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The "New Economy" in the 1920s and the 1990s

by Allan H. Meltzer

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The "New Economy" in the 1920s and the 1990s

by Allan H. Meltzer
Carnegie Mellon University and
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In The Constitution of Liberty (1960) and other works, Friedrich Hayek explained the dynamics of economic change under capitalism. Unlike many of his contemporaries, Hayek saw the dynamics of change as far more important for economic welfare and for the survival of capitalism as a social and economic system than the proofs of static efficiency that attract mathematical economists. For Hayek, as for Schumpeter, the distinguishing feature of capitalism lies in the interrelation of freedom and progress.

We meet in Vienna, so it seems appropriate to begin my discussion of the 1920s and the 1990s by summarizing Hayek's theory of change and commenting on its relation to the way in which change has occurred. Memories of the 1920s have faded, so I will recall some of the events of that decade, pointing out parallels and differences with the 1990s. Then, as now, many of the innovations occurred in the United States, and many of the problems originated there, so I focus my attention on the United States.

As is well known, the 1920s ended with the collapse of financial systems, a precipitate fall in prices on the New York Stock Exchange, and a long and deep recession. I will, therefore, discuss some differences between the 1920s and 1990s. The most important difference is in policy, particularly monetary policy.

Hayek on Change

Hayek was one of the first to give information a prominent role in economic theory. A change occurs, perhaps at random, perhaps as a result of careful study of existing technology or institutions. The change is adopted willingly and increases welfare. Others, observing the change, recognize that the new circumstances have made other innovations feasible, so they introduce them. The initial and subsequent innovations make still other innovations feasible.

A central feature of this Hayekian process is that no one can foresee all of the ramifications of an innovation or plan the outcome. Freedom and a market economy are best able to direct the individual talents that spread the innovation far beyond the vision or plan of the initiator.[1] Freedom permits innovators to self-select and requires them to risk their own resources. Banking systems, venture capitalists, engineering schools, and other institutions may facilitate the process but, first, there must be an idea, a vision of how the new technology or arrangement works.

Major innovations are usually not a one-step or one person process. Repeatedly, one sees evidence of the Hayekian process. New firms, new products, and new uses for existing products compete for attention. Some changes succeed; others fail, but some of those that fail often return in different form or at a different time. And the changes alter not just technology. Norms and customs adapt to the new technology.

[1] Thomas J. Watson, head of IBM, is reputed to have said in 1943: "I think there is a world market for maybe five computers." And Ken Olson, President of Digital Equipment said in 1977: "There is no reason why anyone would want a computer in their home."

Hayek was one of the first economists to emphasize the role of information, both costs of acquiring information and the value of information to the user. Many of today's most important innovations reduce costs of acquiring information, thereby permitting market economies to operate more efficiently.

The 1920s

The 1920s, like the 1990s, was a period of rapid change in the United States. Despite recessions in 1923-24 and 1926-27, real GNP rose at a 3.8% compound average rate from 1922 to 1929. Between 1922 and 1929, the number of registered passenger automobiles more than doubled, from 12.2 million to 26.7 million. The number of radios rose from 60 thousand to more than 12 million, and the number of telephones in service -- a 19th century invention--rose from 14.3 to 20 million. Historical Statistics (1960).

It was a period of social change also. Women gained the right to vote. Family size declined, and more people lived in cities than in rural areas. Consumer installment credit permitted households to use anticipated future income to buy durables.

If the 1990s saw the successful transformation of the U.S. economy to the post-industrial age, the 1920s were part of the transition from an agricultural to an industrial economy. Raw cotton was still the principal U.S. export in the 1920s, but manufacturing increased rapidly during the decade.

As in the 1990s, expansions in North America and Europe were at very different rates. By 1929, U.S. production was 63% above its prewar level, Canada increased 45%, but Germany, the U.K., and France increased only 6%, 12%, and 30% above their 1913 levels. Department of Commerce (1966). Capital flowed toward the U.S. for most of the decade as foreigners purchased U.S. securities.

U.S. banks lent part of the money back, but the dominant flow of gold was toward the United States and later to France, after the franc stabilized in 1927-28.

A commercial advertisement from the late 1920s helps to capture some of the atmosphere. The 1927 advertisement describes "a new era" in which companies would no longer have to close down to count their inventory. The new technology was a portable adding machine, an early improvement in information processing and management. The machines were not electrified, but they were considered a major innovation. Figure 1 shows the advertisement.

Figure 1 here

This bit of hyperbole is not the only feature that seems familiar. Improved inventory control is common to both the 1920s and the 1990s, as is the improvement in information processing. More relevant for this paper is what happened to stock prices. Figure 2 shows the share prices from 1924 to 1935 for Burroughs, the producer of the portable adding machine, and for another producer of office equipment, International Business Machines, later IBM Corp.

Figure 2 here

Price-earnings ratios for established "new economy" companies were lower in the 1920s than recent ratios for Cisco Systems, Intel, AOL, and others in the 1990s. At its peak of $96 in 1929 (after a 5 for 1 split) Burroughs sold at 58 times its 1928 earnings and 41 times 1929 earnings. Earnings rose 41% in 1929, after relatively sluggish growth in the preceding years. Earnings per share are listed below the chart, but earnings prior to 1929 should be adjusted for the 5 to 1 split in 1929.

International Business Machines also shows a spurt in price during 1929. At its peak of 260, the stock sold at 29.4 times 1928 earnings and 23.6 times 1929 earnings. Earnings rose 25% in 1929 and at a compound rate of 17.5% from 1926 to 1929. Interestingly, IBM's earnings increased in 1930 and remained unchanged

in 1931, while Burroughs earnings collapsed. The two stock prices reflect the difference in earnings.

The story in these charts could be repeated using other popular shares such as Radio Corporation (RCA) or some of the automobile companies. The charts suggest that expected future earnings rose with current earnings, so price-earnings multiples increased with earnings, at least for the companies considered part of the "new economy" of that day.

The stock market as a whole, however, does not show the positive correlation between reported profits and market capitalization in 1927-29. As in the 1990s, optimistic anticipations appear to have been limited to a subset of publicly traded shares.

Chart 3 shows that the increased market capitalization of New York Stock Exchange (NYSE) shares occurred in 1926-27. Capitalization approximately doubled over the period 1925 to 1929, but most of the change occurred before the big stock market boom.

Chart 3 here

Two of the forces driving the rise in stock prices were the "new economy" and increased economic stability. The former produced the stream of innovations in products and processes, described by Hayek. The latter made products and processes seem less risky. Together these forces gave rise to the anticipations of larger, less risky, streams of earnings that could justify higher market values and an increased capitalization rate on current earnings.

Then, as now, Federal Reserve policy and productivity growth worked together to heighten optimism. The Federal Reserve was a relatively new institution, founded at the end of 1913. The founders had hoped, or believed, that a properly run monetary authority could dampen fluctuations in interest rates and control inflation. The idea that a monetary authority should smooth fluctuations in

employment and output was not an explicit goal at the time. Gold standard advocates, a group that included most officials, economists, and bankers, thought that the gold standard provided reasonable price stability.

In the twenty years before the Federal Reserve began operations, frequent panics caused banking and financial failures. With no committed lender of last resort, money market interest rates would reach as high as a 100% annual rate when the liquidity crisis was most intense.

The Federal Reserve was powerless to stop inflation after war started in Europe. It had few assets to sell and, under the gold standard, the gold inflow mandated inflation. Once the United States entered the war, the Federal Reserve helped to finance government spending, so it could not avoid additional wartime and postwar inflation. The policies it adopted to end inflation contributed to a severe recession and deflation in 1920-21. There were recessions in 1923-24 and 1926-27 also.

To observers at the time, this record especially after 1921, represented an improvement over earlier experiences. Many country banks failed, but these were mainly banks that were not members of the Federal Reserve System. The prevalent view, based on experience in the 1920-21, 1923-24, and 1926-27 recessions, was that the financial system avoided major failures. Money market rates did not reach the extreme values experienced before 1913. Inflation remained low; the Federal Reserve had not produced either inflation or deflation, except in the war and early postwar years.

Confidence in the Federal Reserve System grew. In 1927, it received a permanent charter. The restoration of the gold standard increased public confidence in future stability. There was talk of a new era of prosperity without inflation, a less risky environment than had been known before.

Looking back from the 1960s, Friedman and Schwartz (1963) call the years 1923 to 1929 the high tide of the Federal Reserve System. It was the period with the most stable inflation and sustained economic growth in Federal Reserve history until the 1990s.

The 1920s and the 1990s

Are the two periods 1920-29 and 1990-99 similar? The answer is mixed. There are several similarities and some critical differences as well. Both periods had major changes in economic activity, products and services. Both had low inflation, but this is truer of the 1920s than of the 1990s. Both had rapid increases in prices of common stocks.

Chart 4 compares the deflated values of stock prices in the two decades. The 1929 consumer price level is about 20% below the price level in the base period, January 1920; the 1999 consumer price level is nearly 40% above its base price level in January 1990. By deflating, I abstract from these changes.

Chart 4 here

There is a remarkable similarity in the broad movement of stock prices for the first 8-1/2 years. In September 1928 and September 1997, the two deflated values, base 100 in January 1970 and January 1989, are 246 and 239. The close correspondence weakens after the middle of 1928 and 1997. By September 1929 and 1998, the difference in the two indexes is 100 points, 30% of the higher 1929 peak value. Thereafter the index for the 1920s collapsed. By the end of 1929, the deflated S&P index was back to the level first reached in September 1928 and fifty points below the value 69 years later of the same index in December 1998. The two series continue to diverge. The recent 30% decline in prices on the NASDAQ exchange is not shown on the chart and is not characteristic of the broader S&P index to date.

Much recent discussion emphasizes the effect of stock prices on consumption. In the Brunner-Meltzer (1976) framework, asset prices affect mainly investment. An increase in prices of existing assets relative to the price of new production increases the incentive to invest in substitutes for existing assets, so investment increases.

Chart 5 shows that investment was higher, on average, and less variable in the 1990s compared to the 1920s. The higher growth rate of investment in the 1990s may reflect more opportunities, more optimistic anticipations, faster growth of expected future corporate earnings, or more accurate data.

Chart 5 here

On average, per capita income rose faster, in 1921-29 than in 1989-97, but growth was less variable in the later period. Chart 6 shows that the averages for the two periods converge after the recovery from the early postwar recession. At the times of the two stock market booms, at the end of both decades, average growth of per capita income is similar, so it seems reasonable to assume that expected growth of aggregate income was similar. Perhaps no less important, both periods show an increase in productivity growth with low inflation that encouraged belief in "a new era."

Chart 6 here

The end of the 1920s and the 1990s also have fiscal surpluses in common. Treasury Secretary Andrew Mellon used the economic recovery and the reduction in military spending to generate surpluses in the 1920s. He used the surplus to retire outstanding debt and reduce income tax rates several times during that decade.

In the 1990s, reductions in defense spending and strong growth gradually closed the inherited budget deficit and produced budget surpluses at the end of the decade. The Treasury retired outstanding debt, but income tax rates rose in 1993

and remained largely unchanged through the rest of the decade. On a long-term view, however, the present value of future spending was much larger than the present value of future tax collections, the difference reflecting mainly unfunded liabilities for pensions and health care.

Differences, 1920s and 1990s

One important difference between the 1920s and the 1990s is the very different monetary policies of the two periods. Instead of a policy of maintaining the external nominal value of the currency, many countries in the 1990s emphasized stability of money's internal value.

The United States was on the gold exchange standard in the 1920s, on a floating exchange rate in the 1990s. Policy officials regarded restoration of the international gold standard as one of the major achievements of the 1920s decade, a return to tradition after wartime disruption and postwar inflation. Officials now regard the establishment of the Euro, with permanently fixed internal exchange rates and a common currency as one of the major policy events of the 1990s. Perhaps no less important for the future, many countries are now committed to a formal, or informal, inflation target and a fluctuating exchange rate.

Restoration of the gold standard in the 1920s did not mean that countries followed the traditional rules. The United States sterilized gold inflows to prevent inflation. As in the 1960s, France did not like the gold exchange standard, especially the implication that France would hold its reserves in foreign exchange, instead of gold. French writers, and others, criticized the maldistribution of gold, a reference to the US's greatly increased holdings and increased share. Compared to 1913, the United States in 1927 had increased its share of the world's monetary gold stock from 28% to more than 40%. France's share had fallen from 15% to less than 10%.

Estimates of the world's gold stock are imprecise, but greater precision is unlikely to change three main conclusions: (1) by 1928, France restored its 1913 share of the world's monetary gold stock, (2) the combined U.S. and French shares rose from 43% in 1913 to more than 55% in 1929 and continued to rise thereafter, mainly as a result of French purchases, and (3) between 1926 and 1931, France increased its gold holdings by $2 billion US dollars, about 16% of the world's gold stock.

The French view of the period 1927 to 1929 is that purchases by the Bank of France "tended to establish a better balance in the world's distribution of gold." Aftalion (1931, p. 8) After the de jure stabilizations of the franc in June 1928, the Bank of France was no longer permitted to purchase foreign exchange. Foreigners had to pay in gold. "It was hoped, however, that foreign banks of issue, by raising their discount rates, would prevent the flight of their gold to France." France wanted countries to follow the rules and deflate. Writing soon after these events, Aftalion recognized the overvaluation of the franc, but he saw the solution coming principally from an end to British investment abroad, not a change in French policy. (Ibid., pp. 8-10)

Despite the gold inflow, French wholesale prices, after declining rapidly in 1926, remained unchanged between the de facto stabilization in December 1926 and March 1929. In the next 18 months, wholesale prices fell 16%, a compound annual rate of 11% a year, somewhat faster than the price decline in the U.S. during the same period. League of Nations (1932, p. 46; Aftalion, p. 10) Stable or falling prices reflected the policy of the Bank of France and the combined effect of increased demand for francs by domestic and foreign holders following stabilization.

The law required the Bank of France to stop purchases of foreign exchange after June 1928. It did not require sales. French policy and French economic

growth redistributed gold from the U.S. to France. France and the U.S. absorbed gold from the rest of the world. The redistribution toward France made the gold standard more deflationary after the French stabilization than before.

The French response to such criticisms denied the relevance of the quantity theory of money, linking prices to past or current changes in money and gold, and cast doubt on any effect of higher discount rates on price levels. The Bank of France kept its discount rate below the levels in other countries, and the government reduced taxes on sales of foreign securities in the French market to stimulate capital exports. Aftalion (1931, pp. 11-13) But the Bank's sales of foreign exchange dwarfed any effect of these efforts.

The French policy of accumulating gold and selling foreign exchange sterilized much of the gold inflow to France. For countries losing gold the choice was deflation or departure from the gold standard. Eventually many of them chose to abandon the standard, but not before deflation had become a worldwide problem.

France was not alone in its deflationary policy. Chart 7 compares U.S. monetary policy in the 1920s and the 1990s, using growth of the monetary base as the measure of policy action. With a brief exception at the start of the period, monetary expansion in the 1990s is always above the value for the comparable month in the 1920s. The contrast is most apparent at the beginning and end of the decade. The deflationary policy in the 1921 recession contrasts with the expansive monetary policy in the 1991 recession.

Chart 7 here

The end of the period is our principal interest. In 1928-29, monetary policy was deflationary; growth of the monetary base was well below the growth of income. In 1998-99, policy was inflationary, base growth was much higher than income growth.

Rates of inflation in the two periods reflect the different monetary policies. This is especially true at the beginning and end of the decades. Severe deflation in 1920-21 contrasts with inflation in 1990-91. At the end of the decade, the data show a modest inflation of 1-1/2 to 2-1/2% in 1998-99 in contrast to the modest deflation in 1928-29.

Chart 8 here

Faced with gold sterilization and deflation or price stability in the U.S. and France, commitment to the gold standard became a commitment to deflation elsewhere. British experience shows the problem. Between April 1925, when Britain announced its return to the gold standard at its prewar parity, and April 1927, the British retail price index fell nearly 10%. Although Britain's gold holdings continued to fall on average, the retail price index remained in a narrow range. Britain did not deflate further in 1928-29. Hence, the real exchange rate, dollars per pound, remained in a narrow range about 10% above the 1925 value in real terms; the pound appreciated against the dollar and other gold standard countries.

Britain had two alternatives, given U.S. and French policies and its own wage rates and production costs. It could reduce the real exchange rate by devaluing or deflating, or it could fail to act and accept the levels of output and employment implied by its wage level and fixed exchange rate. After experiencing a general strike that did not reduce wages, Britain accepted unemployment at 10% of the labor force. Attempts to expand by lowering interest rates caused foreign balances and gold to leave London, threatening the nominal parity.

Chart 9 compares the real exchange rate for the dollar/pound from 1925 to 1929 to the dollar/mark rate for 1995-99. The choice of currencies reflects the relative importance of the pound in the 1920s and the mark in the 1990s.

Chart 9 here

From 1997 to the end of 1999, the real value of the mark appreciated about 25% against the dollar. Other Euro-system currencies depreciated also. The depreciation reflects two contrary forces--the mark's nominal depreciation and the greater increase in U.S. prices relative to German consumer prices.[2] From January 1995 through December 1999, the U.S. consumer price level rose 12%, the German price level about 6%. This change in the relative price levels was more than offset by the nominal depreciation of the mark. Most of the depreciation came in 1997. Recently real depreciation resumed.

Appreciation and depreciation are an adjustment mechanism that was absent under the gold standard. German (and Euro) exports now compete more effectively against U.S. products, strengthening growth in Europe. Depreciation also helped the Asian economies to recover. Instead of deflating as in the 1920s, countries allowed their currencies to adjust.

In the 1920s, the United States had persistent trade and current account surpluses. It generally made net loans abroad and drew gold from the rest of the world. In the critical years at the end of the decade, the current account deficit equaled 1% to 1.5% of GNP. In the 1990s, the U.S. ran a large current account deficit, currently 3 to 4% of GDP, which it financed with capital inflows. Foreign households and businesses bought U.S. securities or made direct investments. The capital inflow permitted foreigners to share in the higher returns available on U.S. assets.

During the Asian crisis, and its aftermath, the adjustment mechanism worked to promote recovery. Asian currencies depreciated, so Asian exports expanded and imports fell. The U.S. stock market boom and rising productivity attracted private capital that financed net imports. The appreciation of the dollar,

[2] Nominal depreciation of the Euro and the mark in 2000 further increases the dollar's real appreciation.

or depreciation of foreign currencies against the dollar, provided an adjustment mechanism superior to the more rigid system of the 1920s.

Must the current stock market boom and the new economy of the 1990s end with a bang as in 1929? If countries accept appreciation of their currency, as required, when the annual flow of capital to the United States slows and the U.S. current account deficit falls, the world economy can adjust. Attempts to present the adjustment of nominal exchange rates cannot prevent adjustment of real exchange rates but can make adjustment more costly to all.

Then and Now

Both the 1920s and the 1990s in the United States were decades with strong growth, rapid innovation, and a booming stock market at the end of the decade. While recognizing these similarities, the paper emphasizes an important difference--the choice of a fluctuating exchange rate instead of a fixed exchange rate under the gold exchange standard.

Policymakers and many others in the 1920s believed that restoration of the gold standard was a major achievement of the decade. Some recognized, at the time, that the restoration of the gold standard increased the demand for gold. With the gold price fixed in nominal value, commodity prices had to fall.

Although countries accepted a common standard, they did not adopt policies compatible with the standard. Britain was unwilling to continue the restrictive policies required to lower domestic price and wage levels until they were consistent with its exchange rate and prices abroad. France wanted Britain to increase interest rates and deflate to slow or stop its loss of gold; it was motivated partly by classical gold standard reasoning, partly by its political aim of making Paris a financial center rivaling London. The U.S. and France drained gold from many of the other gold standard countries, forcing them to contract, but both

countries sterilized the gold inflow to prevent domestic inflation. With money wages slow to adjust downward, the international system had no way to make an orderly transition.

Clarke (1967) and others attribute the policy failures to insufficient cooperation among central banks. This charge is truer of France than of the United States, but it was not wholly true of either country. The Federal Reserve, principally the New York Reserve bank as agent for the System, actively aided Britain and other countries to restore gold convertibility. It lent dollars to Britain and changed domestic policy in 1924, and again in 1927, partly for international purposes---to restore or maintain gold convertibility. These actions were always taken with an understanding, on both sides of the Atlantic, that cooperation would not be allowed to affect domestic inflation. The latter restriction meant that cooperation could not succeed. Exchange rates were misaligned, the pound overvalued, the franc undervalued. Ruling out inflation in the creditor countries and deflation in Britain left only one course---exchange rate changes---to adjust the system. These came much too late to maintain stability, given the continued deflationary policies in France and the United States.

Despite its strong economy and booming stock market at the end of the decade, the U.S. was a net exporter in the 1920s. It did not lend back its entire surplus on current account. Instead, it forced deflation on the rest of the world by draining and sterilizing gold.

In the late 1990s, the principal countries had fluctuating rates--the dollar, the mark or Euro, and the yen. With most of Europe and Japan in a period of recession or slow growth, and part of Asia in deep recession, the U.S. absorbed net imports equal to 3% and now 4% of GDP. It financed its current account deficit mainly by selling assets to the rest of the world. The supply of capital to the United States was large enough to appreciate the dollar despite the persistent, and rising, U.S.

current account deficit. Unlike 1928-29, changes in the real exchange rate worked to adjust the world economy to the differences in growth in the U.S. and other countries.

The real depreciation of the Euro is part of this adjustment. With low inflation, the fall in the nominal Euro-dollar exchange rate works to reduce the heavy burden of the European welfare state in the principal European economies. With low inflation Euro-depreciation it is a real change that reduces unit labor costs toward a more competitive level.

The U.S. current account deficit is widely regarded as unsustainable. That vague term may mean that the United States cannot expect to receive a capital inflow equal to 3 or 4% of GDP continuously. In that case, an orderly adjustment requires that either the real exchange rate depreciates in an orderly way or U.S. economic policy switches domestic spending to exports without either a recession, much higher inflation, or both. A recession would provide a temporary reduction in the trade deficit, not the permanent reduction suggested by unsustainability.

A swing of two points on net exports as a percent of U.S. GDP is about $200 billion. A significant share of U.S. imports are capital goods to support the increase in real investment. Slower growth of domestic demand, including less robust investment, would reduce import growth. A $200 billion swing in the U.S. current account, even if it is a very gradual change, would have a major effect on world trade and economic activity in many countries. It is difficult to foresee an orderly change of $200 billion without much more robust recoveries in Japan and Europe than now seems likely.

The lesson I draw is that the stock market received too much attention in 1928-29, and it gets too much attention now. The stock market in the late 1920s, and the 1990s mainly reflected current and anticipated future earnings growth. The major problem in the 1920s was to end deflation. The major problem now is to

adjust downward the historically high U.S. current account deficit by shifting part of buoyant U.S. domestic output from domestic to foreign buyers without a recession. The U.S. is unlikely to succeed without more robust growth abroad.

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Figure 1

"A New Era"

This advertisement was placed during Christmas time in 1927.

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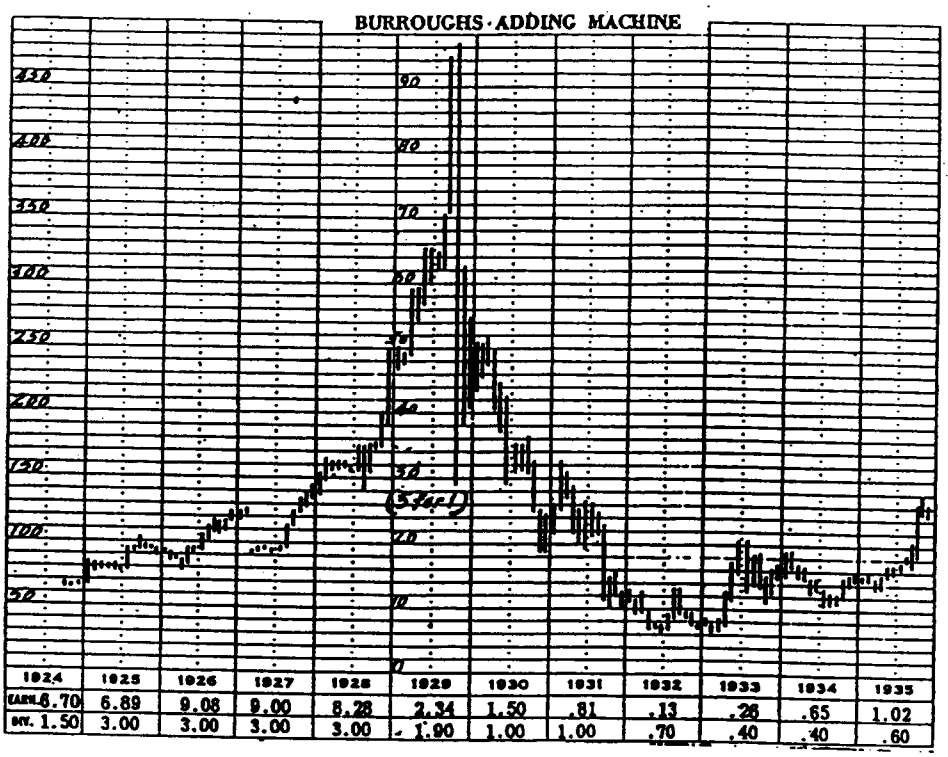
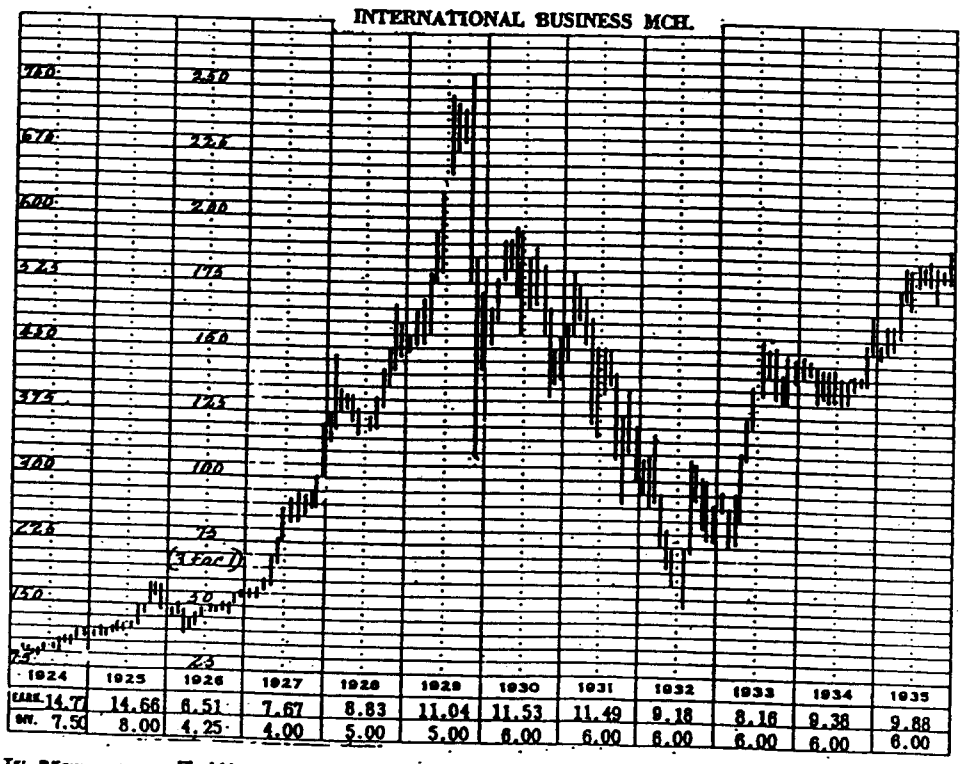
Figure 2

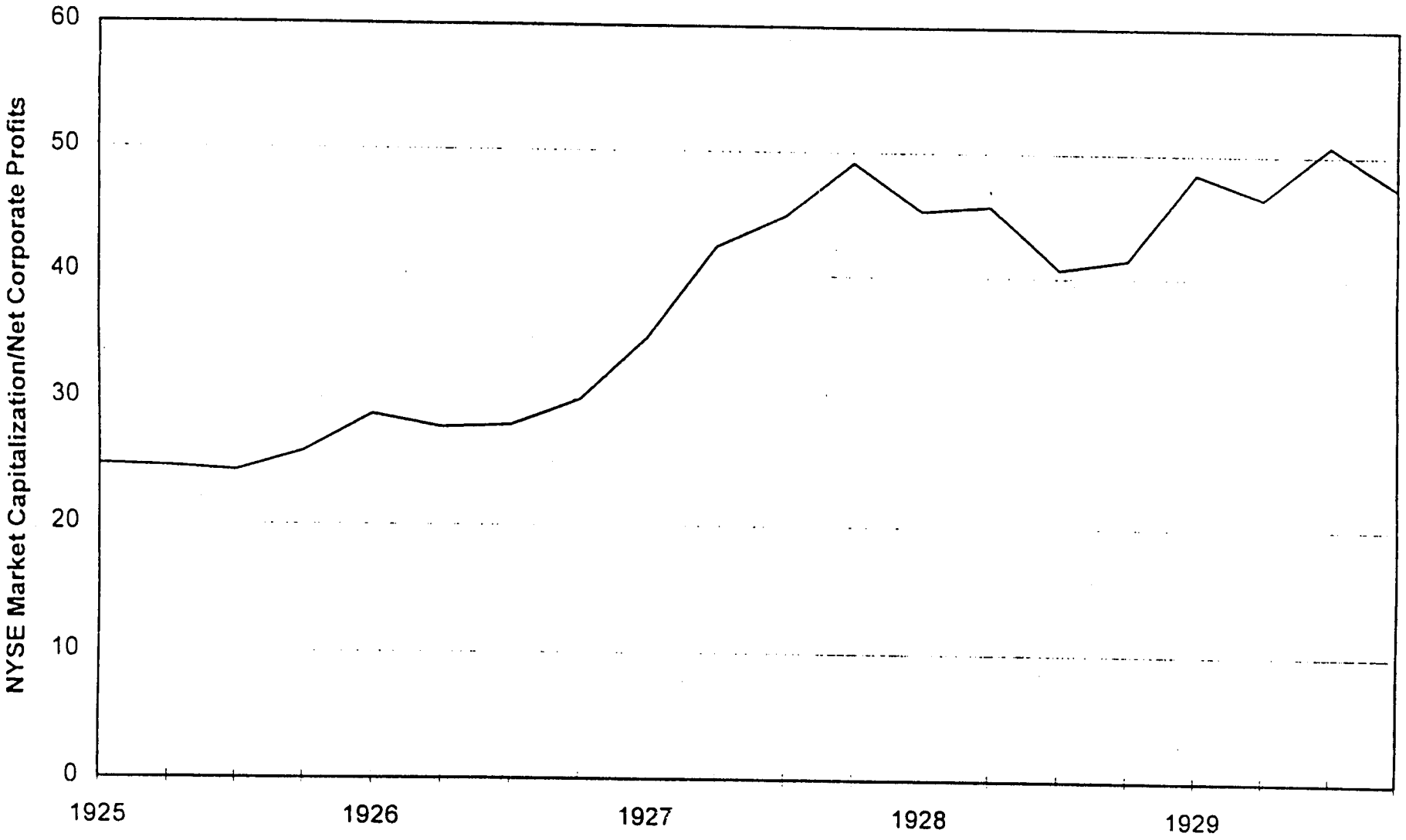




TEL. BEEKMAN 3-8080 F. W. STEPHENS 87 NASSAU STREET, NEW YORK 38, N. Y.

Chart 3

NYSE Market Capitalization to Net Corporate Profits



Source: Profits from Barger (1942) at annual rates

Chart 4

Real S&P 500, January 1920-December 1930 versus January 1989-November 1999

January 1920-December 1930 indexed to January 1920=100
January 1989-November 1999 indexed to January 1989=100

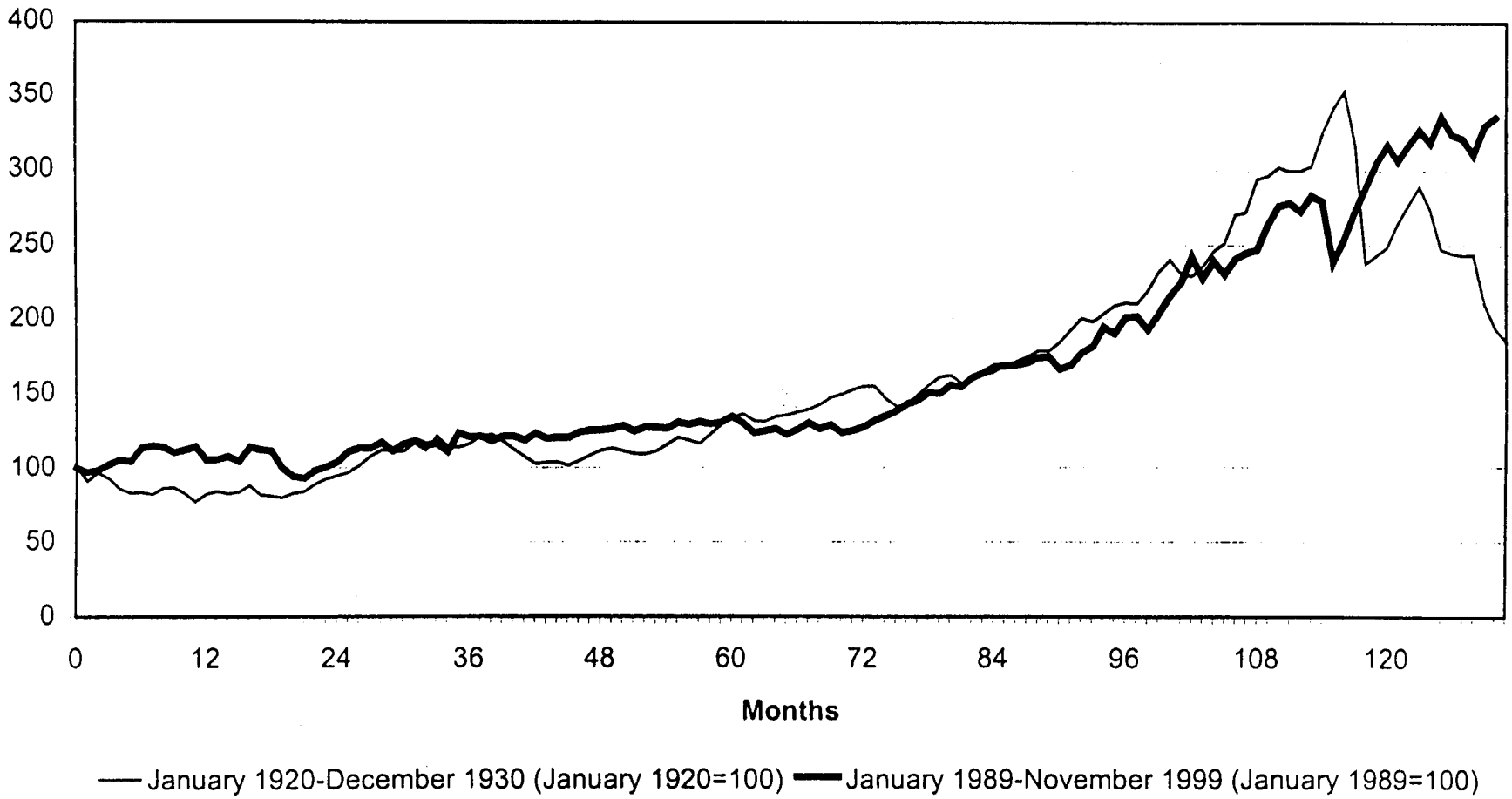


Chart 5

Real Investment Growth, U.S., 1921-1930 versus 1989-1998

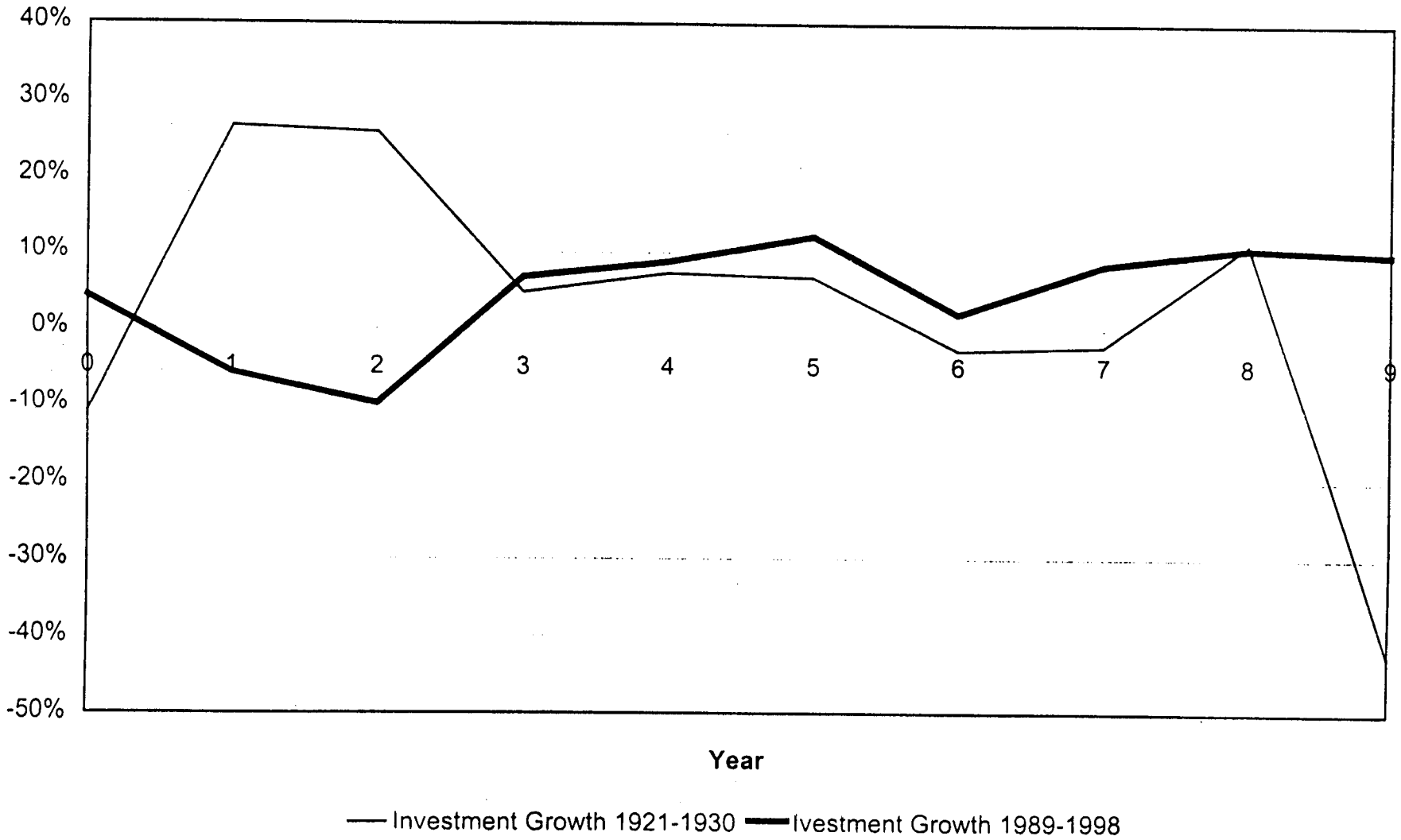


Chart 6

Real Per Capita GNP Growth, U.S., 1921-1930; Real Per Capita GDP Growth, U.S., 1989-1998

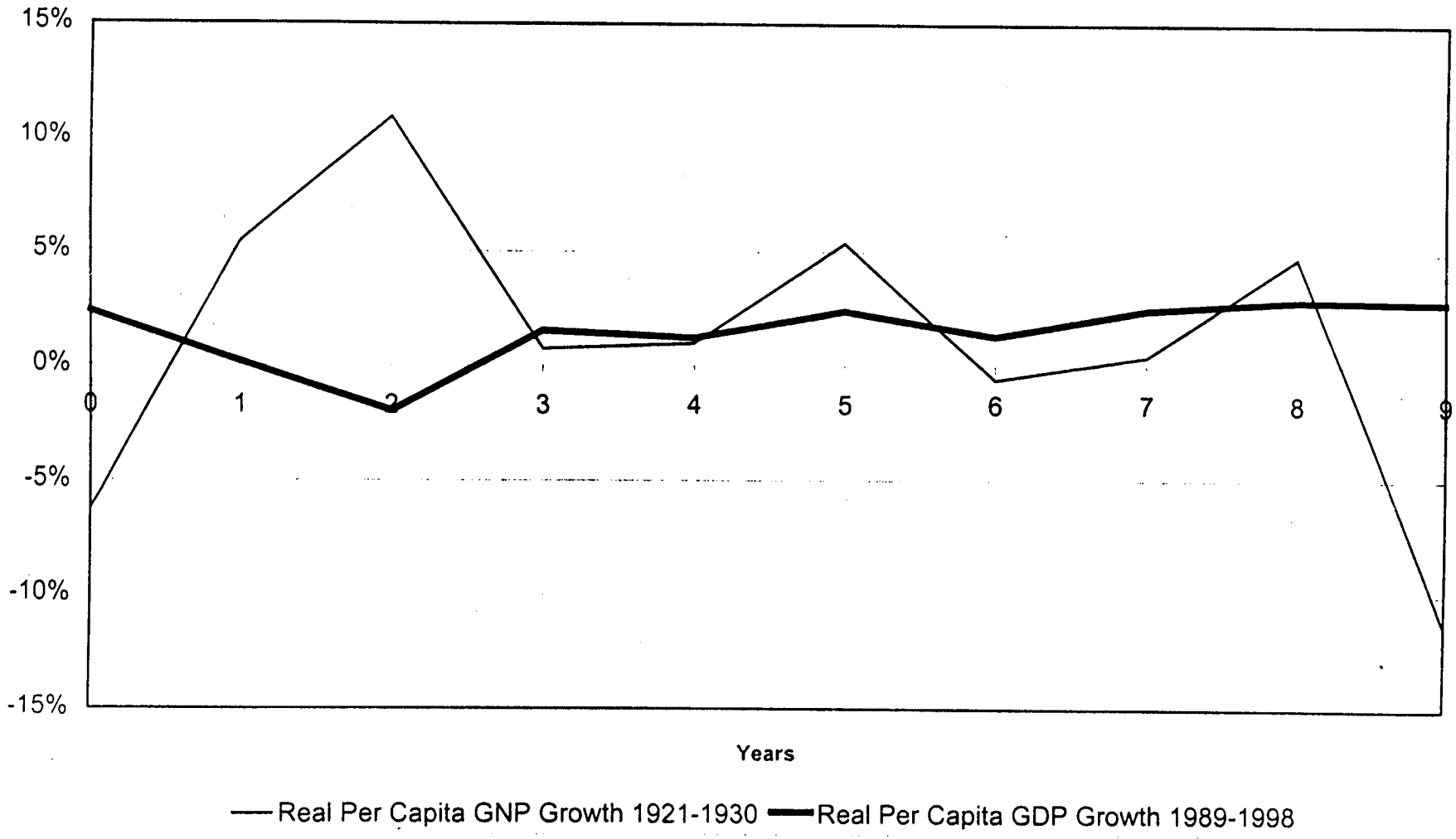


Chart 7

12-Month Moving Average Nominal Base Growth, U.S., January 1920-December 1930 versus January 1989-December 1999

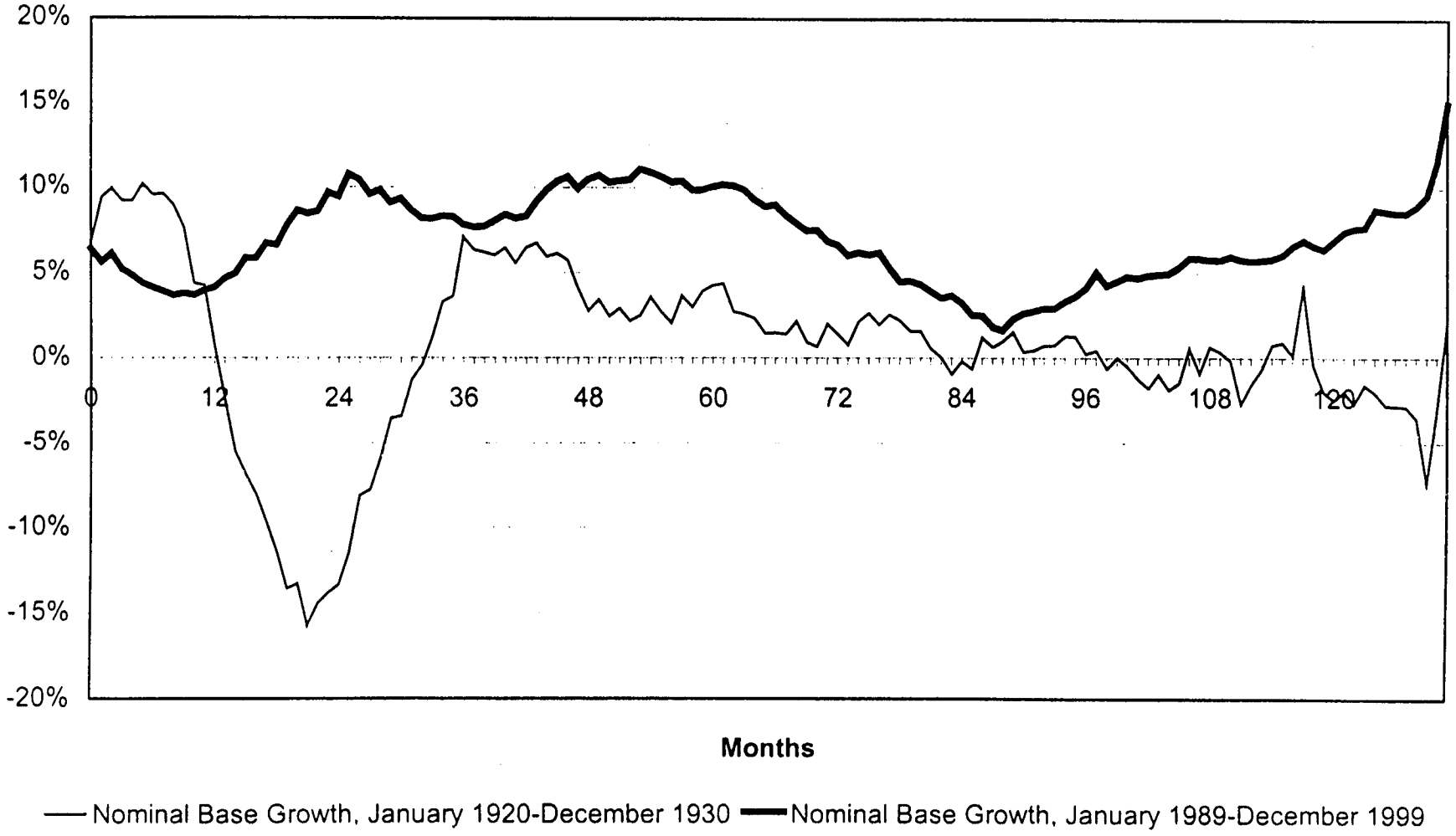


Chart 8

12-Month Moving Average Inflation, January 1921-December 1930 versus January 1990-December 1999

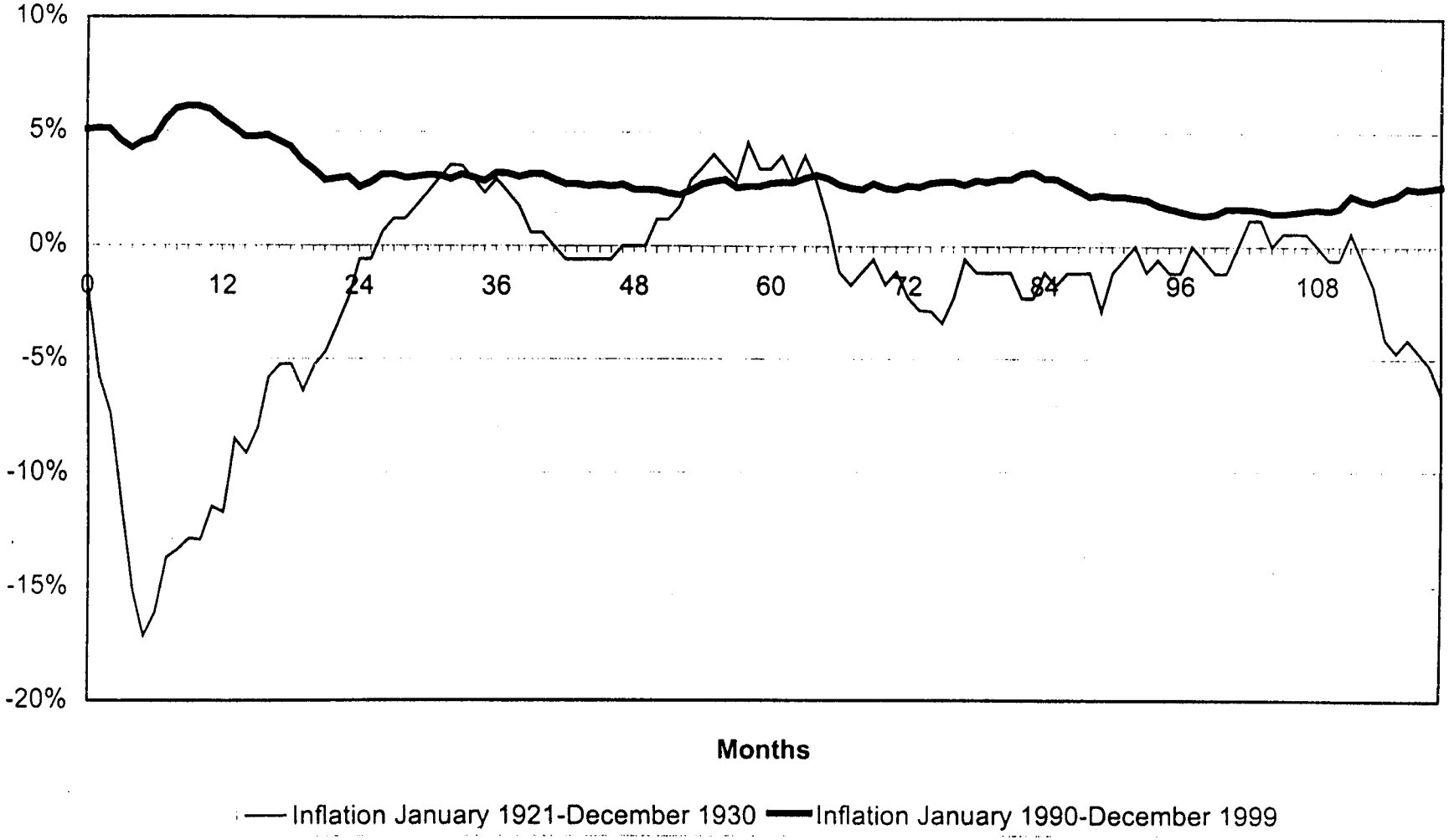
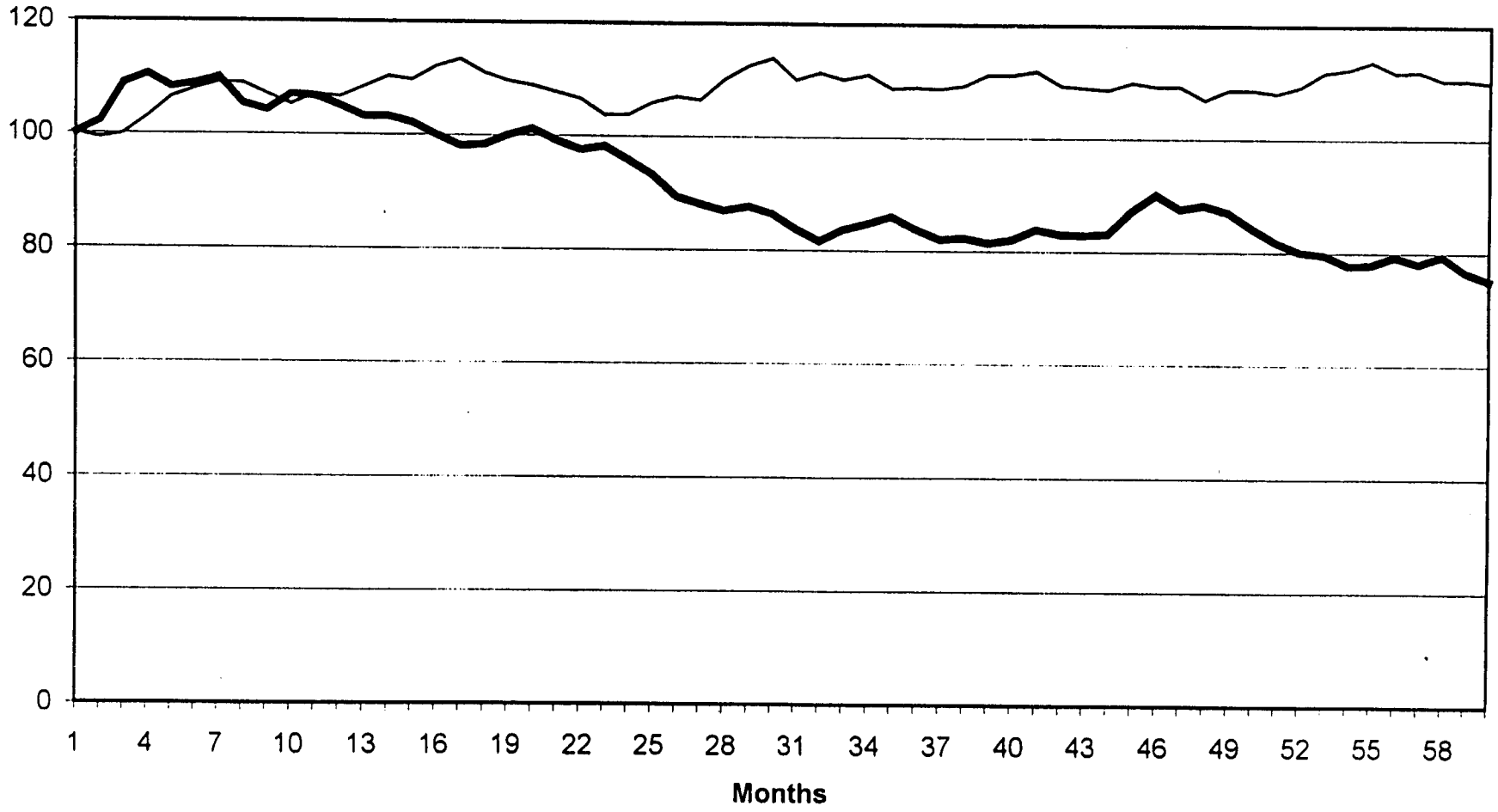


Chart 9

Real Exchange Rate
Dollars per Pound, January 1925-December 1929
Dollars per Mark, January 1995-December 1999



dollars per mark dollars per pound