2 R. Triffin

The Myth and Realities of the So-called Gold Standard

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The monetary traditions and institutions of the nineteenth century provided a remarkably efficient mechanism of mutual adjustment of national monetary and credit policies to one another, essential to the long-term maintenance of exchange-rate stability between national currencies.

The reasons for this success, and for the breakdown of the system after the first world war, are very imperfectly reflected in most of our textbooks. Most of all, however, overconcentration on the mechanism of *intercountry* adjustments fails to bring out the broader forces influencing the *overall pace* of monetary expansion on which individual countries were forced to align themselves.

The Mechanism of Adjustment among Countries

Textbook abstract

Starting from an initial position of balance-of-payments equilibrium, the emergence of a fundamental deficit is generally described in terms of divergent movements of exports – downward – and imports – upward – in the deficit countries, with opposite, and equally divergent, movements in the surplus countries.

The money flows associated with the international settlement of such imbalances, if not offset by domestic 'neutralization' policies, should then tend to prompt downward price readjustments in the deficit countries, and upward readjustments in the surplus countries. This would restore a competitive price and cost pattern among them, and bring their balances of payments back into equilibrium.

These 'automatic' adjustment forces were strengthened and speeded up by central banks through the so-called 'rules of the game'. Discount-rate policy and open-market interventions would raise interest rates and tighten credit in the deficit countries, while lowering interest rates and expanding credit in the surplus countries. This would both cushion balance-of-payments and monetary transfers in the short term, by stimulating compensatory capital movements from the surplus to the deficit countries, and accelerate the desirable downward readjustment of prices and costs in the latter countries and their upward readjustment in the first.

The 'rules of the game' were widely violated after the first world war. The surplus countries adopted 'neutralization' policies which increasingly concentrated upon the deficit countries the burdens of adjustment previously distributed between surplus and deficit countries alike. At the same time, the development of stronger resistance to downward price and wage adaptations – particularly as a result of the growing strength of the trade unions – blocked the price-adjustment mechanism in the deficit countries, transferring its impact to fluctuations in economic activity and employment. The resulting social and political strains gradually became unbearable, particularly during the world depression of the 1930s, and induced governments to abandon the harsh gold-standard disciplines in favor of fluctuating exchange rates and/or trade and exchange restrictions.

Historical abstract

This highly simplified digest of the theory of international adjustment under the actual gold standard certainly meets the first test of an economic theory, i.e. the test of logical consistency. Does it meet equally well the second test by which a theory should be judged, i.e. its conformity to the major facts calling for explanation?

It undoubtedly fits *some* of the facts. Comparative price – or exchange-rate – movements obviously play a role in the fluctuations of balances of payments on current account, and are themselves influenced by the tightening or expansion of money flows arising both from international settlements and from domestic policies or lack of policies.

Other facts, however, must also be taken into account if we are to develop a general and politically meaningful theory of balance-of-payments adjustments.

1. First of all, the most cursory look at international trade statistics reveals an enormous degree of parallelism – rather than divergent movements – between export and import fluctuations *for any one country*, and in the general trend of foreign-trade movements *for the various trading countries*. Over the eighty years from 1880 to 1960, all significant increases or decreases in the exports of Western Europe were marked by *parallel* increases, or decreases, *for the eleven major trading countries of the world* in 91 per cent of the cases, and by *simultaneous* increases, or decreases, of *exports and imports for each country*, taken separately, in 88 per cent of the cases. These proportions fall to 77 and 73 per cent, respectively, for fluctuations of one year only, but rise to 95 and 92 per cent for fluctuations of more than a year's duration, and to 98 and 100 per cent for movements extending over more than four years.[1]

2. Equally impressive is the overall parallelism – rather than divergence – of price movements, expressed in the same unit of measurement, between the various trading countries maintaining a minimum degree of freedom of trade and exchange in their international transactions. In spite of wide differences and fluctuations in the composition of each country's exports, the indices of export unit values – measured in current dollars – for the same eleven countries over the period 1870–1960 moved in the same direction in 89 per cent of the observed fluctuations, and in opposite direction in only 11 per cent of the cases.[2]

This solidarity of national price movements – when measured in a common unit of account – is not incompatible, of course, with sharp divergences in national price levels, offset by opposite divergences in exchange-rate fluctuations. One does find indeed

1. The above percentages are derived from 287 observations of national increases or decreases for eleven countries (the United States, the United Kingdom, France, Germany, Italy, Belgium, the Netherlands, Switzerland, Sweden, Austria, and Canada), in the course of seventeen upward or downward movements of more than one per cent in Western European exports, in the period 1880–1960. The estimates used in these calculations are those of Maddison (1962), pp. 179–81.

2. Based on estimates from Maddison (1962), pp. 189–90.

that any large variations in the evolution of national prices are invariably offset, more or less rapidly, by exchange-rate fluctuations, and vice versa. Such variations were, however, eschewed – except in wartime – by most industrial countries in the nineteenth century, but were relatively frequent in the countries of the so-called 'periphery', and particularly in Latin America.

3. Thirdly, downward wage adjustments rarely reached any sizable amplitude, even in the nineteenth century, among the countries which maintained exchange-rate stability, and it may be doubted whether they would have proved much more acceptable at that time, economically, politically, and socially, than they are today. Wherever substantial inflation had been allowed to develop, international cost competitiveness was nearly invariably restored through devaluation rather than through downward price and wage adjustments.

Standard statistical series for the United States, the United Kingdom, France, and Germany show only four or five instances of actual declines in any broad-based indices of money wages during the fifty years preceding the first world war. Such declines were, moreover, usually confined to one or a few percentage points only. They were far exceeded, in post-gold-standard days, by the much sharper wage drops of the 1920–22 recession – 37 per cent in the United Kingdom – and of the first years of the great depression – 22 per cent in the United States and Germany.[3]

4. The 'neutralization' policies stigmatized by Ragnar Nurkse as another major cause – alongside of increasing price and wage rigidity – of the downfall of the gold standard (Nurkse, 1944, pp. 66–8) were by no means a postwar innovation. Using exactly the same techniques of measurement as Nurkse, Arthur I. Bloomfield found that 'central banks in general played the rules of the game just as badly before 1914 as they did thereafter!'[4] It might be noted in passing, however, that Nurkse's method defines as neutralization the cases where fluctuations in a central bank's domestic portfolio offset only a fraction – no matter how

3. See, for instance, Bureau of the Census (1960), pp. 90–92; Mitchell (1962), pp. 343–5; and France (1939), pp. 443–4.

4. Bloomfield (1959), p. 50. The evidence of neutralization, measured by Nurkse's formula, was present in 60 per cent of total observations, in the period 1880–1913, coinciding exactly with Nurkse's results for the 1922–38 period.

small – of the changes in its international assets. In many cases, however, there remained a *positive* correlation between the latter and changes in the central bank's sight liabilities. The impact of the latter changes upon the country's money supply would most often be magnified, in turn, several times by the operation of the private banking system under customary cash and liquidity requirements. Nurkse's 'neutralization' policies, therefore, could still permit a *multiple* impact of international gold – or foreign-exchange – movements upon money supply, as contrasted with the mere one to one impact which would have resulted under the pure gold-coin system of monetary circulation assumed in the most abstract formulations of gold-standard theory (Triffin, 1947, pp. 52–3).

5. The impact of discount rates on *cushioning* capital movements and on *corrective* changes in cost competitiveness was also far less general and uniform than is usually assumed.

The first seems indeed to have been particularly effective for the well-developed money and capital markets of the major creditor countries and financial centers, and most of all in the case of the United Kingdom. Discount and interest-rate changes could accelerate, or slow down, the normal, or average, pace of capital exports, and had to be resorted to frequently by the Bank of England to defend its very slender gold reserves. The much higher reserve levels of the Bank of France enabled it, on the other hand, to cushion temporary deficits out of its own reserves, with much rarer recourses to discount-rate changes. Most of all, however, capital-importing countries were far less able to influence in the same way the pace of their capital imports, these being primarily determined by the ease or stringency prevailing in the major financial centers.

The impact of Britain's international surpluses and deficits on British bank reserves was cushioned, moreover, by the ample use of sterling balances as cash reserves by overseas banks, particularly throughout the British Empire. Surpluses and deficits between Britain and its Empire – and even, to some extent, with other countries – merely led to a reshuffling of British bank deposits, rather than to an overall expansion or contraction in their amount and to correlative gold inflows or outflows.

Finally, the enormous role played by the London discount

market in the financing of the food and raw-materials exports of the less developed countries probably imparted to the Bank of England's discount-rate policy an influence on British terms of trade – and balance of payments – which has escaped the attention of economic theorists. Increases in discount rates did – as is usually pointed out – tend to reduce British prices and costs, improving the competitiveness of British exports in world markets and of home-made import-substitute goods on the domestic market. What is forgotten, however, is that the tightening of the London discount market also affected, most directly and overwhelmingly, the ease with which inventories of staple foods and raw materials could be financed, thus forcing also a quicker liquidation and attendant price declines in Britain's chief import goods. Such declines could be expected to be far larger than those in the less sensitive and volatile prices of British industrial exports. Thus, the favorable impact of discount-rate increases on British competitiveness (lowering British prices in relation to foreign prices in competing industrial nations) would be reinforced in its balance-of-payments effects by a simultaneous improvement of Britain's terms of trade (i.e. by decreases in the prices of foreign suppliers of complementary goods to Britain, larger than the decreases in British export prices to them). See Triffin (1947, pp. 60–63), and Kenen (1960, pp. 59–62).

6. The importance of international capital movements, and of their fluctuations, is often obscured by the disproportionate emphasis often placed on comparative price and cost fluctuations as the major factor in balance-of-payments disequilibria and their correction. Attention is thereby centered on the current-account items of the balance of payments, and tends to suggest that most disturbances arose in this area and had to be corrected promptly by the restoration of equilibrium between receipts and expenditures on current – or even merely merchandise – account.

In fact, however, international capital movements often did cushion – and even stimulate – vast and enduring deficits, or surpluses, on current account without calling for any correction whatsoever, except in an extremely long run indeed. Developing countries, such as the United States, Canada, Argentina, Australia, etc., could maintain, over an average of years, large and persistent deficits on current account, financed by corre-

spondingly large, persistent, and growing capital imports from the more advanced countries of Western Europe. Rough estimates, compiled by the United Nations (1949, p. 2), place at about $40.5 billion, on the eve of the first world war, the gross long-term foreign investments of the principal creditor countries of Western Europe, and at $3.5 billion those of the United States. Of this $44 billion total, $12 billion had been invested in Europe itself, $6.8 billion in the United States – which was still a net debtor country at the time – $8.5 billion in Latin America, $6.0 billion in Asia, $4.7 billion in Africa, $3.7 billion in Canada, and $2.3 billion in Australia and New Zealand.

The lion's share of these investments was that of the United Kingdom ($18 billion), followed by France ($9 billion), and Germany ($5.8 billion). The United Kingdom had indeed been running persistent and growing surpluses on current account for more than a century, without any tendency whatsoever toward equilibrium. On the contrary, these surpluses rose continually from about $35 million a year, on the average, over the years 1816–55 to more than $870 million a year in the last years before the first world war (1906–13). Nobody could ever dream of explaining this favorable balance – and its fluctuations – in terms of the cost-competitiveness adjustment mechanism depicted in the textbooks, since it arose primarily from Britain's earnings on its swelling foreign-investment portfolio, and coincided with large and increasing *deficits* on merchandise account – close to $670 million a year over the period 1906–13 – offset themselves, for the most part, by net receipts on services and remittances account.

These current-account surpluses were nearly fully absorbed by Britain's investments abroad, which rose over the same period from an average of less than $30 million a year in 1816–55 to more than $850 million a year in 1906–13, and indeed more than a billion dollars a year in the last three prewar years, i.e. about a third of the British export level at the time, and 10 per cent of net national income (Imlah, 1958, pp. 70–75).

Foreign investments on such a scale undoubtedly accelerated economic development and helped at times relieve balance-of-payments pressures in the recipient countries. In the case of the United States, for instance, net capital inflows from Europe – primarily Britain – financed large and growing deficits on current

account throughout most of the nineteenth century. They reached a peak of close to $300 million in 1888, tapering off afterwards, and shifting to net capital exports around the turn of the century, as the United States finally turned from chronic deficits to equally chronic surpluses on current account (Bureau of the Census, 1960, pp. 562–6).

7. The cyclical pattern of international capital movements, however, had a very different impact upon the capital-exporting and the capital-importing countries.

A mere slowdown of capital exports could help relieve, in the first countries, any pressures on central-bank – and private-bank – reserves arising from unfavorable developments in other balance-of-payments transactions. In the British case, for instance, capital exports dropped year after year, from their 1872 peak of roughly $480 million to $60 million in 1877, recovered again to $480 million in 1890, and declined once more in the following years to $110 million in 1898, rising nearly uninterruptedly afterwards to $250 million in 1904, and booming to $400 million in 1905, $570 million in 1906, to reach finally close to $1,100 million in 1913 (Imlah, 1958, pp. 73–5).

The borrowing countries, on the other hand, were far less able to control the rate of their capital imports which tended, on the whole, to swell in boom times and dry up in hard times, contributing further to the economic instability associated with their frequent dependence on one or a few items of raw material or foodstuff exports, themselves subject to wide quantity and/or price fluctuations. All in all, therefore, the balance of payments of the countries of the so-called 'periphery' would be assisted, over the long run by the large capital imports available to them from the financial markets of industrial Europe, but these countries would pay for this dependence through perverse fluctuations in the availability of such capital and in their terms of trade over the cycle. The exchange-rate instability of most underdeveloped countries – other than those of colonial or semi-colonial areas tightly linked to their metropolitan country's currency and banking system – finds here one of its many explanations.[5]

5. Another, closely connected with the main topic of this study, lies in the retention of a silver standard long after the effective abandonment of silver or bimetallic standards in Europe and the United States.

8. Another important qualification of the traditional theory of balance-of-payments adjustments relates to the international timing of reserve movements and discount-rate changes. The textbook explanation suggests that rate increases were undertaken by the deficit countries in order to relieve a drain of their reserves to the surplus countries. As noted by Bloomfield, however:

> the annual averages of the discount rates of twelve central banks [England, Germany, France, Sweden, Finland, Norway, Denmark, Belgium, Switzerland, the Netherlands, Russia, and Austria-Hungary] reveal the . . . interesting fact that, in their larger movements at least, the discount rates of virtually all the banks tended to rise and fall together. . . . To some degree, and certainly for many of the banks, this broad similarity reflected competitive or 'defensive' discount rate changes. . . . But a more important explanation lies in the fact that discount rates in most . . . of the individual countries tended . . . to show a positive correlation, though generally not a very marked one, with domestic business cycle fluctuations. Since, as is well known, major cyclical fluctuations tended to be broadly synchronous in all countries, discount rate movements thus generally tended to exhibit a broad parallelism over the course of the world cycle – although there were, of course, many dissimilarities with respect to short-term movements in the various countries (Bloomfield, 1959, pp. 35–7).

This importance of parallel movements, associated with the international business cycle – as against divergent movements between surplus and deficit countries – brings us back to the first two points made above (pp. 40–41) and to the comparative neglect of this parallelism in textbook discussions centered nearly exclusively on intercountry balance-of-payments adjustments.

Reinterpretation and conclusions

1. The nineteenth-century monetary mechanism succeeded, to a unique degree, in preserving exchange-rate stability – and freedom from quantitative trade and exchange restrictions – over a large part of the world.

2. This success, however, was limited to the more advanced countries which formed the core of the system, and to those closely linked to them by political, as well as economic and financial ties. The exchange rates of other currencies – particularly in Latin America – fluctuated widely, and depreciated

enormously, over the period. This contrast between the 'core' countries and those of the 'periphery' can be largely explained by the cyclical pattern of capital movements and terms of trade, which contributed to stability in the first group, and to instability in the second.

3. The adjustment process did not depend on any tendency toward equilibrium of the national balances of payments on current account. Vast and growing capital movements cushioned over many years, up to a century or more, correspondingly large and increasing surpluses – and deficits – on current account.

4. The preservation of exchange-rate stability depended, however, on the impact of international monetary settlements – of the combined current and capital accounts – upon domestic monetary and credit developments. Large or protracted deficits or surpluses had to be corrected, residually, by a slowdown or acceleration of bank-credit expansion sufficient to bring about – through income and/or price and cost adaptations, and their impact on exports and imports – a tenable equilibrium in overall transactions, and a cessation of persistent drains in the deficit countries' stock of international money (i.e. gold and silver initially, and increasingly gold alone as all major countries shifted from the silver or bimetallic standard to the gold standard).

5. This residual harmonization of national monetary and credit policies, depended far less on *ex post* corrective action, requiring an extreme flexibility, downward as well as upward, of national price and wage levels, than on the *ex ante* avoidance of substantial disparities in cost competitiveness and in the monetary policies which would allow them to develop.

As long as stable exchange rates were maintained, national *export* prices remained strongly bound together among all competing countries, by the mere existence of an international market not broken down by any large or frequent changes in trade or exchange restrictions. Under these conditions, national price and wage levels also remained closely linked together internationally, even in the face of divergent rates of monetary and credit expansion, as import and export competition constituted a powerful brake on the emergence of any large disparity between internal and external price and cost levels.

Inflationary pressures could not be contained within the

domestic market, but spilled out *directly*, to a considerable extent, into balance-of-payments deficits rather than into uncontrolled rises of internal prices, costs, and wage levels.[5] These deficits led, in turn, to corresponding monetary transfers from the domestic banking system to foreign banks, weakening the cash position of domestic banks and their ability to pursue expansionary credit policies leading to persistent deficits for the economy and persistent cash drains for the banks. (Banks in the surplus countries would be simultaneously subject to opposite pressures, which would also contribute to the harmonization of credit policies around levels conducive to the re-equilibration of the overall balance of payments.)

Central banks could, of course, slow down this adjustment process by replenishing through their discount or open-market operations the cash reserves of the commercial banks. As long as exchange controls or devaluation were effectively ruled out from their horizon, however, they would themselves be responsive to similar pressures, arising from the decline in the ratio of their own reserves to liabilities. While their liabilities were internal, and thus easy to expand, their reserves were – and still are today – limited to international assets over which they had no direct control.

6. These pressures for international harmonization of the pace of monetary and credit expansion were indeed very similar in character to those which continue today to limit divergent rates of expansion among private banks within each national monetary area.

They were further reinforced, as far as central banks were concerned, by the fact that a substantial portion of the domestic monetary circulation itself was in the form of commodity money – gold and silver – wholly or partly international in character, rather than in credit money. Expansionary credit policies were thus accompanied by an outflow of gold and silver assets from the coffers of central banks into internal circulation and commercial banks' reserves, as well as to foreign countries. This movement of specie into internal circulation was all the more

6. This is still true today, in the absence of major changes in exchange rates and/or trade and exchange restrictions. See Triffin and Grubel (1962), pp. 486–91.

pronounced, as the lowest denomination of paper currency was usually much too high – often equivalent to several times the level of monthly wages – to be usable in household and wage payments. Central-bank credit expansion was therefore limited not only by *foreign* deficits and gold losses, but also by *internal* gold and silver losses, very much as commercial banks' credit and deposit expansion may be limited today by the drain on their paper-currency reserves. While the latter can be replenished by central-bank credit, central banks themselves did not have access to any gold or silver 'lender of last resort'.

The overall pace of advance of commercial banks' credit and deposit-money creation in a national economy was and remains subject today to the policies of the central bank. Similarly, the *overall* pace of credit creation by the central banks *as a group* was limited, in the nineteenth century's international economy, by their ability to increase *simultaneously* their international reserves.

7. This latter observation brings once more into the limelight a most important question left unanswered by the theory of balance-of-payments adjustment among countries: granted the need for mutual harmonization of national monetary policies among the gold-standard countries, what were the factors determining the *international pace* on which such alignments did take place? The question is all the more significant in view of the size and parallelism of major fluctuations in national price, export, and import levels over the period 1815–1914 as a whole.

The International Pace of Adjustment

A gentle reminder of the apostles of gold money

1. The gold standard is often credited with having reconciled, to an unprecedented degree, price stability with a high rate of economic growth over the nineteenth century. Contemporary advocates of a return to gold rarely miss the opportunity of quoting, in this respect, Gustav Cassel's observation that 'the general level of prices in 1910 was practically the same as in 1850'.[7]

7. See Cassel (1930), p. 72. The calculation is based on the Sauerbeck–Statist index of wholesale prices, and carried back to 1800 on the basis of Jevons' index. See also Kitchin (1930), pp. 79–85.

This stability is then attributed to the safeguards erected against inflation by the small size of new gold production and monetary gold increases in relation to existing stocks, and, more generally and optimistically, to the response elasticity of new gold production to any substantial decreases or increases in the price level: price declines or increases would be kept in check by their impact on gold-mining costs and profitability, and the resulting stimulation or slowdown of new gold production and monetary expansion.

2. As pointed out by Cassel himself, however, price fluctuations were by no means inconsiderable in the nineteenth century. Increases and decreases of 30 to 50 per cent, or more, accompanied the famous Kondratieff cycles (Kondratieff, 1926), and have been attributed by many writers – including Cassel – to fluctuations in gold production, following new mining or refining discoveries.

The evidence of long-term stability – or rather reversibility – of prices seen in the return of the 1910 index to its 1850 level is, to say the least, extremely misleading. Such an arbitrary choice of dates would allow us, for instance, to demonstrate equally well the 'stability' of the price level over the period from 1913 to the early thirties, since the precipitous fall of prices during the Great Depression brought back both the U.S. and the U.K. price indices down to approximately their 1913 level in 1931–2!

The starting point of Cassel's comparison – 1850 – is taken close to the very bottom of a long depression during which prices had fallen by 50 per cent or more, while the end year – 1910 – comes at the end of a fifteen-year upward trend during which the index used by Cassel had risen by more than 30 per cent.

Making the same comparison from peak to peak, or from trough to trough, we would find a rather pronounced downward long-run trend of wholesale prices in all major countries (Table 1). Prices declined, for instance, by 25 per cent in the United States from 1814 to 1872, and by 25 per cent again from 1872 to 1913, adding up to a cumulative 44 per cent decline over the century, from 1814 to 1913. In the United Kingdom, price declines of 30 per cent from 1814 to 1872, and 20 per cent from 1872 to 1913 also add up cumulatively to a similar 44 per cent decline for the century as a whole.

3. The influence of fluctuations in gold production upon these broad price trends seems far more plausible than the supposed inverse relationship from commodity prices to gold production. The significance of any such relationship as may have existed

Table 1

Wholesale Price Indices, 1814–1913

	U.S.	*U.K.*	*Germany*	*France*	*Italy*
Indices (1913 = 100)					
1814	178	178	129	132(1)	
1849	80	90	71	96	
1872	133	125	111	124	
1896	67	76	71	71	74
1913	100	100	100	100	100
Changes (in %)					
1814–1849	−55	−49	−45	−27(2)	
1849–1872	+66	+39	+56	+31	
1872–1896	−50	−39	−36	−43	
1896–1913	+49	+32	+41	+41	+35
1814–1913	−44	−44	−22	−24(2)	

Notes:

(1) 1820
(2) since 1820

Sources:

1. *For the United States:*
   (a) Warren and Pearson index until 1890
   (b) BLS index since 1890
2. *For the United Kingdom:*
   (a) Gayer, Rostow, and Schwartz index until 1849
   (b) Rousseaux index from 1844 to 1871
   (c) Board of Trade index since 1871
3. *For Germany, France, and Italy: Annuaire Statistique*, pp. 513–15 of 1951 edition (Paris, 1952).

was certainly dwarfed by the gold avalanche unleashed by the discovery of new gold fields and the improvement of mining and refining techniques, both after 1848 and after 1888. On both occasions, current production just about doubled, over twenty-

four or twenty-five years, the gold stock accumulated over the previous three-and-a-half or four centuries. The yearly rate of growth in the estimated *monetary* gold stocks – after deduction for hoarding, industrial, and artistic uses – rose abruptly from 0.7 per cent in the first half of the nineteenth century to 4.3 per cent over the years 1849–72, declined precipitously to only 1.3 per cent in 1873–88, and rose again to 3.2 per cent in 1889–1913.

4. The neat mechanistic explanation derived by some authors from this broad parallelism between gold production and long-run trends in commodity prices fails, however, to give a full account of the complex factors involved in the process of nineteenth-century economic growth. The Kondratieff long waves were certainly influenced also to a major degree by the clustering and spread of technological discoveries and innovations in production, transportation, etc., by the vast migrations from old to new settlement areas, and – last but not least – by the preparation, waging, and aftermath of wars. These powerful influences, brilliantly analyzed by Schumpeter (1934, 1939) among others, obviously cannot be reduced to any mechanistic monetary explanation. It would be equally absurd, on the other hand, to deny that monetary and banking developments also had a role – even if primarily permissive, rather than initiating – on the acceleration or retardation of price trends and production growth. Schumpeter himself insisted abundantly on the role of bank credit in the process of capitalistic development.

One might well wonder, indeed, whether the unprecedented stability of the major currencies in terms of gold – and exchange rates – in the nineteenth century was not due to the spectacular growth of bank money or 'credit money' – in the form of paper currency and bank deposits – rather than to the residual, and fast declining, role of gold and silver 'commodity money'. Certainly, full dependence of the monetary system on gold and silver, in pre-nineteenth-century days, to the exclusion or near-exclusion of credit or paper money, did not prevent wide inflationary excesses – through debasement of the coinage – and wide fluctuations in exchange rates. The pound sterling lost three-fourths of its gold value and the French franc more than nine-tenths, from the middle of the thirteenth century to the end of the eighteenth century.

5. It is rather ludicrous to reflect that the vast literature devoted to the so-called nineteenth-century gold standard is practically devoid of any quantitative estimates of the enormous changes that modified, out of all recognition, the actual structure of the volume of money, or means of payments, as between gold, silver, currency notes, and bank deposits, between the end of the Napoleonic wars and the outbreak of the first world war.

Yet, according to the League of Nations estimates, paper currency and bank deposits already accounted in 1913 for nearly nine-tenths of overall monetary circulation in the world, and gold for little more than one-tenth. Comprehensive estimates for earlier periods are practically nonexistent and can only be pieced together from disparate sources, the reliability of which is most difficult to assess. Yet, some broad facts and orders of magnitude can hardly be in doubt. Bank currency and demand deposits probably constituted less than a third of total money supply at the beginning of the nineteenth century, but close to nine-tenths by 1913. Silver exceeded gold in actual circulation by about two or three to one until well into the second half of the century, but dropped considerably behind in the latter part of the period, the previous proportion being just about reversed by 1913. Increases in credit money – paper currency and demand deposits – accounted, in the major and more developed countries, for two-thirds or more of total monetary expansion after the middle of the century, and more than 90 per cent from 1873 to 1913.

These facts can hardly be reconciled with the supposed *automaticity* still ascribed by many writers – particularly in Europe – to the so-called nineteenth-century gold standard. The reconciliation of high rates of economic growth with exchange-rate and gold-price stability was made possible indeed by the rapid growth and proper management of bank money, and could hardly have been achieved under the purely, or predominantly, metallic systems of money creation characteristic of the *previous* centuries. Finally, the term 'gold standard' could hardly be applied to the period as a whole, in view of the overwhelming dominance of silver during its first decades, and of bank money during the latter ones. All in all, the nineteenth century could be far more accurately described as the century of an emerging and growing credit-money standard, and of the euthanasia of

gold and silver moneys, rather than as the century of the gold standard.

Monetary expansion and international reserves before the First World War

A more precise assessment of the nature of the nineteenth-century international monetary mechanism and of its relation to production and price fluctuations must await the development of better monetary and reserve statistics than are now available, not only for the world as a whole, but even for the major countries which formed the basic core of the so-called gold standard.

The task should not prove impossible, if two limitations are accepted from the start. The first relates to the dearth of meaningful and reasonably reliable statistics for many countries. This should not prove too damaging for an appraisal of the international monetary mechanism in the few major countries which formed in the nineteenth century – and still form today – the core of the system. I have assembled some rough estimates of this sort, running back to 1885, for eleven such countries (the present so-called Group of Ten, or Paris Club, plus Switzerland). They accounted in 1885 and 1913 for 60 to 80 per cent of the world money supply and monetary reserves. Earlier estimates – back to 1815 – are for three countries only – the United States, the United Kingdom, and France – but accounted for about half the world money and reserves in 1885 and 1913, and for about two-thirds to three-fourths of the eleven core countries.[8] Table 2 gives further indications in this respect, revealing an encouraging parallelism between the estimates in the three groups.

The second limitation lies in the incompleteness and lack of full comparability of available data even for the major countries. Yet, this could hardly be more damaging than similar – and often far worse – limitations on the validity of other nineteenth-century estimates, in the field of national accounting for instance. They certainly remain, moreover, very minor in relation to the broad orders of magnitude involved in the enormous shifts in the monetary structure revealed by the tables. [Not reproduced here. For

8. World totals, however, are somewhat incomplete and particularly unreliable.

further data, sources, and qualifications, see the original source – *editor.*] In any case, imperfect as they are bound to be, such estimates are essential to an understanding of the nineteenth-

Table 2

Comparative Evolution of Money and Reserve Structure, 1885 and 1913

	Three countries[1]		*Eleven countries*[2]		*World*	
End of	*1885*	*1913*	*1885*	*1913*	*1885*	*1913*
(*in billions of U.S. dollars*)						
I. Money Supply	6.3	19.8	8.4	26.3	14.2	33.1
a. Gold	1.4	2.0	1.8	2.7	2.4	3.2
b. Silver	0.7	0.6	1.0	1.2	3.0	2.3
c. Credit money	4.1	17.2	5.6	22.4	8.8	27.6
i. Currency[3]	*1.6*	*3.8*	*2.3*	*5.9*	*3.8*	*8.1*
ii. Demand deposits	*2.6*	*13.3*	*3.3*	*16.5*	*5.0*	*19.6*
II. Monetary Reserves	1.0	2.7	1.5	4.0	2.0	5.3
a. Gold	0.6	2.1	0.9	3.2	1.3	4.1
b. Silver	0.4	0.6	0.6	0.8	0.7	1.2
III. Total Gold and Silver	3.1	5.4	4.3	7.9	7.4	10.8
a. Gold	2.0	4.1	2.7	5.9	3.7	7.3
b. Silver	1.1	1.2	1.6	2.0	3.7	3.5
(*in % of money supply*)						
I. Money Supply	100	100	100	100	100	100
a. Gold	23	10	21	10	17	10
b. Silver	11	3	12	5	21	7
c. Credit money	66	87	67	85	62	83
i. Currency[3]	*25*	*19*	*27*	*22*	*27*	*25*
ii. Demand deposits	*41*	*67*	*39*	*63*	*35*	*59*
II. Monetary Reserves	16	14	18	15	14	16
a. Gold	9	11	11	12	9	12
b. Silver	7	3	7	3	5	4
III. Total Gold and Silver	49	27	51	30	52	33
a. Gold	32	21	32	22	26	22
b. Silver	17	6	19	8	26	11

Notes:

1. United States, United Kingdom, and France
2. United States, United Kingdom, France, Germany, Italy, Netherlands, Belgium, Sweden, Switzerland, Canada, and Japan
3. Including subsidiary (non-silver) coinage, except in last column.

century international monetary mechanism, and far better than the implicit and totally unwarranted assumptions that underlie most of past and current theorizing about the so-called gold standard.

With these qualifications in mind, the following observations can be derived from these tables:

1. Although the 1816–48 estimates are particularly venturesome, there can be no doubt about the very slow growth of monetary gold stocks – just about nil, if we can trust the estimates – and of total money supply – about 1.4 per cent a year – over this period. Monetary expansion was sustained, not by gold accretions, but by an approximate doubling of silver stocks, accounting for about two-thirds of the total increase in the money supply, and for the remaining third by the incipient increase in internal credit monetization.[9]

2. The gold avalanche of the next twenty-four years produced an average increase of 6.2 per cent yearly in the total stock of monetary gold. This rate of growth declined sharply, to about 1.4 per cent a year, from 1873 to 1892, but recovered to about 3.7 per cent in the last twenty years preceding the outbreak of the first world war.

These enormous fluctuations in gold-stock increases were significantly smoothed down by concurrent adaptations in the functioning of the monetary and banking system. The yearly rate of growth of money supply declined only from 4.2 per cent in 1849–72 to 3.3 per cent in 1873–92, and recovered to 4.3 per cent, on the average, in the period 1893–1913.

This smoothing down was due, to a minor extent, to the partial offsetting of gold fluctuations by opposite fluctuations in the monetary silver stocks. These contracted substantially in the two periods of fastest gold expansion, but more than doubled during the leaner gold years from 1873 through 1892. Far more significant is the dwarfing of gold and silver stock changes by the spectacular growth of credit money, which fed more than 70 per cent of total money increases over the years 1849–72, and about to 34 per cent (see Table 3).

3. Credit money – i.e. paper currency and bank deposits – did not, however, normally circulate beyond the national borders of the issuing country and banking institutions. Exchange-rate stability thus depended on their ready convertibility – directly by

9. The latter being measured, indifferently, by the excess of money supply increases over the increase of monetary gold and silver stocks, or by the excess of credit money increases over the increase of monetary reserves.

Table 3

Composition of Money and Reserve Increases, 1816–1913: United States, United Kingdom, and France

	1816–1913	*1816–48*	*1849–72*	*1873–92*	*1893–1913*
(*in millions of U.S. dollars*)					
I. Money Increases	**18,791**	**581**	**2,688**	**3,863**	**11,659**
a. Gold	1,673	−55	913	81	734
b. Silver	287	379	−167	132	−57
c. Credit money	16,831	257	1,942	3,650	10,982
i. Currency and coin	*3,551*	*44*	*1,044*	*461*	*2,002*
ii. Demand deposits	*13,280*	*213*	*898*	*3,189*	*8,980*
II. Reserve Increases	**2,675**	**81**	**215**	**1,046**	**1,333**
a. Gold	2,097	62	218	379	1,438
b. Silver	578	19	−3	667	−105
III. Total Gold and Silver Increases	**4,635**	**405**	**961**	**1,259**	**2,010**
a. Gold	3,770	7	1,131	460	2,172
b. Silver	865	398	−170	799	−162
IV. Internal Credit Monetization (I − III = Ic − II)	**14,156**	**176**	**1,727**	**2,604**	**9,649**
(*in % of money increases*)					
I. Money Increases	**100**	**100**	**100**	**100**	**100**
a. Gold	9	−9	34	2	6
b. Silver	2	65	−6	3	—
c. Credit money	90	44	72	95	94
i. Currency and coin	*19*	*8*	*39*	*12*	*17*
ii. Demand deposits	*71*	*37*	*33*	*83*	*77*
II. Reserve Increases	**14**	**14**	**8**	**27**	**11**
a. Gold	11	11	8	10	12
b. Silver	3	3	—	17	−1
III. Total Gold and Silver Increases	**25**	**70**	**36**	**33**	**17**
a. Gold	20	1	42	12	18
b. Silver	5	69	−6	21	−1
IV. Internal Credit Monetization	**75**	**30**	**64**	**67**	**83**
(*% absorption of new gold into*)					
I. Reserves	56	886	19	82	66
II. Circulation	44	−786	81	18	34

the issuing banks, or ultimately through a national central bank – into the foreign currencies required, or into metallic currencies or bullion of international acceptability. Silver bullion lost its previous role in this respect around 1872, and silver-coin settlements remained acceptable only among the countries of the Latin Monetary Union. Silver, however, was no longer 'full-bodied' money, as the commercial value of silver coins fell well below their nominal value.[10] Gold thus emerged increasingly as the primary guarantor of international exchange stability even for the countries which remained on a so-called 'limping' bimetallic standard.

Three factors explain the maintenance of stable exchange rates in the face of growing issues of *national* credit moneys, side by side with fast declining proportions of *international* gold and silver moneys.

The first is the *de facto* harmonization of the national rates of monetary and credit expansion among the gold-standard countries. This harmonization itself, however, depended, as pointed out above (pp. 42–3), on the reaction of the issuing banks to the fluctuations in their reserve ratio arising from cyclical movements in internal circulation, as well as from external settlements of balance-of-payments disequilibria.

The *overall* pace of expansion, in turn, could not but be strongly influenced by the ability of the national banking systems to accumulate sufficient gold reserves to guarantee the convertibility of their national credit money issues into the gold through which foreign currencies could be acquired at stable exchange rates. The maintenance of relatively fast rates of monetary expansion after 1848 was thus conditioned by two further factors which the tables bring clearly into light.

The first was the spectacular spurt in gold production that followed the discovery of new gold fields and improved mining and refining techniques, and was of course predominantly accidental in character.

10. The valuation of silver at nominal par in the tables thus *understates* the importance of credit money, since silver coinage included in effect a substantial credit money component. Its acceptance at par among the countries of the Latin Union demonstrates the feasibility of international credit money settlements, even under the very imperfect arrangements negotiated to this effect among the countries of the Latin Union.

The second lay in the resiliency and adaptability of monetary and banking institutions, and the enormous economy of the precious metals which resulted from their increasing transfers from actual circulation in the public to the reserve coffers of commercial banks and of national central banks – or Treasury in the case of the United States.[11] The proportion of monetary gold and silver stocks absorbed in centralized monetary reserves rose from about 10 per cent in 1848 to 16 per cent in 1872, 41 per cent in 1892, and 51 per cent in 1913.[12] Even more significant is the relative proportion of new gold accretions absorbed by central reserves, on the one hand, and by the public and banks on the other. During the first gold avalanche of 1849–72, 81 per cent of the new gold was dispersed among the public and banks, only 19 per cent being accumulated in reserves. These proportions were nearly exactly reversed in the leaner gold years from 1873 through 1892, 82 per cent of the new gold feeding the increase of central reserves, with a multiple impact on overall money creation. When gold production rose again at a faster pace in the period 1893–1913, the proportion absorbed by central reserves declined to 66 per cent, while that of private holdings rose from 18 to 34 per cent (see Table 3).

These spectacular changes in the structure of money and reserves thus contributed powerfully both to the maintenance of relatively fast rates of monetary expansion, and to a considerable smoothing out of money supply fluctuations in relation to fluctuations in the available gold stocks.

11. The reserve estimates of the tables refer to the centralized holdings of central banks and treasuries only. The gold and silver components of money supply estimates include, therefore, gold and silver held by other issuing banks and commercial banks, thus overstating once more the metallic component of money supply in the modern sense of the word – coin, currency, and demand deposits in the hands of the public – and understating the proportion of credit money in circulation outside banks.

12. The proportion of gold alone temporarily dropped from 31 per cent in 1848 to 20 per cent in 1872, rising later to 35 per cent in 1892, and 51 per cent in 1913. The 1848–72 decline, however, was more than compensated by the increased absorption into centralized reserves of silver which could still be regarded at that time as a valid reserve component. After 1872, the movements of gold alone are more significant than those of gold and silver combined.

4. There was nothing inherently stable, however, in a process of monetary creation so heavily dependent on the accidents:

(a) of gold and silver discoveries and production rates;

(b) of uncoordinated – and largely irrational – national decisions regarding the adoption, retention, or abandonment of silver, gold, or bimetallism as the basic monetary standard; and

(c) of compensatory adaptations in banking structure, the scope of which would inevitably taper off over time, especially when central banks could no longer replenish their own reserves from the dwindling – relatively, if not yet absolutely – amounts of gold still in circulation.

In any case, the slow evolution which had adjusted gradually the international monetary system of the nineteenth century to the economic requirements of peacetime economic growth, but had also changed it out of all recognition between 1815 and 1913, was brutally disrupted by the outbreak of the first world war. The ensuing collapse of the system ushered in half a century of international monetary chaos, characterized by widespread exchange-rate instability and/or trade and exchange controls, with only brief interludes of nostalgic and vain attempts to fit upon the twentieth-century economy the monetary wardrobe of the nineteenth-century world.

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