International Aspects of 19th Century Money and Finance

Barry Eichengreen

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Brad having discussed domestic aspects last time, this time I will talk about:

- The international monetary framework
- The international financial framework
- Historical outcomes

Late 19th century international monetary framework = the gold standard

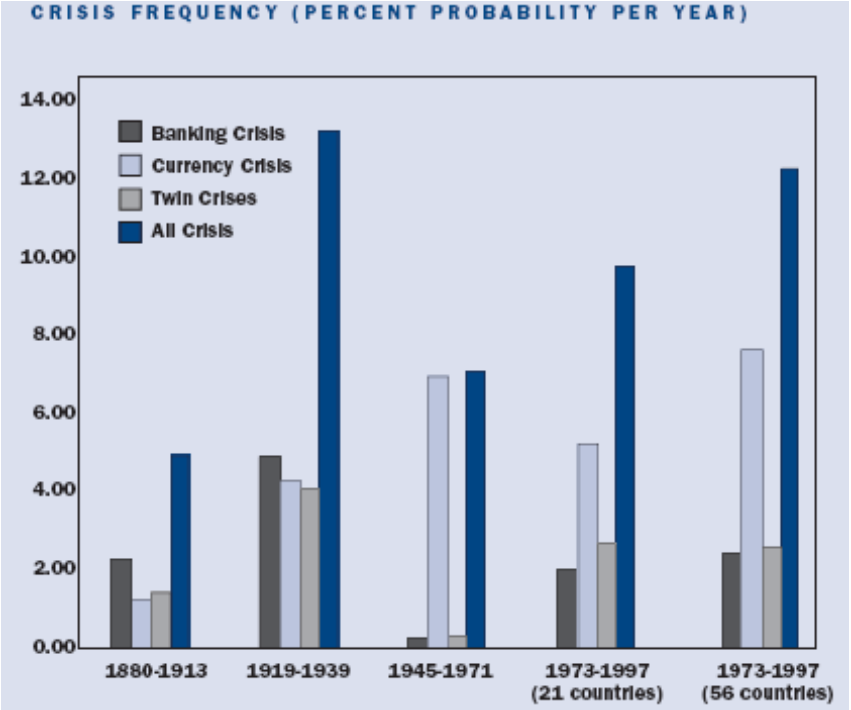
- Why it matters
- Some basic concepts
- A brief history of its spread
- How it worked to
  - Maintain internal stability
  - Maintain external stability
- Implications

Why it matters

- www.motherjones.com today: "The GOP's New Gold Rush: Inside the Conservative Plan to Take Down the Fed From the Bottom Up."

Why it matters

- The gold standard was part of the institutional framework supporting the large capital flows that we will discuss later.
- It seems to have been able to reconcile high capital mobility with currency stability, something that has eluded the world subsequently.



- In addition, the gold standard was arguably important for the growth of trade in the first age of globalization.
  - [A study of this period* by Chris Meissner and Ernesto Lopez-Cordoba in the *American Economic Review* shows that when two countries were on the gold standard they traded 20 per cent more with one another than their economic, financial and physical characteristics would otherwise lead one to expect.]

    * "Exchange Rate Regimes and International Trade: Evidence from the 19th Century," *AER* (2001).

- And the gold standard, put back in place after World War I, will be important for our understanding of the causes and course of the Great Depression.
  - Which will be the subject of the next two lectures…

So what exactly is a gold standard? Formally, one can think of it as having three elements

- Government, directly or through an agency (the central bank), pegs the domestic-currency price of gold.
- Gold imports and exports are left unrestricted.
- There is a rule linking the money supply to the gold supply.

  - (Let us now consider these 3 elements one at a time.)

Rules Linking Money Supply with Gold Supply

- These differed depending on whether a country operated a:
  - Gold coin standard
  - Gold bullion standard
  - Gold exchange standard
    - [As Arthur Bloomfield explains…]

Gold coin standard

- Gold coin circulates internally and is used for large-value transactions. In addition, there may be token coinage – where the metallic content of the coin is worth less than its face value, circulating side-by-side for small value transactions.
  - We'll talk more about the token-coinage part.

Gold bullion standard

- Little if any gold circulates. Gold is housed at the central bank in the form of gold bars, but domestic currency and coin are fully convertible into bullion.

Gold exchange standard

- Central banks hold foreign securities convertible into gold by foreign central banks as well as gold bullion.

Types of gold bullion and gold exchange standards

- *Proportional system* (as in Belgium, Netherlands, Switzerland)
  - Under this system, some proportion (or share) of the monetary liabilities of the central bank (say, a third) had to be backed with gold, by statute. The residual share (say, two thirds) could be unbacked (the central bank could simply issue those notes (or token coins), buying commercial bills etc. to inject them into circulation in what came to be called *open market operations*).
- *Fiduciary system* (as in Britain)
  - A certain amount of currency ("the fiduciary issue") could be issued without backing. But every additional pound sterling issued after that had to be backed with a pound sterling's worth of gold.

So far we have discussed the gold standard in an individual country

- Raising the question of how the gold standard produced stable exchange rates.
- Answer is clear in an accounting sense.
  - In the United States, the dollar price of gold $/G was fixed (the US Treasury stood ready to buy and sell gold at a fixed price in dollars per ounce).
  - In Britain, the sterling price of gold £/G was fixed (the Bank of England stood ready to buy and sell gold at a fixed price in pounds sterling per ounce).
  - The exchange rate is dollars per pound sterling $/£.
  - From the above, it follows, as a matter of simple arithmetic (actually, as a matter of definition) that $/£ = ($/G)/(£/G).
  - Since the RHS is fixed, so must be the LHS.
  - (Thus, if the US Treasury buys at sells gold at $20 an ounce, the Bank of England at £4 an ounce, then the exchange rate must be five to one between dollars and sterling.)

- But what made this work in an economic sense?
- …

Answer: gold market arbitrage

- Recall our example, in which $/G = 20 and £/G = 4. Then the equilibrium exchange rate, $/£, is 5.
- Now suppose that the dollar depreciates to 6
- You can get a quarter of an ounce of gold from the US Treasury for $5. So Brits buy $6 for £1.
- They take $5 of that to the US Treasury and obtain a quarter of an ounce of gold.
- They ship that quarter of an ounce of gold to Britain and get £1 from the Bank of England.
- They have their original £1 and $1 also.
- Moreover, a quarter of an ounce of gold has moved from the U.S. to Britain.

More on gold-market arbitrage

- Everyone knows you can do this, so no one will sell $6 for £1.
- Anyone will settle for $5.50 for £1.
- Anyone will settle for $5.05 for £1.
- So $5 for £1 is the only equilibrium.
- What makes this work? Answer: negligible cost of shipping gold between London & NY.
- But how negligible, in practice, were those costs?

- In practice, the cost of shipping gold internationally was about 1% of the value of gold transported, reflecting freight costs, insurance, packing.
- This created a corridor of +/- 1% around $4.8666 in which the exchange rate could fluctuate.
  - These were the "*gold import and export points* of which Bloomfield writes."

[1] The calculation of the pre-war gold point in the note, appearing in the March issue, contained an error. The following is the correct calculation :—

	£	s.	d.
100,000 fine ounces of gold @ 84s. 11½d.	424,791	13	4
Freight @ 3s. 9d. per £100 for £424,800	796	10	0
Insurance @ 9d. per £100 for £428,000	160	10	0
Interest 4 per cent. on £424,792 for 8 days	372	8	4
Boxes and Packing	16	0	0
	426,137	1	8
100,000 fine ounces @ $20.67183	$2,067,183		
Incidental charges in New York	150		
Net proceeds	$2,067,033		

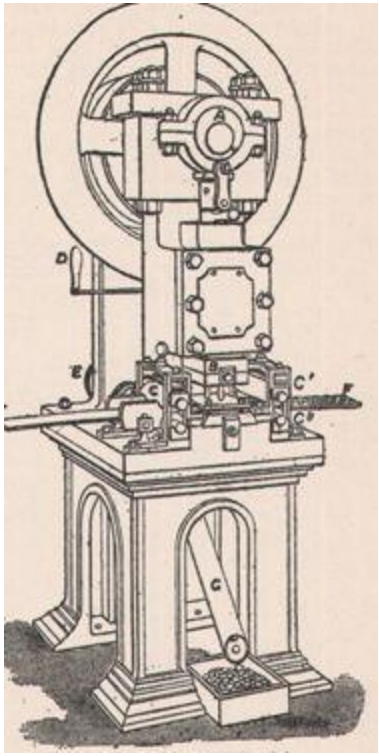
£1 = $4.8506

This is how the international gold standard produced stable rates. But the system wasn't always international

- As a global phenomenon, the gold standard was a late 19th century development.
- Britain was on gold standard, loosely speaking, from 1717, courtesy of Sir Isaac Newton.
  - (true historical path dependence!)
- But became widespread only after 1870
- Copper, silver, bimetallic, even trimetallic standards prevailed previously.

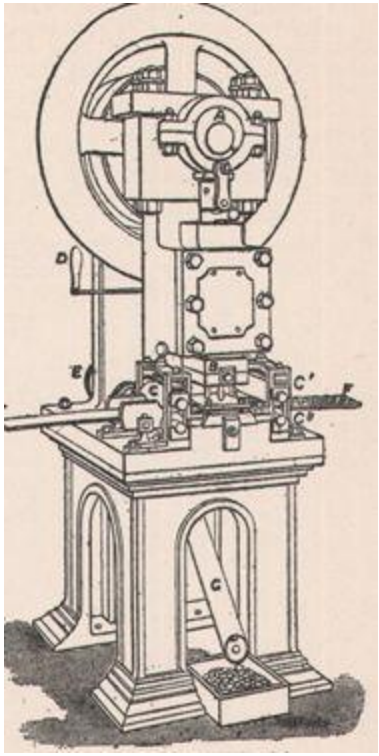
Raising the question: Why the spread?

- And why so late?



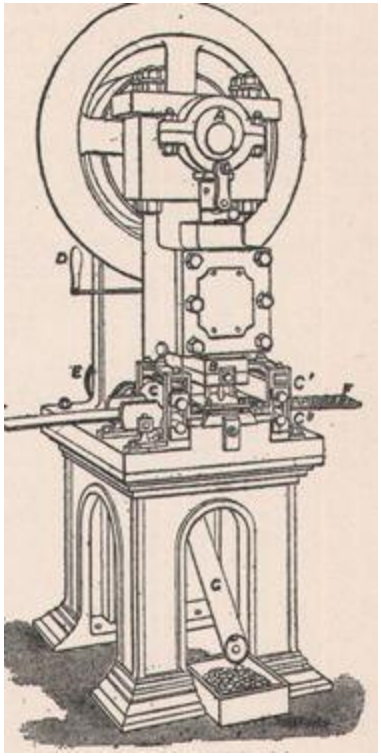
Raising the question: Why the spread?

- Before 1870, most countries had bimetallic standards.
- Gold coin was too valuable for everyday transactions; silver coin was too bulky and awkward for large value transactions.
- So gold coin was used for large value transactions (typically, international trade), silver coin was used in everyday transactions (silver coins worth only maybe 1/15 gold coins).
- The Romans had stamped silver coins using common dies throughout their Empire.
- Their successors throughout Europe similarly produced both gold and silver coins.
- But bimetallism was unstable. Can you see why?...

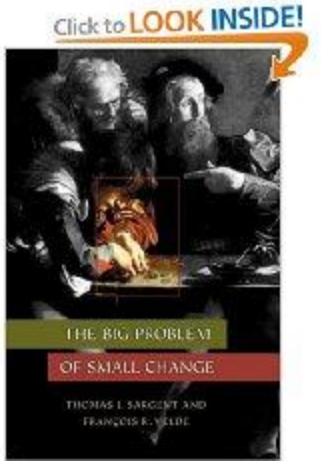


Raising the question: Why the spread?

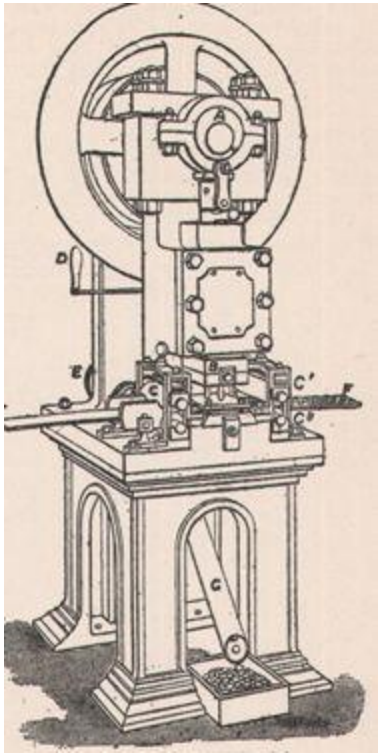
- Say that the silver/gold price maintained by the Bank of France is 15 to 1.
- You can bring it an ounce of (coined or uncoined) gold and get 15 ounces of (coined) silver (and vice versa).
- They deduct a little bit for “brassage” (seignorage), but we can ignore this.
- Now imagine that gold is discovered in California. Price of gold relative to silver on the market falls to 14 to 1.
- Everyone brings gold to the Bank of France where they can get 15 ounces of silver for it (not 14, as on the market).
- Bank of France flooded with gold, denuded of silver. Voila: France is on a mono-metallic gold standard.
- Next, silver is discovered in Nevada. And so forth.
- This is what repeatedly happened to putatively bimetallic countries like France and the U.S. prior to the 1870s.



- These mono-metallic systems were unattractive (people constantly complained of shortage of either large or small value coin).
- This was especially a problem in the case of small change. Sometimes trimetallism was tried (along with gold and silver you had small denomination copper coins). But maintaining all three units in circulation was even more difficult.
- Symetalism unattractive.



- Token coinage might have been used to supplement gold, but here counterfeiting was a serious problem.
- Only when steam power came to the mint did tokens become practicable.
  - The steam-powered press at right was introduced into the English Mint in 1810.
- In a sense, then, the gold standard was a corollary of the Industrial Revolution.
  - So it is argued by Angela Redish, *Bimetallism* (Cambridge University Press, 2000).



Problem with this story

- Steam power came to the English Mint in 1810 and was rapidly adopted elsewhere.
- But the gold standard goes global only after 1870.
- If this is the explanation, why the lag?
- ….

Possible explanations

- Inertia? (Reluctance to tamper with prevailing monetary standard.)
- Lobbying by silver mining interests?
- Role for network effects?

A Role for Network Effects?

- It paid to adopt the same monetary standard as countries with which you traded and from which you borrowed (since that provided stability and minimized uncertainty).
  - [Recall the Meissner/Lopez-Cordoba evidence that I mentioned before.]
- Britain first attracted Portugal and the members of its Empire.
- Germany went over to gold in 1871.
  - Trade with Britain had become more important. Russia, with which it traded, had temporarily suspended silver convertibility.
- This set off a chain reaction.

- And how did the gold standard ensure the maintenance of price stability?...

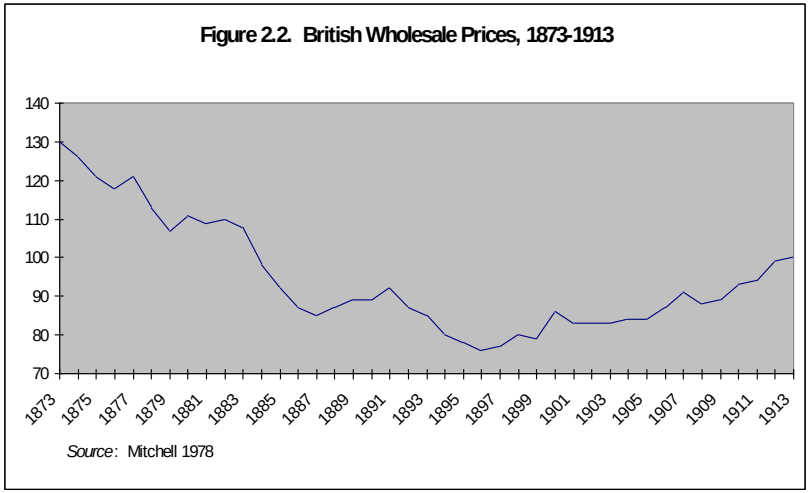
Answer: the response of the gold mining industry

- To understand this, consider the following simple "model" of **the world** on a gold standard.
- Quantity equation: MV = PY, where
  - M = world money supply
  - V = velocity of circulation
  - P = world price level
  - Y = world output
  - Assume that V and M are fixed for the moment.
  - As Y rises, P falls. But the price of gold is fixed. Hence the relative price of gold rises, and the mining industry should respond.
  - More G means more M, which drives prices back up.

- A formal model with dynamics is in: Robert Barro, "Money and the Price level Under the Gold Standard," *Economic Journal* (1979).

- But is this a plausible story?
- And is there evidence of its operation?
- Raising two questions:
  - On what did the output of the mining industry depend (changes in the price level?)?
  - And how stable was the price level under the gold standard anyway?

Prices were not all that stable



- Price levels fell by 50 per cent between the early 1870s and the end of the 19th century.
- This is hardly "admirable price stability." In the US West, it fomented the Populist Revolt and led to the presidential candidacy of William Jennings Bryan in 1896.
- It also led in later decades to some unusual creativity in Hollywood…

Question: "The Wizard of Oz" is a parable about:

- A. Good and evil
- B. Loss of innocence
- C. The gold standard

- Oz stands for….

- Oz stands for an ounce of gold
- The yellow brick road was…

- Oz stands for an ounce of gold
- The yellow brick road was the gold standard itself
- Kansas was…

- Oz stands for an ounce of gold
- The yellow brick road was the gold standard itself
- Kansas was where the Populist revolt against the gold standard began.
- In the book, Dorothy lost her silver slippers because…

  - They were ruby slippers in the movie. No accounting for changes between book and screenplay.

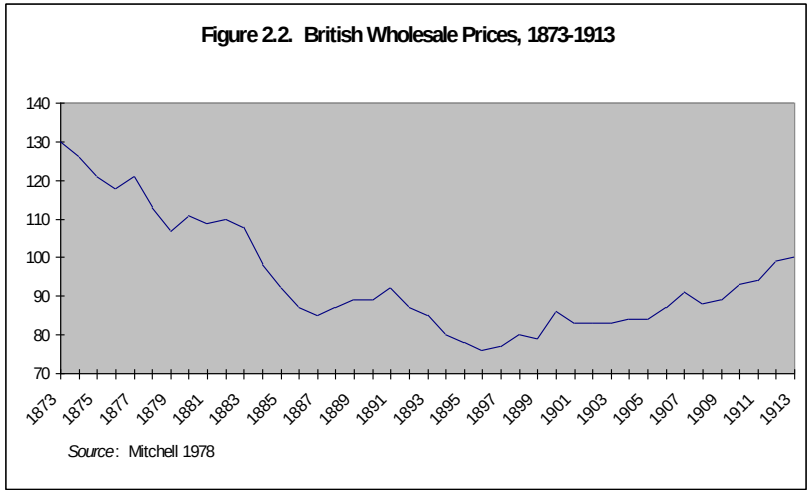
- Oz stands for an ounce of gold
- The yellow brick road was the gold standard itself
- Kansas was where the Populist revolt against the gold standard began.
- In the book, Dorothy lost her silver slippers because the author wanted a symbol of the good old bimetallic (silver-based) system that had been lost.

- And of course:
  - The Scarecrow was the farmer impoverished by the gold standard
  - The Tin Woodman was the industrial worker impoverished by the gold standard.
  - The Wicked Witch of the East was the eastern capitalist who preferred the gold standard.
  - The Cowardly Lion was William Jennings Bryan.
  - And the Emerald City was Washington DC.

Here we have President William McKinley hiding behind a curtain like the Wizard in an 1896 cartoon

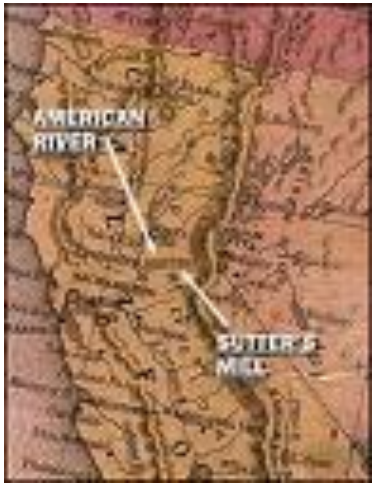
So contemporaries were not all that happy about price-level developments

- Still, 1-2% inflation or deflation was hardly major instability by the standards of our day.
- And there was indeed a tendency for deflation (and inflation?) to turn around eventually.
- The question is how long the induced response of the gold mining industry took to kick in.
- And this requires us to better understand the determinants of 19th century gold supply (and discoveries).



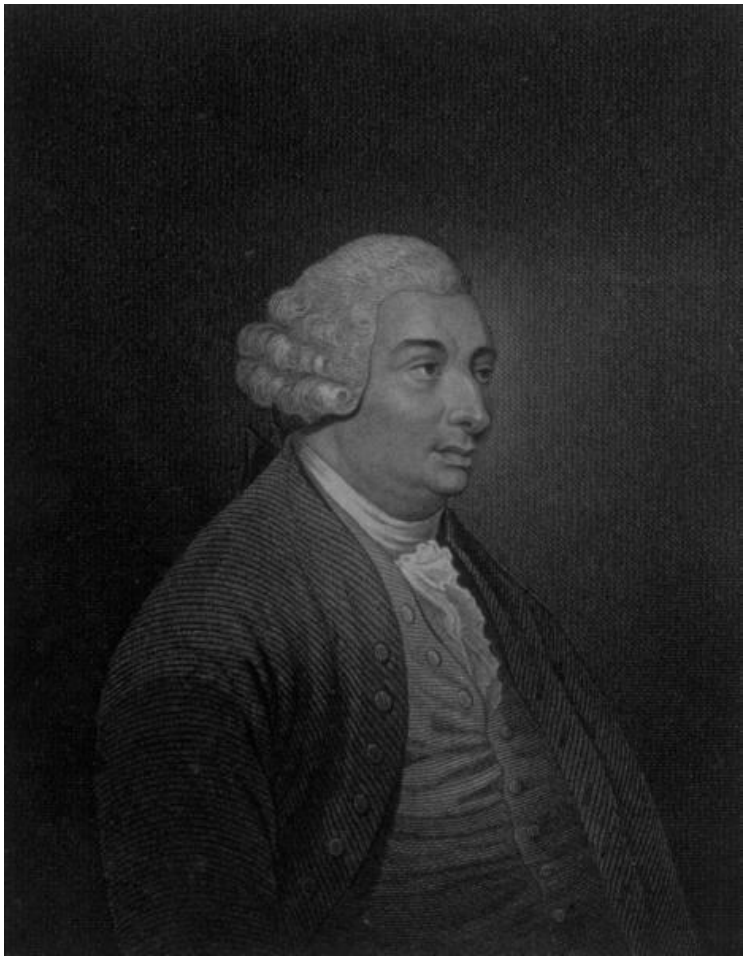
Historical Determinants of Gold Supplies

- In practice, the great gold discoveries were more important than variations in intensity of exploitation.
- Examples: Siberia (1914, 1829), California (1848), Eastern Australia (1851), Western Australia (1889), South Africa (1886).
- Great gold discoveries were a function of more than simply the relative price of gold.
- Recall the example of Sutter's Mill…
  - Good source on this is Hugh Rockoff, ""Some Evidence on the Real Price of Gold, its Costs of Production, and Commodity Prices," in Michael Bordo and Anna Schwartz (eds), *A Retrospective on the Classical Gold Standard* (Chicago, 1982).



External Balance: How Were Payments Problems Dispatched?

- Theory: *Price – Specie Flow mechanism* (due to David Hume 1757)
- Imports > Exports
- Gold flows out to finance *trade deficit*.
- Money supply falls.
- Prices decline.
- Imports become more expensive and therefore shrink.
- Exports become more competitive and therefore rise.
- Trade deficit is eliminated and balance is restored.



- David Hume (1752), "On the Balance of Trade," in *Essays, Moral, Political and Literary* (Longman Green, 1898).

Problems with this story?

- …

Problems with this story?

- Assumes large gold flows where in actual fact, gold movements were very small.
- No role for capital flows.
  - But can we blame Hume?

Reconciliation is of course central bank management of the system

- Central bank management explains both why gold flows were small and the role played by capital flows in adjustment.
  - Central banks anticipated the direction of gold flows and hence averted the need for them.
  - When gold flowed out, they raised interest rates. This was known as "playing by the *rules of the game*."
  - This damped down import demand but also attracted stabilizing capital flows. (Hence, observed capital flows were large.)
  - The knowledge that central banks were prepared to act in this way meant that capital flowed in stabilizing directions.

But what is the evidence on "the rules of the game"?

- What does Bloomfield say about this?
- What kind of evidence does he look at?

But what is the evidence on "the rules of the game"?

- Nurkse (1944) had explained the instability of the interwar gold standard by the failure of central banks to play by the "rules."
- That is, by the tendency of the domestic and foreign assets of central banks to move in opposite directions in the majority of cases he considered.
- Nurkse's implicit comparison was with the pre-1913 period, when he presumed that central banks had played by the rules.
- Bloomfield then went back to 1880-1913 and found exactly the same thing as Nurkse for the subsequent period.
- Does this mean that central banks violated the rules then as well?
- If so, then how did the classical gold standard survive?
- Or is the test flawed?

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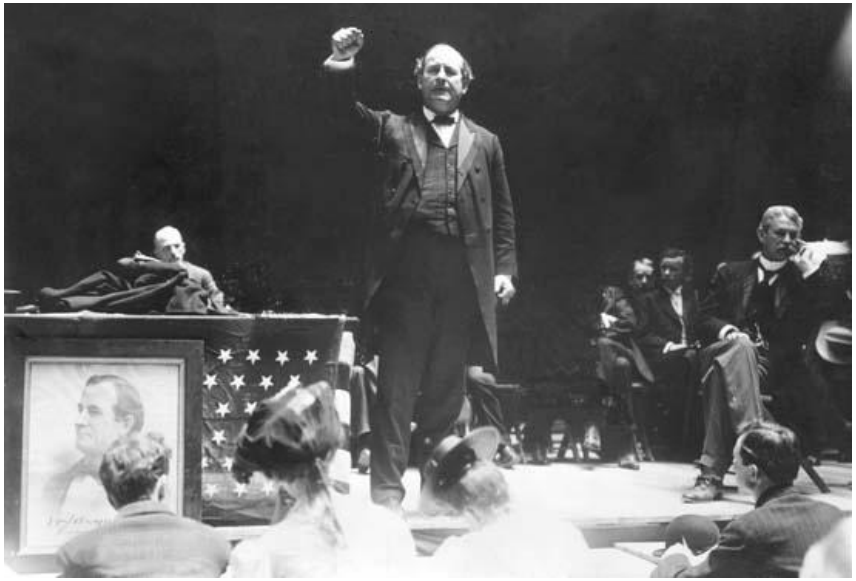
- Or is the test flawed?
- John Dutton, John Pippinger and others distinguish short-run violations of the rules (short-run sterilization of gold flows) with long-run conformance with the rules. (If central banks hadn't validated the impact of gold losses in the longer run, those gold losses would have continued indefinitely…) Credibility of their commitment to validate those rules in the long run gave them more policy autonomy in the short run.

- John Pippinger, "Bank of England Operations, 1893-1913," in Michael Bordo and Anna Schwartz (eds), *A Retrospective on the Classical Gold Standard* (Chicago, 1982).

These generalizations about the supportive political and social framework obviously do not apply equally to all countries

- US is a case in point.
- US had universal male suffrage.
- It had no central bank to manage the system
- Hence, ease of managing the system and ability to subordinate other goals of policy to the maintenance of gold convertibility were less.
- Thus, the US did not enjoy stabilizing capital flows. Nearly driven off the gold standard in, inter alia 1893-6 and 1907.
  - More generally, countries at the periphery of the system (in Latin America and Southern Europe – here I would include also the US) had a rockier experience; they were forced to suspend convertibility periodically.
  - The lacked well developed financial markets and central banks. They experienced larger external shocks.



Implications

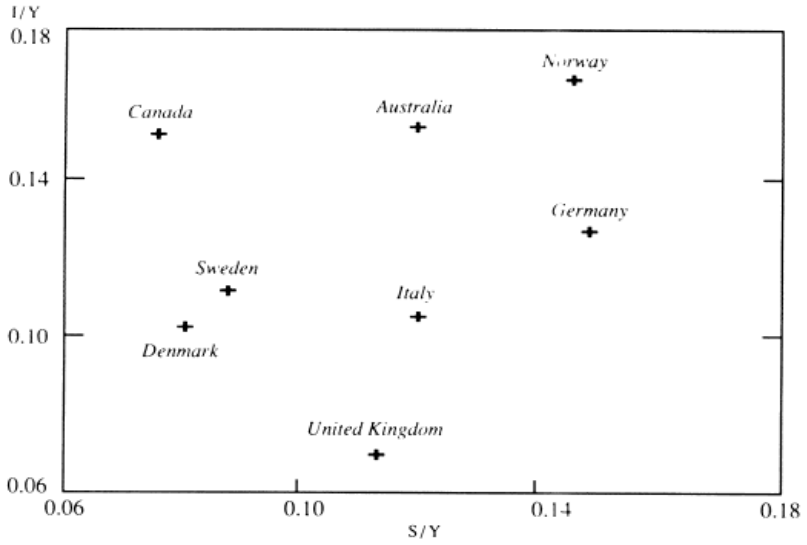
- Credibility of the commitment to gold made the system work.
- But that credibility hinged on political circumstances not present today (or even after World War I).
- These are the fundamental reasons why pegged rates are so much more difficult to operate now, and why there is no gold standard in our future.
- This also has important implications for the very different world after World War I, as we will see next time…

- So this stable monetary framework fostered international trade (Meissner and Lopez-Cordoba) and free capital mobility.
- One consequence was larger capital flows across borders.
  - How large?

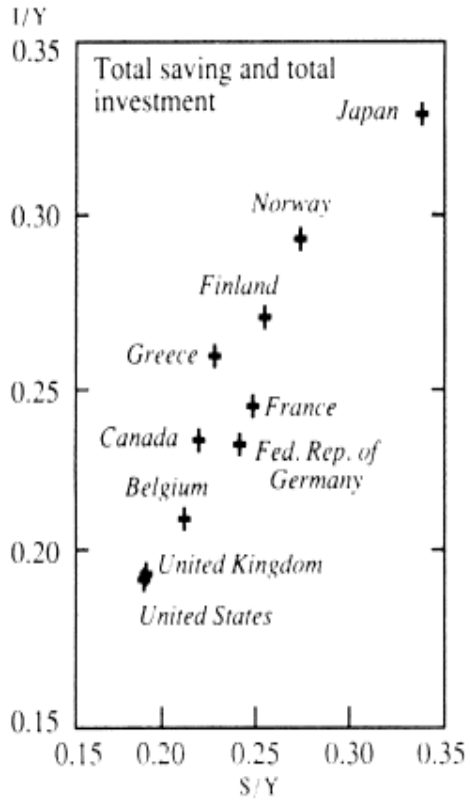
This large….

A. 1880-1913

Figure 4. *Total Saving and Total Investment Under the Gold Standard: Average Values, 1880–1913*



B.1965-99



Why this is striking

- Modern conventional wisdom has it that current account deficits greater than 4 per cent of GDP are dangerous because of the "Sudden-Stop problem."
- And yet Canada, Argentina, New Zealand and other countries regularly ran deficits exceeding 5 and even 10 per cent of GDP for extended periods.
  - Seems like a remarkably efficient and integrated capital market…

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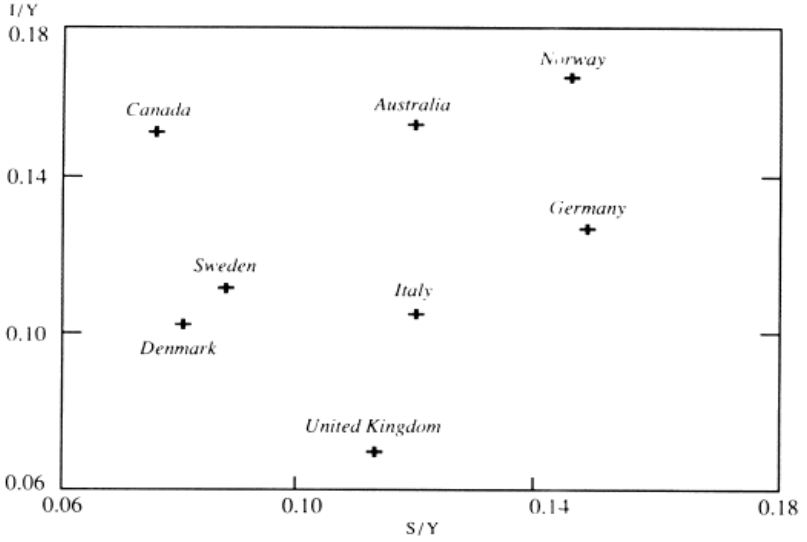


On the other hand there was the Kingdom of Poyais (illustrating the extent of asymmetric information)

Some other implications of the poverty of the information environment

- This discouraged equity investment because equity holders are not priority creditors.
  - Asymmetric information made it possible for insiders (majority stakeholders, managers) to rip of small (foreign) investors.
  - Equity investment was almost nonexistent then. It is the fastest growing component of portfolio capital flows today.
- Asymmetric information discouraged FDI, because the operations of foreign branch plants were difficult to control.
  - Now FDI is the single largest component.
- It encouraged lending to railways and governments that had tangible assets and relatively transparent operations.
  - Railway and government bonds dominated ($9 out of every $10 of lending). Now the borrowers are more diverse (manufacturing companies, financial companies, and the like).
  - Coal roads especially were favored.

But if information was so poor, how could lending & borrowing work so smoothly?

- …

But if information was so poor, how could lending & borrowing work so smoothly? I would emphasize:

- Reputation and “brand names.”
- The distinction between revenue finance and development finance.
- The openness of the British market for merchandise (and trade openness generally).
- The existence of a stable monetary framework (as we have seen).

Reputation and brand names

Say the Government of Argentina wanted to borrow.

It contacted an *underwriting bank*, typically in London (say, Baring Brothers).

Barings had knowledge of the London market.

- It could sound out investors.
- It could recommend the bonds to investors using its good name.
- It then advanced funds to the borrowing government.
- It marketed the bonds by taking out a “tombstone” in the newspaper, where it advertised its involvement.
- It took as a commission the (often substantial) difference between the receipts on the bond sales and what it had advanced the government.

But as we have seen in the subprime crisis, reputation is not always what it is cracked up to be

- New entrants and fly-by-night operators may be tempted to use use whatever reputability they have to pull the wool over the eyes of investors and maximize short-term profits at their expense.
- There were few defaults on bonds underwritten by Rothschild's and Baring's, the reputable names, but many defaults on bonds sponsored by new *underwriters*.
- Borrowers could sometimes threaten to defect from their long-standing underwriter to a new entrant. When they did that, the long-standing underwriter might give its endorsement to a subprime issue at risk to its good name, simply to retain the business. (Sounds like shopping for credit ratings…)

Revenue vs. Development Finance

- Two broad purposes of lending
- In practice they tended to be associated with different lenders (Britain vs. France and Germany)
- How they were associated with two broad categories of borrowers (Commonwealth and Empire versus Eastern Europe and Near East, with Latin America in between).
- Lending undertaken in these two contexts performed very differently.
- To the extent that development finance dominated in this period, we have another explanation for how it was that the process worked relatively smoothly.

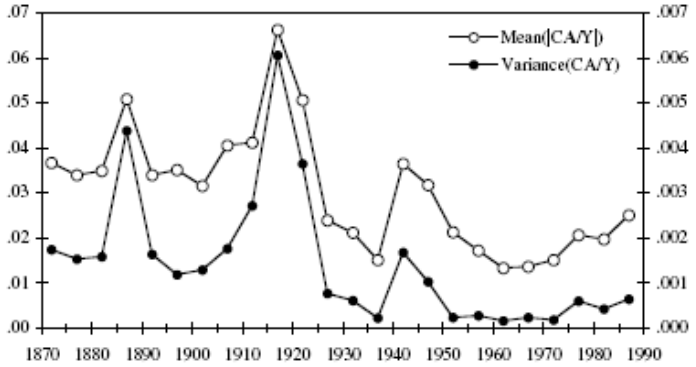
Lending booms tended to occur in periods of expanding trade

- More exports allowed debts to be serviced and encouraged borrowers to stay on good terms with their creditors. To repeat, capital exports were part of a larger international system.
- 1880-1913, world trade as a share of world trade doubled from 5 to 10 per cent.
- In particular, Britain, the main lender, maintained an open market for the exports of the countries to which it lent.
  - Story was very different in the 1930s, as we shall see.

But the process of capital transfer (the flow of lending) was not smooth over time

- It seemed to ebb and flow...

Figure 1
Current Account Relative to GDP: Mean Absolute Value and Variance

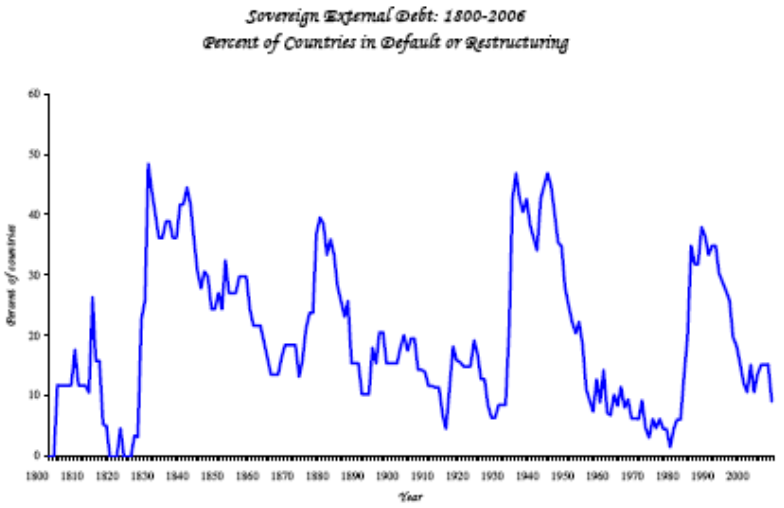


Notes and sources: See text and appendix. Mean absolute value and variance for 15 countries, quinquennial periods.

And there were problems like these
(sovereign default, in other words, is not new)

Facts about sovereign defaults

- Defaults tend to be clustered in time (in 19th century, in odd numbered decades)
- Same countries ("serial defaulters") seem to be implicated repeatedly (Argentina, Peru, Mexico, Turkey, Greece, Egypt, Russia)



Sources: Lindert and Morton (1989), Macdonald (2003), Purcell and Kaufman (1993), Reinhart, Rogoff, a Savastano (2003), Suter (1992), and Standard and Poor's (various years).
Notes: Sample size includes all countries, out of a total of sixty six listed in Table 1, that were independent states in the given year.

Why this incidence?

- In terms of countries, because of the distinction between revenue and development finance.
- In terms of timing, also important was financial instability in the creditor countries
  - Examples include the Austrian and German stock market crash of May 1873, or Continental financial crises of 1931, or U.S. interest-rate hikes in 1982.

Resolution mechanisms

- In the late 19th century, legal recourse was nonexistent (sovereign immunity was even more absolute than today)
- Gunboat diplomacy was exceptional.
  - To be sure, there was great-power intervention.
  - The British intervened in Egypt; the US intervened in the Caribbean (Cuba, Honduras, Dominican Republic).
  - But in most of these cases debt default was simply a pretext for intervention, motivated by security concerned, that was wanted on other grounds.
  - In other words, the bondholders could not depend on it – unless they invested with geopolitical concerns in mind (there is some weak evidence that they did).
- Lenders' main recourse was to attempt to bar borrowers from the capital market until an acceptable restructuring was negotiated.

What accounts for the success of the approach based on capital market sanctions?

- Bondholders organized themselves

  (establishing representative committees)
- Governments of creditor countries supported the creation of these organizations
- Committees worked closely with the stock exchange

  What this implied for time to resolution:

Time to resolution

TABLE 6.1 Average Yearly Duration of Defaults on Foreign Bonds[a]

Default-Settlement Period	*Duration of Defaults (in years)*
(1): 1821-1870	14.0 (25)
(2): 1871-1925	6.3 (52)
(3): 1926-1975	10.1 (37)
Total: 1821-1975	9.2 (114)
F-Value	6.4*
Eta^2	0.10

[a]F-Value and Eta^2 for one-way analysis of variance with default-settlement periods as the independent variable.

*denotes a significance level of .01.

Source: Suter, *Debt Cycles in history*

Outcome

- 35 per cent write-down rate when things went wrong seems to be an historical regularity.
- But, for obvious reasons, development financiers did better than revenue financiers.
- Lenders earned an ex ante premium (8% interest rather than 4-5%). This premium (additional return) when things went well compensated them for when things went badly.
- This explains why lenders were willing to “keep making the same mistake” (it wasn’t entirely a mistake…)

Lenders thus had to reform and negotiate to get back into the market

- They had to conclude a mutually acceptable restructuring.
- They also had to put in place credible reforms.
  - The gold standard was important here, as we will see next time.
- Governments could then borrow again, although they paid a premium.
  - Interest rate penalty was less if they also implemented credible reforms.

So what should we conclude about the purported benefits of capital mobility?

- Recent research is skeptical that international capital mobility (foreign borrowing) has a positive impact on growth.
  - See Eswar Prasad et al, “Effects of Financial Globalization on Developing Countries” (2003).
- But for the 1880-1913, scholars reach more positive conclusions.
  - See Moritz Schularick and Thomas Steger, “International Financial Integration and Economic Growth: New Evidence from the First Era of Financial Globalization.” (2006).
- Is this contrast robust? If so, what explains it?
  - Good topic for a research paper….