-IX. The First Global Economy: The Gold Standard-

A. International Finance

1. The theory of the gold standard

What made the upward leap in international trade, the creation of an integrated world economy—a world economy where for the first time trade was not confined to luxuries and intoxicants but extended to staples and necessities—possible in the years before World War I? Falling costs of ocean transportation was one major necessary factor. But there was a second: the development and extension of that international political and economic order called the *gold standard*.

The *gold standard* was in its origins a very simple thing: governments and central banks all over the world declared that their currencies were as good as gold-show up with £100 note, or a $100 bill, at the British Bank of England or the U.S. Treasury and the man behind the counter would give you a specified, fixed, unchanging quantity of gold: about 4.5 (troy) ounces in the case of the $100 bill, and about 22 (troy) ounces in the case of the £100 pound note.

Why did this matter?

It mattered because as long as the gold standard stood entrepreneurs could make their plans for and build their factories engaged in international trade without having to worry about what we today call *foreign exchange risk.* Consider the plight of an American manufacturer deciding in 1980—when one British pound sterling sells for $2.32—to compete with British producers by exporting to London; spending the early 1980s building factories to expand capacity, and then finding in 1985 that one pound sterling sells not for $2.32 but for $1.30 on the foreign exchange market. The simple movement in exchange rates since 1980 has raised the manufacturer's costs relative to those of British competitors by 80 percent. You can bet that a very large number of productive operations and markets that looked profitable to American businesses in 1980 no longer looked profitable in 1985.

This is *foreign exchange risk:* the risk that governments following sensible

or nonsensical policies or international currency speculators responding to their own "animal spirits" will cause exchange rates to shift in a way that destroys a particular line of trade or bankrupts importers and exporters. This foreign exchange risk is in large part avoided under a gold standard. And this near-absence of foreign exchange risk was one powerful factor driving the expansion of international trade and finance in the years before World War I.

It is important to recognize that the gold standard was not the result of any rational design process, undertaken by Wise Men who sought to minimize international foreign exchange risk. The ideas that justify the gold standard—the recognition of its logic and advantages as a system—all come from well-after its founding, from times near its close, when some Wise Men sought to defend the gold standard against its critics and others tried to determine what characteristics a better alternative international monetary system would have.[1]

The gold standard grew because each country's choice of its monetary arrangements was heavily influenced by what other countries were doing, both beause of economic interdependence and because of ideological interdependence. As Barry Eichengreen writes:

> In fact, monetary arrangements established by international negotiation are the exception, not the rule. More commonly, such arrangements have arisen spontaneously out of the pragmatic choices of countries constrained by the prior decisions of their neighbors and, generally, by the inheritance of history.

As a result, an event that was essentially chance—the British adoption of the gold standard early in the eighteenth century[2]—could put the world economy on a different path than it might well have otherwise followed.[3]

The pre-World War I gold standard was not invented. It just grew. Its growth accelerated in the 1870s when Germany joined Britain in defining its currency primarily in terms of gold. Increased German demand for

[1] See Barry Eichengreen and Marc Flandreau, eds. (1997), *The Gold Standard in Theory and History* ().
[2] Because the then-Master of the Mint in London, Sir Isaaac Newton, chose a price of silver in terms of gold that was too low. As a result silver coins quickly disappeared from circulation and into either the table settings and tea services of the British gentry or into the trading stock of the East India company.
[3] The British decision should not have been decisive given Britain's relatively small place in the European economy of 1700. It was the fact that Britain's adoption of the gold standard was followed by Britain's industrial revolution that made Britain an important trading partner for many countries, and made it attractive to them to try to minimize exchange rate risk by joining Britain on the gold standard.

gold pushed up its price; increased American mining of silver pushed down its price. Countries that had long tried to keep both gold and silver coins legal tender found their gold reserves falling, as people would buy cheap silver on the world market, exchange it for currency, and then bring the currency into the Treasury for gold. By the end of the 1870s nearly the whole world was on the gold standard.[4]

[Figure: Share of the World Economy on the Pre-WWI Gold Standard]

International monetary arrangements—their patterns of crystalization, breakdown, and reform—are one of the clearest examples we have of *path dependence:* of situations in which it is the historical development of the economy, and not some long-run time-independent position of equilibrium, that determines how things happen.[5]

How did the gold standard reduce foreign exchange risk—and close to eliminate the risk that a country would embark on a policy of inflation that would endanger established wealth? In its idealized form, the gold standard carried out these tasks by virtue of its working as an *automatic equilibrating mechanism.*

If ever a central bank or a Treasury printed "too many" banknotes under a gold standard, the first thing that would happen—in the theory of the gold standard, at any rate—would be that those excess bank notes would be returned to the Treasury by individuals demanding gold in exchange. Thus each country's domestic supply of money was linked directly to its domestic reserves of gold.

Suppose a country under the gold standard ran a trade deficit in excess of foreigners' desired investments. It, too, would find those who had sold goods to its citizens lining up outside the Treasury looking to exchange banknotes for gold. And these foreign suppliers of imports would then ship the gold back to their countries. The money stock at home would fall as gold reserves fell. And with a falling money stock would come falling prices, falling production, and falling demand for imports.

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[4] For the transition, see Charles Kindleberger (); Guilio Gallarotti (1995), *The Anatomy of an International Monetary Regime: The Classical Gold Standard* (Oxford: Oxford University Press); Barry Eichengreen (1997), *Globalizing Capital* (); Marc Flandreau (1993), "An Essay on the Emergence of the International Gold Standard" (Palo Alto: Stanford University ms.).

[5] On path dependence and the international monetary system, see Barry Eichengreen (1997), *Globalizing Capital: A Short History of the International Monetary System* (). On path dependence more generally, see Paul David ()…

So *balance of payments* equilibrium would be restored, and countries' price levels kept in roughly appropriate competitive alignment, by the gold standard as sources of disequilibrium were removed by shipments of gold, or threatened shipments of gold, that raised and lowered nations' reserves. Monetary authorities would find themselves restrained from pursuing over-inflationary policies by fears of the gold drains that would result. And since central bankers in every country were all working under the same gold standard system, they would all find their policies in rough harmony without explicit meetings of G-7 finance ministers or explicit international policy coordination.[6]

That exchange rates were stable under the pre-World War I gold standard is indisputible. Devaluations were few among the industril powers, and rare. Exchange rate risk was rarely a factor in economic decisions. But the gold standard had drawbacks, some of which are implicit in its theory of operation and others of which arise because of deviations between theory and practice.

2. The practice of the gold standard

In practice the gold standard worked somewhat differently than its theory.

First, commitment to the gold standard was *never* absolute. Among major economic powers, however, the possibility that a country might someday abandon the gold standard was so close to zero that it had no effect on pre-World War I monetary arrangements except for one country alone: the United States. The United States' commitment to the gold standard was weak, and as a result between its post-Civil War resumption of hard money[7] in 1879 and 1900 it managed to combine all the disadvantages of a deflationary gold standard with all the disadvantages of monetary uncertainty.

Legally, the United States' pre-1900 attachment to the gold standard was modified by laws that required the U.S. Treasury to purchase (and coin as legal tender) limited amounts of silver. The so-called "Crime of 1873" had deprived the U.S. of the possibility of free coinage of silver, and both

[6] See David Hume (), "On the Balance of Trade"

[7] The U.S. government had gone on a fiat-money, paper standard in order to help raise the funds to fight its 1861-65 Civil War. Full gold convertibility was not achieved after the war until 1879.

western silver-mining interests and midwestern agricultural interests hoping for lower interest rates were extremely angry. In 1878 and again in 1890 the political establishment attempted to appease the free-silver interests by offering the *limited* coinage of silver. But the fact that such interests had to be appeased made investors uncertain about the long-term durability of U.S. commitment to the gold standard, and gave the U.S. at leasty a decade of high interest rates and relative economic depression.[8]

Second, even before World War I flows of gold were too small, the link from quantities of gold to quantities of money too tenuous, and wages and prices too sluggish and unresponsive, and central bank behavior too unrelated to exchange rate pressure[9] for the price-specie-flow mechanism that has always been the theory of the gold standard to operate smoothly and transparently.

Barry Eichengreen argues that ultimately the pre-World War I gold standard stabilized itself. It was a self-fulfilling prophecy. Because everyone expected the gold standard to continue, stabilizing speculation by international investors prevented significant pressures from arising, and allowed central banks to maintain their gold parities with only minimal shifts in monetary policy.

Thus the cornerstone of the pre-World War I gold standard was the near-absolute commitment by the central banks of the leading European powers to ultimately do *whatever* was necessary—to raise interest rates, ultimately, as high as was necessary—in order to maintain the convertibility of their currencies into gold. Thus whenever it looked as though fluctuations in a currency might be about to happen, stabilizing speculation took hold. If the value of any one core currency had dropped to the point where it might be profitable to turn that currency into gold at the mint price and ship it out of the country, international investors would conclude that the currency had nowhere to go but up: that investing in it was a highly-profitable one-

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[8] See Lawrence Summers (); Robert Barsky and J. Bradford De Long ().

[9] In David Hume's model of the gold standard, an overvalued real exchange rate generates a trade deficit and an outflow of gold. This outflow of gold reduces the economy's money supply, and so reduces prices and raises the real exchange rate until equilibrium is reattained. But by the end of the nineteenth century the economy's money supply depended not directly on the monetary stock of gold but on all reserves of high-powered money, and the stock of total reserves of high-powered money was controlled by the central bank. Post-World War I analysts—starting perhaps with John Maynard Keynes in 1925 (according to Eichengreen) talked of how central banks had an obligation to "follow the rules of the game" and take steps to shrink reserves of high-powered money whenever gold flowed out of the country. The problem is that central banks apparently never did "follow the rules of the game." See Arthur Bloomfield (1959), *Monetary Policy Under the International Gold Standard, 1880-1914* (New York: Federal Reserve Bank of New York); David Hume (), "On the Balance of Trade."

way bet, and so a wave of capital would flow *into* the country in expectation of these profits.

Thus the exchange rate would strengthen by itself, without central bank action. Central banks could follow their own policies—could avoid following the rules of the game—as long as they did not cast doubt on their long-term commitment to do whatever was necessary in the last instance in order to maintain the gold standard.[10]

Moreover, each central bank's potential resources were amplified by those of other central banks. In Britain's Baring Crisis of 1890, the Bank of France loaned reserves freely so that the British Bank of England could act as a lender of last resort. In 1893 the U.S. Treasury's gold reserves were bolstered by a syndicate of European banks. In 1898 the Bank of England and the Bank of France used their reserves to stem a financial crisis in Germany. Germany's Reichsbank and the Bank of France loaned their reserves to the Bank of England in 1906. Large-scale—albeit informal and case-by-case—international macroeconomic policy coordination was thus the rule under the pre-World War I gold standard.

Thus in the industrial core the pre-World War I gold standard functioned very well indeed. It eliminated exchange rate risk. Yet it did not require that central banks shape policy month-by-month and year-by-year with an eye toward the external situation: they could carry out whatever monetary policy they thought was appropriate for the *domestic* economy, and rely on stabilizing speculation and their long-term commitment to the gold standard to keep them from having to face a conflict between short-run policies that were good for internal balance and short-run policies needed to maintain the gold standard.

It is important to recognize that this—well functioning pre-World War I—gold standard was a *historically-specific* institution. The cornerstone of the gold standard was the commitment by all industrial-economy governments and central banks to maintaining convertibility of their currency. The pressure that twentieth-century—democratic—governments

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[10] As Eichengreen points out, the theory behind such stabilizing speculation—and thus the implication that a central bank credibly committed to the gold standard almost never had to alter policy in a contractionary direction to support its commitment—is the theory devised by Paul Krugman to explain exchange-rate fluctuations when central banks have set credible target zones. See Paul Krugman (1991), "Target Zones and Exchange Rate Dynamics," *Quarterly Journal of Economics* 106: 2 (May), pp. 669-682. In the presence of such stabilizing speculation there is no necessary conflict between a central bank's responsibilities as a lender of last resort a la Bagehot (see Walter Bagehot (1882), *Lombard Street* (Lond: Keagan Paul)) and its responsibilities to follow the rules of the gold standard game because it does not have to follow the rules of the game.

would feel to abandon currency convertibility and the stable exchange rate peg in order to boost employment or attain other economic objectives was simply absent. The credibility of the government's commitment to the gold standard rested on the denial of the franchise to the working class. As long as the right to vote was still limited to middle and upper-class males, those rendered unemployed when the central bank raised is discount rate and tightened monetary policy had little voice in politics. As long as union movements remained relatively weak, the flexibility of wages and prices that would allow the gold-standard system to quickly readjust to equilibrium was present. And the gold standard would be stable.

[Figure: Stability at the Core; the pre-WWI business cycle in industrial Europe]

Later on these two preconditions for the functioning of the gold standard would erode, and the gold standard would cease to be a politically and economically-feasible institution.[11] After World War I the gold standard would be a disaster waiting to happen.

Morever, at the periphery of the world economy the gold standard functioned with markedly less success, and the gap between theory and practice was larger. Primary product-producing economies were subject to large economic shocks as the prices of their exports rose and fell. Countries at the periphery were also subject to large shocks as British investors' willingness to loan capital abroad went through its own less-than-rationally-based cycles. Latin countries were repeated forced off of the gold standard and into devaluation by financial crises.

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[11] Barry Eichengreen argues that the gold standard was a disaster waiting to happen as early as the eve of World War I, that even before World War I the preconditions for a stable gold standard had been "heavily compromised by economic and political modernization." I believe that he is probably too pessimistic.

See Barry Eichengreen (1997), *Globalizing Capital: A Short History of the International Monetary System* (), where he argues that even before World War I "… the rise of fractional reserve banking had exposed the gold standard's Achilles' Heel. Banks that could finance loans with deposits were vulnerable to depositor runs in the event of a loss of confidence. This posed a danger to the financial system and created an argument for lender-of-last-resort intervention by the central bank. The dilemma for central banks and governments became whether to provide only as much credit as was consistent with the gold standard statutes, or to supply the additional liquidity expected of a lender of last resort. That this [pre-World War I] dilemma did not bring the entire gold standard edifice tumbling down was attributable to luck and to political conditions that allowed for international solidarity in times of crisis."

On my reading "luck" was not particularly good in the generation before World War I, and "political conditio that allowed for international solidarity in times of crisis" was the more important factor.

The reasons for the *instability* of the gold standard at the periphery were many. A first was the absence of central banks: thus a balance of payments deficit which turned into a gold drain *did* deflate the economy, and reduce production and employment. Combine such vulnerability to deflation with the fragile financial systems of a frontier—in which many have placed large bets in the hopes of winning fortunes if growth continues—and you have a situation in which the maintenance of the gold standard in a time of adverse pressure is very difficult and potentially painful. Combine this with the vulnerability of primary-product exporting economies to adverse supply shocks, and the liking for devaluation on the part of large landowners with mortgages and exporters seeking greater competitiveness. Is it surprising that the gold standard was unstable at the periphery, and that countries like Argentina, Brazil, Chile, Italy, and Portugal underwent repeated crises and devaluations before World War I?

[Figure: Instability at the periphery before World War I]

Not only did trade expand under the gold standard, but international capital markets expanded in the years before World War I as well. It became a commonplace for rich people in Europe or North America to have their money invested in far-flung enterprises on other continents. This outflow of capital from the industrial core to the industrializing, mineral-rich periphery was greatly assisted by the gold standard.

Later, the British economist John Maynard Keynes was to look back on this era of free trade and free capital flows as a golden age:

> ...for [the middle and upper classes] life offered, at a low cost and with the least trouble, conveniences, comforts, and amenities beyond the compass of the richest and most powerful monarchs of other ages. The inhabitant of London could order by telephone, sipping his morning tea in be, the various products of the whole earth... he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble, in their prospective fruits and advantages.... He could secure... cheap and comfortable means of transit to any country or climate without passport or other formality.... But, most important of all, he regarded this state of affairs as normal, certain, and permanent, except in the direction of further improvement, and any deviation from it as aberrant, scandalous, and

avoidable.[12]

3. Overseas investment

Certainly free trade, free capital flows, and free migration helped greatly enrich the world in the generations before World War I. And certainly those economies that received inflows of capital before World War I benefitted enormously. Details of overseas investment…

It is not so clear that the free flow of capital was beneficial to those in the capital-exporting countries. France subsidized the pre-World War I industrialization of Czarist Russia (and the pre-World War I luxury of the court and expansion of the military) by making investments in Russian government and railroad bonds a test of one's *French* patriotism. A constant of French pre-World War I politics was that someday there would be another war with Germany, during which France would conquer and re-annex the provinces of Alsace and Lorraine that Germany had annexed as part of the settlement of the Franco-Prussian War of 1870-71. (And that France had taken from the feeble and oddly-named Holy Roman Empire of the German Nation as part of the settlements of the Thirty Years' War of 1618-48 and the Wars of Louis XIV of 1667-1715.) French military strategy depended on a large, active, allied Russian army in Poland threatening Berlin and forcing Germany to divide its armies while the French marched to the Rhine. Hence boosting the power of the Czar by buying Russian bonds became a test of French patriotism.

But after World War I there was no Czar ruling from Moscow. There was Lenin ruling from Petrograd—subsequently renamed Leningrad—subsequently returned to its original name of St. Petersburg. And Lenin had no interest at all in repaying creditors from whom money had been borrowed by the Czar.

British investors did better from their overseas investments, but they still did not do very well The year 1914 saw close to 40 percent of Britain's national capital invested overseas. No other country has ever matched Britain's high proportion of savings channeled to other countries. Britain's overseas investments were concentrated in government debt, in infrastructure projects like railroads, streetcars, and utilities, and in securities guaranteed by the local governments.

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[12] John Maynard Keynes (1920), *Economic Consequences of the Peace* (London: Macmillan).

However, in the forty years before World War I, British investors in overseas assets earned low returns, ranging as low to perhaps 2% per year in inflation-adjusted pounds on loans to dominion governments. Such returns were far below what presumably could have earned by devoting the same resources to the expansion of domestic industry. British industry in 1914, and British infrastructure, were not as capital intensive as American industry and infrastructure were to become by 1929. It is difficult to argue that Britain's savings could not have found productive uses at home, if only British firms could have been challenged appropriately and managed productively. And the difference in rates of return cannot be attributed to risk: overseas investments were in the last analysis more exposed to risk than were domestic investments.

But for capital importing countries, like the U.S., Canada, Australia, and others like India and Argentina, the availability of large amounts of British-financed capital to speed development of industry and infrastructure was a godsend. It allowed for earlier construction of railroads and other infrastructure. It allowed for the more rapid development of industry.

Of course, the actual, real-world gold standard did not work as smoothly as the idealizations of economic theorists. But it did provide a stable underpinning to the growth of the world economy in the years before World War I.

B. The Pre-World War I Business Cycle

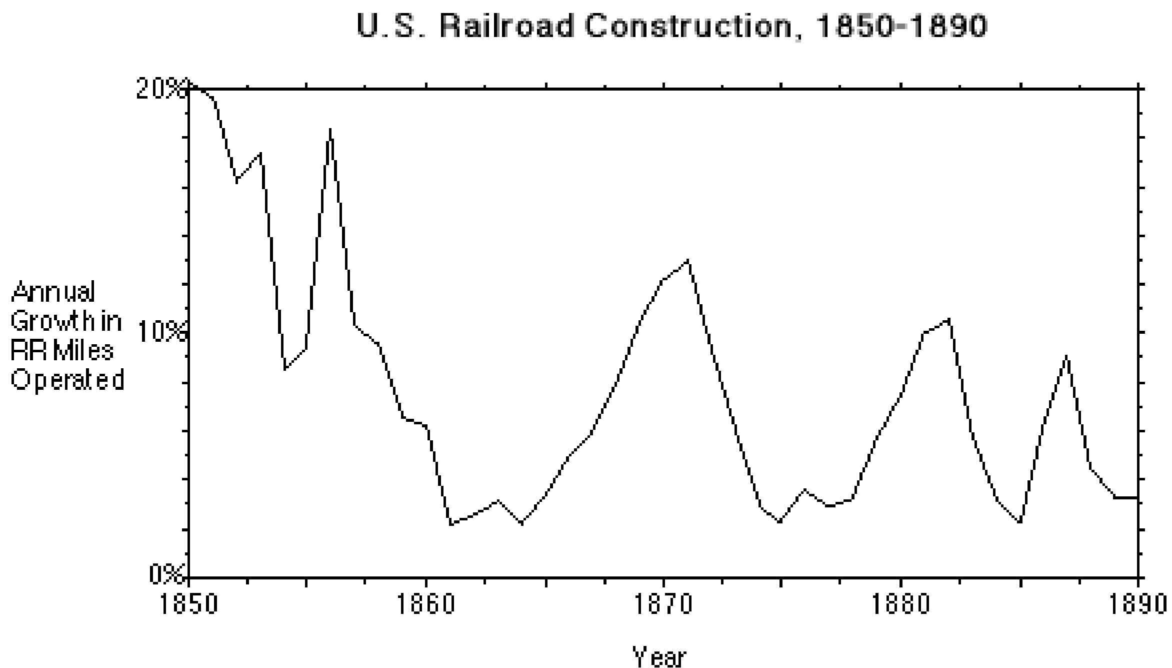
1. International transmission of business cycles

However, there is a negative side to the gold standard. The gold standard was good not only at encouraging international trade expansion and boosting international capital flows, but also at quickly transmitting business cycles and financial panics around the world as fast as the telegraph wire could carry them. So borrowing foreign capital from Britain had costs as well: it tied the borrower’s economy to the financial and employment cycles of Great Britain. “When London sneezes,” the saying went, “Argentina [or Canada, or the U.S.] catches pneumonia.”

How did this work? Look in some detail at the industrialization of the United States to see how the typical pre-1929 depression had its origin in the gold-standard links with the London-centered world economy.

2. The panic of 1873

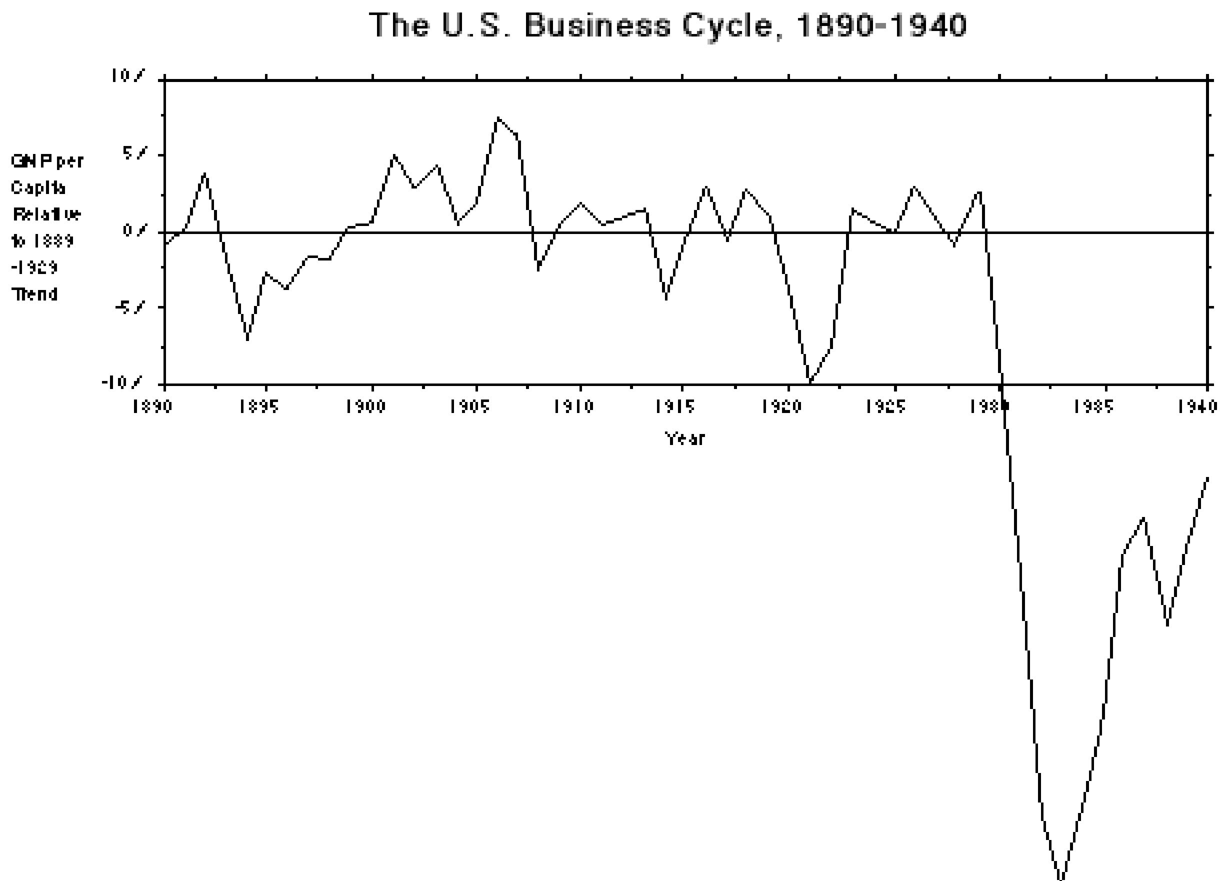
The years between the Civil War and the 1890s saw the great railway booms. In 1870 and 1871 U.S. railroad construction reached its first post-Civil War peak. The number of miles of operated railroad in the U.S., then around 50,000, grew at about twelve percent per year. The construction of 6,000 miles of railroad track each year employed perhaps one-tenth of America’s non-farm paid labor force and half of the production of America’s metal industries.



Four years later, railroad construction had collapsed. In 1875, railroad mileage grew at only three percent. Railroad construction employed less than three percent of America's non-farm paid labor force, and required perhaps fifteen percent of the production of America's metal industries.

The depression of 1873 had its origins in British investors loss of confidence that American railroads and infrastructure—that day’s

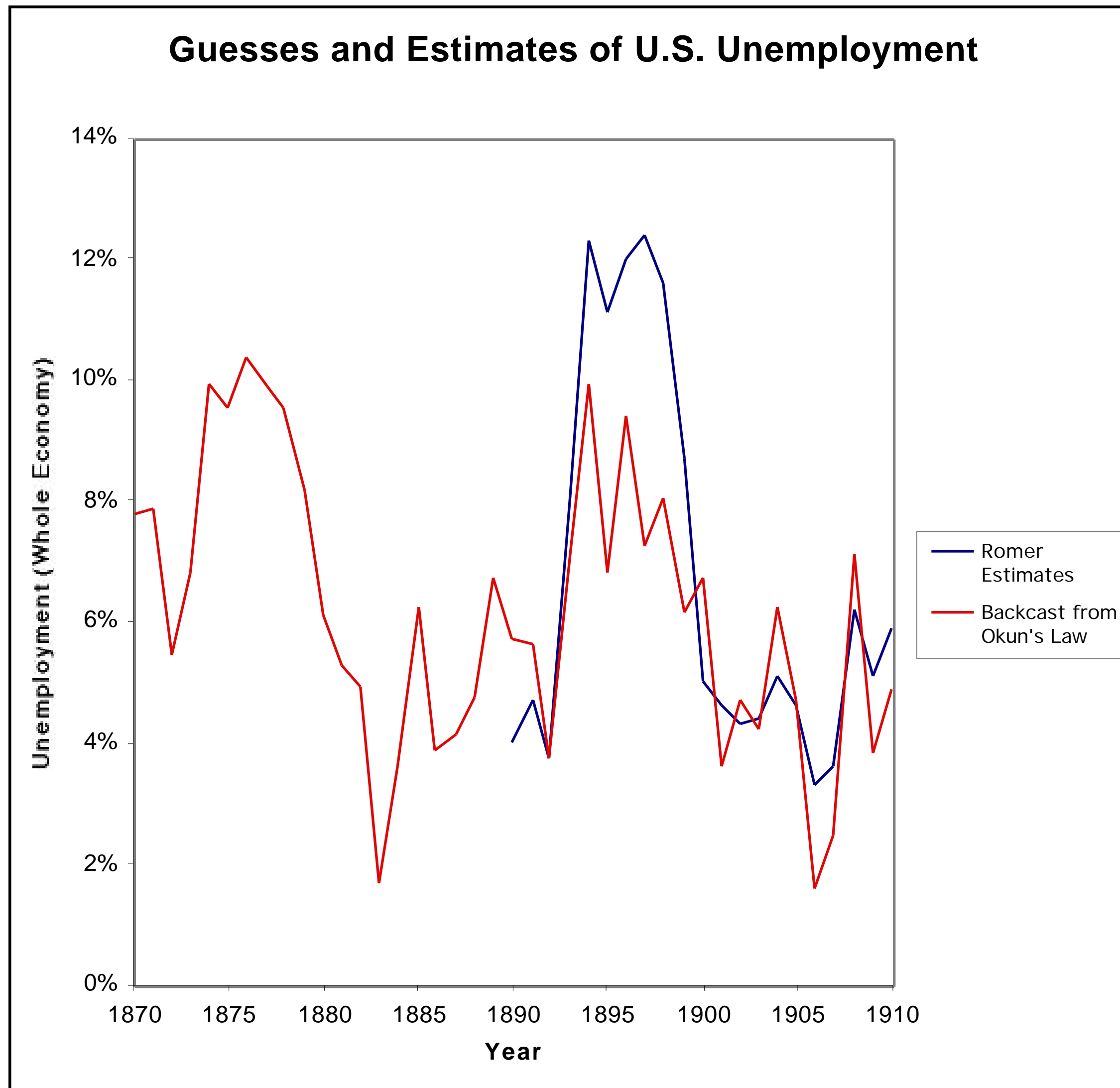
equivalent of investments in the Pacific Rim. The largest investment house in the United States—that of Jay Cooke, politically well-connected industrial visionary who financed Abraham Lincoln's armies—went bankrupt.



As a result of the collapse of Jay Cooke and Company the City of London sneezed. The U.S. economy caught pneumonia. The share of America's non-agricultural labor force building railroads fell from perhaps one in ten in 1872 to perhaps one in forty by 1877—a perhaps (we do not really know) seven percentage point boost to non-agricultural sector unemployment from this source alone.

Such a wave first of expanded railroad construction as capital flowed in, and then of contraction as capital flowed out must have been difficult to absorb, just as the Mexican recession of 1995 proved very painful. Each wave of railroad building required an expansion of capacity in iron and steel for rails, timber for ties, equipment for locomotives and cars,

furniture to equip the cars to carry passengers on the new lines, and most important the redirection of one million workers to railroad construction. As the wave passed, suppliers and workers would have to find new markets and new jobs. The dislocation generated may well have been extreme and severe. But we know little about how it was accomplished, or about what workers who built railroads in 1871 were doing in 1875. Our knowledge about pre-World War I business cycles is vastly less than we would wish.



It is hard to attribute such spasms of construction to independent disturbances in finance: railroad finance *was* then more-or-less the sole business of Wall Street. By default such depressions appear to have been driven by waves of optimism about future growth, followed by recognition of overbuilding and contraction until the economy had grown enough that

it seemed that shipping by rail was a railroad's and not a farmer's market.

3. The gold standard and pre-World War I business cycles

The gold standard appears also in the depression of the 1890's. The possibility that "free silver" might sweep American politics made investors and financiers uneasy. Relative to what they would earn if they kept their cash, investments, and capital in London, a free-silver victory and subsequent devaluation might well have cost them a third of their wealth as measured by the international yardstick of the gold standard. Perhaps the free-silver movement was powerful enough to cause capital flight, investment shortfall, and depression, but not strong enough to secure devaluation and monetary expansion to reduce the debt burdens of farmers and create a booming labor market for urban workers. The U.S. thus got the worst of both worlds: it suffered the disadvantages of being on the gold standard without reaping the gold standard advantage of keeping financiers confident and investing. Moreover, the panic of 1907 followed a recession in Great Britain. As a result of the recession, the Bank of England raised interest rates to pull gold to London to boost its reserves. This left the United States short of currency to be paid out to farmers and middlemen during the fall shipment of the harvest to the East. Financial panic followed, and recession followed the financial panic.

How large were these recessions? There is some evidence that recessions back before World War I were larger in relative terms than they have been since. But the evidence is not overwhelming.

It is, however, very clear that depressions before 1929 were more painful than depressions today. Those who lost their jobs had no welfare state to cushion them. Individual states had sketches of a future welfare system, but such embryonic systems did not have the resources to cope with episodes of widespread unemployment. Extended families, friends, and local benevolent associations provided some support for those who lost their jobs to remain, for the most part, fed and housed. But American cities during depressions at the turn of the century were centers of large-scale poverty and want.