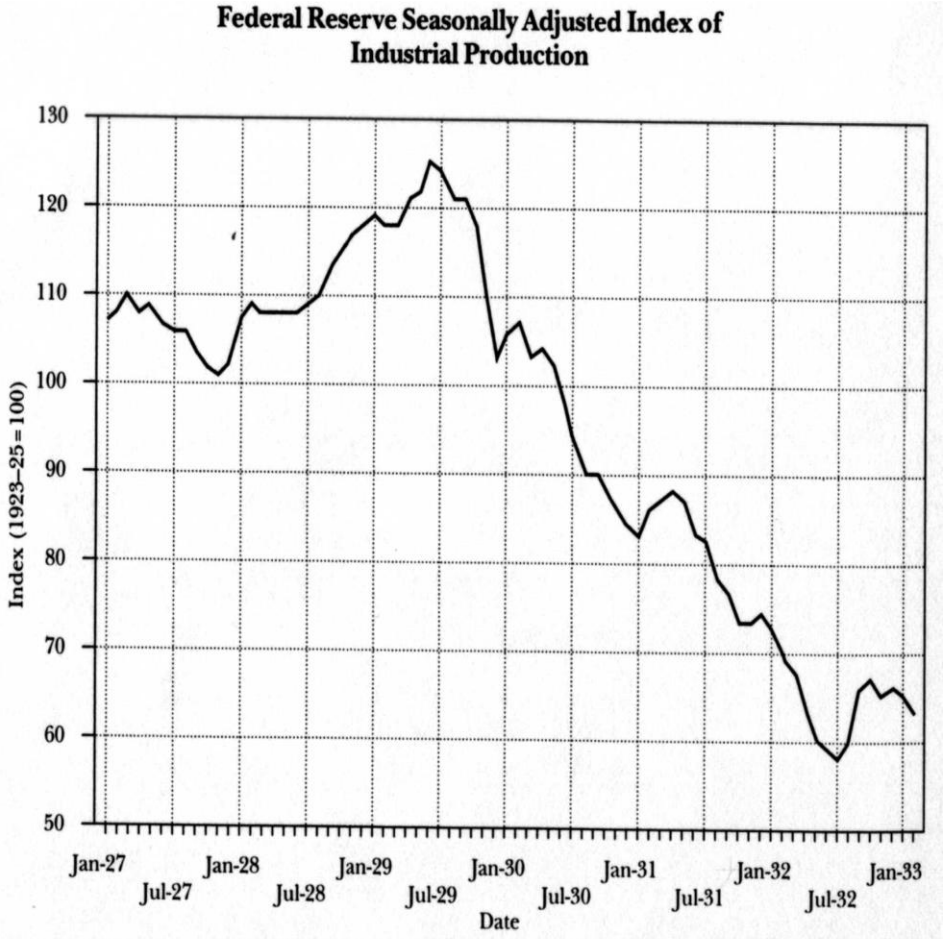
But did the crash cause the Depression? Does it help to explain why the downturn was so severe?



Source: Federal Reserve Board. *Annual Report, 1937* (Washington, D.C.: Federal Reserve Board, 1937).

- Note that this is different from the question: did the Crash explain the turning point? Clearly not: Black Thursday, October 24th, occurred more than two months into the recession, as already noted.
- Jeremy Atack and Peter Passell (1994), *A New View of American History* (W.W. Norton & Company), p.588.

Why we would normally think the wealth effect is small

- Financial wealth/income ratio = 3
- Stocks comprised about 1/3 financial wealth
- Stock market valuation/income ratio = 1
- Stock market fell by 50% by late 1930
- MPC out of wealth = .03
- So induced decline in spending = 1.5%, which is small potatoes relative to the spending collapse that occurred starting in 1930

- In any case, only 5 million people owned any stock at all. About 2-3 per cent of the population.
- 500,000 of them may have owned 85 per cent of the outstanding shares.
- Hence, there is reason to think that the wealth effects on spending of the stock market crash were even smaller then than now – insofar as 97 per cent of the population was immune.

Romer's resolution:

- What is it?

Romer's resolution: Uncertainty (fear or "risk aversion") as an alternative to wealth effects

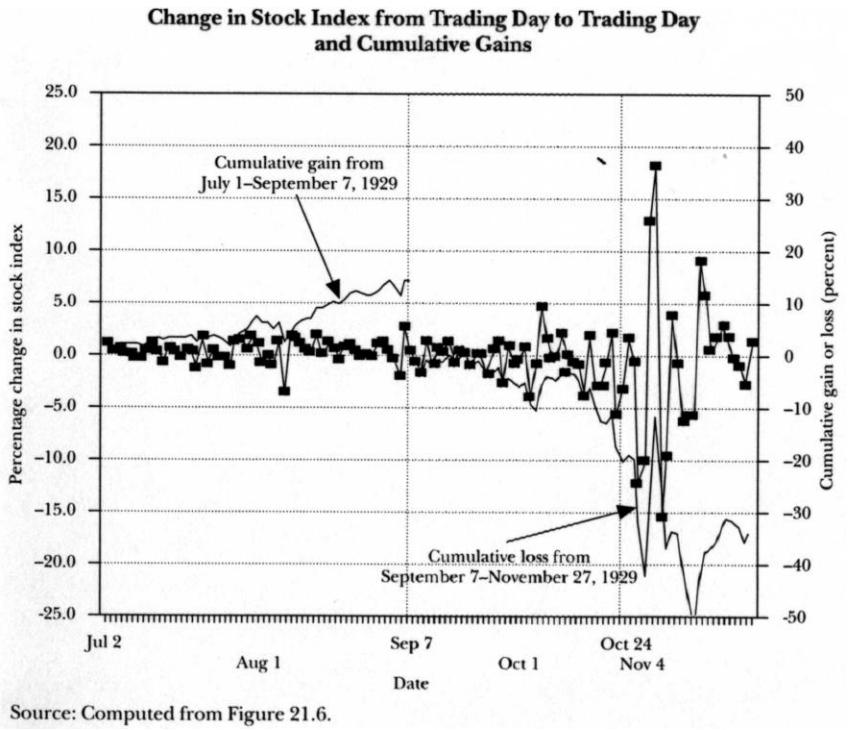
- According to Romer, more important than the lower level of share valuations may have been the volatility of the market, which continued after 1929, creating uncertainty
- Uncertainty led consumers to hold off purchases of big-ticket items.
  - 1920s saw the rise of spending on big-ticket items (autos, radios, kitchen appliances)
  - Their share in GDP in US rose from 8% at the end of WWI to 12% by the end of the 1920s.
  - Automobiles accounted for 12% of manufacturing output. Their importance is evident in 1927, when a mini-recession caused entirely by Henry Ford closing down his assembly lines to retool from the Model T to the Model A.
  - Romer finds that the effects are large: doubling volatility reduces consumer spending on durables by 7%.
- Uncertainty led firms to hold off investing
- It was precisely those sectors producing investment goods and big ticket items that suffered disproportionately.
- And we certainly see demand for the products those sectors (autos, etc.) being hit today.

Romer's resolution:

- What is it?
- Do you find it convincing?

Is this convincing?

- The consumer durables revolution was largely limited to the U.S.
- And is this really a distinct explanation?
  - Attributing the rise in uncertainty to stock market volatility kind of begs the question (in other words, what explains the stock market volatility? What prevents this argument from becoming circular?)
  - Stock market volatility is not a distinct factor in the Depression Rather, it is just a reflection of uncertainty about the future course of the economy.
  - It reflects the absence of stabilizing intervention by the government and Federal Reserve.



Source: Computed from Figure 21.6.

So if not the uncertainty caused by the stock market crash, then what?

- What do Friedman and Schwartz argue?

Friedman & Schwartz's explanation for the severity of the downturn is that monetary policy remained tight

- They gauge this by the change in the money stock (M2).
- The obvious objection (famously made by Peter Temin*) is that the fall in the money stock could have simply reflected the decline in activity, which cut money demand (less activity means less income, fewer bank deposits, less M2).
  - Who is right?
  - How do we know?

* Peter Temin, *Did Monetary Forces Cause the Great Depression?* (New York: Norton).

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  - Who is right?
  - How do we know?
    - It makes sense to look at the interest rate.
    - Temin observes that interest rates fell sharply in 1930.
      - But which interest rate?
      - Presumably we want to look at the real interest rate.
      - And that requires a measure of ex ante price expectations.

Where would you look to learn about price expectations?

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- You might run time series forecasting regressions (a la Steve Cecchetti in the *AER* 1991).
  - He finds that the fall in prices was hard to predict before mid-1930, as if it is hard to argue that deflation was anticipated before then. This implies that money was loose in the first year of the Depression.

Where would you look to learn about price expectations?

- You might use commodity futures prices and exploit the correlation between them and realized inflation/deflation (a la Jim Hamilton in the *AER* 1991).
  - Commodity futures do not point to deflation before the end of 1930. Again, this does not point to tight monetary policy.

Where would you look to learn about price expectations?

- You might look at what the Harvard and Yale forecasting services said, as Kathryn Dominguez, Matthew Shapiro and Ray Fair did in the *AER* 1991.
  - These services did not foresee significant deflation before late 1930.

Where would you look to learn about price expectations?

- You might look at the financial press, as Dan Nelson did in Research in Economic History 1991.
  - Again his conclusion is that significant deflation was not anticipated before late 1930.

- So it is hard to conclude that the Fed's consciously tight monetary policy aggravated the downturn.
- More plausible is that it was neglect of the problems in the banking system and failure to act as a lender of last resort when the first banking crisis broke out in October 1930 (and then further banking crises broke out in 1931, when the gold standard was threatened, and 1933, when everything fell apart).

This leads to the two fundamental sources of uncertainty and financial instability (both in the US and globally):

- The collapse of banking systems
- The collapse of the gold exchange standard

  - Both mattered, but the collapse of the banking system was especially important for the United States, while the collapse of the gold standard dominated in other countries.

Role of Collapse of Gold Standard in Contraction of Money Supplies

- Currency must be backed by gold or foreign exchange reserves (that is, interest-bearing foreign assets). Equivalently, C = G + R.
  - (Think of this as applying to the entire world.)

- Fear that the gold standard will collapse, and foreign assets will be devalued, leads central banks to scramble out of R in favor of G.
  - [There is an analogy with the dilemma facing the People's Bank of China and other foreign central banks today.]

- Share of R in R+G falls from 37% to 11% worldwide between the end of 1929 and end of 1931.
- But there is only so much G to go around. Central banks seeking more must raise interest rates to attract it (or retain it – recall our discussion of the rules of the game).
- Higher interest rates mean less demand, and lower prices.
- Hence, liquidation of R reduces supply of high-powered money (currency, to a first approximation). It means credit contraction, more deflationary pressure.

  - See Ben Bernanke, "The Macroeconomics of the Great Depression," *Journal of Money, Credit and Banking* (1995).

Role of Collapse of Banking Systems in Contraction of Money Supplies

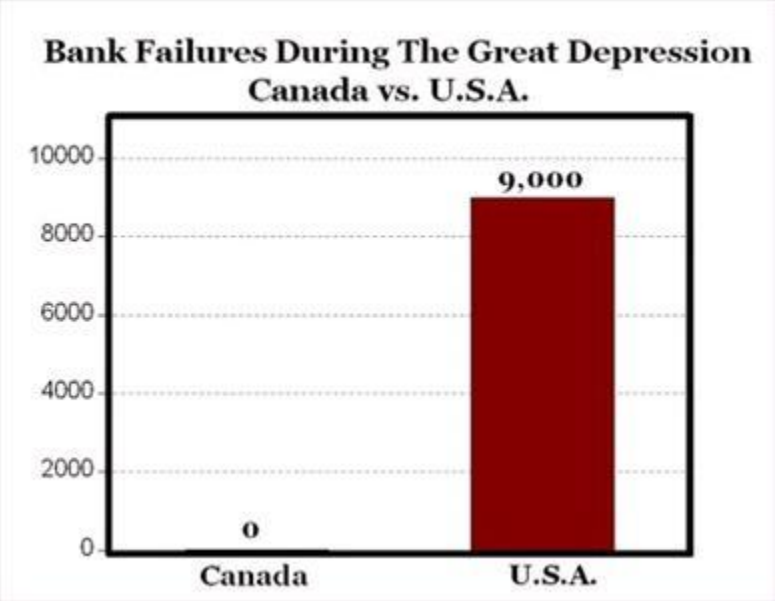
- The logic for the banking crisis case is as follows (think of this as applying to one economy, say, the United States)
- Money supply= currency plus bank deposits (M = C + D).
- Hence, banking panic can lead to liquidation of deposits as households and others seek to hold currency instead.
- Since there is only so much currency to go around, this scramble for safe assets
- As they sell interest bearing assets (bank deposits and their close substitutes, like bonds), bond prices go down, interest rates go up, spending declines, prices collapse.
- Hence, banking crises compress money supplies, cause deflation.

Extent of banking instability in US in this period was remarkable

- Three banking crises in US, in 1930, 1931, and 1933
- First banking crisis (Nov-Dec 1930), 600 banks failed.
- Second banking crisis (March-Aug 1931). More serious than first. Caused by European instability
- Third banking crisis (Oct 1932-March 1933). Caused by deepening depression or by expectations of gold standard collapse
- In total, 6% of US banks failed in 1930, 11% in 1931, 8% in 1932, 13% in 1933; by end of 1933, nearly half the banks in existence in 1929 had disappeared

Why did so many banks fail?

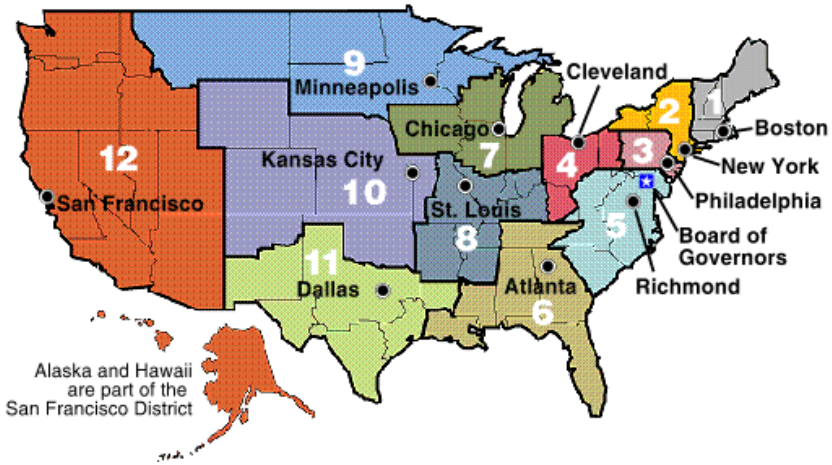
- Existing accounts point to:
  - The fragmented structure of US banking (Canadian banks better diversified – seems like Canada always gets this right…).
  - Over-expansion during the boom (Caldwell and Company's municipal bond bets and other contemporary-sounding tales).
  - And lack of lender-of-last-resort support.
    - Note again contrasting Canadian story: Canada goes off gold standard in 1931. From this point banks could get liquidity directly from the Dominion government.



- Undoubtedly all these factors played a role.
  - The modern literature points to the last as making a key difference…

Why did so many banks fail?

- Here Gary Richardson has an interesting new paper that utilizes archival evidence on individual banks from Mississippi.
- Mississippi is divided North-South between the Federal Reserve Districts of St. Louis and Atlanta.



* Gary Richardson, "Monetary Intervention Mitigated Banking Panics During the Great Depression: Quasi-Experimental Evidence from the Federal Reserve Bank Mississippi Border," NBER Working Paper no.12591.

- The border counties were similar in all respects but one.
- Namely, the St. Louis Fed was a die-hard believer in the real-bills doctrine, while the Atlanta Fed was not.
- The Atlanta Fed provided more liquidity assistance to banks in its district, and the banking panics of 1930 and 1931 were milder there.
- (Recall that district reserve banks had some autonomy until 1935).
- Rates of bank failure differed significantly. Financial stability much better maintained in Atlanta Fed counties.
- (It would be interesting to know whether real consequences also differed.)

But the banking-crisis problem was not limited to the UnitedStates

- A 1991 study by Ben Bernanke and Harold James counts banking crises in 24 countries: Germany, Austria, France, Romania, Estonia, Italy, Argentina, Belgium, Poland, Hungary, Latvia, Czechoslovakia, Turkey, Egypt, Switzerland, Romania, Mexico, Netherlands, Sweden, and Norway among others.
- Yet in few of these countries were banking crises as disruptive as in the United States.
- Here is where different gold standard policies and ability to act as lender of last resort were important.
  - Central banks and governments in other countries were quicker to intervene to stabilize the banking system, at least after the event.

Weighing the effects

- We now want to establish that banking crises were important for US, but collapse of gold exchange standard was what mattered for other countries.

- M1 = (M1/BASE) x (BASE/INTRES) x (INTRES/GOLD) x GOLD

- where BASE is currency in circulation plus the reserves of commercial banks, INTRES is the country's international reserves (gold plus foreign exchange), and GOLD is the value of gold reserves denominated in domestic currency.
- Since gold supplies were fixed in the short run and BASE/INTRES was given by gold standard statutes (more or less), most of the action in this product should have come from the first and third terms.
- First term is banking crisis effect.
- Third term is gold-standard-collapse effect.
- Can we put numbers on these different components?

M1 = (M1/BASE) x (BASE/INTRES) x (INTRES/GOLD) x GOLD

- What happened to INTRES/GOLD?
  - Globally, INTRES/GOLD ratio fell from 1.27 at the end of 1929 to 1.12 at the end of 1931 in 26 countries.
  - Other things equal, this implies a 12 per cent fall in global money supplies centered in calendar year 1931.
  - We should exclude the U.S. and the UK, the principal reserve-currency countries, the ratio being fixed in the countries issuing rather than holding foreign exchange reserves. There, change in INTRES/GOLD = 1.
  - When we exclude them, the INTRES/GOLD ratio falls from 1.60 at the end of 1929 to 1.23 at the end of 1931. For countries other than the reserve centers, the fall in money supplies was then 23 per cent.

M1 = (M1/BASE) x (BASE/INTRES) x (INTRES/GOLD) x GOLD

- What happened to M1/Base?
  - In the U.S., it fell by 25 per cent (!) between 1929 and 1931.
  - Outside the U.S., however, the decline was “only” 10 per cent.
  - In a sense, then, he largest factor in the monetary contraction in the US was the banking crisis, whereas outside the US it was the collapse of the gold standard.

So what ended the Great Depression?

- Next time….